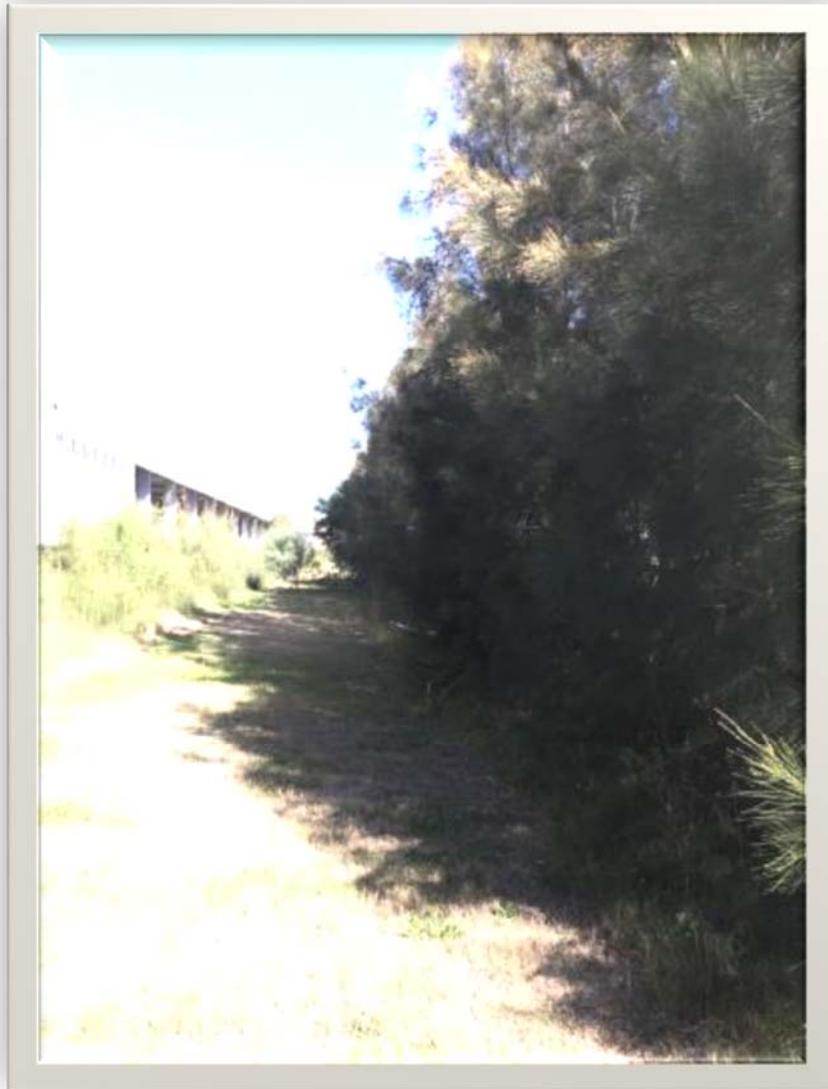


ARBORICULTURAL REPORT



**WestConnex Stage 2 33kV supply
71A Bourke Rd Alexandria**

**WestConnex New M5
Prepared for CDS-JV
Date 13th October 2017**

Table 1: Condition of Approval B63 Compliance Table

Condition	Requirement	Addressed in:
B63	<p>The SSI must be designed to retain as many trees as possible and provide a net increase in the number of replacement trees. The Proponent must commission an independent experienced and suitably qualified arborist, to prepare a comprehensive Tree Report(s) prior to removing any trees on the periphery and/or outside the construction footprint as identified in the figures in Section 6 of the document referred to in condition A2(b), including any tree(s) removed along Euston Road. The Tree Report may be prepared for the entire SSI or separate reports may be prepared for individual areas where trees are required to be removed. The report(s) must identify the impacts of the SSI on trees and vegetation within and adjacent to the construction footprint. The report(s) must include:</p>	This Report
B63(a)	<p>A visual tree assessment with inputs from the design, landscape architect, construction team;</p>	<p>Section 1 & 2. Note: Proposed clearing is on Sydney Water land, revegetation will be done in consultation with Sydney Water</p>
B63(b)	<p>Consideration of all options to amend the SSI where a tree has been identified for removal, including realignment, relocation of services, redesign of or relocation of ancillary components (such as substations, fencing etc.) and reduction of standard offsets to underground services.</p>	<p>Section 1.1 Note: clearing and revegetation is considered a positive outcome.</p>
B63(c)	<p>Measures to avoid the removal of trees or minimise damage to existing trees and is to ensure the health and stability of those trees to be protected. This includes details of any proposed canopy or root pruning, excavation works, site controls on waste disposal, vehicular access, and storage of materials and protection of public utilities.</p>	<p>Section 1.1 Note: clearing and revegetation is considered a positive outcome. Section 1.2 Note: no tree removal proposed.</p>
	<p>In the event that trees are to be removed, then replacement trees are to be planted within, or in close proximity to, the SSI boundary, including along Euston Road where feasible and reasonable. The location of the trees must be determined in consultation with the relevant council(s). The replacement trees are to have a minimum pot size of 75 litres. A copy of the report(s) must be submitted to the Secretary for approval prior to the removal, damage and/or pruning of any trees, including those affected by site establishment works. All recommendations of the report must be implemented by the Proponent, unless otherwise agreed by the Secretary.</p>	<p>Replanting plans will be prepared in consultation with Sydney Water and City of Sydney.</p>

