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## **Capital Expenditure FY16 – Response to AECOM Engineering Assessment**

4 September 2017

Dear Catherine,

Aurizon Network submitted its Capital Expenditure for the financial year July 2015 to June 2016, in October 2016. The aim of the annual Capital Expenditure submission is to recognise the prudence of invested capital and therefore allow for inclusion in the Regulatory Asset Base for recovery via reference tariffs. The QCA reviews Aurizon Network's Capital Expenditure submission using the prudence investment tests as detailed at clause 3 of Schedule A of the 2010 Access Undertaking (**UT3**). The QCA engaged an engineering consultant, AECOM, to provide the QCA advice on assessment of the submission.

AECOM's "*Engineering Assessment of Aurizon Network's Capital Expenditure Claim*" published on the QCA's website (**AECOM's Report**) recommends that the QCA reject expenditure related to two projects:

- A.03742 Moura East; and
- IV.00028 Autotransformer Renewal Program.

Further, the report comments on a lack of available supporting documentation for A.03980 Project Pluto. Aurizon Network notes the report and seeks to address the feedback on these three projects in this submission.

### **A.03742 Moura East**

As detailed in AECOM's Report, the A.03742 Moura East installation was damaged by flooding prior to completion. As part of the flood repairs, the damaged capping layer was replaced with material which did not meet the requirements of Aurizon Network's specification.

Aurizon Network identified this issue as part of As-Built verification after the installation. Specifically, some of the capping layer material supplied to this project for construction did not meet specification requirements for the Degradation Factor test. A likely failure mechanism for capping layer material with non-conforming Degradation Factor test results is that particles within this material could weather into clay, and this clay may then become pumped into the base of the ballast layer by rail traffic. This pumping could then result in mud holes. If this

weathering process of this capping layer material does occur, the exact time when it may occur is not known.

Aurizon Network notes that a consultant report referenced in its document entitled "*Non-conforming capping layer material on SP2 on Moura Line*" intimates approximately 50% reduction in life of the relevant assets, however Aurizon Network does not agree with that assessment. It is Aurizon Network's position, based on experience, that it is difficult to ascertain a likely reduction in life, if any, particularly so early in the life of the particular asset. In any case, an estimate of life based on material properties only is highly inaccurate. Whilst Aurizon Network agrees there may be some reduction in life, it needs to review the materials' response to service load over time to make a more accurate determination of the impact.

A number of options were considered to manage the installed substandard capping layer material, including formation repair and strengthening. This would require numerous long track closures, and installation of ballast-filled trench drains. After careful consideration, weighing up all factors, Aurizon Network implemented an annual program to monitor:

- any pumping of the capping layer material into the base of the ballast layer on an annual basis and during regular track inspections from hi-rail vehicles; and
- the track condition information such as track geometry information, resurfacing occurrence reports, speed restriction information and ground-penetrating radar (**GPR**) test results.

The current installation is fit for service and will continue to be monitored for signs of an approaching end of life. The estimate for end of life will be reviewed and updated based on the outcomes of this monitoring, over time.

AECOM's Report suggests that the QCA deduct \$1.1million of the investment claimed for A.03742 Moura East to reflect the expected reduction in service life due to the use of non-standard materials. As detailed above, the impact of the capping layer installation is currently unknown and therefore any reduction in service life of the asset is also unknown.

Upon the theoretical end of life of the formation, replacement works may be required. Rail, ballast and sleepers will be able to be reused. Regardless of the timing, ballast will need to be screened before being reused as it becomes fouled over time (independently of the formation specification). However, there is no certainty of the magnitude of repair and associated costs being incurred reaching the theoretical design life of the asset. It is most likely that the life of the formation will be extended via spot repairs on small areas executed as a fix on fail strategy rather than complete replacement.

As such, Aurizon Network requests that AECOM consider revising their assessment and the QCA take into consideration this information in their final decision on approval of the FY16 expenditure for A.03742 Moura East project.

