

## Melbourne Metro Rail Tunnel Project Geotechnical Investigation Program

12 May 2015

**Presenter:** Geoff Robinson, Manager Engineering Services

### Purpose and background

1. The purpose of this report is to seek endorsement for the Melbourne Metro Rail Authority (MMRA) to undertake a geotechnical investigation program (borehole soil sampling) at various locations across the municipality associated with the State Government's Metro Rail Tunnel project (the Project).
2. Cr Mayne has called in this matter for determination by the Future Melbourne Committee.

### Key issues

3. The MMRA has advised that the geotechnical investigation program will entail drilling approximately 140 boreholes, each 100mm in diameter, planned to be undertaken over 12 months commencing in late May 2015. The boreholes will be located both within the road reserve and Crown land managed by Council as Committee of Management. Notably, a borehole in the Queen Victoria Gardens commenced on 28 April in conjunction with a media launch conducted by the Victorian Premier.
4. The borehole program will be undertaken in two parts. The initial part entails drilling 35 'priority' boreholes required to inform the geological ground conditions for the Project reference design and will be undertaken over a two month period between June and late August. The second part of the drilling program entails 105 boreholes being progressively drilled along the proposed Project alignment between August 2015 and mid 2016 in order to further develop the design and inform the Project procurement process. Boreholes may take up to a week at each location depending on ground conditions and depth. The details of the MMRA application and geotechnical investigation program are detailed in Attachments 2 and 3.
5. The MMRA has indicated they will undertake the borehole works in accordance with an agreed management plan comprising approved environmental management and occupational health and safety plans, Heritage Victoria permit approval where required, a tree management and parkland preservation plan, a road management and reinstatement plan, working hours conditions, a site specific traffic management plan and an activated stakeholder engagement plan.
6. An unconditional bank guarantee of \$20,000 would be sought from the MMRA as a security bond against damage to Council's infrastructure.
7. For parkland areas where Council is Committee of Management (i.e. Kings Domain / Fawkner Park), and on the basis that the investigation process is 'temporary and not removing access to the park in any significant way, Council can consent to the testing. In consenting, appropriate conditions would be applied to protect the location/public and to minimise potential damage. If consent were given, it would also meet the requirements of a permit, to the extent it is required under the Council's Activities Local Law 2009.
8. For road related areas, Council can consent to the testing. This would be done in accordance with the provisions of the *Road Management Act 2004*. A 'consent for works' can be issued by management under delegation, with appropriate conditions nominated to protect location, access and the public.
9. Management supports working collaboratively with the MMRA to ensure that the required works are carried out with minimal disruption and recommends that consent be given.

### Recommendation from management

10. That the Future Melbourne Committee:
  - 10.1. consents to the geotechnical investigation activity requested by the Melbourne Metro Rail Authority as detailed in Attachments 2 and 3 to this management report
  - 10.2. notes that management will carry out the necessary actions to implement the Committee's decision under delegation.

### Attachments:

1. Supporting Attachment
2. Proposed Borehole Locations
3. MMRA overview of Geotechnical Investigation program

## Supporting Attachment

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### Legal

1. The relevant authorities of Council are described in the body of this report.

### Finance

2. There is no additional budget commitment required in relation to the recommendations contained in this report.

### Conflict of interest

3. No member of Council staff, or other person engaged under a contract, involved in advising on or preparing this report has declared a direct or indirect interest in relation to the matter of the report.

### Stakeholder consultation

4. The MMRA has undertaken preliminary stakeholder engagement with the Melbourne, Port Phillip and Stonnington Councils and Heritage Victoria regarding the scope of the overall project and more recently regarding the geotechnical investigation works. The works will be planned to be minimise impacts on any scheduled public events.
5. The MMRA are also working on an extensive stakeholder engagement plan to inform impacted stakeholders of the upcoming borehole works.

### Relation to Council policy

6. Improvements in the provision of public transport services such as those proposed by the Project support the Council's Transport Policy related to rail infrastructure improving the distribution of pedestrians to reduce pedestrian congestion throughout the central city.

### Environmental sustainability

7. The proposed borehole program will be supported by site specific environmental management plans (EMP) prepared by MMRA which would be approved by the Manager Engineering Services prior to the commencement works at each specific borehole site. The management of waste soils and water from the drilling operations will be strictly controlled in accordance with the EMP. No environmental damage is anticipated to any parkland.





