

Review of Aurizon Network's FY23 Capital Expenditure Claim

Prepared for Queensland Competition Authority

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Commercial-in-Confidence

Review of Aurizon Network's FY23 Capital Expenditure Claim

Prepared for Queensland Competition Authority

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Glossary

Term	Definition
AS	Australian Standard
AS/NZS	Australian Standard / New Zealand Standard
AN	Aurizon Network Pty Ltd
BCM	Ballast Undercutting Machine
CAPEX	Capital Expenditure
CETS	Civil Engineering Track Standard/s
CQCN	Central Queensland Coal Network
FY21	Financial Year 2020-21
FY22	Financial Year 2021-22
FY23	Financial Year 2022-23
GAPE	Goonyella to Abbot Point Expansion Project
GPR	Ground Penetration Radar
IAR	Investment Approval Request
IDC	Interest During Construction
ITP	Inspection and Test Plan
RSB	Renewals Strategy and Budget
ONSR	Office of the National Rail Safety Regulator
QCA	Queensland Competition Authority
RAB	Regulatory Asset Base
RIG	Rail Industry Group
RIM	Rail Infrastructure Manager
RSB	Renewals Strategy and Budget
SER	Signalling Equipment Room
SPM	Scope Priority Model
TMR	Transport and Main Roads
TQI	Track Quality Index

Executive Summary

Aurizon Network Pty Ltd (AN) operates the below-rail network servicing users including coal mines in Central Queensland Coal Network (CQCN). AN has submitted a *Financial Year 2022-23 (FY22/23) Capital Expenditure (CAPEX) Claim* for projects it considered necessary on its services in CQCN that are declared for third party access under the Queensland Competition Authority Act 1997 (the Act).

This report presents AECOM's findings from a detailed review of project scope, compliance with standards and prudence of cost of a sample of projects from AN's Claim. This review focuses on aspects of the claim that exceed the expenditure or fail to deliver the scope agreed to as part of the Renewals Strategy and Budget (RSB) process.

AECOM engaged a small team of specialist staff for this review, including rail engineers of various disciplines and cost management specialists, coordinated by its Infrastructure Advisory group.

A representative sample set of the projects in the Claim, representing 70% of the total value of the claim, was selected. The projects were selected from all four systems in CQCN and each of the major project disciplines, including projects with the greatest variance from the approved RSB. The list of review projects have been included in Table 1.

Table 1 List of Review Projects (\$FY23, million)

Project	Claim Amount	Project	Claim Amount
Blackwater		Goonyella	
IV.00802 Track Renewal – FY23	\$22.2	IV.00801 Track Renewal – FY22	\$3.3
IV.00813 Turnout Renewal – FY22	\$2.4	IV.00802 Track Renewal – FY23	\$29.7
IV.00831 Ballast Renewal – FY22	\$3.3	IV.00831 Ballast Renewal – FY22	\$10.7
IV.00832 Ballast Renewal – FY23	\$34.7	IV.00832 Ballast Renewal – FY23	\$27.9
IV.00694 Control Systems Renewal Callemondah	\$5.8	IV.00804 Bridge Ballast Renewal – FY22	\$0.6
IV.00820 Control Systems Renewal – FY22	\$2.0	IV.00820 Control Systems Renewal – FY22	\$2.4
IV.00821 Control Systems Renewal – FY23	\$3.4	IV.00821 Control Systems Renewal – FY23	\$6.4
IV.00678 Optical Fibre Renewal	\$4.4	IV.00678 Optical Fibre Renewal – FY23	\$10.0
IV.00692 Train Detection Renewal Central Line	\$7.2	IV.00817 Structures Renewal – FY23	\$6.2
IV.00826 Electrical Overhead Renewal – FY22	\$0.8	IV.00826 Electrical Overhead Renewal – FY22	\$2.5
IV.00807 Formation Renewal – FY22	\$1.1	IV.00823 Power Systems Renewal – FY22	\$0.8
Newlands / GAPE		IV.00807 Formation Renewal – FY22	\$2.0
IV.00802 Track Renewal – FY23	\$6.9	Moura	
IV.00804 Bridge Ballast Renewal – FY22	\$0.7	IV.00801 Track Renewal – FY22	\$1.7
IV.00820 Control Systems Renewal – FY22	\$1.6	IV.00802 Track Renewal – FY23	\$5.1
IV.00821 Control Systems Renewal – FY23	\$1.5		
Total			\$207.3

The review was primarily desktop, but several rounds of requests were made for additional documentation from AN to clarify issues found in the projects being reviewed, and AECOM conducted several online interviews with key AN staff to obtain evidence where the documentation did not provide sufficient clarity. To ensure consistency of approach, each technical reviewer used a standard template for the review, which was designed based on the criteria outlined in Schedule E of the 2017 Access Undertaking.

With respect to the prudence of scope, standard and cost, AECOM's key findings in the sampled projects include:

Scope: Based on AECOM's assessment, it was concluded that the scope of works is reasonable and consistent with the approved RSB across all the sampled projects. Instances where AN completed works that deviated from what was planned in the FY23 RSB were predominately attributed to the completion of delayed scopes, previously approved in past RSBs, and additional scope adjustments based on asset conditions. The deviation also arose from the deferral of planned scope, primarily due to inclement weather conditions and challenges related to resourcing. The reasons for deviation are considered reasonable and in line with AN's policies.

Standard: AN, as the Rail Infrastructure Manager (RIM), is responsible for ensuring that its rail infrastructure operations and maintenance comply with the relevant legislation as required by the Office of the National Rail Safety Regulator (ONRSR). Documentation demonstrating compliance with standards was not sighted for all projects, but a review of AN's policies and the reviewers' professional judgement based on the documentation provided indicated prudence in the standard of works across all projects.

Cost: 27 of the 29 sampled projects were considered efficient with respect to cost because:

- The Unit rate of actual expenditure closely aligned with the unit rate planned in the RSB. In cases where assessing the unit rate wasn't feasible, the FY23 claim was assessed against the total amount spent on the project.
- Documentation provided substantiated the variance of claimed and incurred costs from what was budgeted in the RSB.

Two projects were assessed imprudent: IV.00802 Track Renewal – Blackwater FY23 and IV.00802 Track Renewal – Moura FY23. The costs incurred for both projects were notably higher than projected costs calculated based on the planned unit rate derived from the FY23 budget and planned scope (allowing for escalation). The EOFY status report provided commentary on the reasons for the increased costs, but these explanations did not adequately substantiate the observed additional costs.

AECOM recommends a reduction in the FY23 claim of \$1.85M (0.63% of the Claim).

AECOM has made recommendations that would enable AN to improve its business processes and deliver improved outcomes for future Capital Claim reviews.

1.0 Introduction

1.1 Background

Aurizon Network Pty Ltd (AN) is a wholly owned subsidiary of Aurizon Holdings Limited. AN operates the below-rail network, servicing users including coal mines in central Queensland and these services are declared for third party access under the Queensland Competition Authority Act 1997 (the Act). A map of the AN's rail network is provided in Figure 1.

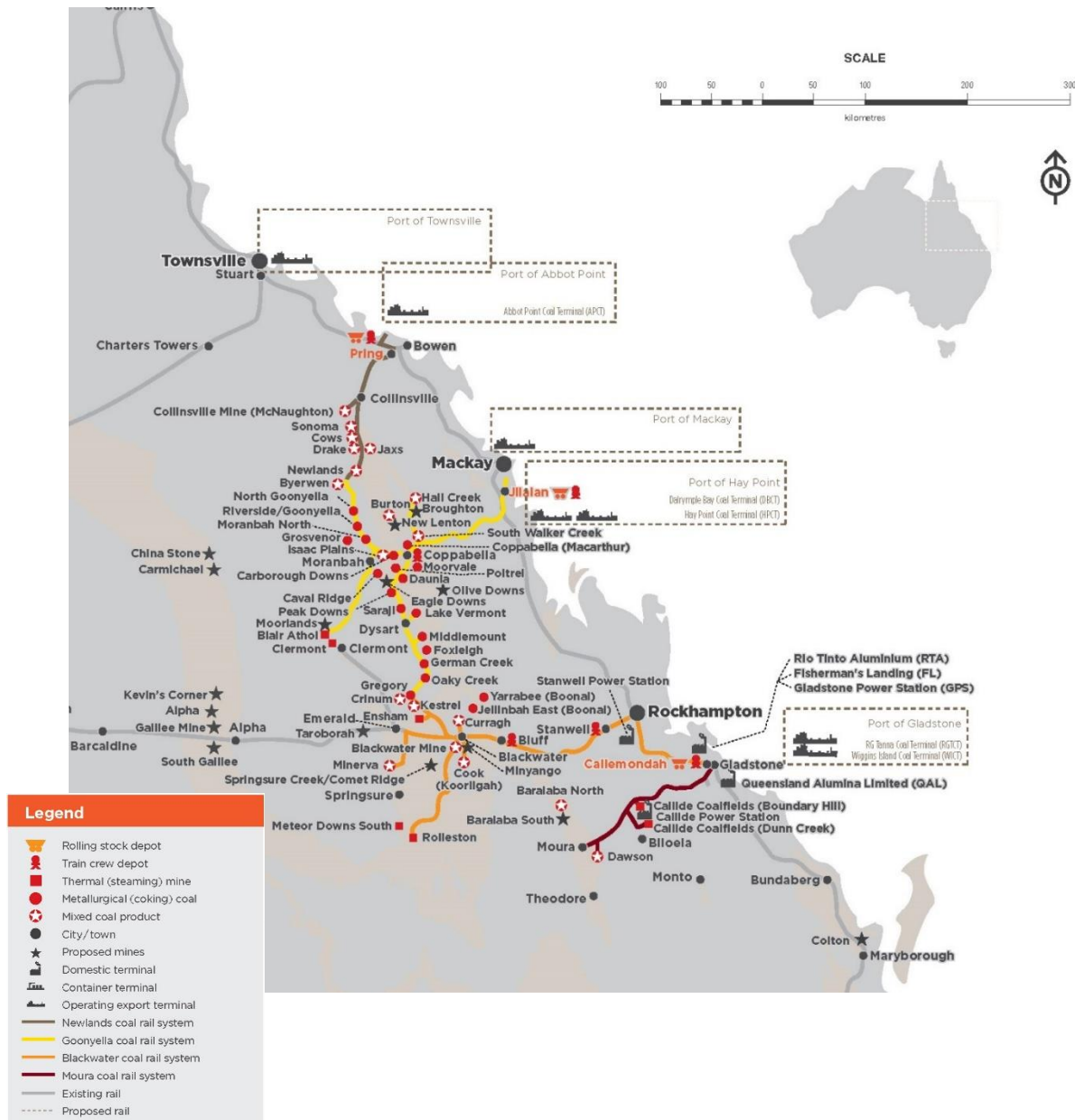


Figure 1 AN's Central Queensland Coal Network (CQCN) (Source: Aurizon Website¹)

¹ Sourced from <https://www.aurizon.com.au/what-we-do/network/cqcn>

The Queensland Competition Authority (QCA) has approved a Regulatory Asset Base (RAB) for the Central Queensland Coal Network (CQCN), which includes the Blackwater, Goonyella, Moura and Newlands Systems and Goonyella Abbot Point Expansion Project (GAPE).

An access undertaking, approved by the QCA and developed in accordance with the Act, provides a framework for the provision of access to AN's rail network. Under the framework, AN is responsible for providing, maintaining, and managing access to, and operations on, its rail network and associated infrastructure.

The QCA conducts annual prudency assessments of AN's Capital Expenditure Claim to determine if the capital expenditure should be approved for inclusion in the RAB. The prudency assessments are undertaken in accordance with the access undertaking, which stipulates that capital expenditure must be prudent in scope, standard and cost for acceptance into the RAB.

AECOM has been engaged by the QCA to undertake a review of AN's Capital Expenditure Claim for works completed during Financial Year 2022-23 (FY23).

1.2 Scope of Review

Schedule E of the Undertaking details the conditions upon which Capital Expenditure claimed by AN can be accepted into the RAB. The scope of this review includes an assessment of the claim to identify projects that exceed the expenditure or fail to deliver the scope agreed to as part of the Renewals Strategy and Budget (RSB) process. The projects are assessed against the prudency and efficiency criteria in the 2017 undertaking Schedule E and Terms of Reference – 26/10/2023 provided to AECOM.

AECOM examined a sample of projects, selected in consultation with QCA, to assess the prudency and efficiency of AN's FY23 Capital Expenditure Claim.

1.3 Report Structure

The structure of this report is outlined in Table 2.

Table 2 Report Structure

Main Report	
Section 1	Introduction
Section 2	The Aurizon Network Capital Expenditure Claim
Section 3	Assessment Methodology
Section 4	Project Assessments
Section 5	Summary and Recommendations
Appendices	
Appendix A	List of Claimed Projects
Appendix B	Individual Project Assessments using the Template

2.0 The Aurizon Network Capital Expenditure Claim

2.1 Overview

The AN's FY23 Capital Expenditure Claim includes 119 projects totalling \$294.1 million, excluding interest during construction (IDC). A breakdown of the Claim by project discipline is provided in Table 3.

Table 3 AN FY23 Capital Expenditure Claim (\$FY23, million)

Project Discipline	No. of Projects in Claim	Value of Projects in Claim, excl. IDC (million)
Ballast Cleaning Undertake the renewal of ballast throughout CQCN whilst minimising the operational restrictions. The project works include Mainline Undercutting, Turnout Undercutting and Bridge Ballast.	17	\$88.5
Civil Assets Undertake works which encompasses Formation, Level Crossings and Corridor Assets projects.	25	\$32.3
Permanent Way All assets related to the rail formation, ballast, sleepers and Renewal projects for rail, sleeper and track upgrade and turnouts to sustain and improve reliability on the network.	20	\$82.1
Control Systems These assets provide data linkages between field equipment and network control, the network control systems, digital and microwave radio systems, and the IT systems.	25	\$52.2
Electrical All elements of the electrical supply and distribution network that provides power for electric traction on the network.	14	\$8.6
Structures Projects that repair, replace, or remove structures related to bridges and culverts.	14	\$30.2
Subtotal	115	\$293.9
Non-RSB	4	\$0.1
Total	119	\$294.1

2.2 Extent of Review

This review involved a representative sample set of the projects submitted in AN's FY23 Capital Expenditure Claim, representing 70% of the total value of the claim.

AECOM noted that four projects were not originally approved in the RSB and given their insignificant expenditure (their combined value is less than 0.1% of the total value of the claim), these were removed from the review sample. Additionally, 14 projects (Culvert and Level Crossing Renewals) were removed to avoid a possible conflict of interest for AECOM.

The sample was selected in consultation with QCA and based on identified deviation from the approved scope or budget listed in the FY23 Renewals Strategy and Budget (RSB). It was also ensured that the sample encompassed all the main project disciplines (Ballast Cleaning, Civil Assets, Permanent Way, Control Systems, Electrical and Structures), each of the four systems (Blackwater, Goonyella, Moura, and Newlands/GAPE) and was of sufficient project size (value).

The list of review projects is shown in Table 4, sorted by asset type, system and claimed amount.

Table 4 List of Review Projects (\$FY23, million)

Project No.	Commission Year	Project Name	RIG Category	Prior Year(s)	FY23 Claim	RSB Budget
Blackwater						
IV.00802	FY23	Track Renewal	Permanent Way		\$22.2	\$23.1
IV.00813	FY22	Turnout Renewal	Permanent Way	\$2.4		\$0.0
IV.00831	FY22	Ballast Renewal	Ballast Cleaning	\$3.3		\$0.0
IV.00832	FY23	Ballast Renewal	Ballast Cleaning		\$34.7	\$38.5
IV.00694	Multi-year	Control Sys Renewal Callemondah	Control Systems	\$5.8		\$2.5
IV.00820	FY22	Control Systems Renewal	Control Systems	\$2.0		\$0.0
IV.00821	FY23	Control Systems Renewal	Control Systems		\$3.4	\$11.4
IV.00678	Multi-year	Optical Fibre Renewal	Control Systems	\$4.4		\$4.3
IV.00692	Multi-year	Train Detection Renewal Central Line	Control Systems	\$7.2		\$1.0
IV.00826	FY22	Electrical Overhead Renewal	Electrical	\$0.8		\$0.0
IV.00807	FY22	Formation Renewal	Civil Assets	\$1.1		\$0.0
Goonyella						
IV.00801	FY22	Track Renewal	Permanent Way	\$3.3		\$0.0
IV.00802	FY23	Track Renewal	Permanent Way		\$29.7	\$33.0
IV.00831	FY22	Ballast Renewal	Ballast Cleaning	\$10.7		\$0.0
IV.00832	FY23	Ballast Renewal	Ballast Cleaning		\$27.9	\$33.5
IV.00804	FY22	Bridge Ballast Renewal	Ballast Cleaning	\$0.6		\$0.0
IV.00820	FY22	Control Systems Renewal	Control Systems	\$2.4		\$0.0
IV.00821	FY23	Control Systems Renewal	Control Systems		\$6.4	\$11.4
IV.00678	Multi-year	Optical Fibre Renewal	Control Systems	\$10.0		\$10.4
IV.00826	FY22	Electrical Overhead Renewal	Electrical	\$2.5		\$0.0
IV.00823	FY22	Power Systems Renewal	Electrical	\$0.8		\$0.0
IV.00807	FY22	Formation Renewal	Civil Assets	\$2.0		\$0.0
IV.00817	FY23	Structures Renewal	Structures		\$6.2	\$7.1
Moura						
IV.00801	FY22	Track Renewal	Permanent Way	\$1.7		\$0.0
IV.00802	FY23	Track Renewal	Permanent Way		\$5.1	\$3.6
Newlands / GAPE						
IV.00802	FY23	Track Renewal	Permanent Way		\$6.9	\$4.6
IV.00804	FY22	Bridge Ballast Renewal	Ballast Cleaning	\$0.7		\$0.0
IV.00820	FY22	Control Systems Renewal	Control Systems	\$1.6		\$0.0
IV.00821	FY23	Control Systems Renewal	Control Systems		\$1.5	\$3.2
Total					\$207.3	\$187.6

3.0 Assessment of Methodology

3.1 Methodology for Assessment

The selected sample of projects was evaluated for the assessment of AN's FY23 Capital Expenditure Claim using the methodology summarised in Figure 2. The review was primarily a desktop review, with requests for additional documentation to clarify queries in relation to the projects being reviewed. AECOM conducted some online interviews with key AN staff to obtain evidence to further support a recommendation where the documentation did not provide sufficient clarity.

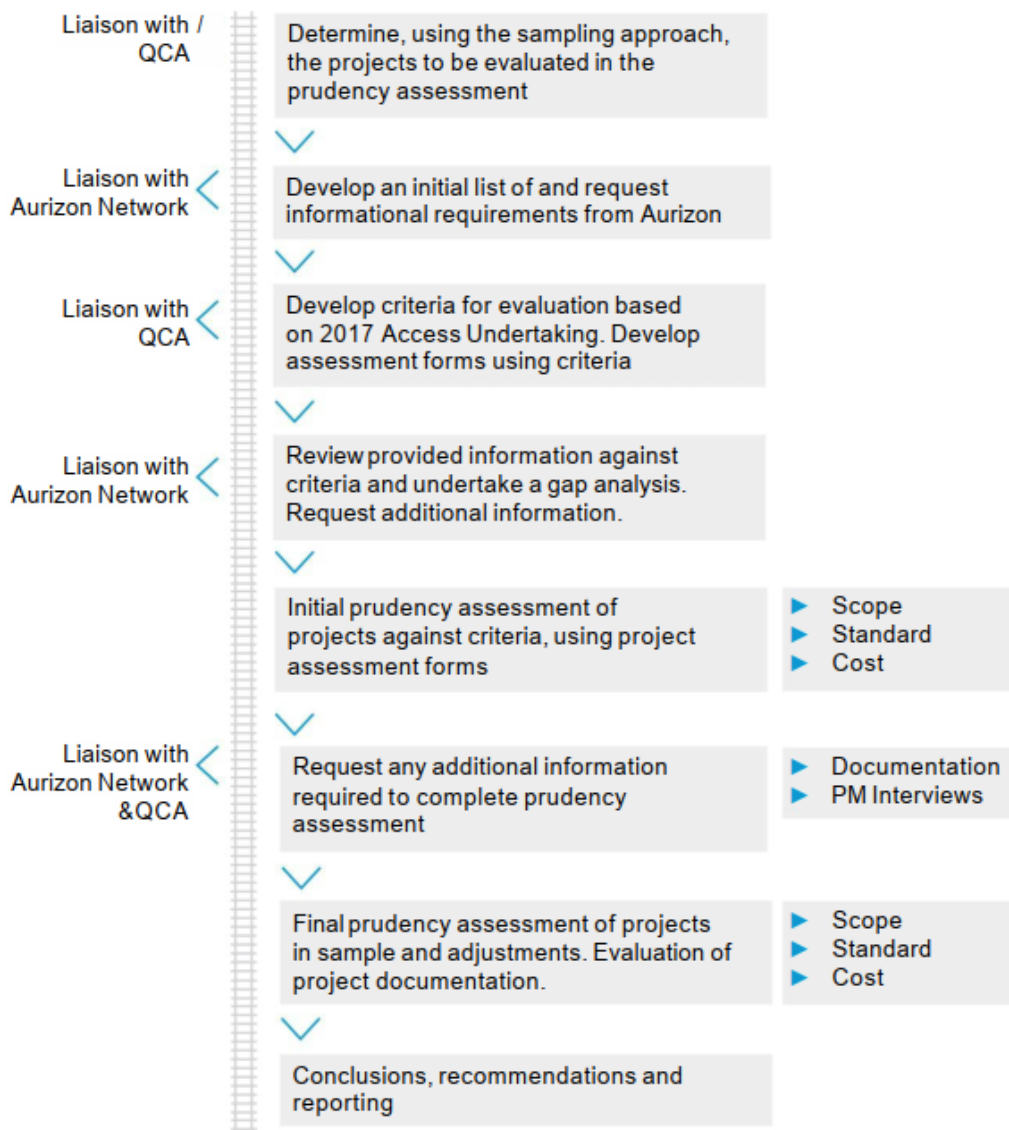


Figure 2 Project Methodology

3.2 Assessment Template

A standard project assessment template was developed using criteria from the Undertaking. The template ensured consistency in the technical assessment by all reviewers and was a key mechanism by which AECOM has demonstrated transparency in this review. Each team member who conducted the assessments was briefed on the format of the assessment and how to complete the forms. The completed forms serve as the basis of this report. A sample of completed assessments forms is attached in Appendix B.

The criteria used in this assessment and included in the standard template were developed in consultation with the QCA and is based on the Schedule E of the Undertaking and the Terms of Reference (ToR). These criteria are outlined in the following sections.