1. OBSERVATIONS

██████████ AQF Level 5 consulting arborist undertook the site inspection of the site located within 71A Bourke Rd Alexandria NSW on 25 July 2017. The purpose of the site visit was to identify the species of trees and weeds within the area that the proposed installation of the St Peters Interchange 33kV supply will affect. This report then makes recommendations for the vegetation that is required to be removed and the vegetation that can be left on site which is not within the footprint of the installation of the power supply.

The work area is outside the project footprint detailed in Figure 6-4, Section 5, of the New M5 EIS. A consistency report (Part 5.1 and EPBC Act Approval Consistency assessment report Alexandria 33kV cabling Stages 1 and 2 WestConnex New M5) has been prepared and approved for these works.

Consultation for this report has been undertaken by the consulting arborist and the CDS-JV Environmental Manager – East and Mechanical and Electrical Project Manager on 25 July and 2 November. On 25 July discussion included;

- Overview of scope
- Discussion of options, including the extents of conduits being installed by under boring and options to ensure trenching is away from trees growing through the Alexandra Canal stone embankment.
- Access option assessment

Consultation on 2 November included;

- Revised access plans (access through adjoining landowners property)

The landscape architect was not consulted as the works are outside the project footprint and Urban Design Scope. The area to be cleared is not on project land, consistent with earlier Tree Report approvals revegetation plans will be developed in consultation with the land owner. The draft plan 8461_33kV_Work Drawing stg2_20170719 (Appendix 1) was used to formulate this report.

a. Visual Tree Inspection

The subject trees were assessed in accordance with a stage one Visual Tree Assessment (VTA) as formulated by Mattheck & Breloer (1994), and practices consistent with modern arboriculture.

The following limitations apply to this methodology:

- Trees were inspected from ground level, without the use of any invasive or diagnostic tools and testing.
- No aerial inspections or root mapping was undertaken.
- Tree heights, canopy spread and diameter at breast height (DBH) was estimated, unless otherwise stated.
- Tree identification was based on broad taxonomical features present and visible from ground level at the time of inspection.



Figure 1 – Study Area Detailed. Road alignment shown in black is the Campbell St Bridge.

The study area comprises of the following areas situated along Alexandra Canal. Part 1 (approximately 1500m²) and Part 2 (approximately 2400m²) of the study area are bound by industrial buildings and offices. This is presented in Figure 1.

Vehicle access within Study Area Part 1 is constrained by a Sydney Water culvert with a non-load bearing cover (vegetated over).

Works within the area are understood to include installation of 33kV feeder cables.

Ausgrid has taken an easement for all land along the cable alignment.

Part 1 is owned by Sydney Water Corporation Ltd and is used as an infrastructure site, with the proposed WestConnex work area containing a storm water culvert and the remainder of the site, to the east, containing a sewer pumping facility.

Part 2 is understood to be Crown Reserve.

Any future works that may affect trees beyond the study area will be addressed in a tree report prepared and approved before any such works.



Figure 2 – Study Area Regional Context

1.1 Site vegetation Part 1 Front area:

The majority of the vegetation in the front part of the area for open trenching consists of weed species which include:

- *Celtis australis* (Hackberry)
- *Lantana camara* (Lantana)
- *Cinnamomum camphora* (Camphor Laurel)
- *Privet Ligustrum* (large and small leaved)
- *Cortaderia selloana* (Pampas grass)
- Understory of weeds and vines.

