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INSTITUTE OF AUSTRALIAN
CONSULTING ARBORICULTURISTS



Our ref: 24075.loc.6

15 March 2023

M6 Motorway Stage 1
Attn: Craig Gibson – Environmental Manager
Level 7 Building B
197 Coward St
Mascot NSW 2020

Dear Craig Gibson,

ARBORICULTURAL ASSESSMENT – Removal of 4 street trees for excavation and works for self-stabilising protection for the high pressure gas main
M6 Motorway Stage 1 (the Project)
441-445 West Botany Street, Rochdale NSW (the site).

PURPOSE

Assess 4 small street trees for their required removal to facilitate excavation of the entire 46 m long section of footpath to install a self-stabilising protection for the high pressure gas main beneath the road reserve adjacent 441-445 West Botany Street, Rochdale NSW.

COMPLIANCE WITH CONDITIONS OF APPROVAL – Tree Removals and Plantings

CoA E38 - Any work associated with the CSSI must limit the clearing of native vegetation to the greatest extent practicable.

CoA E145 - The CSSI must be designed to retain as many trees as possible. Where trees are to be removed, and those trees are not required to be offset under Condition E58, the Proponent must provide a net increase in the number of replacement trees.

CoA E146 - Prior to removing any street trees, the Proponent must commission an experienced and suitably qualified arborist independent of the design and construction of the CSSI, to prepare a comprehensive Tree Report(s). The Tree Report may be prepared for all trees that will be removed or separate reports may be prepared for individual areas where trees are required to be removed. The report(s) must include:

- (a) a visual tree assessment of the type, stability and health of the tree;
- (b) consideration of all options to amend the CSSI where a street tree has been identified for removal, including realignment, relocation of services, redesign of or relocation of ancillary components and reduction of standard offsets to underground services; and
- (c) measures to avoid the removal of trees or minimise damage to existing trees.

A copy of the report(s) must be submitted to the Planning Secretary for approval prior to the removal of any trees. All recommendations of the report(s) must be implemented by the Proponent, unless otherwise approved by the Planning Secretary.

(EMM) Commitment B1 - Detailed design will avoid or minimise the need for native vegetation and habitat removal for the construction of the project, where feasible.

A plan for the rehabilitation of all areas directly affected by construction, including water bodies, would be included as part of the CFFMP (refer B4).

(EMM) Commitment LVIA2 - Where reasonable and feasible, existing trees will be retained and protected within construction areas.

INTRODUCTION

Danny Draper (the author), Australian Qualification Framework (AQF) Level 5 Arboriculture, as an independent Consulting Arboriculturist, attended *the site* on Tuesday 14 March 2013, and assessed the 4 trees (Appendix A – Tree Assessment) (*the trees*). The trees are shown in Appendix B – Tree Location Plan. It is proposed to remove *the trees* to facilitate excavation of the entire 46 m long section of footpath to install a self-stabilising protection for the high pressure gas main beneath the road reserve (Appendix B – Tree Location Plan, 2 of 2, Figure 1.0).

DISCUSSION

CoA E38

Refer to Arboricultural Impact Assessment (M6S1-CGU-NWW-CMPR-PLN-024001)

CoA E145

There were no viable alternatives to the positioning of the utility infrastructure as proposed in this location due to the number of competing underground utilities existing and required to be installed in separate alignments close to the trees.

CoA E146

Danny Draper of Urban Tree Management was engaged to assess street trees and provide an addendum report to the Arboricultural Impact Assessment (M6S1-CGU-NWW-CMPR-PLN-024001). Four street trees are to be removed.

- (a) This report. Refer to Appendix A - Tree Assessment;
- (b) There were no viable alternatives to the removal of the 4 street trees for the
- (c) Refer Arboricultural Impact Assessment (M6S1-CGU-NWW-CMPR-PLN-024001)

(EMM) Commitment B1

Where practicable *the Project* will avoid impacting native vegetation.

The Tree Replacement Report (Report) will be developed and provided to DPE no later than nine months following the commencement of operation. This document will be updated based on the findings of the Report. These small native trees were contemporary plantings as street trees and appeared to not provide habitat.

(EMM) Commitment LVIA2

Refer Arboricultural Impact Assessment (M6S1-CGU-NWW-CMPR-PLN-024001).

All tree removal or pruning work will be undertaken in line with the conditions of the EIS and the existing project wide Arboricultural Impact Assessment, and Project Flora and Fauna Management Plan.