Map 1 of 4

**Legend**

Stage 1

● Borehole

Stage 2

● Borehole

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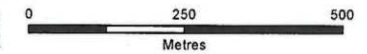
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**Melbourne Metro Rail Project**

Title:  
Preliminary Scope of Ground Investigations







Map 2 of 4

**Legend**

Stage 1

● Borehole

Stage 2

● Borehole

**DRAFT**

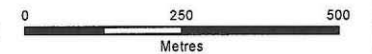
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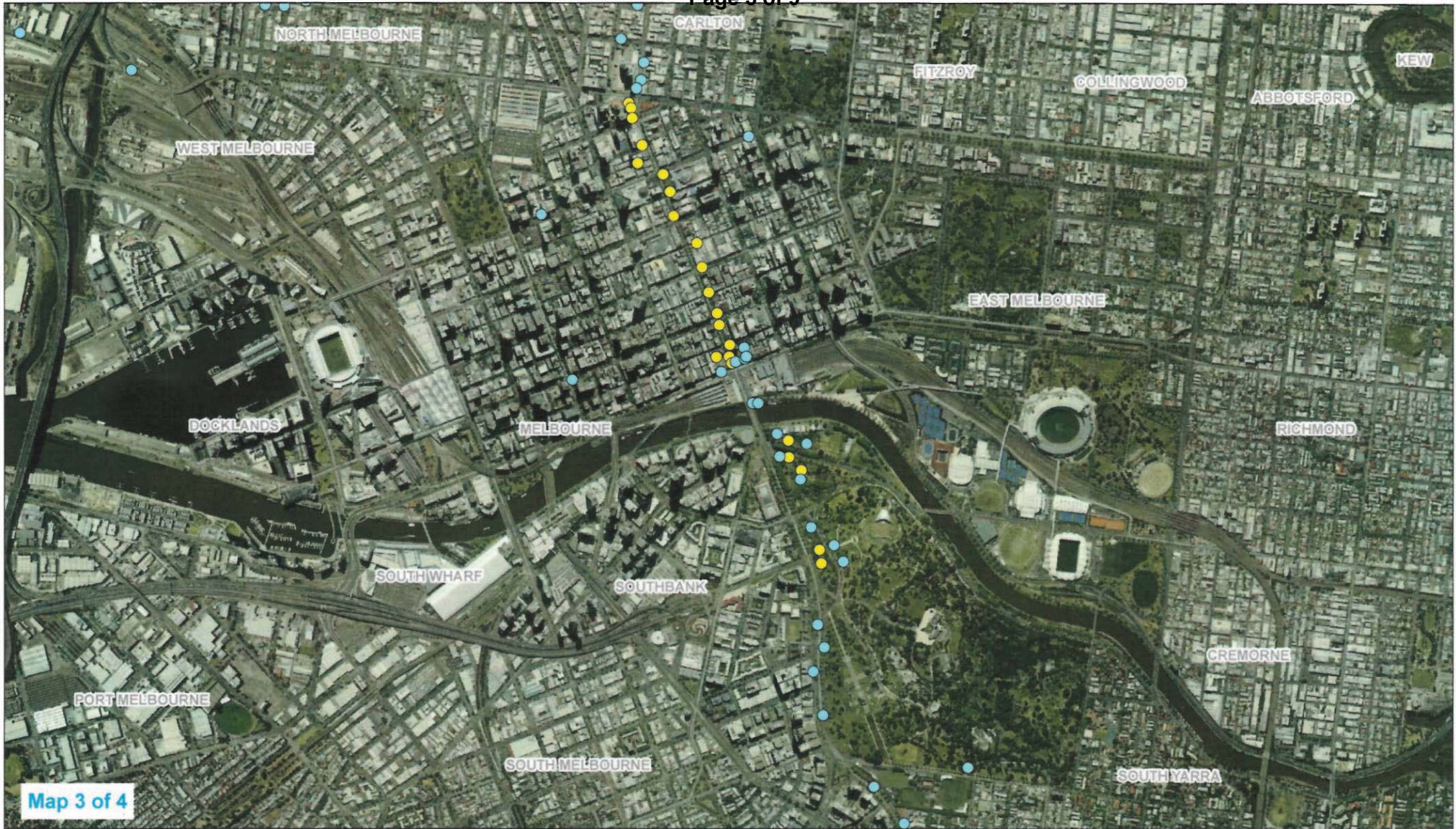


**Melbourne Metro Rail Project**

Title:  
Preliminary Scope of Ground Investigations







Map 3 of 4

**Legend**

Stage 1

● Borehole

Stage 2

● Borehole

**DRAFT**

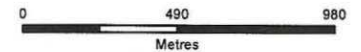
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**Melbourne Metro Rail Project**

Title:  
Preliminary Scope of Ground Investigations







Map 4 of 4

**Legend**

Stage 1

● Borehole

Stage 2

● Borehole

**DRAFT**

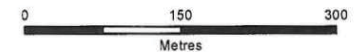
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**Melbourne Metro Rail Project**

Title:  
Preliminary Scope of Ground Investigations







# Melbourne Metro Rail Project

## Geotechnical investigations

### Overview

As part of the planning and design work for the Melbourne Metro Rail Project, a program of ground investigations will be undertaken in the vicinity of the proposed rail alignment.

These investigations are needed to assess a variety of subsurface conditions including:

- the engineering properties of soil and rock,
- the groundwater regime underlying the alignment,
- the potential for naturally occurring ground gas, and
- the environmental quality of shallow fill soils and groundwater which may be encountered during construction works.