These are classified as Noxious Weeds under the Noxious Weeds Act 1993. The above species do not meet definition of trees in Infrastructure Approval SSI 6788.



Photo 1. Front of site with weed species.

The only trees of note within this area are over - mature *Acacia spp.* (wattle), most likely being *Acacia longifolia* (Sallow Wattle) but due to the over grown weeds in the area close inspection was not possible for further identification. The three (3) wattles appear to be all in poor health and one of the trees has split in the lower trunk area. The three (3) *Acacia* have a diameter at breast height between 120mm and 200mm and a height up to 5m. *Acacia* trees are considered to be pioneer plants that are one of the first to establish in disturbed sites. They are fast growing but also are short lived trees. These three (3) trees are at the end of their useful life.

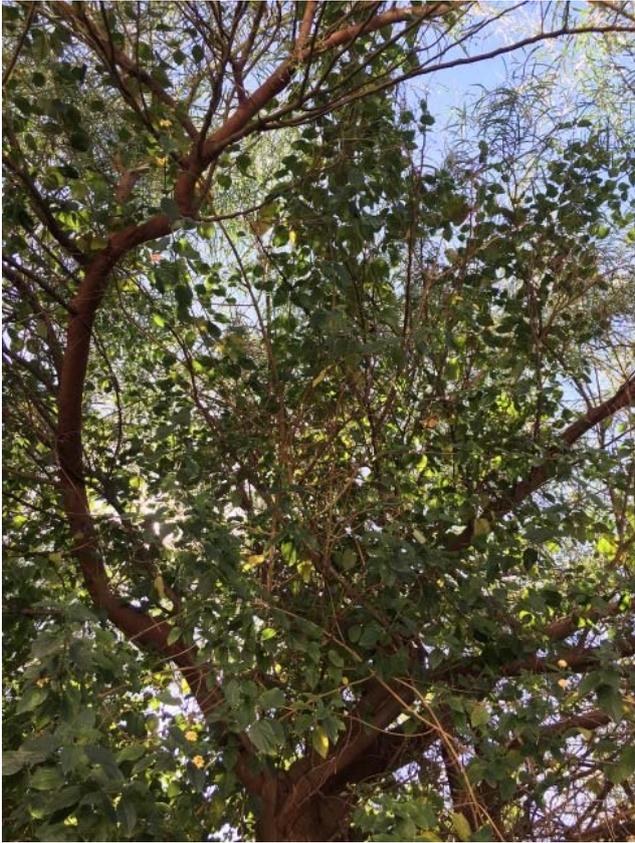


Photo 2. *Acacia* spp. with weeds and vines.



Photo 3. Second *Acacia* spp. with advanced borer damage which is a likely point of failure.



Photo 4. The third Acacia tree with split trunk at the base.

Within this front part of the site it is planned to open trench to install the 33kV power supply. As the area is full of over mature and weed trees any removal and replanting will only enhance the current poor condition of the vegetation.

1.2 Site vegetation Part 2 Alexandra Canal:



Photo 5. Proposed route for the 33kV parallel to Alexandra Canal.

Adjacent to the works zone are a small number of *Casuarina glauca* and a large number of suckers to the parent trees.

The alignment where the 33kV line is to be installed by trenching is outside any of the *Casuarina glauca* Tree protection Zone the open trenching will not affect any trees or the heritage channel.

Tree protection zone fencing is to be installed along the drip line of the *Casuarina glauca* in accordance with AS 4970-2009: *Protection of Trees on Development Sites*.



Figure 3 – Trees influenced by construction work — 33 kV Bourke Road

Table 2: Impact Assessment Results

No.	Botanical name	Retention value	Tree Location	Encroachment into TPZ		Cause of encroachment	Proposed outcome	Reason for proposed outcome
1	<i>Acacia longifolia</i>	Low	Outside footprint	Major	60%	Construction	Remove	Major encroachment by construction. Tree is in poor health and at the end of its useful life.
2	<i>Acacia longifolia</i>	Low	Outside footprint	None	-	-	Retain	Outside work impact area
3	<i>Acacia longifolia</i>	Low	Outside footprint	None	-	-	Retain	Outside work impact area
4	<i>Casuarina glauca</i>	Medium	Outside footprint	None	-	-	Retain	Outside work impact area. As trees mature they will continue to damage the heritage listed canal embankment.
5	<i>Casuarina glauca</i>	Medium	Outside footprint	None	-	-	Retain	Outside work impact area. As trees mature they will continue to damage the heritage listed canal embankment.