In this instance the 4 small street trees cannot be retained due to the requirements to excavate the entire footpath area of the road reserve for 46 m (Appendix B – Tree Location plan) to install beneath a self-stabilising protection for the high pressure gas main. The trees were of small stature and loss of amenity considered minor and could be restored in the short term by prompt replacement planting at the completion of works with 4 suitable street trees in similar and acceptable locations, clear of driveways and street corners to provide safe visibility for pedestrians and vehicular traffic.

The works necessitate the removal of the 4 street trees to excavate the entire 46 m long section of the footpath to establish a self-stabilising protection for the high pressure gas main (Appendix B – plan 2 of 2).

The original methodology considered inclined Jet grout as settlement mitigation measure under the gas main. However, recent Inclined JG trials failed resulting in Excessive heave incompatible with the admissible loads on the pipe. As a consequence the recent findings determined jet grouting near the gas main unsafe and no longer a viable option.

The only viable option was protection of the gas main pipe from tunnel induced settlement. Such a protection scheme requires temporary foundations be installed on each side of the pipe and a real time monitoring and progressive compensation jacking the pipe to operate as settlement occurs.

The essential safety works required to occur within Tree Protection Zone (Appendix A – Tree Assessment) of each of the 4 street trees within the road reserve requires their removal to facilitate the installation of temporary foundations and the required measures for the protection of working areas adjacent to live traffic.

CONCLUSION and RECOMMENDATIONS

Trees 1 – 4 as small street trees cannot be retained due to the necessity to excavate the entire 46 m section of the footpath to establish a self-stabilising protection for the high pressure gas main. The 4 trees each did not provide habitat. To restore local amenity the replacement planting with street trees in suitable locations nearby should be undertaken as soon as practicable at the completion of the utility infrastructure works.

Yours sincerely,



Danny Draper
Principal Consultant
M. 0418 471 806

IACA ACM0012003

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Assoc. Dip. Hort. (Pk. Mgmt.),
Hort. Cert.
TRAQ (ISA) Tree Risk Assessment

REFERENCES

1. IACA, 2010, *Sustainable Retention Index Value* (SRIV), Version 4, A visual method of objectively rating the viability of urban trees for development sites and management, based on general tree and landscape assessment criteria, Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au.
2. IACA, 2010, *IACA Significance of a Tree, Assessment Rating System* (STARS), Institute of Australian Consulting Arboriculturists, Australia, www.iaca.org.au
3. Standards Australia 2007, Australian Standard 4373 Pruning of amenity trees, Standards Australia, Sydney, Australia.
4. Standards Australia 2009, Australian Standard 4970 Protection of trees on development sites, Standards Australia, Sydney, Australia.

DISCLAIMER

The author and Urban Tree Management take no responsibility for actions taken and their consequences, contrary to those expert and professional instructions given as recommendations pertaining to safety by way of exercising our responsibility to our client and the public as our duty of care commitment, to mitigate or prevent hazards from arising or risks from being eliminated or mitigated or managed to reduce harm or damage, from a failure moment in full or part, from a structurally deficient or unsound tree or a tree likely to be rendered thus by its retention and subsequent deterioration from modification/s to its growing environment either existing or proposed, either above or below ground, contrary to our advice.