3.2.1 Scope

Requirement	Considerations
<p>Clause 7A.11.6 (b)(iii) Pre-approval</p>	<p>Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?</p>
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>	
<p>2.2 (b)(i) Were the works reasonably required?</p>	<p>(A) Were the works relevant to any Network Development Plan</p> <p>(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?</p> <p>(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?</p> <p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p> <p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p> <p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p> <p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p> <p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p> <p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>

3.2.2 Standard

Requirement	Considerations
<p>Clause 7A.11.6 (b)(iii) Pre-approval</p>	<p>Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?</p>
<p>If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>	
<p>2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?</p>	<p>(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds</p> <p>(B) With regards to the current and likely future usage levels</p> <p>(C) With regards to the requirements of relevant Australian design and construction standards</p> <p>(D) If applicable, with regards to the extent of consistency with the Asset Management Plan</p> <p>(E) With regards to Aurizon Network's design standards contained within its Safety Management System</p> <p>(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).</p> <p>(G) With regards to the Renewals Strategy and Budget</p> <p>(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>

3.2.3 Cost

Requirement	Considerations
<p>Clause 7A.11.6 (b)(iii) Pre-approval</p>	<p>Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?</p>
<p>If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.</p>	
<p>2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?</p>	<p>(A) With regards to any relevant Network Development Plan</p> <p>(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project</p> <p>(C) With regards to the circumstances prevailing in the markets for:</p> <ul style="list-style-type: none"> (1) engineering, equipment supply and construction? (2) labour? (3) materials? <p>(D) With regards to the Asset Management Plan</p> <p>(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:</p> <ul style="list-style-type: none"> (1) safety during construction and operation? (2) compliance with environmental requirements during construction and operation? (3) compliance with Laws and the requirements of Authorities? (4) minimising disruption to the operation of Train Services during construction? (5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs? (6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs? (7) aligning other elements in the supply chain? (8) meeting contractual timeframes and dealing with external factors? <p>(F) With regards to the Renewals Strategy and Budget</p> <p>(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.</p>

3.3 Project Documentation Assessment

Each project has been evaluated for prudence in terms of scope, standard and cost, and recommendations made based on:

- review of project documentation provided by AN and supplemented by request for information (RFI) processes
- interviews with key AN staff where information was insufficient and deemed necessary
- the professional judgement of the technical reviewers.

The use of project documentation is the preferred and best practice, but not the sole means of evaluating project prudence.

A typical list of documents that AECOM expects to be available to support recommendations for prudence and cost efficiency in relation to capital projects is listed in Table 5.

AECOM notes that the list provided should be interpreted as identifying topics that require adequate documentation, rather than a requirement for specific documents.

Table 5 Project Documentation Considered Necessary for Review of Projects

Prudence of Scope	Prudence of Standard	Prudence of Cost
Project plan	As-built drawings	Project Management Plan
Project completion report	Design drawings	Project Program
Detailed design report	Project completion report	Project completion report
Condition assessment report (renewal)	Certificate of practical completion	Budgeted vs Actual Expenditure
Asset Management Plan (renewal)	Signed-off inspection and test plans	Supporting Financial records
	Registered Professional Engineer of Queensland (RPEQ) Certification	
	Photographs of completed works	
	Aurizon Network Standard Specifications and drawings	
	Aurizon Network Policy document	
	Post-Implementation Review	

AECOM has assessed the suitability (in terms of quality and range) of the documentation provided by AN for each project in the sample. A colour-coded scoring system (using shades of green) has been used to indicate the degree to which existing documentation, has enabled an assessment to be made on each project; and highlight where documentation could be improved for future reviews and for better internal project controls. In summary:

- The quality of documentation was assessed as **high** when the documentation alone was sufficient to make sound recommendations. This rating indicates that all the information required to make the recommendation was documented and available to a sufficient level of quality.
- The quality of documentation was assessed as **medium** where there was insufficient quantity and range, but when supplemented by interviews, informal documentation and/or professional judgement, supported a conclusion of prudence.
- The quality of documentation was assessed as **low** when the documentation provided was inadequate in range or quality, and AECOM's reviewers were reliant on professional judgement to make sound recommendations.

These criteria are summarised in Table 6.

Table 6 Project Documentation Assessment

Quality and range of documentation	Legend	Description
High		Sufficient documentary evidence to support and demonstrate a recommendation.
Medium		Incomplete documentary evidence, but interviews, informal documentation and/or professional judgement support a recommendation.
Low		Limited documentary evidence, but professional judgement supports a recommendation.

3.4 Interviews

AECOM conducted interviews with AN representatives to apply more rigour to AECOM's assessments where project documentation was insufficient to provide a recommendation. The interviews clarified issues related to Track and Turnout Renewals, Control Systems, Ballast Renewal and costs for all projects.

3.5 Interpreting this Report

An example of a review summary for a project is provided in Table 7. As demonstrated, prudence of scope, standard and cost are denoted by ticks or crosses, and the level of documentation quality for the assessment is denoted by the colours of the cells.

In the example, the project is found to be:

- Prudent in scope with a medium level of documentation quality
- Prudent in standard with a high level of documentation quality
- Not prudent in cost with a low level of documentation quality.

And there are no recommended amendments to the claimed amount.

Table 7 Review Summary Example

Review Summary	Scope	✓	Capital Expenditure Claim	\$155.8M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	x	Total accepted	\$155.8M

4.0 Project Assessment

The following section provides an overview and detailed review of each sampled project within all four of AN's systems (Blackwater, Goonyella, Moura, Newlands / GAPE) and reports on the prudence of scope, standard and cost. Projects are grouped by key project disciplines. Further detail on the findings can be found in the individual assessment forms in Appendix B.

4.1 Blackwater System

The following section provides a detailed review of each sampled project within the Blackwater system, assessing the prudence of scope, standard and cost.

4.1.1 Permanent Way

IV.00802 Track Renewal - Blackwater FY23

Project Overview

Track renewal is a coordinated program focussed on renewing the entire track system, encompassing sleepers, rail, and other key components. The primary objective is to optimise the efficiency of asset renewal efforts by consolidating efforts and mobilising resources to a site in a single operation. This holistic approach, as opposed to addressing individual elements separately, proves to be both cost-effective and time efficient.

The coordinated program prioritises the replacement of life-expired or critical elements, ensuring the continuous safety and functionality of the network. It forms part of a broader track renewals program on the QCN. The specific scope of the works planned in Blackwater for FY23 were:

- Rail Renewal – at 17 sites where rail has either reached (or is near) its wear limit or has seen tonnages that indicate near-term failure due to rail fatigue.
- Sleeper Renewal – replace 7,568 sleepers delivered across two sites.
- Track Upgrade – at nine sites, encompassing 8.8km of track renewal and replacement of 10,797 sleepers.
- Permanent Way Other – ancillary works such as glued insulated joints, rail lubrication, rail fix on fail and slab track reactive works.

A portion of these works experienced delays and were not completed in FY23. These were:

- Rail renewal at Rocklands had to be deferred to FY24 due to the inability to procure sufficient welding resources across the integrated closure. This work has been planned in Q1 of FY24.
- Sleeper renewal at two sites were delayed due to weather conditions. These works have been replanned for completion in FY24.
- The Stanwell Balloon track upgrade works were delayed due to low stockpile levels. There are plans to complete these works in FY24.

Review Summary	Scope	✓	Capital Expenditure Claim	\$22.2M
	Standard	✓	Impact of findings on Claim	-\$1.2M
	Cost	x	Total accepted	\$21.0M

Project Review

The project was included in the FY23 RSB. In FY23, the completed works comprised of partial completion of planned works and completion of additional works. These were:

- Partial completion of rail renewal, where work at one site was deferred due to procurement issues.
- Partial completion of sleeper renewal, where works at two sites were delayed due to weather conditions.

- Track upgrade works at one site were delayed to FY24 due to low stockpile levels. Moreover, track upgrade works delayed from FY22 were partially completed.

While the additional scope of works was approved in the FY22 RSB, the method of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of track renewals has been identified and approved through AN's established processes.

Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent of the works is not able to be demonstrated from the provided information. The assessment of prioritisation of nominated locations where renewal occurred within the network based on design standard, condition, age, and prior performance is not immediately or easily visible during the review. It is assumed that the prioritisation of formation renewals has been identified and approved through AN's established processes.

Regarding the benefit of capital investment into the network, there are a number of locations within the network where formation renewals would provide long term benefit to the future reliability and operational/maintenance needs.

Since the additional scope of works did not deviate from what was approved in the FY22 RSB, the completed scope is considered prudent. It is noted that a portion of the planned scopes for both rail and sleeper renewals, and track upgrades were deferred primarily due to wet weather and procurement issues. Moreover, there was insufficient documentation regarding how AN has identified and prioritised specific locations for track renewal. Therefore, it is recommended that AN document how and why individual projects have been prioritised over others, as suggested in Section 5.0.

Track renewal is a core maintenance activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS), and as per the EOFY Report, AN have confirmed that the works have been delivered in accordance with the relevant CETS.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal of deteriorated track and rail infrastructures aligns with the whole of life management of these assets.

From the information provided, it is clear that AN has made necessary consideration with regards to compliance with relevant laws and requirements. A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

The total cost incurred on sleeper renewal works was \$3.1M and the amount claimed in FY23 was \$2.7M. In FY23, a total of 2,793 sleepers were renewed. Using the approved unit rate (\$475/sleeper), derived from the FY23 Budget (\$3.6M) and FY23 planned scope (7,568 sleepers), the cost of the completed work, allowing for escalation, was projected at \$1.53M.

The EOFY status report highlights that the works were delayed due to adverse weather, rescheduling and an inability to procure external track workers. We note that issues related to procurement and rescheduling are a delay in scope and should have minimal impact on cost. In our view, the impact of adverse weather should not be significant enough **to justify the additional cost claimed of \$1.2M. As such, the project is considered imprudent.**

AECOM therefore recommends that the claim be reduced by \$1.2M, resulting in an approved claim amount of \$21M.

IV.00813 Turnout Renewal - Blackwater FY22

Project Overview

Turnouts, also referred to as Switches, facilitate train movement between tracks in duplicated sections. They enable entry and exit from passing loops, as well as transitions from the main line to spurs and balloon loops. A turnout comprises both civil assets, such as steel rail and sleepers, and Control Systems Assets, including points motors, rodding, and electronics. The primary focus of this program is to prioritise the renewal of entire turnouts, or their components based on the condition and degradation rate of the assets.

The specific scope of the planned works in Blackwater for FY22 were:

- Turnout Renewal – renew turnouts in four locations (the renewal works at Archer were delayed from FY21)

However, certain aspects of these works faced delays and were not completed in FY22:

- The renewal of Archer turnout, originally planned in FY21, was further postponed to FY23.
- Renewal at Bajool was deferred to FY23 at the request of an above rail operator.
- Two turnout renewals at Warren were deferred to future years to allow for further design option reviews.
- Works at Callemondah, originally planned in FY21, were further delayed, with scope being planned to be delivered over multiple financial years due to the complexity of the works.

Review Summary	Scope	✓	Capital Expenditure Claim	\$2.4M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$2.4M

Project Review

The project was included in the approved FY22 RSB. Works at four sites were delayed to FY23. In FY23, three of these sites were completed, while work at one site faced additional delays to future years due to access issues.

While the completed works were approved in the FY22 RSB, the method of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of turnout renewals have been identified and approved through AN's established processes.

Renewal of life expired and fully worn turnouts is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network.

Given that the scope of works had not departed from the approved RSB, the scope of the completed works are considered prudent.

Turnouts are a heavily utilised and high wearing asset. As such, ensuring these are renewed, when required, and well maintained is good and prudent practice to ensure a reliable network operation.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, although supported by a low level of documentation quality.

4.1.2 Ballast Cleaning

IV.00831 Ballast Renewal - Blackwater FY22

Project Overview

Ballast serves as the foundational material beneath rail infrastructure, but over time, it undergoes fouling from factors such as coal dust, general degradation, and sub soil contamination. Ballast cleaning is essential to remove these contaminants, restoring the drainage and load management properties of the ballast. This process helps divert away from the formation, distributes loads across the track structure, and reduces the risk of track geometry defects and formation failures, ultimately meeting drainage and load distribution requirements.

As part of a comprehensive initiative to renew foul, aging, or life-expired ballast in the CQCN, the renewals program addresses specific needs determined by the frequency of resurfacing activities (an indicator of deteriorating track geometry), track geometry, and GPR. The decisions are then reviewed and validated by Track Inspectors and Supervisors, matching the most fouled locations or those displaying the greatest degradation to the production of the Undercutting fleet while considering track access constraints.

The specific scope of the planned works in Blackwater for FY22 included:

- Mainline Undercutting – deliver 66.5km of undercutting using the Ballast Undercutting Machine (BCM) and excavator undercutter (C14)
- Turnout Undercutting – undercut 17 turnouts via the excavator undercutter.
- GPR – undertake survey to refine the ballast cleaning scope, allowing AN to not only identify sites that require cleaning, but to also trend locations over the period to understand degradation rates with a view to predict future renewal scope

However, in FY22, the renewals program experienced delays and couldn't complete the following works:

- 15.8km of mainline undercutting due to changes to the delivery model, wet weather, and a safety incident
- Three turnouts were removed from the program with the agreement of the Change Board.

Review Summary	Scope	✓	Capital Expenditure Claim	\$3.3M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$3.3M

Project Review

Ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure and cause delays through speed restrictions or increase risks of derailments.

The scope of works for this project is defined by AN as a renewal activity and is necessary where the overall TQI is poor as a result of ballast fouling, and is required to:

- Eliminate the risk of the loss of top and line
- Eliminate wheel unload that may result in derailment
- Remove existing and eliminate future speed restrictions
- Keep track quality within the track quality index for the passage of traffic at line-speed.

Although detailed information that substantiates the locations nominated for renewal was not available, discussion with AN (23/01/24) provided sufficient assurance that a rigorous approach has been adopted to determine these locations and the work is required to ensure the ongoing reliability of the rail network.

Insufficient information has been provided to determine that AN's policy of undertaking 140km of ballast renewal each year remain valid given that this policy has been ongoing since 2013. Although we have been advised that the rate of 140km per year has been agreed with the QCA and RIG, AN has not demonstrated that this rate is prudent. As such, it is recommended that AN's policy of undertaking a nominal 140km of ballast cleaning per year is reviewed.

As the scope of works has not departed from the approved RSB (FY22), despite experiencing delays, the scope is considered prudent. Provision of GPR Recommendations and TQI reporting to demonstrate that locations where undercutting occurred/was required would greatly aid the assessment.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, although supported by a low level of documentation quality.

IV.00832 Ballast Renewal - Blackwater FY23

Project Overview

Ballast serves as the foundational material beneath rail infrastructure, but over time, it undergoes fouling from factors such as coal dust, general degradation, and sub soil contamination. Ballast cleaning is essential to remove these contaminants, restoring the drainage and load management properties of the ballast. This process helps divert away from the formation, distributes loads across the track structure, and reduces the risk of track geometry defects and formation failures, ultimately meeting drainage and load distribution requirements.

As part of a comprehensive initiative to renew foul, aging, or life-expired ballast in the CQCN, this renewals program addresses specific needs determined by the frequency of resurfacing activities (an indicator of deteriorating track geometry), track geometry, and GPR. The decisions are then reviewed and validated by Track Inspectors and Supervisors, matching the most fouled locations or those displaying the greatest degradation to the production of the Undercutting fleet while considering track access constraints.

The specific scope of the planned works in Blackwater for FY23 included:

- Mainline Undercutting – deliver 73.6km of undercutting using the Ballast Undercutting Machine (BCM) and excavator undercutter (C14).
- Turnout Undercutting – undercut 20 turnouts via the excavator undercutter.
- GPR – undertake survey to refine the ballast cleaning scope, allowing AN to not only identify sites that require cleaning, but to also trend locations over the period to understand degradation rates with a view to predict future renewal scope.

However, in FY23, the renewals program experienced delays and the following works could not be completed:

- A portion of the mainline undercutting works were deferred due to various factors including resourcing, wet weather, and operational impacts.
- Works on one turnout were deferred due to operational impacts on the Moura system.

Review Summary	Scope	✓	Capital Expenditure Claim	\$34.7M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$34.7M

Project Review

The ballast renewal project (IV.00832) was originally scoped and approved in the FY23 RSB. In FY23, the completed works consisted of partial completion of planned works and completion of additional works. These were:

- Partial completion of the planned mainline undercutting works. Some scopes were deferred due to various factors including resourcing, wet weather, and operational impacts.
- Works on two turnouts weren't completed due to operational impacts.
- Additional scopes were added to both Mainline Undercutting and Mainline Excavator Undercutting works based on asset conditions.

The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Having an optimal functionality of the infrastructure requires maintaining clean, well-consolidated ballast with an appropriate profile.

The scope of additional works completed is consistent with the works approved in the FY23 RSB. Moreover, ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure and cause delays through speed restrictions or increase risks of derailments.

These works are defined by AN as a renewal activity and are needed where existing rail conditions are such that the overall TQI is poor as a result of ballast fouling and are required to:

- Eliminate the risk of the loss of top and line
- Eliminate wheel unload that may result in derailment
- Remove existing and eliminate future speed restrictions
- Keep track quality within the track quality index for the passage of traffic at line-speed.

Although detailed information to substantiate the locations nominated for renewal was unavailable, a discussion with AN (23/01/24) provided sufficient assurance that a rigorous approach has been adopted in determining these locations and the work is required to ensure the ongoing reliability of the rail network. Provision of GPR recommendations and TQR reporting would assist in substantiating the locations nominated for renewal.

Insufficient information has been provided to determine that AN's policy of undertaking 140km of renewal each year remain valid given that this has been ongoing since 2013. As such, it is recommended that AN's policy of undertaking a nominal 140km of ballast cleaning per year is reviewed.

If the expected life of the line is greater than 20 years, then investment in ballast undercutting / renewal seem reasonable. This judgement is purely based on past experience and anecdotal information regarding the condition of the AN. If the life expectancy of any element on the network is less than 20 years, a case study should be prepared to demonstrate the need for the specific line segment to undergo a renewal exercise.

Given that renewal of foul ballast is considered industry practice and in line with AN's policies, the scope of works is considered prudent. It is noted that the absence of GPR recommendations and TQR reporting limits the information available to demonstrate the prudence of the locations for undercutting works.

Ballast renewal is a core maintenance activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS), and as per the EOFY Report, AN has confirmed that the works have been delivered in accordance with the relevant CETS.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal of deteriorated and contaminated ballast aligns with the whole of life management of ballast assets.

From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Turnout Undercutting and GPR is considered prudent given the claim amount (\$3.2m total) equals the total spend. The additional claims for Mainline Undercutting and Mainline Excavator Undercutting are both considered prudent as they reflect the increased scope of work undertaken.

Overall, the claim cost (\$34.7m) is deemed prudent, although supported by a low level of documentation quality.

4.1.3 Control Systems

IV.00694 Control Systems Renewal Callemondah - Blackwater

Project Overview

The turnout at Callemondah was installed in the 1970's and is located at the beginning of Callemondah yard, all Blackwater loaded trains traverse these turnouts as they queue for the port. The current turnout type (1 in 12) and track alignment with a series of small curves are frequently maintained to manage rail defects. Moreover, interlockings in the yard were installed in the 1970's and train detection track circuits were installed in the 1980's. These assets are nearing end of life.

The future interlocking renewal required in the Callemondah Yards is being coordinated with the required turnout renewals in the same location with a view to minimise the track outage requirements and to maximise activities undertaken when track possessions are taken.

The specific scope of the planned works in Blackwater for FY22 included a renewal, design, and planning of the interlocking in Callemondah. In FY22, the renewal was unable to be completed due to delays with design and resource availability.

Review Summary	Scope	✓	Capital Expenditure Claim	\$5.8M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$5.8M

Project Review

The project was included in the approved FY22 RSB. The bulk of the work was completed in FY22, but design was not available in time for construction to be finalised before the final closure in FY22. This delayed scope was completed in FY23. The completed scope departed from what was approved due to rain delay and an increase to the power demand at the SER necessitating upgrade of the power systems. Additional costs related to the rain delay have been explained and approved.

The project is considered necessary to maintain current and future capacity levels. Control systems projects include AN's train control systems, asset protection and signalling control assets and not renewing these assets or components, which are reaching the end of their service life can impact the continuity of safe train operations. The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.

The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.

It was documented that additional power suppliers were required due to the increased demand from the point machine. It would be expected that the power supplies should have either have been upgraded or additional diversity implemented. This did lead to additional costs for pit and pipe, increased depth of a UTX and an increase in the Ergon supply. It is expected that this should have been identified in the original scope. As the scope document does not include any reference to new point machines or motors, it is not clear as to why the point machine power demand had increased.

It is recommended that additional explanation of the causes of additional costs be included in the change descriptions and impact statements.

The reason for the increased demand is unclear following a review of point machines. However, the additional scope reflects the items required to upgrade the power at an SER should the local supply have been exceeded.

Design standards are not listed in design documentation, however, adherence to AN standards are noted for construction. With respect to alignment with the asset management plan, the renewal of assets and/or components of the control system aligns with the whole of life management of this system.

Documentation is in place and approvals for the additional works have been provided and approved by the client. It is recommended that a more detailed explanation of the causes for additional costs should be included in the change descriptions and impact statements. The standard of works has been found to be prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

With regards to the prudence of cost, the total amount claimed (\$5.8m in FY23 and \$1.3m in FY22) has been found to be less than the total spend (\$7.4m).

On this basis the cost claimed in FY23 (\$5.8m) is deemed prudent, although supported by low level of documentation quality.

IV.00820 Control Systems Renewal - Blackwater FY22

Project Overview

Control Systems assets are the physical and digital assets that provide, train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, which allows for safe movement of more train services over the track structure.

This project is part of a broader program to renew aged and deteriorated assets in the network. The planned and completed renewal works in Blackwater were:

- **Power Resilience: Renewal of power supplies and battery pack.**
Planned scope was at two sites. They were not completed due to delays with procurement and availability of internal resources.
- **Safeworking - Asset Protection: Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, in order to mitigate the high consequence risks of track damage, derailment and dewirement.**
Planned scope was renewal of the rail weighbridges at Rolleston. However, the site renewed was altered to Kinrola, due to the assets at this location being identified as deteriorating at a faster rate.
- **Safeworking – Minor: Ongoing renewal of lower valued assets forming part of the system, to maintain average asset condition.**
Planned scope of works was 13 units. Three units were not completed due to resource availability and material supply delays.
- **Safeworking - Train Detection: Renewal of track circuits and replacement of aged track circuit sections with axle counters in geographical blocks based on interlocking boundaries (sites).**
Program includes long lead design for blocks of work in future years.
Planned scope was renewal and removal of circuits and counters at four sites. However, two of these sites were delayed due to rock significantly impacting cabling works.
- **Transmission and Data Renewal: TETRA Radio upgrades, Radome radio dish covers, Back-up power supplies**
Planned scope was for works on 19 units relating to control systems infrastructure, transmission, and data network. In FY22, these were partially completed due to delayed material delivery and prioritisation of constrained resources. Additional scope was also opportunistic ally completed based on criticality and condition.
- **UTC/DTC System Upgrades: Digital telemetry upgrades for the train control system.**
Planned scope was works at 12 sites; however, three were delayed due to limited availability of design resources.