Table 3: Tree Schedule

No	Botanical name	Height (m)	Spread (m)	DBH (mm)	TPZ (m)	SRZ (m)	Health	Structure	Coordinates MGA 56	Groups
1	<i>Acacia longifolia</i>	5	12	110	12	2	Poor	Poor	X332474.22 Y6245669.15	-
2	<i>Acacia longifolia</i>	5	6	200	6	2	Poor	Poor	X332462.23 Y6245647.32	-
3	<i>Acacia longifolia</i>	5	6	120	6	2	Poor	Poor	X332468.71 Y6245640.60	-
4	<i>Casuarina glauca</i>	8	4	150	1.8	1	Good	Good	Within: X332447.18 Y6245654.17 X332444.90 Y6245655.31 X332336.95 Y6245656.78 X332439.23 Y6245654.74	14
5	<i>Casuarina glauca</i> suckers	5	3	40	0.5	0.25	Good	Good	Within: X332447.18 Y6245654.17 X332444.90 Y6245655.31 X332336.95 Y6245656.78 X332439.23 Y6245654.74	53

2. RECOMMENDATIONS:

After inspection of the site for the installation of the 33kV power supply to St Peters Interchange the following recommendations have been made:

- Remove all vegetation in Part 1 2.5m either side of the cable alignment, which consists of: weeds and **1** over-mature Acacia tree.
- Property owner, Sydney Water, is to provide approval prior to any weed and tree clearing.
- At the completion of the works replant with 3 trees that will have a mature canopy that will replace the lost canopy from the Acacia trees. In addition to the trees some understory planting will also help with native birds and restore the area back to a native garden area. Replanting shall be done in consultation with Sydney Water.

a. Tree protection

The following tree protection measures will be required for the **69** trees suitable for retention (see **Table 2**).

- Tree protection fencing must be established around the perimeter of the TPZ of potentially affected trees. If the protective fencing requires temporary removal, trunk, branch and ground protection must be installed and must comply with AS 4970-2009 - Protection of trees on development sites.
- Any additional construction activities within the TPZ of the subject trees must be assessed and approved by the project arborist, and must comply with AS 4970-2009 - Protection of trees on development sites.
- If any changes are made to Tree Protection Fencing it must be authorised by the site arborist prior to the fencing being removed.

Further information and guidelines on tree protection if required can be provided by Australian Tree Consultants.

b. Inspections

- The site arborist will be required on site to supervise all excavations within the TPZ.
- Scheduled inspections should be undertaken for all subject trees assessed for retention during the course of construction. Normally this is every two (2) weeks. Site diary for Arboricultural works must be kept at the onsite office for the duration of the project. All matters pertaining to tree management must be documented in this diary and signed off as each issue is resolved.

Trees outside of the study area that may be impacted during the works will require additional Arboricultural Assessment.

c. Tree work

- All pruning and/or tree removal work is to be carried out by, or under supervision of, an arborist with a minimum AQF Level 3 qualification in Arboriculture or equivalent.
- All pruning must be in accordance with Australian Standard AS4373-2007, *Pruning of Amenity Trees*.
- All pruning and/or tree removal work is to be carried out in accordance with the NSW WorkCover Code of Practice for the Amenity Tree Industry (1998).
- Reference should also be undertaken for any tree works to the SafeWork Australia Guide to Managing Risks of Tree Trimming and Removal Work – 2016.
- Permission must be granted from the relevant consent authority, prior to removing or pruning of any of the subject trees.
- Mulch from this tree removal must not be reused.

If you require any further information in relation to this report, please contact us on