This testing will help to determine the detailed tunnel alignment, construction methodology, spoil disposal and environmental management plans.

### Investigation program

The current ground investigation program includes approximately 140 boreholes across the project from South Kensington to South Yarra. These investigations will be completed in two stages.

The first stage of investigations requires 35 boreholes to support preliminary planning and inform the Project reference design by investigating subsurface conditions in the following areas between mid-May 2015 and early August 2015:

- Arden and Lloyd Street areas.
- CBD and Swanston Street
- Domain Parklands, and
- Domain Interchange.

Of these initial 35 boreholes, 28 are within the jurisdiction of the City of Melbourne.

The second stage of the investigation program will provide more detailed information to assist in further development of project designs. It includes approximately 105 boreholes in areas requiring further assessment.

The extent of the second stage of investigations will be subject to change depending on the findings of the first stage of investigations.

These second stage of investigation works are planned to be completed by mid-2016.

### Description of the works

A range of activities needs to be undertaken for each borehole site, including:

- A desktop assessment to gather and review available underground service information from both Dial Before You Dig (DBYD) and also from major utility service providers (USPs) if major underground utilities are in close proximity.
- An inspection of the proposed location to assess above and potential below ground constraints (such as lighting, power, gas and water services) as well as access restrictions.
- Completion of a surface feature survey followed by a subsurface inspection for underground services by using radio-detection and ground penetrating radar scanning equipment.
- Completion of Non Destructive Digging (NDD) to further ensure the proposed location is free of





underground services.

- Mobilisation of a drilling rig and crew to complete drilling of a borehole of up to 100mm in diameter, to the target depth which is nominally between 10m and 50m below ground level.
- A groundwater monitoring bore may be installed in some locations to allow further monitoring and measurement of groundwater at this location.
- Following completion of the drilling works, the area will be made good to original or similar conditions. Where a groundwater monitoring well has been installed a small metal well cap will be installed (flush with ground level).

### **Managing the impact of works**

The drilling works will be undertaken in accordance with a series of borehole-specific Management Plans which provide measures to mitigate impacts on flora and fauna, surrounding community, traffic and pedestrians as well as the health and safety of site workers and community.

For drilling works in parklands, specific management measures will be implemented to minimise impacts to grassed areas and surrounding trees.

The proposed drilling works will not generate significant dust, and noise levels generated would be typical of those generated by city centre traffic.

In general, work will be undertaken during the working hours of 7am to 6pm, Monday to Friday. Some weekend and night works may be required to minimise the impact of investigation works on public transport operations.

City of Melbourne and other relevant stakeholders such as Heritage Victoria will be consulted and agreement sought prior to commencement of works at each borehole location.

### **Communications approach**

The Melbourne Metro Rail Authority (MMRA) is committed to keeping stakeholders and the community informed of all site and geotechnical investigations for the Melbourne Metro Rail Project (MMRP). A Communications and Stakeholder Relations Management Plan has been developed to provide guidelines and protocols for:

- Informing stakeholders and local communities of upcoming site investigations
- Gaining access agreements from relevant property owners to undertake site investigations
- Managing issues and enquiries associated with the site investigations
- Generating awareness of the MMRP.

### **Key issues and considerations**

The proposed site investigation program is expected to be generally low impact and contained to a localised area at each of the identified investigation locations. These locations are spread across a range of areas including industrial, residential, CBD and parkland along the project corridor.

Consideration will be given to potential temporary issues and impacts that may arise as a result of these works. Locations for the site investigations will be carefully selected to minimise impacts on local amenity (noise), parkland, access, parking and traffic movements, local business operations and public transport.

### **Communications activities**

Melbourne Metro Rail Authority is committed to keeping stakeholders and the community informed of all site and geotechnical investigations, and will respond to issues and enquiries in a timely manner.

Advance notification will be provided ahead of all investigations to provide information about the works and their timing, duration, potential impacts and contact details for the project team.



The approach generally will involve:

- Notification to residents and businesses in the vicinity of the works at the start of the program of investigations that work will be occurring in their area over coming months.
- Closer to the time of work at specific locations, a minimum of a week’s notice will be provided to residents and businesses in the immediate vicinity to the works through door knocks and letter drops.
- During the works, project contact details will be prominently displayed at each work site. A particular focus will be on minimising impacts for traders along Swanston Street including consideration of impacts on access and deliveries.

A selection of the tools to be used in engaging with the community are detailed in the table below.

Tools	Purpose	Notification period
Works notification letter	Inform community and businesses of project works happening in their area	1 week
Door knock	Inform adjacent residents and businesses	1 week
One-on-one meetings	Consult with adjacent residents and businesses	1 week
Site signage	Inform community and stakeholders about work being undertaken	During works
Localised way finding	Safely navigate cyclists and pedestrians around investigation works	During works
1800 number	Free telephone line for people to enquire about the project	N/A
MMRP website	Information about works including location and timing	N/A



Sample of site signage