Review Summary	Scope	✓	Capital Expenditure Claim	\$2.0M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$2.0M

Project Review

The project was included in the approved FY22 RSB. In FY22, several planned scopes were deferred to FY23, and of these, the works that were either completed or further delayed in FY23 were:

- Removal of two scopes related to power resilience works.
- Completion of train detection works at two sites (Wycarbah & Grantleigh).
- Completion of transmission & data renewals at 10 sites.
- Completion of six scopes related to UTC / DTC system upgrades.

Renewals in the Blackwater System Train Control Systems include in-field digital modernisation of the life expired analogue telemetry via the Train Control System plus safety and application enhancements to the Universal Train Control (UTC) system. They improve the safety functions of UTC to reduce potential scheduling and process errors and hence support access arrangements. UTC/DTC is critical to the operation of trains on the network.

The interlockings in Callemondah yard were installed in the 1970's and is beyond service life. Cabling between the interlocking and field equipment is regularly failing, and the condition of some cables have required re-routing of control functions over alternate paths by local cables. Power supplies supporting signalling are also beyond service life.

Replacement of obsolete equipment is required to maintain a safe and operational railway, as such, the scope of this project is considered prudent.

The standards followed to complete the additional scope of works align with both the approved works and industry benchmarks, and in the EOFY Report for Control systems, AN have confirmed that the works have been delivered in accordance with the relevant standards.

Therefore, the standard of the completed works is considered prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Assessment of cost for each of the works involved are summarised below:

- Claimed costs for Power Resilience, Safeworking - Asset Protection and Safeworking - Minor works are less than the total spend on the works. Thus, these are considered prudent.
- The unit rates of other works (Safeworking - Train Detection, Transmission and Data Renewal, and UTC/DTC) are comparable to approved unit rates. Therefore, these works are considered prudent.

Based on AECOM's assessment, the project cost is considered prudent, although supported by a low level of documentation quality.

IV.00821 Control Systems Renewal - Blackwater FY23

Project Overview

Control Systems assets are the physical and digital assets that provide, train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, that is they allow for the safe movement of more train services over the track structure.

This project is part of a broader program to renew aged and deteriorated assets in the network. The description, and both planned and completed works in Blackwater for FY23 were as below.

- Safeworking - Asset Protection: Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, to mitigate the high consequence risks of track damage, derailment and dewirement. Planned scope was renewal at three sites. However, one site wasn't completed due to external resources' unavailability.
- Transmission and Data Renewal: TETRA Radio upgrades, Radome radio dish covers, Back-up power supplies. Planned scope was works on 19 units and these were all completed in FY22.
- UTC/DTC System Upgrades: Digital telemetry upgrades for the train control system. Planned scope was works at eight sites; however, four were delayed due to late delivery of critical hardware.

Review Summary	Scope	✓	Capital Expenditure Claim	\$3.4M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$3.4M

Project Review

The project was included in the approved FY23 RSB. The works that were either completed or delayed in FY23 were:

- Partial completion of works related to asset protection. Two scopes were completed while one scope was delayed to FY24 due to unavailability of resources. Moreover, additional scope, originally planned for FY24, was added due to the asset condition.
- Partial completion of transmission and data renewals. Of the 26 planned scopes, seven were delayed primarily due to equipment and resourcing issues.

Resource constraints and prioritisation of available resources accounted for works not completed in FY23.

The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.

Removal of aged track circuits and the installation of axle counters will reduce the population count of devices and the overall failure rate of the signalling system.

Renewal or establishment of asset protection systems to monitor the live interface between train and track assets helps to mitigate the high consequence risks of track damage, derailment and dewirement.

Control systems projects include AN's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.

A number of assets have either become obsolete or reached end of life:

- Train detection track circuits were installed in the 1980's and are now at or near end of life.
- Asset protection equipment is obsolete or have aged technology that needs updating for operation in network.
- The weighbridges are obsolete with minimum spares available. The weighers renewal maintains and improves availability and reliability and improved measurements.

The scope is considered prudent, based on a medium level of document quality, as replacement of obsolete equipment is required to maintain a safe and operational railway.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements. No details have been provided with regards to construction sign off or testing / maintenance activities.

From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

The standard of this project is considered prudent, considering a medium level of document quality.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the unit rate for the completed works is higher to the unit rate for the planned works. Provided documentation and commentary substantiates the higher unit rate, on this basis the project is considered prudent.

IV.00678 Optical Fibre Renewal - Blackwater

Project Overview

Control Systems assets are the physical and digital assets that provide, train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, that is they allow for the safe movement of more train services over the track structure.

Optical Fibre Renewal relates to telecommunications, which is the data network required to connect assets to train control, using optic fibre network, digital radio, and microwave radio systems. The renewal of telecommunications assets reduces outages due to fibre faults and data flow interruptions and ensure the integrity of the safe working system. The telecommunications fibre asset was installed in 1980s and is operating beyond its design life and requires replacement. As such a multi-year project, spanning from FY21 to FY24, has been planned to renew optical fibres.

This project is part of the broader program, and in Blackwater, the planned works for FY23 specifically were to renew 48.3km of optic fibre, constituting 6% of total kilometres of optic fibre within the system. However, only 13.5km of the planned scope was completed due to reprioritisation of external resources and incomplete design considerations.

Review Summary	Scope	✓	Capital Expenditure Claim	\$4.4M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$4.4M

Project Review

The telecommunications fibre asset was installed in 1980s and is currently operating beyond its design life and requires replacement. As such a multi-year project, spanning from FY21 to FY24, has been planned to renew optical fibres. The project has been included in the approved FY23 RSB.

In FY23, the completed works consisted of partial completion of planned scope and completion of delayed FY22 scope:

- 13.5km of planned FY23 scope (48.3km) was completed due to reprioritisation of external resources and incomplete design considerations.
- 63km of delayed FY22 scope was completed.

The Asset Renewal report details that the Optic fibre renewals program was further assessed and consulted with the RIG prior to finalising the program in 2022. The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.

The existing assets were installed in the 1980's with 6 cores. As the cables life span was deemed to be 30 years, it is considered prudent to replace these cables given the likely deterioration of cable materials, and fibres. Evidence of testing to show degradation was not provided.

Renewal of optical fibre from the current asset condition ensures the optimal functionality of the control systems that use them and enables the introduction of technology improvements and innovations to deliver a more cost-effective service.

Scope to replace life expired cables and provision of more fibres to enable resilience and more opportunity for system monitoring is prudent.

The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards.

Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards and in compliance with relevant laws and requirements.

Based on AECOM's assessment, the standard is considered prudent, supported by medium level of documentation quality.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00692 Train Detection Renewal Central Line

Project Overview

Control Systems assets are the physical and digital assets that provide train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, which allows for safe movement of more train services over the track structure.

Train Detection Renewal focuses on the train control systems, specifically involving track circuits and axle counters. Track Circuits are electronic devices that were installed in the 1980's and are now starting to fail at an increased rate. Axle counters count wheels entering and exiting a section to ensure it is clear for a signalled train path. To renew these aged and deteriorated assets, a multi-year project renewal program commenced in 2017.

This project is part of the broader program, and in Blackwater, the planned works for FY23 specifically aimed to remove aged track circuits and the installation of axle counters at Tryphinia. While this aspect was successfully completed, delays in the scope from prior years persisted, contributing to further postponement of associated activities.

Review Summary	Scope	✓	Capital Expenditure Claim	\$7.2M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$7.2M

Project Review

The project was included in the approved FY22 RSB. AN completed most of the work in FY22, but some of it could not be included in the final closure of that year. This delayed scope was completed in FY23, and from the information provided, the scope of the completed works doesn't depart from what was approved in the FY22 RSB.

There were delays in the planned scope from prior years which contributed to further postponement of associated activities. Changes to the program is largely driven by resourcing constraints and prioritisation, and planning activities with third party stakeholders.

There are statements that change board approval has been gained for some projects, otherwise no further evidence has been provided.

The Track Circuits were installed in the 1980's and are now starting to fail at an increased rate. To renew these aged and deteriorated assets, a multi-year project renewal program commenced in 2017. Planned and pre-emptive replacements of these worn assets help to avoid unplanned failures and is in the interest of efficient whole of supply chain operation. As such, the renewals are required to maintain safe operation of the railway.

Scope to replace obsolete equipment is required to maintain a safe and operational railway and is considered prudent, supported by a medium level of documentation.

Renewal of control systems is a core maintenance activity undertaken by AN. The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards. From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

No details have been provided regarding construction sign-off or testing/maintenance activities.

Based on limited information provided and EOFY statement on delivered to standards work is prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.1.4 Electrical

IV.00826 Electrical Overhead Renewal - Blackwater FY22

Project Overview

Blackwater and Goonyella Systems are electrified, enabling the operation of electric rollingstock. The traction system comprises two main asset groups:

- Overhead Line Equipment (OHLE) - infrastructure distributes traction power to trains on the system.
- Traction Substations - stations provide a means of connecting to the high voltage transmission network (Powerlink or Ergon) and converting the transmission voltage (132kV or 275kV) down to 50kV for the traction system.

This project forms part of a broader Overhead Renewals in Goonyella and Blackwater which aims to systematically renew components across the extensive 2000km of OHLE. This is to mitigate faults and minimise disruptions and cancellations. The decision to renew these assets is guided by considerations such as age, environmental factors, and tonnage.

The specific scope of the planned works in Blackwater for FY22 is renewal of OHLE assets at 10 sites. However, during FY22, works at five sites weren't completed primarily due to resource constraints and equipment unavailability.

Inspection and maintenance that is regularly performed on the electrical substation and overhead line assets to lessen the likelihood of failure. Performed whilst the asset is in place and working so that it does not fail unexpectedly. Defects are managed to mitigate against infrastructure failure leading to unplanned outages.

Review Summary	Scope	✓	Capital Expenditure Claim	\$0.8M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$0.8M

Project Review

The Overhead Line Equipment (OHLE) renewal scope as documented in the approved FY22 Renewal Strategy and Budget (RSB) included works across three scope items as shown in Table 8. Electrical asset renewals are delivered annually to meet AN's commitments and to reduce electrical asset related delay.

Table 8 FY22 Overhead Line Equipment Scope – Blackwater (Extract from AN – FY22 Final Draft RSB)

Scope Item	Description
Overhead Reactive Works	Allocation to fix on fail for componentry renewals
Overhead condition monitoring and electrical connection improvement	Renewal of fatigued 7 strand earth wire and electrical connections to avoid future wire breakages leading to dewirements
Overhead feeder wire and Clearance improvement renewal	Increasing the clearance of the OHLE at several sites to bring back to current standard to minimise faults primarily due to wildlife

AN clarified, through a RFI, that the scope of works for the overhead condition monitoring consists of the installation of monitoring devices at 18 mast locations and that the description as per the RSB does not accurately represent the proposed works.

Overhead feeder wire renewal and overhead condition monitoring scope from FY22 was pushed out to FY23 due to delays in the procurement of detectors and is being included in the FY23 claim.

The FY22 approved scope that was delayed to FY23 is now indicated as being completed with practical completion certificates provided to support this.

The completed scope aligned with the approved FY22 MRSB and the works appear to be reasonable. However, there is limited evidence provided to support this in the form of condition monitoring of existing assets and replacement work priority.

The scope of work is considered to be prudent, supported by a medium level of documentation quality.

Practical Completion Certificates were provided for the Early Fault Detector installations, as part of the overhead condition monitoring scope, and drawings were provided for the Ambrose Feeder Wire Clearance works.

It is documented that the works were completed in accordance with AN's Standard Drawings and specifications and relevant Australian Standards. However, no other documentation such as ITPs, final installation photographs or test records was provided to further confirm and verify the statements. Therefore, it is recommended that AN provide documentation demonstrating the compliance of its works with the relevant standards.

The standard of work is considered to be prudent, supported by low level of documentation quality.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.1.5 Civil Assets

IV.00807 Formation Renewal - Blackwater FY22

Project Overview

Formation renewals target sections where track failures have caused alignment issues. These failures have led to speed restrictions and have necessitated the need for resurfacing. The renewals program aims to address these formation issues and avert potential operational delays in the future. The scope of the works planned in Blackwater for FY22 was to renew 1.74km of formation across four sites. In FY22, work on one site was not completed due to wet weather and was delayed to FY23.

Review Summary	Scope	✓	Capital Expenditure Claim	\$1.1M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$1.1M

Project Review

The project was included in the FY22 RSB. Of the planned scope in FY22, work at one site wasn't completed due to wet weather and was completed in FY23.

Overall, the works strategy is in line with the Network Development plan. The access agreement and Train Operation Deed require AN to provide, maintain and manage rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining rail and track structures.

These works are a Capital Infrastructure activity and are needed where existing rail conditions are such that the overall TQI is poor as a result of formation movement / plastic failure and are required to:

- Eliminate the risk of loss of top and line,
- Eliminate wheel unload that may result in derailment,
- Remove existing and eliminate future speed restrictions,
- Keep track quality within the track quality index for the passage of traffic at line-speed.

The works is considered necessary to maintain current and future capacity levels. Track and rail are both key pieces of infrastructure required to operate the network, and its deterioration not only poses significant safety risks but also causes major disruptions to services.

Sites for formation renewals are stated as adopting AN's scope priority model and should be prioritised based on consequence and condition.

Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.

AN has stated that the works were completed to standard in the documentation, however, no details demonstrated that the works were constructed / completed to the design.

Formation renewals follow an approved and prescribed design approach. AN's role as RIM, is required, to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.2 Goonyella System

The following section provides a detailed review of each sampled project within the Goonyella system, assessing the prudence of scope, standard and cost.

4.2.1 Permanent Way

IV.00801 Track Renewal – Goonyella FY22

Project Overview

Track renewal is a coordinated program focussed on renewing the entire track system, encompassing sleepers, rail, and other key components. The primary objective is to optimise the efficiency of asset renewal efforts by consolidating efforts and mobilising resources to a site in a single operation. This holistic approach, as opposed to addressing individual elements separately, proves to be both cost-effective and time efficient.

The coordinated program prioritises the replacement of life-expired or critical elements, ensuring the continuous safety and functionality of the network. It forms part of a broader track renewals program on the CQCN. The specific scope of the works planned in Goonyella for FY22 were:

- Rail Renewal – at 17 sites where rail has either reached (or is near) its wear limit or has seen tonnages that indicate near-term failure due to rail fatigue.
- Sleeper Renewal – replace 1,204 sleepers delivered across three sites.
- Track Upgrade – at 10 sites, encompassing 15.2km of track renewal and replacement of 23,918 sleepers.
- Permanent Way Other – ancillary works such as glued insulated joints and rail lubrication.

Of these works, a segment of Track Upgrades, specifically at two sites, experienced delays due to wet weather. These upgrades were delayed to FY23.

Review Summary	Scope	✓	Capital Expenditure Claim	\$3.3M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$3.3M

Project Review

The project was approved in the FY22 RSB. Although the works commenced in FY22, it was delayed due to wet weather and was completed in FY23. Based on the information provided, the scope of works has not departed from what was approved in the FY22 RSB.

While the completed works were approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of track renewals has been identified and approved through AN's established processes. Sites for track renewals are stated as adopting AN's Scope Priority Model and should be prioritised based on criticality and condition.

Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. There are a number of locations within the network where rail renewals would provide long-term benefit to the future reliability and operational and/or maintenance needs.

Given that the additional scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.

Track renewal is a core maintenance activity undertaken by AN. Given that the completed works were approved in the FY22 RSB, it is considered that the work undertaken is in alignment with industry recognised standards.

The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

Since the standard of works did not deviate from what was approved in the FY22 RSB, the standard of works is considered prudent despite the incomplete provision of information.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

An RFI was raised requesting commentary explaining why the claim amount (\$3.3M) is greater than the incurred costs (\$2.2M). AN's response clarified that the variance (\$1.1M) represented the claim for FY22 works, which was less than the actual costs incurred during that period.

Documentation provided supports this clarification and the project costs are considered efficient.

IV.00802 Track Renewal – Goonyella FY23

Project Overview

Track renewal is a coordinated program focussed on renewing the entire track system, encompassing sleepers, rail, and other key components. The primary objective is to optimise the efficiency of asset renewal efforts by consolidating efforts and mobilising resources to a site in a single operation. This holistic approach, as opposed to addressing individual elements separately, proves to be both cost-effective and time efficient.

The coordinated program prioritises the replacement of life-expired or critical elements, ensuring the continuous safety and functionality of the network. It forms part of a broader track renewals program on the CQCN network in FY23. The specific scope of the works planned in Goonyella system were:

- Rail Renewal – at 17 sites where rail has either reached (or is near) its wear limit or has seen tonnages that indicate near-term failure due to rail fatigue.
- Sleeper Renewal – replace 10,885 sleepers delivered across six sites.
- Track Upgrade – at six sites, encompassing 13.0km of track renewal and replacement of 17,732 sleepers.
- Permanent Way Other – ancillary works such as glued insulated joints, rail lubrication, rail fix on fail and slab track reactive works.

A portion of these works faced delays and weren't completed in FY23. These were:

- Rail renewal at Black Mountain was deferred to future years due to the asset condition showing slower than forecast deterioration.
- Additional scope was added in the form of sleeper replacements in four sidings following an asset condition assessment.
- Track upgrades at two sites were delayed due to operational impacts and rescheduled to FY24.

Review Summary	Scope	✓	Capital Expenditure Claim	\$29.7M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$29.7M

Project Review

The project was included in the FY23 RSB. In FY23, the completed works comprised of partial completion of planned works and the completion of additional works. These were:

- Partial completion of rail renewal works, where work at one site was deferred due to asset condition showing slower than forecasted deterioration.
- Partial completion of track upgrades, where works at two sites were delayed to FY24 due to operational impacts. The upgrades delayed from FY22 were also completed.
- Additional scopes included sleeper replacements in four sidings following an asset condition assessment.

The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining rail and track structures.

Track and rail are both key pieces of infrastructure required to operate the network and its deterioration not only poses significant safety risks but also causes major disruptions to services if it was to fail. The project is considered necessary to maintain current and future capacity levels.

The assessment of prioritisation of nominated locations based on construction design standard age and prior performance is not immediately or easily visible during the review. It is assumed that prioritisation of formation renewals have been identified and approved through AN's established processes. Sites for formation renewals are stated as adopting AN's Scope Priority Model and should be prioritised based on criticality and condition.

Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency are not able to be demonstrated from the provided information. There are a number of locations within the network where rail renewals provide long-term net benefit to the future reliability and operational and/or maintenance needs.

Planned scope of rail renewal and track upgrades weren't completed due to incorrect assessment of conditions and unforeseen operational impacts, respectively. Moreover, additional sleeper renewals were completed following an asset condition assessment. The decisions for these delayed and additional works are considered reasonable and is therefore considered prudent.

Track renewal is a core maintenance activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS), and as per the EOFY Report, AN have confirmed that the works have been delivered in accordance with the relevant CETS.

The asset upgrades are undertaken to a documented and approved standards. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

The project cost claim \$29.7M is considered prudent after reviewing commentary Notes 3, 4, 5 in AN's end of financial year reports relating to external factors outside of AN's control.

4.2.2 Ballast Cleaning

IV.00831 Ballast Renewal – Goonyella FY22

Project Overview

Ballast serves as the foundational material beneath rail infrastructure, but over time, it undergoes fouling from factors such as coal dust, general degradation, and sub soil contamination. Ballast cleaning is essential to remove these contaminants, restoring the drainage and load management properties of the ballast. This process helps divert away from the formation, distributes loads across the track structure, and reduces the risk of track geometry defects and formation failures, ultimately meeting drainage and load distribution requirements.

As part of a comprehensive initiative to renew foul, aging, or life-expired ballast in the CQCN, this renewals program addresses specific needs determined by the frequency of resurfacing activities (an indicator of deteriorating track geometry), track geometry, and GPR. The decisions are then reviewed and validated by Track Inspectors and Supervisors, matching the most fouled locations or those displaying the greatest degradation to the production of the Undercutting fleet while considering track access constraints.

The specific scope of the planned works in Goonyella for FY22 included:

- Mainline Undercutting – deliver 65.2km of undercutting using the Ballast Undercutting Machine (BCM) and excavator undercutter (C14).
- Turnout Undercutting – undercut 23 turnouts via the excavator undercutter.
- GPR – undertake survey to refine the ballast cleaning scope, allowing AN to not only identify sites that require cleaning, but to also trend locations over the period to understand degradation rates with a view to predict future renewal scope.

However, in FY22, the renewals program experienced delays and couldn't complete the following works:

- A portion of the mainline undercutting works were deferred due to various factors including wet weather and change in delivery model which was approved by the Change Board.
- Works on three turnouts were deferred due to contractor availability and inclement weather.

Review Summary	Scope	✓	Capital Expenditure Claim	\$10.7M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$10.7M

Project Review

The project was approved in the FY22 RSB, and although the works commenced in FY22, it experienced delays due to wet weather and a portion was completed in FY23. Other portions that were deferred to FY23 have been further delayed to future years due to prioritisation of works.

Ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure, and cause delays through speed restrictions or increase risks of derailments.

Ballast undercutting works are defined by AN as a renewal activity and are needed where existing rail conditions are such that the overall TQI is poor as result of ballast fouling and are required to:

- Eliminate the risk of the loss of top and line
- Eliminate wheel unload that may result in derailment
- Remove existing and eliminate future speed restrictions
- Keep track quality within the track quality index for the passage of traffic at line-speed.

Although detailed information that substantiates the locations nominated for renewal was not available, a discussion with AN (23/01/24) provided sufficient assurance that a rigorous approach has been adopted in determining these locations and the work is required to ensure the ongoing reliability of the rail network.

The scope of works is based on AN's policy of undertaking 140km of renewal per year. Although AN advised that 140km per year is agreed with the QCA and RIG, there is no demonstration by AN to demonstrate that the extent of these works is prudent. It is recommended that AN's policy of undertaking a nominal 140km per year ballast cleaning (defined as a renewal) be reviewed.

The works in scope of this project are considered prudent considering no departures from the approved RSB. Provision of GPR recommendations and TQI reporting to demonstrate that locations where undercutting has occurred was required would greatly aid the assessment. The impact of the wet weather experienced in early 2022 is recognised with regard to scope productivity, however additional substantiation of lost productivity would be beneficial.

Ballast renewal is recognised as a core maintenance and renewal activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS), and as per the EOFY Report, AN have confirmed that the works have been delivered in accordance with the relevant CETS.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal of deteriorated and contaminated ballast aligns with the whole of life management of ballast assets.

From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements. A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00832 Ballast Renewal – Goonyella FY23

Project Overview

Ballast serves as the foundational material beneath rail infrastructure, but over time, it undergoes fouling from factors such as coal dust, general degradation, and sub soil contamination. Ballast cleaning is essential to remove these contaminants, restoring the drainage and load management properties of the ballast. This process helps divert away from the formation, distributes loads across the track structure, and reduces the risk of track geometry defects and formation failures, ultimately meeting drainage and load distribution requirements.