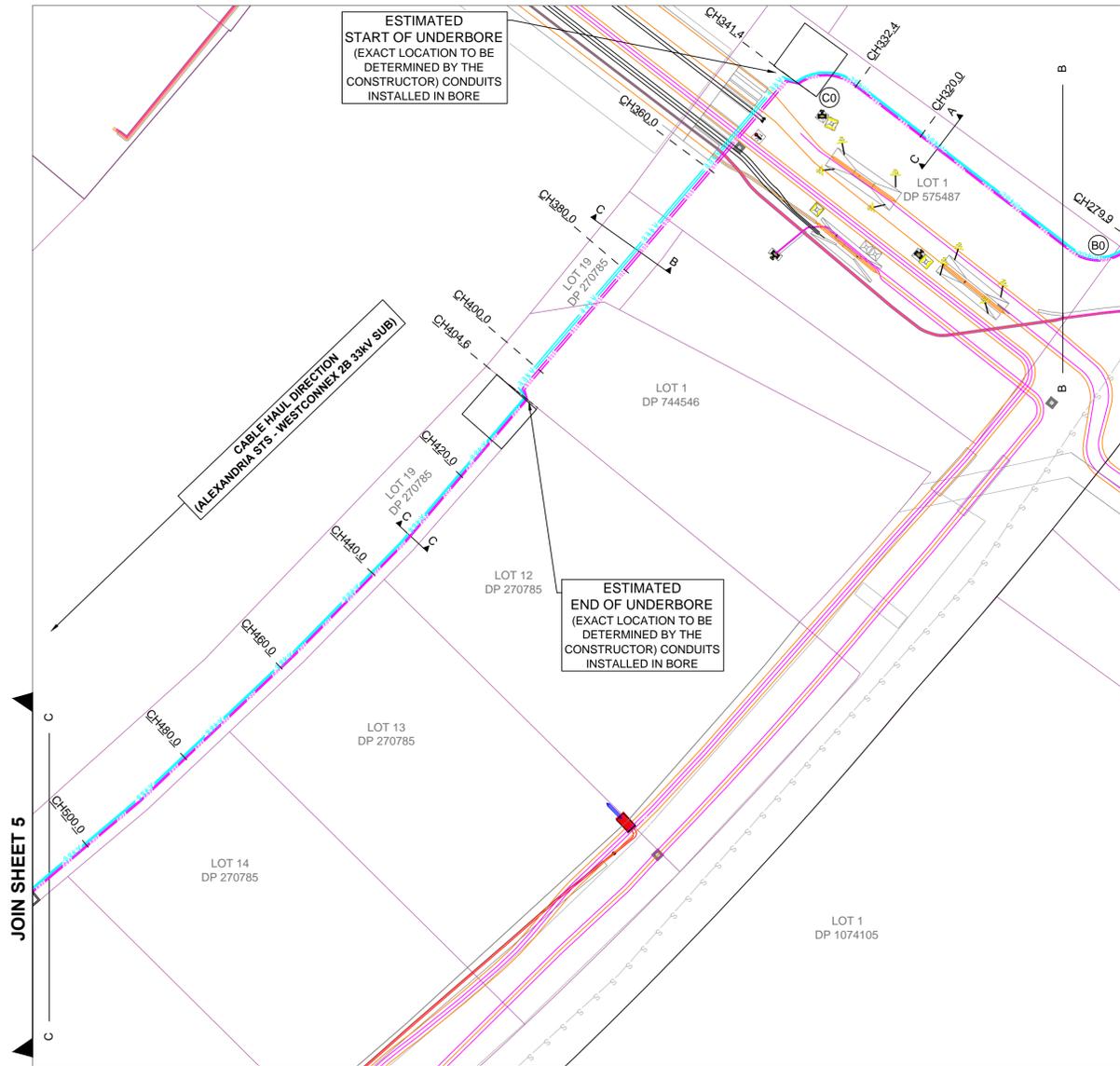
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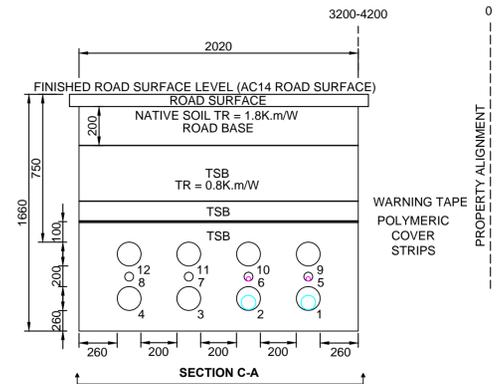
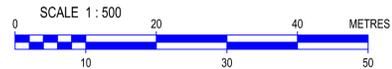
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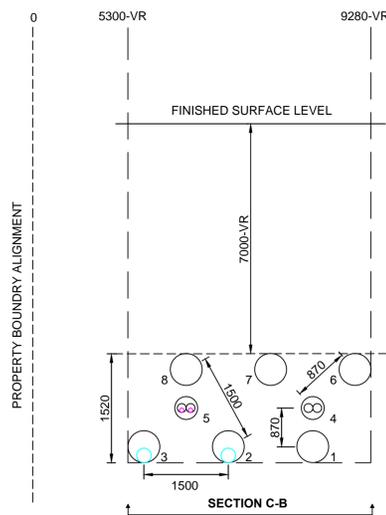
CHECK FOR OTHER SERVICES BEFORE BORING OR EXCAVATING