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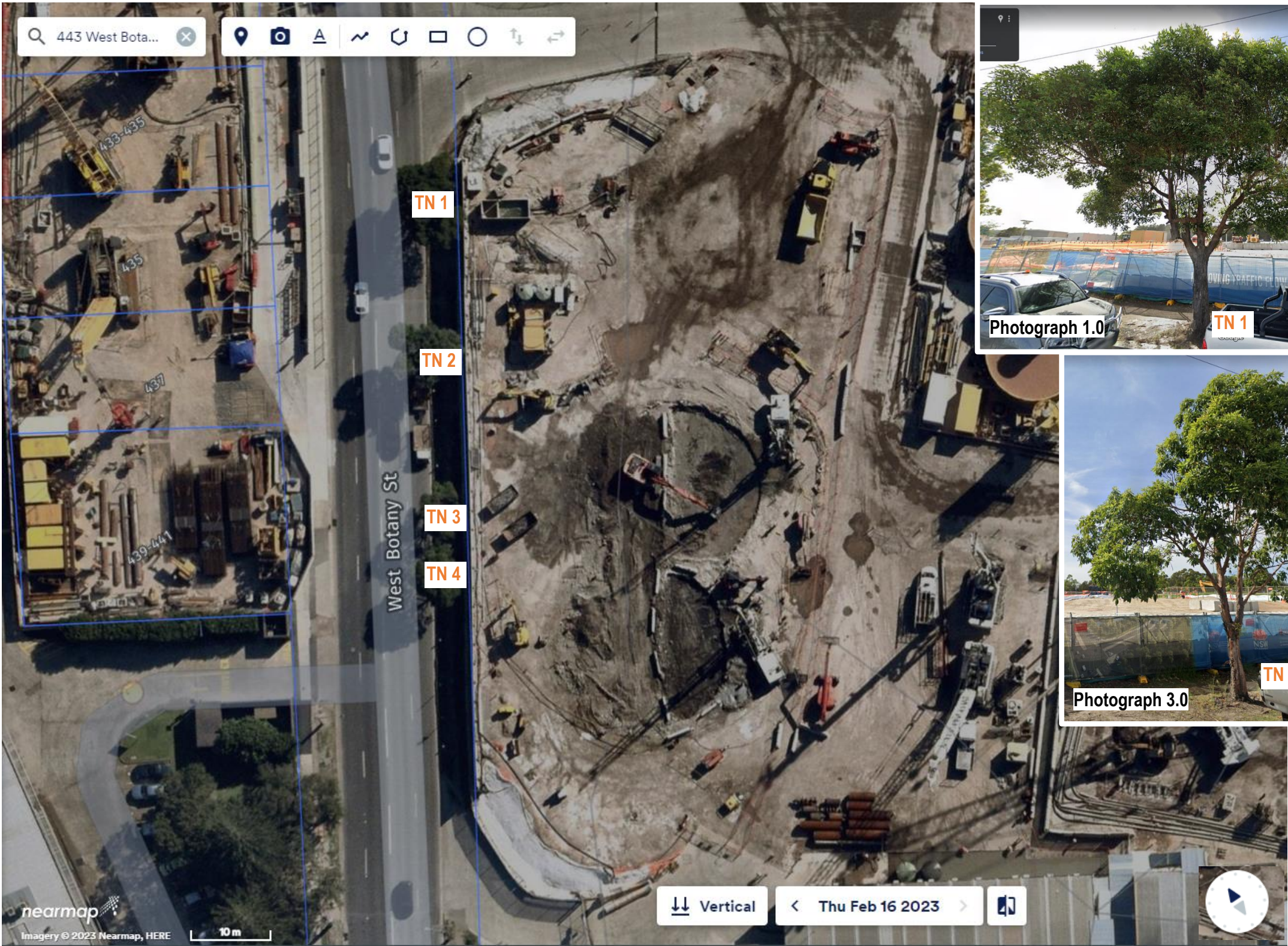
Appendix A – Tree Assessment – Site: 441-445 West Botany Street, Rochdale NSW

[illegible]

Appendix B – Tree Location Plan, (1 of 2) showing detail of trees in 441-445 West Botany Street, Rochdale NSW for Soft Ground Tunnels, Ground Treatment – Gas Main. (Figure 1.0).
(Trees numbered per Appendix A – Tree Assessment)
M6 Stage 1, excavation and works for self-stabilising protection for the high pressure gas main, 441-445 West Botany Street, Rochdale NSW, Reference 24075.loc.6, 14/3/2023.

Prepared by Urban Tree Management Australia Pty Ltd, 65 Excelsior Street, Merrylands NSW 2160.

Reference: Nearmap imagery, 443 - 445 West Botany Street, Rochdale NSW, 16 February 2023, viewed 9/3/2023, <https://apps.nearmap.com/maps/#/@-33.9619064,151.1448844,20.00z,33d/V+R/20230216>