As part of a comprehensive initiative to renew foul, aging, or life-expired ballast in the CQCN, this renewals program addresses specific needs determined by the frequency of resurfacing activities (an indicator of deteriorating track geometry), track geometry, and GPR. The decisions are then reviewed and validated by Track Inspectors and Supervisors, matching the most fouled locations or those displaying the greatest degradation to the production of the Undercutting fleet while considering track access constraints.

The specific scope of the planned works in Goonyella for FY23 included:

- Mainline Undercutting – deliver 61km of undercutting using the Ballast Undercutting Machine (BCM) and excavator undercutter (C14).
- Turnout Undercutting – undercut 24 turnouts via the excavator undercutter.
- GPR – undertake survey to refine the ballast cleaning scope, allowing AN to not only identify sites that require cleaning, but to also trend locations over the period to understand degradation rates with a view to predict future renewal scope.

However, in FY23, the renewals program experienced delays and couldn't complete the following works:

- A portion of the mainline undercutting works were deferred due to various factors including limited possession time, equipment unavailability and prioritisation of reactive works.
- Works on three turnouts were deferred due to wet weather and limited possession time.

Review Summary	Scope	✓	Capital Expenditure Claim	\$27.9M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$27.9M

Project Review

The project was included in the FY23 RSB. In FY23, the completed works consisted of partial completion of planned works and completion of additional works. These were:

- Partial completion of the planned mainline undercutting works. Some scopes were deferred to future years due to various factors including limited possession time, unavailable equipment, and prioritisation of reactive works.
- Works on three turnouts weren't completed due to wet weather and limited possession time.
- Additional scope (reactive) was added to Mainline Excavator Undercutting works based on asset condition.

The access agreement and Train Operation Deed require AN to provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining clean, well-consolidated ballast with an appropriate profile.

The scope of works of this project is defined by AN as a renewal activity and is needed where the overall TQI is poor as result of ballast fouling and is required to:

- Eliminate the risk of the loss of top and line.
- Eliminate wheel unload that may result in derailment.
- Remove existing and eliminate future speed restrictions.
- Keep track quality within the track quality index for the passage of traffic at line-speed.

Although detailed information that substantiates the locations nominated for renewal was unavailable, a discussion with AN (23/01/24) provided sufficient assurance that a rigorous approach has been adopted in determining these locations and the work is required to ensure the ongoing reliability of the rail network.

The scope of works is based on AN's policy of undertaking 140km of renewal per year. AN advised that the policy has been agreed with the QCA and RIG and is supported by an Independent Review that was completed in 2013. However, AN has not demonstrated the prudence of the extent of these works, particularly considering that the policy has been ongoing since 2013. It is recommended that AN's policy of undertaking a nominal 140km per year ballast cleaning be reviewed.

Ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure, and cause delays through speed restrictions or increase risks of derailments.

Given that renewal of foul ballast is considered industry practice and in line with AN's policies, the scope of works is considered prudent. It is noted that the absence of GPR recommendations and TQR reporting limits the information available to demonstrate the prudence of the locations for undercutting works.

Ballast renewal is a core maintenance and renewal activity undertaken by AN. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards. From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00804 Bridge Ballast Renewal – Goonyella FY22

Project Overview

Ballast serves as the foundational material beneath rail infrastructure, but over time, it undergoes fouling from factors such as coal dust, general degradation, and sub soil contamination. Ballast cleaning is essential to remove these contaminants, restoring the drainage and load management properties of the ballast. This process helps divert away from the formation, distributes loads across the track structure, and reduces the risk of track geometry defects and formation failures, ultimately meeting drainage and load distribution requirements.

As part of a comprehensive initiative to renew foul, aging, or life-expired ballast in the CQCN, the renewal program addresses the contaminated ballast on bridges. Due to the width, height, and environmental constraints, these are completely replaced with new ballast. The renewal sites are determined by the frequency of resurfacing activities (an indicator of deteriorating track geometry), track geometry, and GPR. The decisions are then reviewed and validated by Track Inspectors and Supervisors, matching the most fouled locations or those displaying the greatest degradation to the production of the Undercutting fleet while considering track access constraints.

The specific scope of the planned works in Goonyella for FY22 included:

- Bridge Rollout – to deliver four bridge rollouts for a total of 460m.

However, in FY22, the works were unable to be completed at one site (Hughes Creek) due to inclement weather and was postponed to FY23.

Review Summary	Scope	✓	Capital Expenditure Claim	\$0.6M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$0.6M

Project Review

The project was approved in the FY22 RSB. A portion of planned works at one site were delayed due to wet weather and it was completed in FY23. Based on the information provided, the completed scope in FY23 had not departed from what was originally approved in the FY22 RSB.

While the completed scope was approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of bridge ballast renewals has been identified and approved through AN's established processes.

Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency of bridge ballast renewal cannot be demonstrated from the provided information, however, undertaking renewals of deteriorated bridge ballast provide long-term net benefit to the future reliability and operational and/or maintenance needs.

The total scope of completed works included the works that were delayed from FY22. Overall, the scope of the works is considered prudent.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality. Moreover, total claimed amount (\$1.6m in FY22 and \$0.6m in FY23) is equal to the total spend on the project.

4.2.3 Control Systems

IV.00820 Control Systems Renewal – Goonyella FY22

Project Overview

Control Systems assets are the physical and digital assets that provide, train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, which allows for the safe movement of more train services over the track structure.

This project is a part of a broader program to renew aged and deteriorated assets in the network. The, planned and completed works in Goonyella for FY22 were.

- **Power Resilience: Renewals of power supplies and battery pack.**
Planned scope was at 12 sites. In FY22, works were completed at 14 sites, with the increase in quantity being due to the carryover of 21 from the previous scope/year.
- **Safeworking - Asset Protection: Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, to mitigate the high consequence risks of track damage, derailment and dewirement.**
Planned scope was renewals at two sites; however, neither were completed primarily due to wet weather.
- **Safeworking – Minor: Ongoing renewal of lower valued assets forming part of the system, to maintain average asset condition.**
Planned scope of works was 33 units. However, only five were completed due primarily due to material delivery.
- **Safeworking - Train Detection: Renewal of track circuits and replacement of aged track circuit sections with axle counters in geographical blocks based on interlocking boundaries (sites). The program includes long lead design for blocks of work in future years.**
The planned scope was renewal and removal of circuits and counters at three sites. In FY22 all these works were completed.
- **Transmission and Data Renewal: TETRA Radio upgrades, Radome radio dish covers, Back-up power supplies.**
The planned scope was for works at 24 sites, relating to control systems infrastructure, transmission, and data network. In FY22, 50 pieces of scope were completed; the increase in quantity was the result of the delayed scope from FY21 and additional FY22 scope.

Review Summary	Scope	✓	Capital Expenditure Claim	\$2.4M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$2.4M

Project Review

The project has been included in the approved FY22 RSB. In FY22, several planned scopes were deferred to FY23, and of these, the works that were either completed or further delayed in FY23 were:

- Partial completion of works related to asset protection. One scope was further delayed to FY24 due to procurement.
- Partial completion of planned transmission & data renewals. Works at four sites were completed and work at one site was further delayed due to unavailability of key external resources.

Because all the works completed were agreed in the FY22 RSB, the scope is considered prudent.

The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards.

No details were provided regarding construction sign-off or testing/maintenance activities.

Based on limited information provided and EOFY statement on delivered to standards work is prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

With regards to the prudence of cost, the total amount claimed on the project (\$2.1m in FY22 and \$2.4m in FY23) is less than the total spend on the project.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00821 Control Systems Renewal – Goonyella FY23

Project Overview

Control Systems assets are the physical and digital assets that provide train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, which allows for the safe movement of more train services over the track structure.

This project is part of a broader program to renew aged and deteriorated assets in the network. The planned and completed works in Goonyella for FY23 were as below.

- **Power Resilience: Renewals of power supplies and battery pack.**
Planned scope was at 10 sites. In FY23, works at three sites weren't completed due to change in scope.
- **Safeworking - Asset Protection: Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, to mitigate the high consequence risks of track damage, derailment and dewirement.**
Planned scope was renewal at four sites. However, one site wasn't completed due to external resources' unavailability.
- **Safeworking - Train Detection: Renewal of track circuits and replacement of aged track circuit sections with axle counters in geographical blocks, based on interlocking boundaries (sites). The program includes long lead designs for blocks of work in future years.**
Planned scope was renewal and removal of circuits and counters at three sites. In FY22 all works were completed.
- **Transmission and Data Renewal: TETRA Radio upgrades, Radome radio dish covers, Back-up power supplies**
Planned scope was for works at 34 sites, however the works at seven sites were delayed primarily due to resource availability.
- **UTC/DTC System Upgrades: Digital telemetry upgrades for the train control system**
Planned scope was renewal at one site (Moranbah) and design works at two other sites. While the renewal was completed in FY23, the design scope was delayed due to late delivery of critical hardware.

Review Summary	Scope	✓	Capital Expenditure Claim	\$6.4M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$6.4M

Project Review

The project was included in the approved FY23 RSB. In FY23, the planned works were either completed or delayed to future years. These were:

- Completion of works related to power resilience.
- Partial completion (3 scopes out of 4) of asset protection works. One scope was delayed due to procurement issues, now planned to be completed in FY24.
- Partial completion of train detection works. A scope at Issac Plains was delayed to FY24 due to delays in design.
- Partial completion of transmission and data renewals. Six out of 35 scope were delayed primarily due to resource issues.
- Partial completion (2 out of 4 scopes) of UTC / DTC works. Works were delayed to due late delivery of critical hardware.

Changes to the program is largely driven by resourcing constraints and prioritisation, and planning activities with third party stakeholders.

Multiple assets are obsolete or at near end of life:

- Train detection track circuits were installed in the 1980's and are at or near end of life.
- Asset protection equipment is obsolete or has aged technology that should be updated for operation in network.
- The geotechnical measurement systems at Black Mountain are comprised of obsolete equipment and are becoming unreliable.

Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.

It was also noted that the increased costs of Millennium, Lake Vermont and Carborough Downs Weighers was stated as being presented and approved by the change control board in May 2022.

Replacement of obsolete equipment is required to maintain a safe and operational railway. Based on AECOM's assessment, the scope is considered prudent, supported by a medium level of documentation quality.

Renewal of control systems renewal is a core maintenance activity undertaken by AN. The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards.

From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

Based on limited information provided and EOFY statement on delivered to standards work is prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00678 Optical Fibre Renewal – Goonyella

Project Overview

Control Systems assets are physical and digital assets that provide train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, which allows for the safe movement of more train services over track structure.

Optical Fibre Renewal relates to telecommunications, which is the data network required to connect assets to train control, optic fibre network, digital radio, and microwave radio systems. The renewal of telecommunications assets reduces outages due to fibre faults and data flow interruptions and ensures the integrity of the safe working system. The telecommunications fibre asset was installed in 1980s and is currently operating beyond its design life and requires replacement. Hence, a multi-year project, spanning from FY21 to FY24, had been planned to renew optical fibres.

This project is part of the broader program, and in Goonyella, the planned works for FY23 specifically was to renew 117km of optic fibre, constituting 19.5% of total kilometres of optic fibre within the system. However, only 50.7km of the planned scope was completed due to inclement weather conditions.

Review Summary	Scope	✓	Capital Expenditure Claim	\$9.9M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$9.9M

Project Review

The project has been included in the approved FY23 RSB. The telecommunications fibre asset was installed in 1980s and is operating beyond its design life and requires replacement. As such a multi-year project, spanning from FY21 to FY24, had been planned to renew optical fibres.

In FY23, the completed works consisted of partial completion of the planned scope and completion of delayed FY22 scope:

- 50.7km of planned FY23 scope (117km) was completed due to inclement weather conditions.
- 90km of delayed FY22 scope was completed.

Renewal of optical fibre from the current asset condition ensures the optimal functionality of the control systems that use them and enables the introduction of technology improvements and innovations to deliver a more cost-effective service.

The existing assets were installed in the 1980's with 6 cores and as such, it is considered prudent to replace these cables given the likely deterioration of cable materials, and fibres.

As per the EOFY Status Report, AN must deliver the projects meeting the requirements of the RSNL and ONRSR.

The Asset Renewal report details that the Optic fibre renewals program was further assessed and consulted with the RIG prior to finalising the program in 2022.

Scope to replace life expired cables and provision of more fibres to enable resilience and more opportunity for system monitoring is prudent.

The renewal of fibre optic cable and the expansion of cores gives greater resilience to the network and potential to support future improvements with ability to utilise additional fibre connectivity.

The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards. From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

Based on AECOM's assessment, the project standard is considered prudent, supported by a medium level of documentation quality.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.2.4 Structures

IV.00817 Structures Renewal – Goonyella FY23

Project Overview

Structures Renewal encompasses both bridges and culverts, which facilitate water flow through the rail formation or for access under the track. Bridges are located at large hydrological water flows (rivers, creeks etc). Culverts are located at low points to accommodate overland flows within the track infrastructure.

The culverts used in the railway are typical of concrete culverts and corrugated metal pipes used in civil construction and Maintenance in other heavy civil uses (roads, mines, airport runways etc). Given this, the design activity for culvert renewals is outsourced to design houses with demonstrated experience in site specific design matching standard units to local conditions to achieve the required hydrology functionality.

The project forms part of a broader program in CQCN to renew deteriorated or life-expired structures. The assets are inspected, are assigned a condition rating, and allotted a location criticality. Subsequently, structures are ranked based on their condition and operational criticality rating.

The specific scope of the planned works in Goonyella for FY23 included:

- Bridge Renewal – address the deteriorated bridge bearing pads of one bridge (Mindi-Nebo Creek) identified to be in poor condition.
- Culvert Renewal – undertake culvert renewals at seven designated sites

However, one site in the culvert renewal works was not completed due to constraints in contractors' resources. Additionally, certain culvert work initially scheduled for FY28 was opportunistically completed.

Review Summary	Scope	✓	Capital Expenditure Claim	\$6.2M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$6.2M

Project Review

The project was included in the approved FY23 RSB. Additional scope was added to the culvert renewal works (+5) and culvert design works (+12) for works that were delayed from previous years or new scope based on condition. One planned culvert renewal was deferred until FY24.

AN is currently undertaking a concept study into increasing the capacity of the Goonyella system.

The Access Agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates repairing, replacing, or removing life-expired structures with new structures compliant with 300LA loading configurations.

The selection of structures for renewal was based on poor condition, age and the risk associated with delaying the works further.

The works are considered necessary to maintain current and future load capacity requirements. Bridges and culverts play a key role in facilitating the natural flow of water throughout the network. The deterioration of this infrastructure not only poses a significant safety risk but also causes major disruptions in service.

Planned and pre-emptive replacement of the worn assets avoids unplanned failures and is in the interest of an efficient, whole-of-supply chain operation. Deferral of culvert works would potentially lead to simple culvert lining solutions becoming unfeasible requiring more expensive renewals and greater impact on access.

As per the EOFY Status Report, the works delivered meet the requirements of AN's SMS, which includes CETS and CESS. No outcomes from user consultation that negatively impact access charges in relation to the structures work were witnessed in the information provided.

The scope of works was warranted and justifiable due to poor condition and age of the assets, as well as network criticality and consequences on operation and safety of network.

Structures renewal is a key maintenance activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS) and Civil Engineering Structures Standard (CESS), and as per the EOFY Report, AN has confirmed that the works have been delivered in accordance with the relevant CETS and CESS.

The works mitigate against the loss of structural integrity in bridges and culverts and the consequent loss of access and necessary drainage provisions.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.

The works are consistent with the AN Asset Management Plan. Culvert CU200453 was originally identified for replacement (due to condition) in FY28, however it was able to be incorporated into other major project works in FY23 allowing for earlier asset replacement at reduced cost and reduced impact to access.

From the information provided, it is considered that AN has made the necessary consideration with regards to compliance with relevant laws and requirements.

Documentation (IFC Drawings) was provided for the bridge bearing renewal and for a sample of the various culvert linings and renewals. Design and construction solutions provided were of a type and standard consistent with typical solutions provided for similar applications on previous projects and are considered to provide good, low impact solutions where possible.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Assessment for each works involved summarised below:

1. Bridges - unit rate of completed works (\$2.28m/unit) is similar to the unit rate of the approved works (\$2.26m/unit)
2. Culvert Renewal - unit rate of completed works (\$0.72m/unit) is similar to the unit rate of the approved works (\$0.7m/unit)

Overall, the total cost claimed (\$6.2m) is deemed prudent based on provided documentation.

4.2.5 Electrical

IV.00826 Electrical Overhead Renewal – Goonyella FY22

Project Overview

Blackwater and Goonyella Systems are electrified, enabling the operation of electric rollingstock. The traction system comprises two main asset groups:

- Overhead Line Equipment (OHLE) - infrastructure distributes traction power to trains on the system.
- Traction Substations - stations provide a means of connecting to the high voltage transmission network (Powerlink or Ergon) and converting the transmission voltage (132kV or 275kV) down to 50kV for the traction system.

This project forms part of a broader Overhead Renewals in Goonyella and Blackwater which aims to systematically renew components across the extensive 2000km of OHLE. This is to mitigate faults and minimise disruptions and cancellations. The decision to renew these assets is guided by considerations such as age, environmental factors, and tonnage.

The specific scope of the planned works in Goonyella for FY22 is renewal of OHLE assets across 10 sites. However, during FY22, renewal efforts at five sites weren't completed. This was influenced by a variety of factors, including adverse weather conditions, changes in project scope, and the availability of external contractors.

Review Summary	Scope	✓	Capital Expenditure Claim	\$2.5M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$2.5M

Project Review

The Overhead Line Equipment (OHLE) renewal scope as documented in the approved FY22 Renewal Strategy and Budget (RSB) included of 10 units of scope.

Overhead feeder wire renewal, headspan upgrades and registration equipment works was not completed in FY22 and has been pushed out to FY23.

- FY22 headspan scope was deferred into FY23 as planned assess was used for FY21 scope which rolled into FY22, and additional closures planned were impacted by wet weather.
- Registration equipment works were delayed in FY22 due to deferral of resources to a dewirement.
- Feeder wire renewal works was clarified to have been works completed in FY22 but commissioned in FY23.

The above listed FY22 approved scope that was delayed to FY23 is now indicated as being completed with practical completion certificates provided to support this.

It is noted that the DBCT/Hay Point OHLE Renewal works were not completed in FY22 and has not been included in the FY23 claim. It is unclear if this scope is still to be completed and claimed in a future claim.

The completed scope aligned with the approved FY22 MSRB and the works appear to be reasonable, however, there is limited evidence provided to support this in the form of condition monitoring of existing assets and replacement work priority.

The scope of work is considered to be prudent, supported by a low level of documentation quality.

Practical Completion Certificates were provided for the headspan improvement works and registration equipment works drawings were provided for the Waitara Feeder Wire Clearance works. It is documented that the works were completed in accordance with AN's Standard Drawings and specifications and relevant Australian Standards, however, limited documentation such as drawings, ITPs or test records were provided to further confirm and verify the statements.

The standard of work is considered to be prudent, supported by low level of documentation quality.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00823 Power Systems Renewal – Goonyella FY22

Project Overview

Blackwater and Goonyella Systems are electrified, enabling the operation of electric rollingstock. The traction system comprises two main asset groups:

- Overhead Line Equipment (OHLE) - infrastructure distributes traction power to trains on the system.
- Traction Substations - stations provide a means of connecting to the high voltage transmission network (Powerlink or Ergon) and converting the transmission voltage (132kV or 275kV) down to 50kV for the traction system.

All the traction substations which were built as part of the main line electrification in the 1980s are nearing the end of their service life. AN is employing best-practice asset management techniques to maintain the performance of this infrastructure. In parallel with this AN is in the Concept phase of a project to renew these ageing substations. As the Concept phase develops AN will liaise with the RIG to agree on appropriate options for these renewals.

The project aims to renew assets that have reached the end of their life, ensuring the safe operation of electrified system equipment, particularly when there is a loss of system power (battery back-up). The scope of planned works for FY22 included the renewal at seven sites and these works were all completed.

Review Summary	Scope	✓	Capital Expenditure Claim	\$0.8M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$0.8M

Project Review

The power systems renewal scope as documented in the approved FY22 Renewal Strategy and Budget (RSB) included of 51 units of scope.

Motorised isolator renewals and protection relays renewals scope was not fully completed in FY22 and had to be deferred to FY23.

- 12 out of 20 motorised isolators were completed in FY22 with 8 postponed due to resource constraints.
- 11 out of 15 protection relay renewals were completed in FY22 with 4 relay renewals at Mindi feeder station not completed due to extended lead times for relays.

The above listed FY22 approved scope that was delayed to FY23 is now indicated as being completed with practical completion certificates provided to support this. The completed scope aligned with the approved FY22 MRSB and the works appear to be reasonable. However, there is limited evidence provided to support this in the form of condition monitoring of existing assets and replacement work priority.

The scope of work is considered to be prudent, supported by a medium level of documentation quality.

Practical Completion Certificates were provided for the motorised isolator renewals and protection relay renewal projects.

It is documented that the works were completed in accordance with AN's Standard Drawings and specifications and relevant Australian Standards. However, no other documentation such as design drawings, ITPs, final installation photographs or test records was provided such as to further confirm and verify the statements.

The standard of work is considered to be prudent, supported by low level of documentation quality.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.2.6 Civil Assets

IV.00807 Formation Renewal – Goonyella FY22

Project Overview

Formation renewals target sections where failures have occurred, causing track alignment issues, and necessitating speed restrictions and resurfacing. Addressing these locations in the scope resolves the underlying formation problem, preventing future operational delays. The scope of the works planned in Goonyella for FY22 were to renew 1,023km of formation across four sites. In FY22, two sites weren't completed due to wet weather and were delayed to FY23.

Review Summary	Scope	✓	Capital Expenditure Claim	\$2.0M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$2.0M

Project Review

The project was approved in the FY22 RSB. The project has been included in the approved FY22 RSB. Two formation renewal works were delayed in FY22 due to wet weather and completed in FY23.

These works are considered a Capital Infrastructure activity and are needed where the overall TQI is poor as a result of formation movement / plastic failure. These works are required to:

- eliminate the risk of the loss of top and line
- eliminate wheel unload that may result in derailment
- remove existing and eliminate future speed restrictions
- keep track quality within the track quality index for the passage of traffic at line-speed.

Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services. As such, the project is considered necessary to maintain current and future capacity levels.

Sites for formation renewals are stated as adopting AN's scope priority model and should be prioritised based on criticality and condition.

The need for strategic formation renewal is prudent and given that the scope of works is considered consistent with what was approved in the FY22 RSB, the scope is deemed prudent.