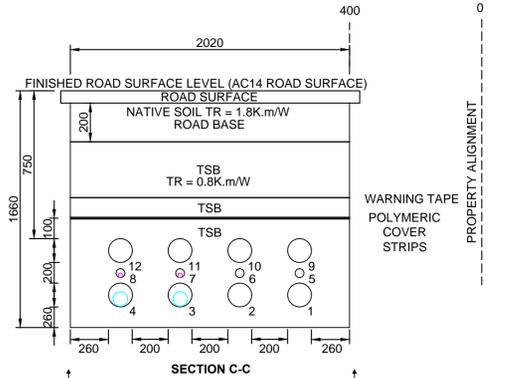
CONSTRUCTION PLAN STAGE 2
BB-CC
SCALE 1:500



- 1 - FUTURE 33kV CABLE IN NEW 200mm PVC CONDUIT.
- 2 - FUTURE 33kV CABLE IN NEW 200mm PVC CONDUIT.
- 3 - NEW SPARE 200mm PVC CONDUIT.
- 4 - NEW SPARE 200mm PVC CONDUIT.
- 5 - FUTURE 60F FIBRE OPTIC CABLE IN 63mm PVC CONDUIT.
- 6 - FUTURE 60F FIBRE OPTIC CABLE IN 63mm PVC CONDUIT.
- 7 - NEW SPARE 63mm PVC CONDUIT.
- 8 - NEW SPARE 63mm PVC CONDUIT.
- 9 - NEW SPARE 200mm PVC CONDUIT.
- 10 - NEW SPARE 200mm PVC CONDUIT.
- 11 - NEW SPARE 200mm PVC CONDUIT.
- 12 - NEW SPARE 200mm PVC CONDUIT.



- 1 - NEW SPARE 225mm PE CONDUIT.
- 2 - FUTURE 33kV CABLE IN NEW 225mm PE CONDUIT.
- 3 - FUTURE 33kV CABLE IN NEW 225mm PE CONDUIT.
- 4 - NEW SPARE 2 x 63mm ID CONDUITS.
- 5 - FUTURE 2 x 60F FIBRE OPTIC CABLES IN NEW 2 x 63mm ID CONDUITS.
- 6 - NEW SPARE 225mm PE CONDUIT.
- 7 - NEW SPARE 225mm PE CONDUIT.
- 8 - NEW SPARE 225mm PE CONDUIT.



- 1 - NEW SPARE 200mm PVC CONDUIT.
- 2 - NEW SPARE 200mm PVC CONDUIT.
- 3 - FUTURE 33kV CABLE IN NEW 200mm PVC CONDUIT.
- 4 - FUTURE 33kV CABLE IN NEW 200mm PVC CONDUIT.
- 5 - NEW SPARE 63mm PVC CONDUIT.
- 6 - NEW SPARE 63mm PVC CONDUIT.
- 7 - FUTURE 60F FIBRE OPTIC CABLE IN 63mm PVC CONDUIT.
- 8 - FUTURE 60F FIBRE OPTIC CABLE IN 63mm PVC CONDUIT.
- 9 - NEW SPARE 200mm PVC CONDUIT.
- 10 - NEW SPARE 200mm PVC CONDUIT.
- 11 - NEW SPARE 200mm PVC CONDUIT.
- 12 - NEW SPARE 200mm PVC CONDUIT.

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

TS37000 ALEXANDRIA STS CONDUITS LAYOUT	239548	PREPARED BY:	DESIGNED BY:		WESTCONNEX STAGE 2 33kV SUPPLY TO 65 BOURKE ROAD ALEXANDRIA SC07704
TS37000 ALEXANDRIA STS CONDUITS SECTIONS	239552	DRAWN BY:	CHECKED BY:		
ZN36900 ALEXANDRIA ZS BASEMENT LAYOUT	244315		SUBMIT DATE:		
ZN36900 ALEXANDRIA ZS BASEMENT LAYOUT	244315		MAP REF:		
AUSGRID PROPOSED EASEMENT PLAN	F10079		AUSGRID REF:		
			PRJ/TRAK No.		
ASSOCIATED DRAWINGS		CERTIFICATION NUMBER		## / ##	SIZE A1
		8461.1 - 20170719			AUSGRID PROJECT No. SC07704
					SHEETS 4 of 13