#### **IV.00028 Autotransformer Renewal Program**

Aurizon Network acknowledges there is a requirement under AS2067 Substations and High Voltage Installations Exceeding 1kV AC (the **Standard**) for oil containment and explosion or fire treatment as part of major site upgrade works, such as autotransformer renewals. However, such works were not included in the scope for the FY16 autotransformer program.

Aurizon Network has reviewed the risk of explosion and fire at remote trackside Autotransformer sites and found that it has adequately addressed the requirements of the Standard. Evidence of this review has been provided to the QCA and AECOM.

However, Aurizon Network has identified that six (6) of the total eight (8) autotransformer sites included in IV.00028 Autotransformer Renewal Program do not have sufficient oil containment and are therefore not compliant with the Standard. Aurizon Network has identified another three (3) sites from the FY17 autotransformer renewal program which are not compliant with the Standard. Sites from FY16 and FY17 programs are detailed in **Table 1**.

| <b>FY16 and FY17 Autotransformer Sites without Oil Containment</b> |                   |  |
|--|-------------------|--|
| FY16 Program   | Goonyella System  | Winchester AT1 – OC 30.017 km                      |
|  |                   | Black Mountain-Hatfield AT Site AT1 – GA 45.225 km |
|  |                   | Wotonga GA 184 km AT1                              |
|  | Blackwater System | Windah AT1 – CW 55 km                              |
|  |                   | Windah AT2 – CW 55 km                              |
| Dingo AT Site – AT1 – CW 141 km                                    |                   |  |
| FY17 Program   | Goonyella System  | Praguelands AT1 – GA 15.335 km                     |
|  |                   | Praguelands AT2 – GA 15.335 km                     |
|  | Blackwater System | Crew AT1 – GG 10.060 km                            |

**Table 1 - FY16 and FY17 Autotransformer Sites without Oil Containment**

In order to comply with the requirements of the Standard, the sites listed in Table 1 will require the retrospective installation of oil containment equipment. Aurizon Network will carry out the rectification work at these sites on a priority basis during FY19-FY22. Any planned autotransformer renewal works taking place from commencement of FY18 will incorporate the oil containment equipment requirements of the Standard.

Retrospective installation of oil containment equipment at the sites listed in Table 1 will require engagement of a civil contractor. It should be noted that there was no civil component to the original project works at any of the sites listed, so there will be no extra mobilisation, civil or demobilisation costs associated with a separate visit to site. In addition, the future oil containment rectification works will be opportunely scheduled to align with planned outages to the electrified traction system, so no additional outages or costs associated with outages are anticipated. As such, it is not expected that any rework expenditure will be incurred due to installing the oil containment equipment in a separate visit to the original project works.

Following completion of the rectification works, Aurizon Network will review the actual incurred costs of compliance for the nine sites specifically to identify any rework which may have been undertaken. Although it is not expected, if there is any rework, it will be excluded from future capital expenditure claims.

AECOM's Engineering Assessment of Aurizon Network's Capital Expenditure Claim suggests that the QCA deduct \$100,000 to reflect future rework costs. Given the above information and the commitments made by Aurizon Network, Aurizon Network requests that AECOM consider revising their assessment to recommend the QCA's approval of the full FY16 expenditure for IV.00028 Autotransformer Replacement Program.

#### **A.03980 Project Pluto**

AECOM's Report states that the data quality used to inform its scope and cost assessment is low, and that no evidence of scope and budget change management was provided. Aurizon Network recognises that this may have occurred due to a combination of factors, including that the claim was limited to Phase 2 of the project and that requests for further information were received in the midst of finalisation of the report. Aurizon Network maintains a robust change management process for Project Pluto and has provided details of changes to the project to

further inform AECOM's assessment. Aurizon Network requests that AECOM consider revising their comments to reflect the supporting documentation provided.

Should you have any enquiries, please contact Kathryn Hogan on 07 3019 2513 or via email [Kathryn.Hogan@aurizon.com.au](mailto:Kathryn.Hogan@aurizon.com.au).

Kind regards,



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Aurizon Network