Historically, there has been a backlog of formation renewals works that ensures the formation (particularly in expansive black soils subject to cyclic wet dry cycles) is to a standard required to maintain long term MGTpa throughput without unduly impacting on track performance and condition.

AN has made a statement in the submission that the works were carried out to standard. No details were provided demonstrating the work were constructed / completed to the prescribed design, however, formation renewals follow an approved and prescribed design approach.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, as the unit rate is reasonable, supported by a low level of documentation quality.

4.3 Moura System

The following section provides a detailed review of each sampled project within the Moura system, assessing the prudence of scope, standard and cost.

4.3.1 Permanent Way

IV.00801 Track Renewal – Moura FY22

Project Overview

Track renewal is a coordinated program focussed on renewing the entire track system, encompassing sleepers, rail, and other key components. The primary objective is to optimise the efficiency of asset renewal efforts by consolidating efforts and mobilising resources to a site in a single operation. This holistic approach, as opposed to addressing individual elements separately, proves to be both cost-effective and time efficient.

The coordinated program prioritises the replacement of life-expired or critical elements, ensuring the continuous safety and functionality of the network. It forms part of a broader track renewals program on the CQCN. The specific scope of the works planned in Moura for FY22 were:

- Rail Renewal – at four sites where rail has either reached (or is near) its wear limit or has seen tonnages that indicate near-term failure due to rail fatigue.
- Sleeper Renewal – replace 1,266 sleepers delivered at one site (Boundary Hill).
- Permanent Way Other – ancillary works such as glued insulated joints, rail lubrication, rail fix on fail and slab track reactive works.

Of these works, sleeper renewal at Boundary Hill was impacted by wet weather and delayed to FY23.

Review Summary	Scope	✓	Capital Expenditure Claim	\$1.7M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$1.7M

Project Review

The project was approved in the FY22 RSB. A portion of works related to sleeper renewal were delayed due to wet weather and was completed in FY23. Based on the information provided, the completed scope in FY23 has not departed from what was originally approved in FY22 RSB. The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining rail and track structures.

Although the completed works were approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of Track renewals has been identified and approved through AN's established processes. Sites for track renewals are stated as adopting AN's Scope Priority Model and should be prioritised based on criticality and condition.

Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency of the project cannot be demonstrated from the provided information.

There are several locations on the Moura System where sleeper renewals would provide long term benefit to the future reliability and operational and/or maintenance needs.

Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.

The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.

Track renewal is a core maintenance activity undertaken by AN. Given that the completed works were approved in the FY22 RSB, it is considered that the works undertaken is in alignment with industry recognised standards.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

IV.00802 Track Renewal – Moura FY23

Project Overview

Track renewal is a coordinated program focussed on renewing the entire track system. The primary objective is to optimise the efficiency of asset renewal efforts by consolidating efforts and mobilising resources to a site in a single operation. This holistic approach, as opposed to addressing individual elements separately, proves to be both cost-effective and time efficient.

The coordinated program prioritises the replacement of life-expired or critical elements, ensuring the continuous safety and functionality of the network. It forms part of a broader track renewals program on the CQCN. The specific scope of the works planned in Moura for FY22 were:

- Rail Renewal – at two sites where rail has either reached (or is near) its wear limit or has seen tonnages that indicate near-term failure due to rail fatigue.
- Track Upgrade – at one site, encompassing 1.563km of track renewal and replacement of 2,282 sleepers.
- Permanent Way Other – ancillary works such as glued insulated joints, rail lubrication and rail fix on fail.

Of these works, a portion of the planned track upgrade was not completed due to a change in scope.

Review Summary	Scope	✓	Capital Expenditure Claim	\$5.10M
	Standard	✓	Impact of findings on Claim	\$0.65M
	Cost	X	Total accepted	\$4.45M

Project Review

The project was included in the approved FY23 RSB. Of the completed works, the scope that deviated from what was approved were:

- Reduced length of track upgrades due to inaccurate planning; and
- Completion of a portion of sleeper renewal delayed from FY22.

Aside from a delayed FY22 scope, no additional scope was completed in FY23. The scope of track upgrade was reduced as it wasn't accurately planned.

The Access Agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining rail and track structures.

The project is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services.

There are a number of locations within the network where rail renewals provide long term net benefit to the future reliability and operational and/or maintenance needs.

Sites for track renewals are stated as adopting AN's Scope Priority Model and should be prioritised based on criticality and condition.

Overall, the scope of the works is considered prudent. However, it is worth noting that the works for track upgrade didn't occur in line with the original plan.

The asset upgrades are undertaken to documented and approved standards. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.

Track renewal is a core maintenance activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS), and as per the EOFY Report, AN have confirmed that the works have been delivered in accordance with the relevant CETS.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal of deteriorated track and rail infrastructures aligns with the whole of life management of these assets.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

The total cost incurred on Rail Renewal works was \$2.6M. In FY23, a total of 6.13km of rail renewal works was completed, which is 0.1km more than what was planned. Using the approved unit rate (\$0.31M/km), derived from the FY23 Budget (\$1.8M) and FY23 planned scope (6.03km), the cost of the completed work was projected at \$1.9M.

While the EOFY status report highlights that the works were delayed and incurred additional costs due to remobilisation due to adverse weather during the December closure, this is **deemed insufficient to justify the observed additional cost of \$0.8M. As such, the project is considered imprudent.** AECOM consider a provision of \$50K for mobilisations costs to be prudent and recommends an adjusted claim to \$4.45M.

4.4 Newlands System and GAPE

The following section provides a detailed review of each sampled project within the Newlands / GAPE system, assessing the prudence of scope, standard and cost.

4.4.1 Permanent Way

IV.00802 Track Renewal – Newlands / GAPE FY23

Project Overview

Track renewal is a coordinated program focussed on renewing the entire track system. The primary objective is to optimise the efficiency of asset renewal efforts by consolidating efforts and mobilising resources to a site in a single operation. This holistic approach, as opposed to addressing individual elements separately, proves to be both cost-effective and time efficient.

The coordinated program prioritises the replacement of life-expired or critical elements, ensuring the continuous safety and functionality of the network. It forms part of a broader track renewals program on the CQCN. The specific scope of the works planned in Newlands / GAPE for FY23 were:

- Rail Renewal – at three sites where rail has either reached (or is near) its wear limit or has seen tonnages that indicate near-term failure due to rail fatigue.
- Track Upgrade – at one site, encompassing 3.136km of track renewal and replacement of 4,578 sleepers.
- Permanent Way Other – ancillary works such as glued insulated joints, rail lubrication, rail fix on fail and slab track reactive works.

In FY23, the planned works were completed, in addition to additional track upgrade (2km) scope which was completed due to accelerated rail wear.

Review Summary	Scope	✓	Capital Expenditure Claim	\$6.9M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$6.9M

Project Review

The project was included in the approved FY23 RSB. In FY23, the planned works were completed, with an additional track upgrade (2km) scope which was completed due to accelerated rail wear.

The Access Agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining rail and track structures.

The project is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services.

While the additional scope of works is considered necessary, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of track renewals has been identified and approved through AN's established processes. Sites for track renewals are stated as adopting AN's Scope Priority Model and should be prioritised based on criticality and condition. The works is considered necessary on the assumption that AN have followed their Scope Priority Model.

There are a number of locations within the network where rail renewals provide long-term net benefit to the future reliability and operational and/or maintenance needs.

It should be stated that a project description, project management plan describing the project scope, budget and program have been reviewed and accepted by the expansion funders.

Given that the additional scope of works was based on noticeable rail wear, the completed works is considered prudent.

Track renewal is a core maintenance activity undertaken by AN. Its Safety Management System includes Civil Engineering Track Standards (CETS), and as per the EOFY Report, AN have confirmed that the works have been delivered in accordance with the relevant CETS.

The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Assessment of each works involved in the project summarised below:

- Rail Renewal - claim amount (\$2.2m) is less than total spend (\$2.4m)
- Track Upgrade - prudent given the additional scope added.
- Permanent Way Other - claim amount (\$0.1m) is less than total spend (\$0.2m)

Overall, the total claimed (\$6.9M) and based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.4.2 Ballast Cleaning

IV.00804 Bridge Ballast Renewal – Newlands / GAPE FY22

Project Overview

Ballast serves as the foundational material beneath rail infrastructure, but over time, it undergoes fouling from factors such as coal dust, general degradation, and sub soil contamination. Ballast cleaning is essential to remove these contaminants, restoring the drainage and load management properties of the ballast. This process helps divert away from the formation, distributes loads across the track structure, and reduces the risk of track geometry defects and formation failures, ultimately meeting drainage and load distribution requirements.

As part of a comprehensive initiative to renew foul, aging, or life-expired ballast in the CQCN, this renewals program addresses the contaminated ballast on bridges. Due to the width, height, and environmental constraints, these are completely replaced with new ballast. The renewal sites are determined by the frequency of resurfacing activities (an indicator of deteriorating track geometry), track geometry, and GPR. The decisions are then reviewed and validated by Track Inspectors and Supervisors, matching the most fouled locations or those displaying the greatest degradation to the production of the Undercutting fleet while considering track access constraints.

The specific scope of the planned works in Newlands / GAPE for FY22 included:

- Bridge Rollout – deliver one bridge rollout for a total of 45m.

However, in FY22, the works were unable to be completed at the planned site (Briaba to Collinsville) due to limited possession time and was postponed to FY23.

Review Summary	Scope	✓	Capital Expenditure Claim	\$0.7M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$0.7M

Project Review

The project was approved in the FY22 RSB. All the planned work at one site was delayed due to limited possession time and it was subsequently completed in FY23. Based on the information provided, the completed scope in FY23 had not departed from what was originally approved in FY22 RSB.

While the completed scope was approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of bridge ballast renewals has been identified and approved through AN's established processes.

Renewal of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency of the works is not able to be demonstrated from the provided information, however, undertaking renewals of deteriorated bridge ballast provide long-term net benefit to the future reliability and operational and/or maintenance needs.

Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.

AN is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation.

A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

Project cost claimed is \$0.7M and based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.

4.4.3 Control Systems

IV.00820 Control Systems Renewal – Newlands / GAPE FY22

Project Overview

Control Systems assets are the physical and digital assets that provide, train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, that is they allow for the safe movement of more train services over the track structure.

This project is part of a broader program to renew aged and deteriorated assets in the network. The description, and both planned and completed works in Newlands / GAPE for FY22 were as below.

- **Power Resilience: Renewals of power supplies and battery pack.**
Planned scope was at 14 sites; however, one site wasn't completed due to delayed deliveries and resource availability.
- **Safeworking - Asset Protection: Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, to mitigate the high consequence risks of track damage, derailment and dewirement.**
Planned scope was renewal at two sites. However, one was not completed due to delayed contract negotiations.
- **Safeworking – Minor: Ongoing renewal of lower valued assets forming part of the system, to maintain average asset condition.**
Planned scope of works was four units; however, no works were completed.
- **Transmission and Data Renewal: TETRA Radio upgrades, Radome radio dish covers, Back-up power supplies**
Planned scope was works at four sites. In FY22, works at three sites were delayed due to resource constraints.

Review Summary	Scope	✓	Capital Expenditure Claim	\$1.6M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$1.6M

Project Review

The project has been included in the approved FY22 RSB. In FY22, several planned scopes were deferred to FY23, and of these, the works that were either completed or further delayed in FY23 were:

- Removal of scope related to power resilience works
- Deferral of asset protection works at Aberdeen, now planned for FY24.

The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.

The project is considered necessary to maintain current and future capacity levels. Control systems projects include AN's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.

Ensuring the seamless operation of both equipment and the railway, essential replacement gear for the data network is imperative. Transmission upgrades, encompassing radio dishes and power supply systems, are vital to sustain operational efficiency. Introducing UTC updates to obsolete equipment is crucial for maintaining safe operating systems and enhancing redundancy in modern digital solutions. Proactive replacement of worn assets is pivotal, pre-empting unplanned failures and optimising the efficiency of the entire supply chain operation.

As per the EOFY Status Report, AN must deliver the projects meeting the requirements of the RSNL and ONRSR. The Renewals are required to maintain safe operation of the railway replacing life expired systems.

The scope is prudent for the replacement of obsolete and life expired equipment to maintain a safe and operational railway.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.

Renewal of control systems is a core maintenance activity undertaken by AN. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards. The renewal of assets and/or components of the control system aligns with the whole of life management of this system.

The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards.

From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements. The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.

Based on limited information provided and EOFY statement on delivered to standards work is prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

The project cost claimed is \$1.6M and has been deemed prudent based on provided documentation. Moreover, the total claimed amount on the project (\$2m in FY22 and \$1.6m in FY23) is less than the total spend (\$3.7m).

IV.00821 Control Systems Renewal – Newlands / GAPE FY23

Project Overview

Control Systems assets are the physical and digital assets that provide, train control, telecommunications, and wayside monitoring systems. These assets provide the capacity multiplier for the track assets, that is they allow for the safe movement of more train services over the track structure.

This project is part of a broader program to renew aged and deteriorated assets in the network. The description, and both planned and completed works in Newlands / GAPE for FY23 included:

- **Safeworking - Interlocking:** Interlockings are an arrangement of signal apparatus that prevents conflicting movements through a track section, they form the critical decision and safety system for the rail signalling.
Planned scope was renewal at one site, and this was completed in FY23.
- **Transmission and Data Renewal:** TETRA Radio upgrades, Radome radio dish covers, Back-up power supplies
Planned scope was works at 56 sites. In FY23, works at seven sites were delayed primarily due to resource unavailability.

Review Summary	Scope	✓	Capital Expenditure Claim	\$1.5M
	Standard	✓	Impact of findings on Claim	\$0.0M
	Cost	✓	Total accepted	\$1.5M

Project Review

The project was included in the FY23 RSB. In FY23, the planned works were either completed or delayed to future years:

- Completion of interlockings works
- Partial completion (49 out of 57) of transmission & data renewals. Five scopes were delayed to future years, while three were removed from the program as these were no longer needed.

Power resilience was removed from the program pending a review of the renewal strategy for the batteries. Other delays were predominantly due to resourcing availability or equipment supply

UTC for Collinsville was brought forward to be completed during interlocking works providing efficiencies in the completion activities.

The access agreement and Train Operation Deed require that AN provide, maintain, and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.

The project is considered necessary to maintain current and future capacity levels. Control systems projects include AN's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.

Replacement of old relay interlocking with reduced spare holdings. Interlockings is key to safe and reliable operation

Ensuring the integrity of asset monitoring and protection, minor updates are underway, although insufficient information is available to confirm these changes definitively. Telecoms infrastructure upgrades for AC units and battery backup are indispensable for sustaining operational equipment and the railway's functionality. Similarly, the replacement of life-expired equipment in the data network is essential to maintain operational efficiency. Transmission upgrades, particularly focusing on cybersecurity and battery systems, are crucial to maintaining the continued operation of equipment and the railway. UTC updates to life-expired and obsolete equipment is imperative for ensuring safe operating systems and provision greater redundancy within new digital solutions.

Planned and pre-emptive replacements of these worn assets help avoid unplanned failures and is in the interest of efficient whole of supply chain operation.

As per the EOFY Status Report, AN must deliver the projects meeting the requirements of the RSNL and ONRSR. The Renewals are required to maintain safe operation of the railway replacing life expired systems.

The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.

Based on AECOM's assessment the scope is prudent for the replacement of obsolete and life expired equipment to maintain a safe and operational railway.

The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.

Renewal of control systems is a core maintenance activity undertaken by AN. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.

The renewal of assets and/or components of the control system aligns with the whole of life management of this system.

Renewal of control systems renewal is a core maintenance activity undertaken by AN. The AN Safety Management System includes AN's technical standards (AZN), and in the EOFY Report, AN has confirmed that the work undertaken is in alignment with all relevant standards. From the information provided, it is considered that AN has made necessary consideration with regards to compliance with relevant laws and requirements.

Given the limited information available and the EOFY report confirming that the works were delivered to prescribed standards, the project standard is deemed prudent.

AECOM's assessment in relation to cost is based on a combination of industry benchmarks, prior experience and engagement with AN. It is recommended that AN improves their documentation quality with regards to cost. Further detail is provided in Section 5.0.

The cost claimed of \$1.5M is deemed prudent supported by a low level of documentation quality. Moreover, the claimed amount is less than the total spend of \$2.8m.

5.0 Findings and Recommendations

The findings section of this report presents the results of AECOM's analysis of the selected projects, focusing on three main criteria: scope, standard and cost. AECOM's key findings in the sampled projects include:

Scope: Based on AECOM's assessment, it was concluded that the scope of works is reasonable and consistent with the approved RSB across all the sampled projects. Instances where AN completed works that deviated from what was planned in the FY23 RSB were predominately attributed to the completion of delayed scopes, previously approved in past RSBs, and additional scope adjustments based on asset conditions. The deviation also arose from the deferral of planned scope, primarily due to inclement weather conditions and challenges related to resourcing. The reasons for deviation are considered reasonable and in line with AN's policies.

Standard: AN, as the Rail Infrastructure Manager (RIM), is responsible for ensuring that their rail infrastructure operations and maintenance comply with the relevant legislation, as required by the Office of the National Rail Safety Regulator (ONRSR). Documentation demonstrating compliance with standards was not sighted for all projects, but a review of AN's policies and the reviewers' professional judgement based on the documentation provided indicated prudence in the standard of works across all projects.

Cost: 27 of the 29 sampled projects were considered efficient with respect to cost because:

- The Unit rate of actual expenditure closely aligned with the unit rate planned in the RSB. In cases where assessing the unit rate wasn't feasible, the FY23 claim was assessed against the total amount spent on the project.
- Documentation provided substantiated the variance of claimed and incurred costs from what was budgeted in the RSB.

Two projects were assessed imprudent: IV.00802 Track Renewal – Blackwater FY23 and IV.00802 Track Renewal – Moura FY23. The costs incurred for both projects were notably higher than projected costs calculated based on the planned unit rate derived from the FY23 budget and planned scope (allowing for escalation). The EOFY status report provided commentary on the reasons for the increased costs, but these explanations did not adequately substantiate the observed additional costs.

AECOM recommends a reduction in the FY23 claim of \$1.85M (0.63% of the Claim).

Based on the review, AECOM's recommendations for AN are as follows:

Ballast Renewals Policy AECOM recommends that AN reevaluate the policy of renewing 140km of ballast per year in consultation with users.

The provided documentation indicates that the planned annual length of works is approximately 140km. During a discussion with AN on January 23, 2024, it was acknowledged that this policy represents a practical target, considering factors such as equipment availability, possession time, and resource constraints. This alignment was additionally affirmed by an Independent Reviewer in 2013. While AECOM acknowledges the reasonableness of the current policy, AECOM recommends that AN reassess the validity of maintaining the 140km annual renewal target, particularly given that it has been ongoing since 2013.

Document AN's process for prioritising Track Renewal AECOM recommends that AN document the current process for prioritising nominated locations for Track Renewal works. The documentation on how locations, based on condition, age and prior track performance, are nominated for Track Renewal was not immediately or easily visible to the reviewer. AECOM appreciates that renewals of life expired and fully worn infrastructure are sound practice to ensure safe operation of the rail network. However, the extent of the works was not demonstrated in the provided documentation.

Update of Methodology

AECOM strongly recommends that AN update its internal reporting processes to incorporate the latest methodologies, wherever applicable. This suggestion follows from a discussion with AN on January 23, 2024, where AECOM identified an outdated methodology on the Scope Priority Model. It was brought to AECOM's attention that the methodology had not been updated in the provided documentation. Ensuring that AN documentation is kept up to date is essential to enhance the efficiency of project reviews and to ensure AN maintains a transparent reporting framework.

Market Escalation – Electrical Systems

AECOM has observed the prevailing market conditions affecting electrical systems, which has resulted in rapidly increasing costs for electrical components. Although the cost of projects related to Electrical Renewal and Power Systems included in the FY23 claim were deemed efficient, the escalating market conditions may cause pressure on the costs incurred during FY24 works, leading to higher incurred costs than the FY24 budget.

AECOM recommends that these potentially escalating market factors be taken into account when setting the RSB, and the QCA request updates to cost estimation of Electrical Renewal and Power Systems in the next submission considering this observation.

Documentation – Electrical Projects

AECOM recommends that AN provide documentation related to Electrical projects demonstrating its compliance with standard of works.

While AN provided Practical Completion Reports upon request, it didn't provide the supporting documentation needed to verify the statements. Providing the supporting documentation listed in the report, such as ITPs, final installation photographs or test records, would provide AECOM with greater confidence that the works were undertaken to the required standards.

Cost Documentation Quality

At present, there is a lack of transparency in understanding how project costs have been allocated. While some documentation outlines project details and the claimed amount, there is a lack of detailed breakdown of expenditure (labour, equipment and materials costs), which makes it difficult to evaluate the cost-effectiveness and efficiency of the projects. It is not clear how the MRSB budget is distributed among the projects, which makes it difficult to compare budgeted and actual expenditure.

AECOM recommends AN enhance the quality of their cost documentation to provide more clarity on actual expenditure and on how the MRSB budget has been allocated.

It is recommended that when AN prepares the closeout statement/certificate after works completion (as part of its QA process), documentation should be prepared outlining the:

- Estimated expenditure (budgeted) for works prior to commencement with a cost breakdown for items such as labour, equipment, materials etc.
- Actual expenditure with a cost breakdown for items such as labour, equipment, materials etc.
- Reasoning for differences between budgeted vs actual expenditure.

A summary of findings is presented in Table 9, which shows AECOM's assessment in relation to each major criterion together with AECOM's assessment of the level of project documentation available, and the final impact on the capital claim.