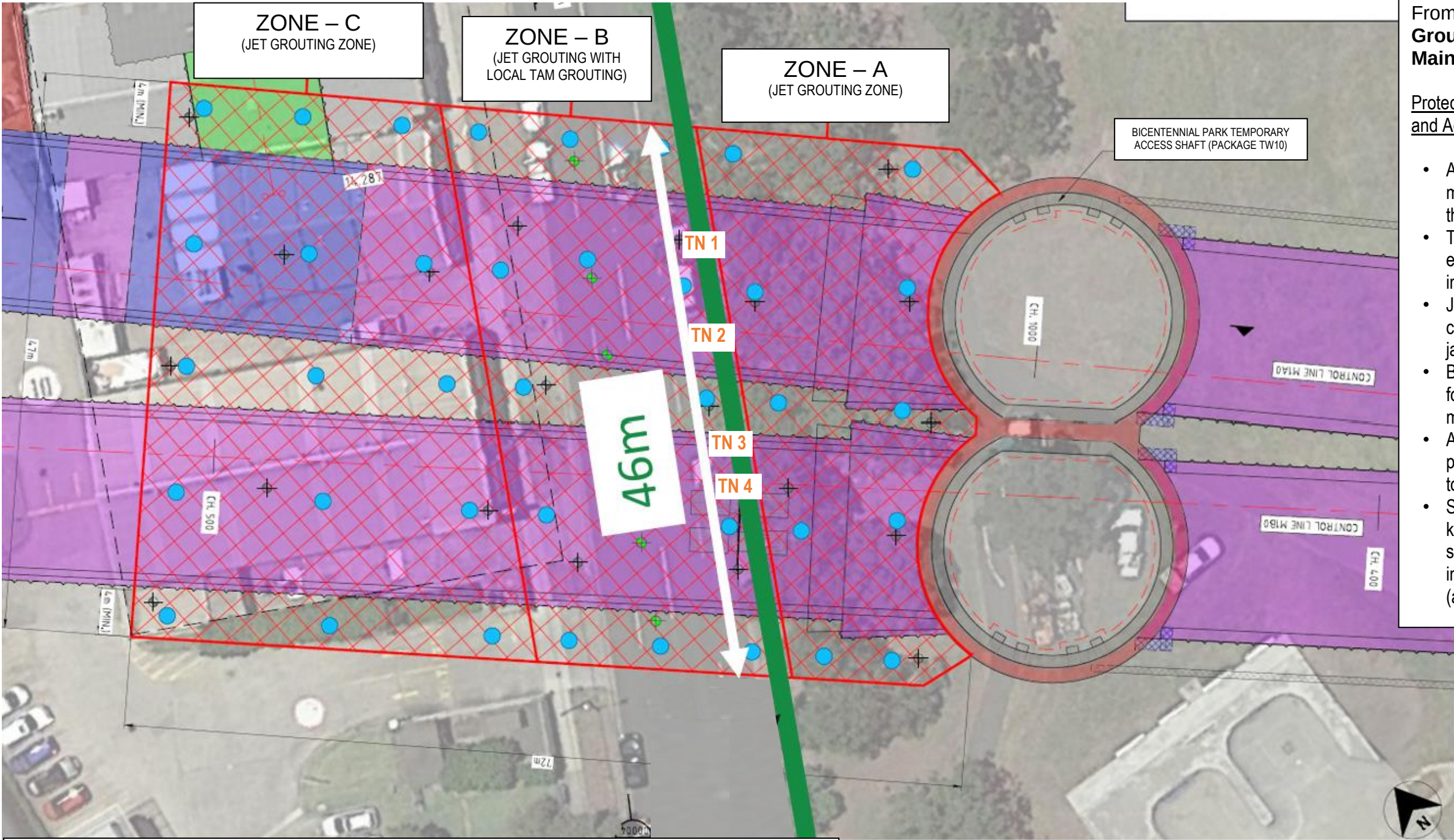


Photographs 1.0 - 4.0 Source Google Maps. Trees TN1-4, 4 x *Lophostemon confertus* – Brush Box, street trees adjacent 441-445 West Botany Street, Rochdale NSW, to be removed to facilitate excavation of the entire footpath to install a self-stabilising protection for the high pressure gas main.

Appendix B – Tree Location Plan, (2 of 2) showing detail of trees in 441-445 West Botany Street, Rochdale NSW for Soft Ground Tunnels, Ground Treatment – Gas Main. (Figure 1.0).
(Trees numbered per Appendix A – Tree Assessment)
M6 Stage 1, excavation and works for self-stabilising protection for the high pressure gas main, 441-445 West Botany Street, Rochdale NSW, Reference 24075.loc.6, 14/3/2023.

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Reference: Figure 1.0 From M6 Stage 1 - Soft Ground Tunnels, Ground Treatment Update and WBS Gas Main Re-analysis, Protection measures - Preliminary Design Proposal and Action Plan, provided by M6 Stage 1.



From **M6 Stage 1 - Soft Ground Tunnels, Ground Treatment Update and WBS Gas Main Re-analysis**

Protection measures - Preliminary Design Proposal and Action Plan.

- An incremental jacking system is proposed to manage the ground settlements and strains on the gas main.
- The jacking system is to be located over the full extent of predicted ground settlements impacting the gas main.
- Jacking system comprised of pipe supports connected to dropper rods, supported off jacking beams at 6 m centres.
- Beam is jacked off longitudinal concrete strip footings, 500 mm clear either side of the gas main.
- A survey tag is located over each pipe jacking point to measure vertical displacement relative to the datum (0) level.
- Sand placed over pipe over the full extent to keep the gas main protected.- upon jacking, sand expected to mobilise below pipe to assist in providing constant support to the pipeline (although not relied upon in the assessment).

Figure 1.0 M6 Stage 1 - Soft Ground Tunnels, Ground Treatment – Gas Main.