Table 9 Summary of Findings by Project Reviewed (\$FY23, million)²

Project	Prudency Assessment			Claim Amount (\$FY23, million)		
	Scope	Standard	Cost	Claim	Adjust.	Accepted
Blackwater						
IV.00802 Track Renewal – FY23	✓	✓	✗	\$22.2	-\$1.2	\$21.0
IV.00813 Turnout Renewal – FY22	✓	✓	✓	\$2.4		\$2.4
IV.00831 Ballast Renewal – FY22	✓	✓	✓	\$3.3		\$3.3
IV.00832 Ballast Renewal – FY23	✓	✓	✓	\$34.7		\$34.7
IV.00694 Control Systems Renewal Callemondah	✓	✓	✓	\$5.8		\$5.8
IV.00820 Control Systems Renewal – FY22	✓	✓	✓	\$2.0		\$2.0
IV.00821 Control Systems Renewal – FY23	✓	✓	✓	\$3.4		\$3.4
IV.00678 Optical Fibre Renewal	✓	✓	✓	\$4.4		\$4.4
IV.00692 Train Detection Renewal Central Line	✓	✓	✓	\$7.2		\$7.2
IV.00826 Electrical Overhead Renewal – FY22	✓	✓	✓	\$0.8		\$0.8
IV.00807 Formation Renewal – FY22	✓	✓	✓	\$1.1		\$1.1
Goonyella						
IV.00801 Track Renewal – FY22	✓	✓	✓	\$3.3		\$3.3
IV.00802 Track Renewal – FY23	✓	✓	✓	\$29.7		\$29.7
IV.00831 Ballast Renewal – FY22	✓	✓	✓	\$10.7		\$10.7
IV.00832 Ballast Renewal – FY23	✓	✓	✓	\$27.9		\$27.9
IV.00804 Bridge Ballast Renewal – FY22	✓	✓	✓	\$0.6		\$0.6
IV.00820 Control Systems Renewal – FY22	✓	✓	✓	\$2.4		\$2.4
IV.00821 Control Systems Renewal – FY23	✓	✓	✓	\$6.4		\$6.4
IV.00678 Optical Fibre Renewal – FY23	✓	✓	✓	\$10.0		\$10.0
IV.00817 Structures Renewal – FY23	✓	✓	✓	\$6.2		\$6.2
IV.00826 Electrical Overhead Renewal – FY22	✓	✓	✓	\$2.5		\$2.5
IV.00823 Power Systems Renewal – FY22	✓	✓	✓	\$0.8		\$0.8
IV.00807 Formation Renewal – FY22	✓	✓	✓	\$2.0		\$2.0
Moura						
IV.00801 Track Renewal – FY22	✓	✓	✓	\$1.7		\$1.7
IV.00802 Track Renewal – FY23	✓	✓	✗	\$5.1	-\$0.7 ³	\$4.5
Newlands / GAPE						
IV.00802 Track Renewal – FY23	✓	✓	✓	\$6.9		\$6.9
IV.00804 Bridge Ballast Renewal – FY22	✓	✓	✓	\$0.7		\$0.7
IV.00820 Control Systems Renewal – FY22	✓	✓	✓	\$1.6		\$1.6
IV.00821 Control Systems Renewal – FY23	✓	✓	✓	\$1.5		\$1.5
Total				\$207.3	-\$1.9⁴	\$205.5

The minor adjustment of -\$1.85 million, representing 0.63% of the total claim, indicates that there are likely no systemic issues affecting the unassessed portion of the Claim.

² Rounded to nearest \$0.1 million

³ Rounded up from \$0.65 million

⁴ Rounded up from \$1.85 million

Appendix A

List of Claimed Projects

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Blackwater

All costs in Table 10 are excluding IDC and presented in FY23 figures (\$millions). Projects highlighted in yellow have been removed from the review due to conflict of interest.

Table 10 Claimed Projects Summary – Blackwater (\$FY23 million)

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
Permanent Way							
IV.00801	FY22	Track Renewal		\$0.2			(\$0.3)
IV.00802	FY23	Track Renewal	Y		\$22.2	\$23.1	\$22.4
IV.00813	FY22	Turnout Renewal	Y	\$2.4			\$2.2
IV.00814	FY23	Turnout Renewal			\$3.1	\$7.2	\$6.3
IV.00463	FY21	Turnout Renewal Package 3		\$0.7			
Ballast Cleaning							
IV.00831	FY22	Ballast Renewal	Y	\$3.3			\$2.9
IV.00832	FY23	Ballast Renewal	Y		\$34.7	\$38.5	\$36.3
IV.00804	FY22	Bridge Ballast Renewal		\$0.0			\$0.0
IV.00805	FY23	Bridge Ballast Renewal			\$2.8	\$2.5	\$3.1
IV.00806	FY24	Bridge Ballast Renewal		\$0.5			
Control Systems							
IV.00694		Control Sys Renewal Callemondah	Y	\$5.8			
IV.00820	FY22	Control Systems Renewal	Y	\$2.0			\$2.4
IV.00821	FY23	Control Systems Renewal	Y		\$3.4	\$11.4	\$7.7
IV.00455		Control Systems Renewal Package 1		\$0.1			
IV.00456		Control Systems Renewal Package 2		\$0.3			

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
IV.00457		Control Systems Renewal Package 3		\$2.1			
IV.00693		Interlocking Renewal - NCL		\$0.6			
IV.00678		Optical Fibre Renewal	Y	\$4.4			
IV.00692		Train Detection Renewal Central Line	Y	\$7.2			
Electrical							
IV.00826	FY22	Electrical Overhead Renewal	Y	\$0.8			\$0.2
IV.00827	FY23	Electrical Overhead Renewal			\$0.5	\$2.7	\$1.3
IV.00507		Electrical Overhead Renewal Package 2					
IV.00508		Electrical Overhead Renewal Package 3					
IV.00823	FY22	Power Systems Renewal		\$0.4			\$0.2
IV.00824	FY23	Power Systems Renewal			\$0.7	\$2.3	\$1.5
IV.00505		Power Systems Renewal Package 3		\$1.2			
Civil Assets							
IV.00834	FY22	Civil Renewals		\$0.3			
IV.00835	FY23	Civil Renewals			\$0.1		
IV.00807	FY22	Formation Renewal	Y	\$1.1			\$0.6
IV.00808	FY23	Formation Renewal			\$10.0	\$4.8	\$5.5
IV.00810	FY22	Level Crossing Renewal		\$0.2			
IV.00811	FY23	Level Crossing Renewal			\$4.2	\$0.1	\$5.2
IV.00460		Level Crossing Renewal Package 3					
Structures							
IV.00819		Bridge Renewal		\$0.4			

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
IV.00816	FY22	Culvert Renewal		\$1.0			\$1.2
IV.00817	FY23	Structures Renewal			\$11.4	\$11.7	\$13.1
IV.00448		Structures Renewal Package 3		\$0.2			
Non-RSB Projects							
IV.00816	FY22	Culvert Renewal		\$3.2			\$2.4

Goonyella

All costs in Table 11 are excluding IDC and presented in FY23 figures (\$millions). Projects highlighted in yellow have been removed from the review due to conflict of interest.

Table 11 Claimed Projects Summary – Goonyella (\$FY23 million)

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
Permanent Way							
IV.00801	FY22	Track Renewal	Y	\$3.3			\$2.3
IV.00802	FY23	Track Renewal	Y		\$29.7	\$33.0	\$29.6
IV.00478		Track Renewal Package 3					
IV.00813	FY22	Turnout Renewal		\$0.7			\$0.4
IV.00814	FY23	Turnout Renewal			\$3.3	\$3.0	\$3.4
Ballast Cleaning							
IV.00831	FY22	Ballast Renewal	Y	\$10.7			\$9.7
IV.00832	FY23	Ballast Renewal	Y		\$27.9	\$33.5	\$29.9
IV.00804	FY22	Bridge Ballast Renewal	Y	\$0.6			\$0.4
IV.00805	FY23	Bridge Ballast Renewal			\$1.5	\$2.4	\$1.5
Control Systems							
IV.00820	FY22	Control Systems Renewal	Y	\$2.4			\$1.5
IV.00821	FY23	Control Systems Renewal	Y		\$6.4	\$11.4	\$7.3
IV.00455		Control Systems Renewal Package 1					
IV.00456		Control Systems Renewal Package 2		\$0.1			
IV.00457		Control Systems Renewal Package 3		\$1.6			
IV.00678		Optical Fibre Renewal	Y	\$10.0		\$10.4	\$10.0
IV.00691		Signalling Sys Renewal Goonyella Trunk		\$0.2			

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
Electrical							
IV.00826	FY22	Electrical Overhead Renewal	Y	\$2.5			\$1.1
IV.00507		Electrical Overhead Renewal Package 2					
IV.00508		Electrical Overhead Renewal Package 3					
IV.00829		Goonyella Ports Overhead Renewals					
IV.00823	FY22	Power Systems Renewal	Y	\$0.8			\$0.5
IV.00824	FY23	Power Systems Renewal			\$1.1	\$2.6	\$1.9
IV.00505		Power Systems Renewal Package 3		\$0.6			
Civil Assets							
IV.00834	FY22	Civil Renewals		\$0.1			
IV.00835	FY23	Civil Renewals			\$0.2		
IV.00807	FY22	Formation Renewal	Y	\$2.0			\$1.3
IV.00808	FY23	Formation Renewal			\$6.8	\$5.8	\$3.9
IV.00810	FY22	Level Crossing Renewal		\$0.1			
IV.00460		Level Crossing Renewal Package 3					
Structures							
IV.00816	FY22	Culvert Renewal		\$3.2			\$2.4
IV.00817	FY23	Structures Renewal	Y		\$6.2	\$7.1	\$7.3
IV.00448		Structures Renewal Package 3					
Non-RSB Projects							
IV.00816	FY22	Culvert Renewal		\$3.2			\$2.4

Moura

All costs in Table 12 are excluding IDC and presented in FY23 figures (\$millions). Projects highlighted in yellow have been removed from the review due to conflict of interest.

Table 12 Claimed Projects Summary – Moura (\$FY23 million)

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
Permanent Way							
IV.00801	FY22	Track Renewal	Y	\$1.7			\$1.0
IV.00802	FY23	Track Renewal	Y		\$5.1	\$3.6	\$5.1
IV.00813	FY22	Turnout Renewal		\$0.4			
IV.00814	FY23	Turnout Renewal			\$1.7	\$1.6	\$2.0
IV.00463		Turnout Renewal Package 3		\$0.1			
Ballast Cleaning							
IV.00831	FY22	Ballast Renewal					
IV.00832	FY23	Ballast Renewal			\$1.7	\$1.2	\$1.8
IV.00804	FY22	Bridge Ballast Renewal					
IV.00805	FY23	Bridge Ballast Renewal			\$0.6	\$0.7	\$0.6
Control Systems							
IV.00820	FY22	Control Systems Renewal		\$0.4			
IV.00821	FY23	Control Systems Renewal			\$1.3		
IV.00456		Control Systems Renewal Package 2					
IV.00457		Control Systems Renewal Package 3		\$0.4			
Civil Assets							
IV.00835	FY23	Civil Renewals			\$0.1		

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
IV.00807	FY22	Formation Renewal					
IV.00808	FY23	Formation Renewal			\$1.3	\$1.1	
IV.00810	FY22	Level Crossing Renewal		\$0.1			
IV.00811	FY23	Level Crossing Renewal			\$0.8		
IV.00460		Level Crossing Renewal Package 3					
Structures							
IV.00819		Bridge Renewal					
IV.00816	FY22	Culvert Renewal					\$0.1
IV.00817	FY23	Structures Renewal			\$1.6	\$2.3	\$2.5
IV.00448		Structures Renewal Package 3		\$0.1			

Newlands / GAPE

All costs in Table 13 are excluding IDC and presented in FY23 figures (\$millions). Projects highlighted in yellow have been removed from the review due to conflict of interest.

Table 13 Claimed Projects Summary - Newlands / GAPE (\$FY23 million)

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
Permanent Way							
IV.00801	FY22	Track Renewal		\$0.1			
IV.00802	FY23	Track Renewal	Y		\$6.9	\$4.6	\$6.6
IV.00813	FY22	Turnout Renewal					
IV.00814	FY23	Turnout Renewal			\$0.5	\$0.6	\$0.5
IV.00463		Turnout Renewal Package 3		\$0.0			
Ballast Cleaning							
IV.00831	FY22	Ballast Renewal		\$0.0			\$0.0
IV.00832	FY23	Ballast Renewal			\$2.9	\$3.5	\$2.9
IV.00804	FY22	Bridge Ballast Renewal	Y	\$0.7			\$0.4
IV.00805	FY23	Bridge Ballast Renewal			\$0.6	\$0.9	\$0.6
Control Systems							
IV.00820	FY22	Control Systems Renewal	Y				\$1.5
IV.00821	FY23	Control Systems Renewal	Y		\$1.5	\$3.2	\$2.8
IV.00455		Control Systems Renewal Package 1		\$0.0			
IV.00456		Control Systems Renewal Package 2		\$0.0			
IV.00457		Control Systems Renewal Package 3		\$0.4			
Civil Assets							

Project No.	Financial Year	Project Name	Included	Prior Year(s) Claim	FY23 Claim	FY23 RSB Budget	FY23 Costs Incurred
IV.00835	FY23	Civil Renewals			\$0.1		
IV.00807	FY22	Formation Renewal		\$0.0			\$0.0
IV.00808	FY23	Formation Renewal			\$2.3	\$2.3	\$2.0
IV.00809	FY24	Formation Renewal		\$1.4			
IV.00810	FY22	Level Crossing Renewal		\$0.1			
IV.00811	FY23	Level Crossing Renewal			\$1.0		
Structures							
IV.00816	FY22	Culvert Renewal		\$0.0			\$0.1
IV.00817	FY23	Structures Renewal			\$6.0	\$5.1	\$6.0
IV.00448		Structures Renewal Package 3		\$0.1			

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Appendix B

Assessment Forms

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Assessment Number	24
Project Name	Track Renewal
Project Number	IV.00802
System	Blackwater
Commissioned Year	FY23
Asset Category	Permanent Way
Claimed Expenditure	\$22.2M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY23 RSB. In FY23, the completed works comprised of partial completion of planned works and completion of additional works. These were: - Partial completion of rail renewal, where work at one site was deferred due to procurement issues. - Partial completion of sleeper renewal, where works at two sites were delayed due to weather conditions. - Track upgrade works at one site were delayed to FY24 due to low stockpile levels. Moreover, track upgrade works delayed from FY22 were partially completed.	None	\$ -	FY23 EOFY Status Report - Permanent Way FY 2022 EOFY Status Report Formation Renewal - FY23 Asset Renewals AIC Submission FY22 EOFY Status Report Formation Renewals FINAL-Signed Aurizon Network - FY22 Capital Claim - FINAL
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The additional scope completed in FY23 was approved in the FY22 RSB.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	While the additional scope of works were approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of Track renewals has been identified and approved through Aurizon Network's established processes. Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	

(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)

YES

There are a number of locations within the network where track renewals provide long-term net benefit to the future reliability and operational and/or maintenance needs.

None

\$ -

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements

Insufficient information

Sites for track renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.

None

\$ -

(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB

Insufficient information

None

\$ -

(H) Were the works necessary to comply with Renewals Strategy and Budget

YES

The scope of the additional works were approved in the FY22 RSB.

None

\$ -

(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders

N/A

None

\$ -

Comment on Prudency of Scope

Given that the additional scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent. It is noted that a portion of planned scopes of both rail and sleeper renewals, and track upgrade were deferred primarily due to wet weather and issues related to procurement.

Prudency of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed	
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way	
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	FY 2022 EOFY Status Report	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	Formation Renewal - FY23 Asset Renewals AIC Submission	
	(B) With regards to the current and likely future usage levels	YES	The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	FY22 EOFY Status Report Formation Renewals FINAL-Signed	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Track renewal is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -		
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -		
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -		
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -		
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -		
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.				
Prudence of Standard Documentation Quality			Medium				
Conclusion			Prudent				

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	-\$ 1,200,000.00	- FY23 EOFY Program Status Report - Permanent Way Program - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	-\$ 1,200,000.00	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	Insufficient information	Incurred cost is significantly higher than the projected cost derived from the FY23 budget and planned scope. Refer to the findings below for further detail.			
	(2) labour?	Insufficient information	Incurred cost is significantly higher than the projected cost derived from the FY23 budget and planned scope. Refer to the findings below for further detail.			
	(3) materials?	Insufficient information	Incurred cost is significantly higher than the projected cost derived from the FY23 budget and planned scope. Refer to the findings below for further detail.			
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	There is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
	(8) meeting contractual timeframes and dealing with external factors?	N/A		None		
	(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None		
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			

Comment on Prudency of Cost	Assessment of each works involved in the project summarised as follows: 1. Rail renewal - unit rate of completed works is within +15% of the unit rate of the planned works 2. Sleeper renewal - the project cost is considered imprudent. While acknowledging the adverse weather events and rescheduled scope as described in the EOFY report, the incurred costs is notably higher than what was projected using a unit rate derived from the FY23 budget rate and FY23 planned scope. AECOM recommends an adjusted claim to \$21M. 3. Track upgrade - prudent given the claimed amount (\$9m) is less than total spend (\$10m) 4. Permanent Way Other - prudent given the claimed amount (\$0.3m) is less than FY23 budget and equals total spend (\$0.3m)
Prudency of Cost Documentation Quality	Low
Conclusion	Prudent

	29
Project Name	Turnout Renewal
Project Number	IV.00813
System	Blackwater
Commissioned Year	FY22
Asset Category	Permanent Way
Claimed Expenditure	\$2.4M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB. Works at four sites were delayed to FY23. In FY23, three of these sites were completed, while work at one site faced additional delays to future years due to access issues.	None	\$ -	- FY23 EOFY Status Report - Permanent Way - FY22 EOFY Status Report Turnouts - FY22 MRSB - FY23 MRSB
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	While the completed works were approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of turnout renewals has been identified and approved through Aurizon Network's established processes. Renewal of life expired and fully worn turnouts is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	Insufficient information		None	\$ -	
(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	Insufficient information		None	\$ -		

	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The scope of the completed works were agreed in the FY22 RSB.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope		Given that the scope of works hadn't departed from the approved RSB, the completed works are considered prudent.				
Prudency of Scope Documentation Quality		Medium				
Conclusion		Prudent				

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Permanent Way - FY22 EOFY Status Report Turnouts - FY22 MRSB - FY23 MRSB
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	Turnouts are a heavily utilised and high wearing asset. As such, ensuring these are renewed, when required, and well maintained is good and prudent practice to endure a reliable network operation.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES		None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Permanent Way - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			The project cost claim of 2.4M is considered prudent.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	1
Project Name	Ballast Renewal
Project Number	IV.00831
System	Blackwater
Commissioned Year	FY22
Asset Category	Ballast Cleaning
Claimed Expenditure	\$3.3M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	In the absence of information stating that the works didn't deviate from what was approved in the FY22 RSB, the standard of works is considered prudent.	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	- FY23 Renewals Strategy and Budget (RSB)
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning.
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	- FY22 MRSB - FY23 MRSB
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB. Moreover, ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure and cause delays through speed restrictions or increase risks of derailments. These works are defined by Aurizon Network as a renewal activity and are needed where existing rail conditions are such that the overall TQI is poor as a result of ballast fouling and are required to: (1) Eliminate the risk of the loss of top and line (2) Eliminate wheel unload that may result in derailment (3) Remove existing and eliminate future speed restrictions (4) Keep track quality within the track quality index for the passage of traffic at line-speed. Although detailed information that substantiates the locations nominated for renewal was not available, a discussion with Aurizon (23/01/24) gave sufficient comfort that a rigorous approach has been adopted to determine these locations and the work is required to ensure the ongoing reliability of the rail network Insufficient information has been provided to determine that Aurizon Network's policy of undertaking 140km or renewal each year remain valid given that this has been ongoing since 2013. If the expected life of line is greater than 20 yrs then investment in ballast undercutting / renewal seem reasonable. This judgement is purely based on past experience and anecdotal information regarding the condition of the Aurizon Network. If the life expectancy of any element on the network is less than 20 years, a case study should be prepared to demonstrate the need for the specific line segment to undergo a renewal exercise.	None	\$ -	- 20240119_30107_Ballast-Report-for-QCA-CMT-1 - FY22 Ballast Undercutting - Corporate Plan
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	Given that the completed works were approved in the RSB, and in the absence of documentation detailing the conditions of the renewed ballast, it is assumed that the works were required.	None	\$ -	

<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>Insufficient information</p>	<p>The extents of these works are based on Aurizon Network's policy of undertaking 140km of renewal per year. Although it has been advised that 140km per year is agreed with the QCA and RIG, Aurizon Network haven't demonstrated that the extent of these works is prudent.</p> <p>The extent/scale of the project can't be confirmed from the provided data. There is insufficient detail to show that the location and extent of the ballast undercutting locations noted within the MRSB and listed within the "RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted" are appropriate.</p>	<p>None</p>	<p>\$ -</p>	
<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>Insufficient information</p>		<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>		<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>The scope of the completed works were agreed in the FY22 RSB.</p>	<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>YES</p>	<p>It is recommended that Aurizon Network's Policy of undertaking a nominal 140km per year ballast cleaning (defined as a renewal) be confirmed as suitable going forward.</p>	<p>None</p>	<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>Given that the scope of works hadn't departed from the approved RSB, the completed works are considered prudent. The absence of GPR recommendations and TQR reporting limits the information available to demonstrate the prudence of the locations for undercutting works.</p>			
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>			
<p>Conclusion</p>		<p>Prudent</p>			

STANDARD Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	- FY23 Renewals Strategy and Budget (RSB)
	(B) With regards to the current and likely future usage levels	YES		None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning. - FY22 MRSB - FY23 MRSB
	(C) With regards to the requirements of relevant Australian design and construction standards	YES		None	\$ -	- 20240119_30107_Ballast-Report-for-QCA-CMT-1
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	- FY22 Ballast Undercutting - Corporate Plan
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed 3.3 considered prudent with provided substantiation.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	3
Project Name	Ballast Renewal
Project Number	IV.00832
System	Blackwater
Commissioned Year	FY23
Asset Category	Ballast Cleaning
Claimed Expenditure	\$34.7M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY23 RSB. In FY23, the completed works consisted of partial completion of planned works and completion of additional works. These were: - Partial completion of the planned mainline undercutting works. Some scopes were deferred due to various factors including resourcing, wet weather and operational impacts. - Works on two turnouts weren't completed due to operational impacts. - Additional scopes were added to both Mainline Undercutting and Mainline Excavator Undercutting works based on asset conditions.	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted - FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning. - FY23 MRSB - 20240119_30107_Ballast-Report-for-QCA-CMT-1
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES	Overall the additional scope of works is in line with the Network Development plan.	None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining clean, well-consolidated ballast with an appropriate profile.	None	\$ -	

(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?

YES

The scope of additional works completed is consistent with the works approved in the FY23 RSB.

Moreover, ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure and cause delays through speed restrictions or increase risks of derailments.

These works are defined by Aurizon Network as a renewal activity and are needed where existing rail conditions are such that the overall TQI is poor as a result of ballast fouling and are required to: (1) Eliminate the risk of the loss of top and line (2) Eliminate wheel unload that may result in derailment (3) Remove existing and eliminate future speed restrictions (4) Keep track quality within the track quality index for the passage of traffic at line-speed.

Although detailed information that substantiates the locations nominated for renewal was not available, a discussion with Aurizon (23/01/24) gave sufficient comfort that a rigorous approach has been adopted to determine these locations and the work is required to ensure the ongoing reliability of the rail network

Insufficient information has been provided to determine that Aurizon Network's policy of undertaking 140km or renewal each year remain valid given that this has been ongoing since 2013.

If the expected life of line is greater than 20 years then investment in ballast undercutting / renewal seem reasonable. This judgement is purely based on past experience and anecdotal information regarding the condition of the Aurizon Network. If the life expectancy of any element on the network is less than 20 years, a case study should be prepared to demonstrate the need for the specific line segment to undergo a renewal exercise.

None

\$ -

(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan

YES

Given that the completed works were approved in the RSB, and in the absence of documentation detailing the conditions of the renewed ballast, it is assumed that the works were required.

None

\$ -

(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)

Insufficient information

The extents of these works are based on Aurizon Network's policy of undertaking 140km of renewal per year. Although it has been advised that 140km per year is agreed with the QCA and RIG, Aurizon Network haven't demonstrated that the extent of these works is prudent.

The extent/scale of the project can't be confirmed from the provided data. There is insufficient detail to show that the location and extent of the ballast undercutting locations noted within the MRSB and listed within the "RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted" are appropriate.

None

\$ -

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements

Insufficient information

None

\$ -

(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB

Insufficient information

None

\$ -

(H) Were the works necessary to comply with Renewals Strategy and Budget

YES

Renewal of ballast in poor condition is in line with the objectives outlined in the RSB.

None

\$ -

(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders

YES

It is recommended that Aurizon Network's Policy of undertaking a nominal 140km per year ballast cleaning (defined as a renewal) be confirmed as suitable going forward.

None

\$ -

Comment on Prudence of Scope

Given that renewal of foul ballast is considered industry practice and in line with Aurizon Network's policies, the scope of works is considered prudent. It is noted that the absence of GPR recommendations and TQR reporting limits the information available to demonstrate the prudence of the locations for undercutting works.

Prudence of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted - FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning. - FY23 MRSB - 20240119_30107_Ballast-Report-for-QCA-CMT-1
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Ballast renewal is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	Insufficient information		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Assessment of each works involved in the project summarised below: 1. Mainline Undercutting & Mainline Excavator Undercutting - prudent given additional claim is justified by additional scope 2. Turnout Undercutting - prudent given claim amount (\$2.7m) equals total spend (\$2.7m) 3. GPR - prudent given claim amount (\$0.5m) equals total spend (\$0.5m) Overall, the claim cost (\$34.7m) is deemed prudent.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	7
Project Name	Control Sys Renewal Callemondah
Project Number	IV.00694
System	Blackwater
Commissioned Year	
Asset Category	Control Systems
Claimed Expenditure	\$5.8M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	<p>Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?</p>	<p>YES</p>	<p>The project was included in the approved FY22 RSB. The bulk of the work was completed in FY22, but design was not available in time for construction to be finalised before the final closure in FY22. This delayed scope was completed in FY23. The completed scope departed from what was approved -due to rain delay, increase to power demand at the SER necessitating upgrade of the Power systems. The interlockings in the Callemondah yard were installed in the 1970's and train detection track circuits were installed in the 1980's. These assets are nearing end of life. This is a multi-year renewal project. In FY22, the renewal was unable to be completed due to delays with design and resource availability.</p>	<p>None</p>	<p>\$ -</p>	<p>PCR - 5475 - CH 1B Increased Construction Costs (1).pdf</p> <p>PCR - 5475 - CH 1B Increased Construction Costs (7)</p> <p>PCR - 5475 - CH 1B Increased Construction Costs (4)</p> <p>- FY23 EOFY Status Report - Control Systems</p> <p>- 20220121_FY23 FINAL DRAFT MRSB (Final)_Redacted</p>
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	<p>(A) Were the works relevant to any Network Development Plan</p> <p>(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?</p> <p>(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?</p> <p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p>	<p>YES</p> <p>YES</p> <p>YES</p> <p>YES</p>	<p>Safety Compliance</p> <p>The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.</p> <p>The interlockings in Callemondah yard were installed in the 1970's This interlocking is beyond service life. Cabling between the interlocking and field equipment is regularly failing, and the condition of some cables has required re-routing of control functions over alternate paths by local cables. Power supplies supporting signalling are also beyond service life</p>	<p>None</p> <p>None</p> <p>None</p> <p>None</p>	<p>\$ -</p> <p>\$ -</p> <p>\$ -</p> <p>\$ -</p>	

<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>Insufficient information</p>	<p>Additional power suppliers were required due to increased power demand from the point machine, than was expected. The power supplies needed to be upgraded or extra diversity was required. This all lead to the knock on of additional costs for pit n pipe increased depth of a UTX and increasing the Ergon supply, Would have expected this to be identified in the original scope - unless a different project increased the demand.</p> <p>Not clear as to why the point machine power demand had increased, i.e. scope document does not include any reference to new point machines or motors, this could be aligned to a different project e.g. turn-out renewals</p>	<p>Medium</p>	<p>\$ -</p>	
<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>YES</p>	<p>Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.</p>	<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>YES</p>	<p>Project Change requests have been supplied showing the approval of the change by client Robert Love.</p>	<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.</p>	<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>N/A</p>			<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>The reason for the increased demand is unclear following a review of point machines. However the additional scope reflects the items required to upgrade the power at an SER should the local supply have been exceeded.</p>			
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>			
<p>Conclusion</p>		<p>Prudent</p>			

STANDARD

Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB. The bulk of the work was completed in FY22, but design was not available in time for construction to be finalised before the final closure in FY22. This delayed scope was completed in FY23. The completed scope departed from what was approved -due to rain delay, increase to power demand at the SER necessitating upgrade of the Power systems.	None	\$ -	
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES	the interlockings is beyond service life with equipment is regularly failing Power supplies supporting signalling are also beyond service life. Renewal would increase reliability and therefore Access	None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	Renewal would increase reliability, service life and therefore Access	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	Design standards not listed in design documentation, adherence to Aurizon standards is noted for construction, EOFY Report confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	YES	The renewal of assets and/or components of the control system aligns with the whole of life management of this system.	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	SMA is referenced in the execution plan	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report - Control systems, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	Insufficient information	Increased scope for power supplies due to increased demand of points machines is not clearly document or explained as to how that has happened above the original approved scope. This was the cause of the increase pit and pipe works and additional Ergon supply work Rain delays costs explained and approved, no issues.	Medium	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudence of Standard			Documentation is in place and approvals for the additional works have been provided and approved by the client. More explanation of the causes of addition costs would be good to be included in the change descriptions and impact statements.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB. The bulk of the work was completed in FY22, but design was not available in time for construction to be finalised before the final closure in FY22. This delayed scope was completed in FY23.	None	\$ -	- Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023 - FY23 EOFY Status Report - Control Systems - FY22 EOFY Status Report - Control Systems
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			The total amount claimed (\$5.8m in FY23 and \$1.3m in FY22) is less than the total spend (\$7.4m). Overall, cost claimed in FY23 (\$5.8m) is deemed prudent.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	8
Project Name	Control Systems Renewal
Project Number	IV.00820
System	Blackwater
Commissioned Year	FY22
Asset Category	Control Systems
Claimed Expenditure	\$2.0M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 MRSB. In FY22, several planned scopes were deferred to FY23, and of these, the works that were either completed or further delayed in FY23 were: - Removal of two scopes related to power resilience works - Completion of train detection works at two sites (Wycarbah & Grantleigh) - Completion of transmission & data renewals at 10 sites - Completion of six scopes related to UTC / DTC system upgrades	None	\$ -	- FY23 EOFY Status Report - Control Systems - 20220121_FY23 FINAL DRAFT MRSB (Final)_Redacted
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The interlockings in Callemondah yard were installed in the 1970's. This interlocking is beyond service life. Cabling between the interlocking and field equipment is regularly failing, and the condition of some cables has required re-routing of control functions over alternate paths by local cables. Power supplies supporting signalling are also beyond service life.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	Renewals in the Blackwater System Train Control systems include in-field digital modernisation of the life expired analogue telemetry via the Train Control system plus Safety and application enhancements to the Universal Train Control (UTC) system. They improve the safety functions of UTC to reduce potential scheduling and process errors and hence support Access arrangements. UTC/DTC is critical to the operation of trains on the network.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	The Renewals are required to maintain safe operation of the railway replacing life expired systems.	None	\$ -	

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	The Renewals are required to maintain safe operation of the railway replacing life expired systems.	None	\$ -	
(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	YES	The project was part of the FY22 MRSB	None	\$ -	
(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The project was part of the FY22 MRSB with projects deferred into FY23 and FY24 due to availability of speciality resources and spare parts provision	None	\$ -	
(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudency of Scope		Replacement of obsolete equipment is required to maintain a safe and operational railway			
Prudency of Scope Documentation Quality		Medium			
Conclusion		Prudent			

STANDARD Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	"- FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems" - additional information provided including Working group report, Scope of work, project plans, and some PCRs
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	No details provided of construction sign-off	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	No details provided of testing or maintenance activities	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report - Control systems, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Based on limited information provided and EOFY statement on delivered to standards work is prudent			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- QCA - 20230918 - FY23 EOFY Status Report - Control Systems - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			

Comment on Prudence of Cost

Assessment of each works involved summarised below:
 - Claimed costs for Power Resilience, Safeworking - Asset Protection and Safeworking - Minor works are less than the total spend on the works. Thus, these are considered prudent.
 - The unit rates of other works (Safeworking - Train Detection, Transmission and Data Renewal, and UTC/DTC) are comparable to approved unit rates and these works are considered prudent.
 Overall, the claimed cost on the project is considered prudent.

Prudence of Cost Documentation Quality

Low

Conclusion

Prudent

	11
Project Name	Control Systems Renewal
Project Number	IV.00821
System	Blackwater
Commissioned Year	FY23
Asset Category	Control Systems
Claimed Expenditure	\$3.4M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	<p>The project was included in the approved FY23 MRSB. The works that were either completed or delayed in FY23 were:</p> <ul style="list-style-type: none"> - Partial completion of works related to asset protection. Two scopes were completed while one scope was delayed to FY24 due to unavailability of resources. Moreover, additional scope, originally planned for FY24, was added due to the asset condition. - Partial completion of transmission and data renewals. Of the 26 planned scopes, seven were delayed primarily due to equipment and resourcing issues. 	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	<p>(A) Were the works relevant to any Network Development Plan</p> <p>(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?</p>	YES	<p>The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.</p> <p>Removal of aged track circuits and the installation of axle counters. This will reduce the population count of devices and the overall failure rate of the signalling system.</p> <p>Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, to mitigate the high consequence risks of track damage, derailment and dewirement</p>	None	\$ -	

<p>(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?</p>	<p>YES</p>	<p>The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.</p>	<p>None</p>	<p>\$ -</p>	
<p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p>	<p>YES</p>	<p>Train detection track circuits installed in the 1980's that are at or near end of life. Being done in a way that provides obsolete spares for other areas as program rolled out Asset protection equipment are obsolete or have aged technology that needs updating for operation in network The weighbridges are obsolete with minimum spares available. The weigher renewal maintains and improves availability and reliability and improved measurements.</p>	<p>None</p>	<p>\$ -</p>	
<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>YES</p>	<p>Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.</p>	<p>None</p>	<p>\$ -</p>	
<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>YES</p>	<p>As per the EOFY Status Report, Aurizon Network must deliver the projects meeting the requirements of the RSNL and ONRSR. The Renewals are required to maintain safe operation of the railway replacing life expired systems.</p>	<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>	<p>Statement that Change board approval gain for some projects, otherwise no evidence provided</p>	<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>Increase costs of ENSHAM & GORDONTONE Weighers and HBD Red Rock project being brought forward it FY23 was stated as being presented and approved by the change control board in May 22</p>	<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>YES</p>	<p>Resource constraints and prioritisation of available resources accounted for works not completed in FY23</p>	<p>None</p>	<p>\$ -</p>	

Comment on Prudency of Scope

Replacement of obsolete equipment is required to maintain a safe and operational railway

Prudency of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	No details provided of construction sign-off	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	No details provided of testing or maintenance activities	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Renewal of control systems renewal is a core maintenance activity undertaken by Aurizon Network. Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudence of Standard			Based on the limited information provided and EOFY statement, the standard of work is prudent			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Control Systems - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$3.4 - deemed prudent after review of provided documentation			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	18
Project Name	Optical Fibre Renewal
Project Number	IV.00678
System	Blackwater
Commissioned Year	Multi-year project
Asset Category	Control Systems
Claimed Expenditure	\$4.4M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	<p>The project has been included in the approved FY23 RSB. The telecommunications fibre asset was installed in 1980s and is operating beyond its design life and requires replacement. As such a multi-year project, spanning from FY21 to FY24, has been planned to renew optical fibres.</p> <p>In FY23, the completed works consisted of partial completion of planned scope and completion of delayed FY22 scope:</p> <ul style="list-style-type: none"> - 13.5km of planned FY23 scope (48.3km) was completed due to reprioritisation of external resources and incomplete design considerations. - 63km of delayed FY22 scope was completed 	None	\$ -	<ul style="list-style-type: none"> - FY23 EOFY Status Report - Control Systems - FY22 EOFY Status Report - Control Systems - Additional information supplied under optical fibre folder - various documents including standards, drawings, reports. - Aurizon Network Asset Renewals - Control Systems 2022
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	Renewal of optical fibre from the current asset condition ensures the optimal functionality of the control systems that use them and enables the introduction of technology improvements and innovations to deliver a more cost-effective service.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels and adds resilience to the network	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	The existing assets were installed in the 1980's with 6 cores. it is considered prudent to replace these cables given the likely deterioration of cable materials and fibres. The cables life span was deemed to be 30yrs so they are already life expired. Evidence of testing to show degradation was not cited.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Replacement of life expired cables, and increase of cores allows improvements in control systems and monitoring systems that support the aim to reducing the future operating and maintenance costs.	None	\$ -	

	<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>YES</p>	<p>As per the EOFY Status Report, Aurizon Network must deliver the projects meeting the requirements of the RSNL and ONRSR.</p>	<p>None</p>	<p>\$ -</p>	
	<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>YES</p>	<p>The Asset Renewal report details that the Optic fibre renewals program was further assessed and consulted with the RIG prior to finalising the program in 2022</p>	<p>None</p>	<p>\$ -</p>	
	<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.</p>	<p>None</p>	<p>\$ -</p>	
	<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>N/A</p>		<p>None</p>	<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>Scope to replace life expired cables and provision of more fibres to enable resilience and more opportunity for system monitoring is prudent</p>				
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>				
<p>Conclusion</p>		<p>Prudent</p>				

STANDARD Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Control Systems - FY22 EOFY Status Report - Control Systems - Additional information supplied under optical fibre folder - various documents including standards, drawings, reports. - Aurizon Network Asset Renewals - Control Systems 2022
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES	The renewal of fibre optic cable from previous 40yr old cable and the expansion of cores gives greater resilience to the network and potential to support future improvements with ability to utilise additional fibre connectivity.	None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The renewal program provides increased fibre capacity and potential to use these to provide greater resilience to the network	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	Testing Data not cited	none	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudence of Standard			Documentation provided is prudent for the works undertaken			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status – Control Systems - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Assessment of the completed works for each FY year summarised below: 1. FY21 and FY22 - prudent given the claimed amount (\$3.9m) is less than total spend (\$4.5m) 2. FY23 - prudent given the claimed amount (\$0.5m) is less than the total spend (\$1.2m) Overall, the unit rate of the completed works is assessed as prudent given the commentary provided in the documentation and EOFY report			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	28
Project Name	Train Detection Renewal Central Line
Project Number	IV.00692
System	Blackwater
Commissioned Year	
Asset Category	Control Systems
Claimed Expenditure	\$7.2M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	<p>Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?</p>	<p>YES</p>	<p>The project was included in the approved FY22 MRSB. The bulk of the work was completed in FY22 but a portion was not able to be accommodated into the final closure in FY22. This delayed scope was completed in FY23, and from the information provided, the scope of the completed works doesn't depart from what was approved in the FY22 RSB. There were delays in the planned scope from prior years which contributed to further postponement of associated activities. Track Circuits are electronic devices that were installed in the 1980's and are now starting to fail at an increased rate. To renew these aged and deteriorated assets, a multi-year project renewal program commenced in 2017.</p>	<p>None</p>	<p>\$ -</p>	<p>- FY23 EOFY Status Report - Control Systems</p>
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	<p>(A) Were the works relevant to any Network Development Plan</p>	<p>YES</p>		<p>None</p>	<p>\$ -</p>	
	<p>(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?</p>	<p>YES</p>	<p>The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.</p> <p>Removal of aged track circuits and the installation of axle counters. This will reduce the population count of devices and the overall failure rate of the signalling system.</p>	<p>None</p>	<p>\$ -</p>	
	<p>(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?</p>	<p>YES</p>	<p>The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.</p>	<p>None</p>	<p>\$ -</p>	

<p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p>	<p>YES</p>	<p>Train detection track circuits installed in the 1980's that are at or near end of life. Being done in a way that provides obsolete spares for other areas as program rolled out</p>	<p>None</p>	<p>\$ -</p>	
<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>YES</p>	<p>Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.</p>	<p>None</p>	<p>\$ -</p>	
<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>YES</p>	<p>The Renewals are required to maintain safe operation of the railway replacing life expired systems.</p>	<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>	<p>Statement that Change board approval gain for some projects, otherwise no evidence provided</p>	<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>		<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>YES</p>	<p>Changes to program driven by Resourcing constraints and prioritisation, and planning activities with third party stakeholders</p>	<p>None</p>	<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>Replacement of obsolete equipment is required to maintain a safe and operational railway</p>			
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>			
<p>Conclusion</p>		<p>Prudent</p>			

STANDARD

Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 MRSB. The bulk of the work was completed in FY22 but a portion was not able to be accommodated into the final closure in FY22. This delayed scope was completed in FY23, and from the information provided, the standard of the completed works doesn't depart from what was approved in the FY22 RSB.	None	\$ -	- FY23 EOFY Status Report - Control Systems
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	No details provided of construction sign-off	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	No details provided of testing or maintenance activities	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Renewal of control systems is a core maintenance activity undertaken by Aurizon Network. Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Based on limited information provided and EOFY statement on delivered to standards work is prudent			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 MRSB. The bulk of the work was completed in FY22 but a portion was not able to be accommodated into the final closure in FY22. This delayed scope was completed in FY23.	None	\$ -	- FY23 EOFY Status Report - Control Systems - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A					
Comment on Prudence of Cost			Cost claimed \$7.2 - deemed prudent.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	14
Project Name	Electrical Overhead Renewal
Project Number	IV.00826
System	Blackwater
Commissioned Year	FY22
Asset Category	Electrical
Claimed Expenditure	\$0.8M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Jimmy Hou

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB. Scope of works completed in FY23.	None	\$ -	FY22 EOFY Status Report Electricals Final
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	FY23 EOFY Status Report - Electricals
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	N/A		None	\$ -	Aurizon Network - FY22 Final Draft MRSB
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	N/A		None	\$ -	FY23 Final Draft MRSB (Final)_Redacted
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	N/A		None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	Not able to be assessed as no condition monitoring data was provided for the assets.	None	\$ -	Ambrose Feeder Wire Clearance Design Drawings
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Scope included the installation of monitoring devices at 18 mast locations to monitor the electrical section. The installation of these will help with tracking condition and maintenance needs of the asset.	None	\$ -	OHLE Monitoring PC Certificates
	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	Assumed scope required as approved by the MRSB.	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	N/A		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	Works completed as per the approved FY22 MRSB.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A	Clearer and more descriptive scope descriptions to be provided in the MRSB documentation to ensure that the scope undertaken adheres to the identified and approved projects.	None	\$ -	

Comment on Prudency of Scope	Scope completed in FY23 for approved FY22 MSRB works. General lack of documentation provided to inform the scope and which projects were being undertaken and why.
Prudency of Scope Documentation Quality	Medium
Conclusion	Prudent

STANDARD Assessed by Jimmy Hou

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB.	None	\$ -	FY22 EOFY Status Report Electricals Final
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	FY23 EOFY Status Report - Electricals
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	Aurizon Network - FY22 Final Draft MRSB
	(B) With regards to the current and likely future usage levels	Insufficient information		None	\$ -	FY23 Final Draft MRSB (Final)_Redacted
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	Practical Completion Certificates provided for the overhead line monitoring EFD installations which lists the standards that the installation was in compliance with. However, no drawings or installation photos were provided to be reviewed. It is assumed that the installation has been completed in accordance with standards.	None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	Ambrose Feeder Wire Clearance Design Drawings
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	OHLE Monitoring PC Certificates
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	Insufficient information	Noted in FY23 EOFY Status report that works have been delivered in accordance with relevant standards. However, no documentation was provided for more detailed assessment.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	Works completed as per approved FY22 MRSB.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Aurizon Network provided confirmation in the FY23 EOFY Status report that works have been delivered in accordance with relevant standards and Aurizon Network standards. Practical completion certificates were provided to support this. However, no design reports or drawings for the OHLE monitoring devices were assessed.			
Prudence of Standard Documentation Quality			Low			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB.	None	\$ -	- FY23 EOFY Status Report - Electricals - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
	(8) meeting contractual timeframes and dealing with external factors?	N/A		None		
	(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None		
	(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None		
Comment on Prudence of Cost			Cost claimed \$0.8 - deemed prudent based on provide documentation			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	16
Project Name	Formation Renewal
Project Number	IV.00807
System	Blackwater
Commissioned Year	FY22
Asset Category	Civil Assets
Claimed Expenditure	\$1.1M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY22 RSB. Of the planned scope in FY22, work at one site wasn't completed due to wet weather and was completed in FY23.	None	\$ -	- FY23 EOFY Status Report - Civil Assets - FY22 EOFY Status Report - Formation Renewals - FY23 MRSB
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB. Moreover, the solution is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructure required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	Given that the works were approved in the FY22 RSB, it is assumed that the works were required considering age and condition of the assets. Moreover, as a Capital Infrastructure activity, formation renewal works are needed where the track quality index (TQI) is poor due to formation movement and plastic failure. The works are required to: 1. Eliminate the risk of the loss of top and line. 2. Eliminate wheel unload that may result in derailment. 3. Remove existing, and eliminate future speed restrictions. 4. Keep track quality within the track quality index for the passage of traffic at line-speed.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Scope included the completion of outstanding works from approved FY22 scope due to wet weather conditions. The renewal of formation in poor condition enable safe operation and increase the safety of the assets.	None	\$ -	

	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	Sites for formation renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES		None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope			Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.			
Prudency of Scope Documentation Quality			Medium			
Conclusion			Prudent			

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Civil Assets - FY22 EOFY Status Report - Formation Renewals - FY23 MRSB
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	Aurizon Network has stated the works were carried out to standard in the submission. No details have been provided demonstrating that the works were constructed and/or completed to the design.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information	Formation renewals follow an approved and prescribed design approach.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023 - FY23 EOFY Status Report - Civil Renewals
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Prudent as unit rate is reasonable. Moreover, the total claimed amounts (\$2.3m in FY22 and \$1.1m in FY23) is equal to the total spend (\$3.4m).			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	22
Project Name	Track Renewal
Project Number	IV.00801
System	Goonyella
Commissioned Year	FY22
Asset Category	Permanent Way
Claimed Expenditure	\$3.3M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was approved in the FY22 RSB. A portion of works related to Track Upgrades were delayed due to wet weather and it was completed in FY23. Based on the information provided, the completed scope in FY23 hasn't departed from what was originally approved in FY22 RSB.	None	\$ -	FY23 EOFY Status Report - Permanent Way FY 2022 EOFY Status Report Formation Renewal - FY23 Asset Renewals AIC Submission
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	FY22 EOFY Status Report Formation Renewals FINAL-Signed Aurizon Network - FY22 Capital Claim - FINAL
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	While the completed works were approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of Track renewals has been identified and approved through Aurizon Network's established processes. Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	There are a number of locations within the network where rail renewals provide long-term net benefit to the future reliability and operational and/or maintenance needs.	None	\$ -	
	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	Insufficient information	Sites for track renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.	None	\$ -	

	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The scope of the completed works were agreed in the FY22 RSB.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope			Given that the additional scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.			
Prudency of Scope Documentation Quality			Medium			
Conclusion			Prudent			

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	FY 2022 EOFY Status Report
	(B) With regards to the current and likely future usage levels	YES	The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	Formation Renewal - FY23 Asset Renewals AIC Submission
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Track renewal is a core maintenance activity undertaken by Aurizon Network. Given that the completed works were approved in the FY22 RSB, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	FY22 EOFY Status Report Formation Renewals FINAL-Signed
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done.

The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii)	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.						
2.2 (b)(iii)	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	FY 2022 EOFY Status Report
Are costs reasonable for the scope and standard of work done?	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		Formation Renewal - FY23 Asset Renewals AIC Submission
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		FY22 EOFY Status Report Formation Renewals FINAL-Signed
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		Aurizon Network - FY22 Capital Claim - FINAL
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
	(8) meeting contractual timeframes and dealing with external factors?	N/A		None		
	(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None		
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			

Comment on Prudence of Cost An RFI (RFI #48) was raised to note that the claim amount (\$3.3M) is greater than the incurred costs (\$2.2M). Aurizon Network's response clarified that the variance (\$1.1M) represented the claim for FY22 works, which was less than the actual costs incurred during that period. Documentation provided supports this clarification and the project costs are considered efficient.

Prudence of Cost Documentation Quality Low

Conclusion Prudent

Assessment Number	25
Project Name	Track Renewal
Project Number	IV.00802
System	Goonyella
Commissioned Year	FY23
Asset Category	Permanent Way
Claimed Expenditure	\$29.7M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY23 RSB. In FY23, the completed works comprised of partial completion of planned works and the completion of additional works. These were: - Partial completion of rail renewal works, where work at one site was deferred due to asset condition showing slower than forecasted deterioration. - Partial completion of track upgrades, where works at two sites were delayed to FY24 due to operational impacts. The upgrades delayed from FY22 were also completed. - Additional scopes were sleeper replacements in four sidings following an asset condition assessment.	None	\$ -	FY23 EOFY Status Report - Permanent Way FY 2022 EOFY Status Report Formation Renewal - FY23 Asset Renewals AIC Submission FY22 EOFY Status Report Formation Renewals FINAL-Signed Aurizon Network - FY22 Capital Claim - FINAL
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES	Overall the additional scope of works is in line with the Network Development plan.	None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining rail and track structures.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services. Following an asset condition assessment, additional scope of sleeper replacement was completed. Rail sleepers are crucial components of track and rail infrastructure. As such, ensuring these components are performing well is required.	None	\$ -	

<p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p>	<p>Insufficient information</p>	<p>The assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of track renewals has been identified and approved through Aurizon Network's established processes.</p> <p>Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.</p>	<p>None</p>	<p>\$ -</p>	
<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>YES</p>	<p>There are a number of locations within the network where rail renewals provide long-term net benefit to the future reliability and operational and/or maintenance needs.</p>	<p>None</p>	<p>\$ -</p>	
<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>Insufficient information</p>	<p>Sites for formation renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.</p>	<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>		<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>The additional scope of works are in line with the objectives outlined in the RSB.</p>	<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>N/A</p>		<p>None</p>	<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>Planned scope of rail renewal and track upgrades weren't completed due to incorrect assessment of conditions and unforeseen operational impacts, respectively. Moreover, additional sleeper renewals were completed following an asset condition assessment. The decisions for these delayed and additional works are considered reasonable and is therefore considered prudent.</p>			
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>			
<p>Conclusion</p>		<p>Prudent</p>			

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way FY 2022 EOFY Status Report Formation Renewal - FY23 Asset Renewals AIC Submission
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES			\$ -	FY22 EOFY Status Report Formation Renewals FINAL-Signed
	(B) With regards to the current and likely future usage levels	YES	The asset upgrades are undertaken to a documented and approved standards. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Track renewal is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)		\$ -	- Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A			\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A				
	(C) With regards to the circumstances prevailing in the markets for:	N/A				
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable			
	(2) labour?	YES	Unit rate of completed works is considered reasonable			
	(3) materials?	YES	Unit rate of completed works is considered reasonable			
	(D) With regards to the Asset Management Plan	N/A				
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A				
	(1) safety during construction and operation?	N/A				
	(2) compliance with environmental requirements during construction and operation?	N/A				
	(3) compliance with Laws and the requirements of Authorities?	N/A				
	(4) minimising disruption to the operation of Train Services during construction?	N/A				
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A				
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package			
	(7) aligning other elements in the supply chain?	N/A	Operational consideration			
	(8) meeting contractual timeframes and dealing with external factors?	N/A				
	(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A					

Comment on Prudence of Cost

The project cost claim \$29.7M is considered prudent after reviewing EOFY Status Report (Commentary Notes 3, 4, 5) relating to external factors outside of Aurizon's control.

Prudence of Cost Documentation Quality

Low

Conclusion

Prudent

Assessment Number	2
Project Name	Ballast Renewal
Project Number	IV.00831
System	Goonyella
Commissioned Year	FY22
Asset Category	Ballast Cleaning
Claimed Expenditure	\$10.7M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was approved in the FY22 RSB and although the works commenced in FY22, the following works were delayed: - A portion of the mainline undercutting works were deferred due various factors including wet weather and change in delivery model. - Works on three turnouts were deferred due to contractor availability and inclement weather. In FY23, a portion of the delayed scope was completed while some scope was further delayed to future years.	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted - FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning. - FY22 MRSB - FY23 MRSB - 20240119_30107_Ballast-Report-for-QCA-CMT-1 - FY22 Ballast Undercutting - Corporate Plan
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
2.2 (b)(i)	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	

<p>Were the works reasonably required?</p>	<p>(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?</p>	<p>YES</p>	<p>The completed works in FY23 were approved in the FY22 RSB.</p> <p>Moreover, ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure and cause delays through speed restrictions or increase risks of derailments.</p> <p>These works are defined by Aurizon Network as a renewal activity and are needed where existing rail conditions are such that the overall TQI is poor as a result of ballast fouling and are required to (1) Eliminate the risk of the loss of top and line (2) Eliminate wheel unload that may result in derailment (3) Remove existing and eliminate future speed restrictions (4) Keep track quality within the track quality index for the passage of traffic at line-speed.</p> <p>Although detailed information that substantiates the locations nominated for renewal was not available, a discussion with Aurizon (23/01/24) gave sufficient comfort that a rigorous approach has been adopted to determine these locations and the work is required to ensure the ongoing reliability of the rail network</p> <p>Insufficient information has been provided to determine that Aurizon Network's policy of undertaking 140km or renewal each year remain valid given that this has been ongoing since 2013.</p> <p>If the expected life of line is greater than 20 years then investment in ballast undercutting / renewal seem reasonable. This judgement is purely based on past experience and anecdotal information regarding the condition of the Aurizon Network. If the life expectancy of any element on the network is less than 20 years, a case study should be prepared to demonstrate the need for the specific line segment to undergo a renewal exercise.</p>	<p>None</p>	<p>\$ -</p>
	<p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p>	<p>YES</p>	<p>Given that the completed works were approved in the RSB, and in the absence of documentation detailing the conditions of the renewed ballast, it is assumed that the works were required.</p>	<p>None</p>	<p>\$ -</p>
	<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>Insufficient information</p>	<p>The extents of these works are based on Aurizon Network's policy of undertaking 140km of renewal per year. Although it has been advised that 140km per year is agreed with the QCA and RIG, Aurizon Network haven't demonstrated that the extent of these works is prudent.</p> <p>The extent/scale of the project can't be confirmed from the provided data. There is insufficient detail to show that the location and extent of the ballast undercutting locations noted within the MRSB and listed within the "RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted" are appropriate.</p>	<p>None</p>	<p>\$ -</p>
	<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>Insufficient information</p>		<p>None</p>	<p>\$ -</p>
	<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>		<p>None</p>	<p>\$ -</p>
	<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>The scope of the completed works were agreed in the FY22 RSB.</p>	<p>None</p>	<p>\$ -</p>
	<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>YES</p>	<p>It is recommended that Aurizon Network's Policy of undertaking a nominal 140km per year ballast cleaning (defined as a renewal) be confirmed as suitable going forward.</p>	<p>None</p>	<p>\$ -</p>

Comment on Prudency of Scope	Given that the scope of works hadn't departed from the approved RSB, the completed works are considered prudent. The impact of the wet weather experienced in early 2022 is recognised with regard to scope productivity, however additional substantiation of lost productivity would be beneficial. Moreover, the absence of GPR recommendations and TQR reporting limits the information available to demonstrate the prudency of the locations for undercutting works.
Prudency of Scope Documentation Quality	Medium
Conclusion	Prudent

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's FY23 Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted - FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning. - FY22 MRSB - FY23 MRSB - 20240119_30107_Ballast-Report-for-QCA-CMT-1 - FY22 Ballast Undercutting - Corporate Plan
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES		None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -		
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$10.7 - deemed prudent based on provided documentation.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	4
Project Name	Ballast Renewal
Project Number	IV.00832
System	Goonyella
Commissioned Year	FY23
Asset Category	Ballast Cleaning
Claimed Expenditure	\$27.9M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY23 RSB. In FY23, the completed works consisted of partial completion of planned works and completion of additional works. These were: - Partial completion of the planned mainline undercutting works. Some scopes were deferred to future years due to various factors including limited possession time, unavailable equipment and prioritisation of reactive works. - Works on three turnouts weren't completed due to wet weather and limited possession time. - Additional scope (reactive) was added to Mainline Excavator Undercutting works based on asset condition.	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted - FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning. - FY23 MRSB - 20240119_30107_Ballast-Report-for-QCA-CMT-1
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES	The additional scope of works, renewal of foul ballast, is in line with the Network Development plan.	None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates maintaining clean, well-consolidated ballast with an appropriate profile.	None	\$ -	

(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?

YES

The scope of additional works completed is consistent with the works approved in the FY23 RSB.

Moreover, ballast undercutting to renew ballast is considered necessary to maintain current and future capacity levels. Deterioration in ballast can impact the integrity of track infrastructure and cause delays through speed restrictions or increase risks of derailments.

These works are defined by Aurizon Network as a renewal activity and are needed where existing rail conditions are such that the overall TQI is poor as a result of ballast fouling and are required to (1) Eliminate the risk of the loss of top and line (2) Eliminate wheel unload that may result in derailment (3) Remove existing and eliminate future speed restrictions (4) Keep track quality within the track quality index for the passage of traffic at line-speed.

Although detailed information that substantiates the locations nominated for renewal was not available, a discussion with Aurizon (23/01/24) gave sufficient comfort that a rigorous approach has been adopted to determine these locations and the work is required to ensure the ongoing reliability of the rail network

Insufficient information has been provided to determine that Aurizon Network's policy of undertaking 140km or renewal each year remain valid given that this has been ongoing since 2013.

If the expected life of line is greater than 20 years then investment in ballast undercutting / renewal seem reasonable. This judgement is purely based on past experience and anecdotal information regarding the condition of the Aurizon Network. If the life expectancy of any element on the network is less than 20 years, a case study should be prepared to demonstrate the need for the specific line segment to undergo a renewal exercise.

None

\$ -

(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan

YES

Given that the completed works were approved in the RSB, and in the absence of documentation detailing the conditions of the reactive works, it is assumed that the works were required.

None

\$ -

(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)

Insufficient information

The extents of these works are based on Aurizon Network's policy of undertaking 140km of renewal per year. Although it has been advised that 140km per year is agreed with the QCA and RIG, Aurizon Network haven't demonstrated that the extent of these works is prudent.

The extent/scale of the project can't be confirmed from the provided data. There is insufficient detail to show that the location and extent of the ballast undercutting locations noted within the MRSB and listed within the "RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted" are appropriate.

None

\$ -

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements

Insufficient information

None

\$ -

(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB

Insufficient information

None

\$ -

(H) Were the works necessary to comply with Renewals Strategy and Budget

YES

Renewal of ballast in poor condition is in line with the objectives outlined in the RSB.

None

\$ -

(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders

N/A

It is recommended that Aurizon Network's Policy of undertaking a nominal 140km per year ballast cleaning (defined as a renewal) be confirmed as suitable going forward.

None

\$ -

Comment on Prudency of Scope

Given that renewal of foul ballast is considered industry practice and in line with Aurizon Network's policies, the scope of works is considered prudent. It is noted that the absence of GPR recommendations and TQR reporting limits the information available to demonstrate the prudence of the locations for undercutting works.

Prudency of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	RIG Quarterly Report - FY23 Q4 (FULL YEAR) FINAL (FULL SDR)_Redacted
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	- FY23 Renewals Strategy and Budget (RSB)
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning.
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Ballast renewal is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	- FY23 MRSB
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	- 20240119_30107_Ballast-Report-for-QCA-CMT-1
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	Insufficient information		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None		- FY23 EOFY Status Report - Ballast Cleaning - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$27.9 - deemed prudent based on provided documentation.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	5
Project Name	Bridge Ballast Renewal
Project Number	IV.00804
System	Goonyella
Commissioned Year	FY22
Asset Category	Ballast Cleaning
Claimed Expenditure	\$0.6M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was approved in the FY22 RSB. A portion of planned works at one site were delayed due to wet weather and it was completed in FY23. Based on the information provided, the completed scope in FY23 hadn't departed from what was originally approved in the FY22 RSB.	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY22 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning - FY22 EOFY Status Report Bridge Ballast Template
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The additional scope of works were agreed in the FY22 RSB.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	N/A	While the completed scope was approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of bridge ballast renewals has been identified and approved through Aurizon Network's established processes. Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Undertaking renewals of deteriorated bridge ballast provide long-term net benefit to the future reliability and operational and/or maintenance needs.	None	\$ -	
	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	The additional scope of works were agreed in the FY22 RSB.	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	

	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	A portion of approved FY22 bridge ballast renewal scope was delayed and completed in FY23.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope		The total scope of completed works included the works that were delayed from FY22. Overall, the scope of the works is considered prudent.				
Prudency of Scope Documentation Quality		Medium				
Conclusion		Prudent				

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY22 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning - FY22 EOFY Status Report Bridge Ballast Template
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	N/A		None	\$ -	
	(B) With regards to the current and likely future usage levels	N/A		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES		None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	Insufficient information		None	\$ -	
(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -		
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			

Comment on Prudence of Cost Cost claimed \$0.6 - deemed prudent based on provided documentation. Moreover, total claimed amount (\$1.6m in FY22 and \$0.6m in FY23) is equal to the total spend on the project.

Prudence of Cost Documentation Quality	Low
Conclusion	Prudent

	9
Project Name	Control Systems Renewal
Project Number	IV.00820
System	Goonyella
Commissioned Year	FY22
Asset Category	Control Systems
Claimed Expenditure	\$2.4M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project has been included in the approved FY22 MRSB. In FY22, several planned scopes were deferred to FY23, and of these, the works that were either completed or further delayed in FY23 were: - Partial completion of works related to asset protection. One scope was further delayed to FY24 due to procurement. - Partial completion of planned transmission & data renewals. Works at four sites were completed and work at one site was further delayed due to unavailability of key external resources.	None	\$ -	"- FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems" - additional information provided including Working group report, Scope of work, project plans, and some PCRs
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES		None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES		None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	The Renewals are required to maintain safe operation of the railway replacing life expired systems.	None	\$ -	
(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	The Renewals are required to maintain safe operation of the railway replacing life expired systems.	None	\$ -		

	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	YES	The project was part of the FY22 MRSB	None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The project was part of the FY22 MRSB with projects deferred into FY23 and FY24 due to availability of speciality resources and spare parts provision	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudency of Scope		Replacement of obsolete equipment is required to maintain a safe and operational railway . Because the works completed were agreed in the FY22 MRSB, the scope is considered prudent.				
Prudency of Scope Documentation Quality		Medium				
Conclusion		Prudent				

STANDARD

Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	No details provided of construction sign-off	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	No details provided of testing or maintenance activities	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report - Control systems, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	

Comment on Prudence of Standard

Based on limited information provided and EOFY statement on delivered to standards work is prudent

Prudence of Standard Documentation Quality

Medium

Conclusion

Prudent

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023 - FY22 EOFY Report - Control Systems
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
	(8) meeting contractual timeframes and dealing with external factors?	N/A		None		
	(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None		
	(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None		
	Comment on Prudence of Cost			The total amount claimed on the project (\$2.1m in FY22 and \$2.4m in FY23) is less than the total spend on the project. Based on AECOM's assessment, the project cost is considered prudent, supported by a low level of documentation quality.		
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	12
Project Name	Control Systems Renewal
Project Number	IV.00821
System	Goonyella
Commissioned Year	FY23
Asset Category	Control Systems
Claimed Expenditure	\$6.4M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	<p>The project was included in the approved FY23 RSB. In FY23, the planned works were either completed or delayed to future years. These were:</p> <ul style="list-style-type: none"> - Completion of works related to power resilience - Partial completion (3 scopes out of 4) of asset protection works. One scope was delayed due to procurement issues, now planned to be completed in FY24. - Partial completion of train detection works. A scope at Issac Plains was delayed to FY24 due to delays in design. - Partial completion of transmission and data renewals. Six out of 35 scope were delayed primarily due to resource issues. - Partial completion (2 out of 4 scopes) of UTC / DTC works. Works were delayed to due late delivery of critical hardware. 	None	\$ -	<ul style="list-style-type: none"> - FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	<p>The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.</p> <p>removal of aged track circuits and the installation of axle counters. This will reduce the population count of devices and the overall failure rate of the signalling system.</p> <p>Renewal or establishment of asset protection systems to monitor the live interface between train and track assets, to mitigate the high consequence risks of track damage, derailment and dewirement</p>	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.	None	\$ -	

<p>(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan</p>	<p>YES</p>	<p>train detection track circuits installed in the 1980's that are at or near end of life. Being done in a way that provides obsolete spares for other areas as program rolled out</p> <p>Asset protection equipment are obsolete or have aged technology that needs updating for operation in network</p> <p>The geotechnical measurement systems at Black Mountain comprise obsolete equipment and are becoming unreliable in operation</p>	<p>None</p>	<p>\$ -</p>	
<p>(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)</p>	<p>YES</p>	<p>Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.</p>	<p>None</p>	<p>\$ -</p>	
<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>YES</p>	<p>The Renewals are required to maintain safe operation of the railway replacing life expired systems.</p>	<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>	<p>Statement that Change board approval gain for some projects, otherwise no evidence provided</p>	<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>	<p>Increase costs of Millennium, LAKE VERMONT and CARBOROUGH DOWNS Weighers was stated as being presented and approved by the change control board in May 22</p>	<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>YES</p>	<p>Changes to program driven by Resourcing constraints and prioritisation, and planning activities with third party stakeholders</p>	<p>None</p>	<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>Replacement of obsolete equipment is required to maintain a safe and operational railway</p>			
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>			
<p>Conclusion</p>		<p>Prudent</p>			

STANDARD Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Control Systems
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	No details provided of construction sign-off	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	No details provided of testing or maintenance activities	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Renewal of control systems renewal is a core maintenance activity undertaken by Aurizon Network. Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudence of Standard			Based on the limited information provided and EOFY statement, the standard of work is prudent			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None		- FY23 EOFY Status Report - Control Systems - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$6.4 - deemed prudent based on provided documentation			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	19
Project Name	Optical Fibre Renewal
Project Number	IV.00678
System	Goonyella
Commissioned Year	Multi-year project
Asset Category	Control Systems
Claimed Expenditure	\$10.0M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	<p>The project has been included in the approved FY23 RSB. The telecommunications fibre asset was installed in 1980s and is operating beyond its design life and requires replacement. As such a multi-year project, spanning from FY21 to FY24, had been planned to renew optical fibres.</p> <p>In FY23, the completed works consisted of partial completion of the planned scope and completion of delayed FY22 scope:</p> <ul style="list-style-type: none"> - 50.7km of planned FY23 scope (117km) was completed due to inclement weather conditions. - 90km of delayed FY22 scope was completed 	None	\$ -	
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	Renewal of optical fibre from the current asset condition ensures the optimal functionality of the control systems that use them and enables the introduction of technology improvements and innovations to deliver a more cost-effective service.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels and adds resilience to the network	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	The existing assets were installed in the 1980's with 6 cores. It is considered prudent to replace these cables given the likely deterioration of cable materials, and fibres. The cables life span was deemed to be 30yrs so they are already life expired. Evidence of testing to show degradation was not cited.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Replacement of life expired cables, and increase of cores allows improvements in control systems and monitoring systems that support the aim to reducing the future operating and maintenance costs.	None	\$ -	

	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	As per the EOFY Status Report, Aurizon Network must deliver the projects meeting the requirements of the RSNL and ONRSR.	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	YES	The Asset Renewal report details that the Optic fibre renewals program was further assessed and consulted with the RIG prior to finalising the program in 2022	None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope			Scope to replace life expired cables and provision of more fibres to enable resilience and more opportunity for system monitoring is prudent			
Prudency of Scope Documentation Quality			Medium			
Conclusion			Prudent			

STANDARD Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES	The renewal of fibre optic cable from previous 40yr old cable and the expansion of cores gives greater resilience to the network and potential to support future improvements with ability to utilise additional fibre connectivity.	None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The renewal program provides increased fibre capacity and potential to use these to provide greater resilience to the network	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information	Testing Data not cited	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Documentation provided is prudent for the works undertaken			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
	(8) meeting contractual timeframes and dealing with external factors?	N/A		None		
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A					
Comment on Prudence of Cost			Project cost claim \$9.9M is assessed as prudent as considers the delivery of the below and Aurizon managing external factors outside of their control as itemised in commentary notes 13 and 14. Telecommunication Assets (FY21, FY22, FY23)			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	21
Project Name	Structures Renewal
Project Number	IV.00817
System	Goonyella
Commissioned Year	FY23
Asset Category	Structures
Claimed Expenditure	\$6.2M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Phil O'Connor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY23 RSB. Additional scope was added to the culvert renewal works (+5) and culvert design works (+12) for works that were delayed from previous years or new scope based on condition. One planned culvert renewal was deferred until FY24.	None	\$ -	- FY23 Maintenance and Renewals Strategy and Budget (RSB) - FY23 EOFY Program Status Report - Structures Renewal Program - FY23 Asset Renewals - 7 Structures renewal - FY23 Capital Expenditure Claim - Aurizon Asset Maintenance and Renewal Policy - Network - IFC Drawings for Bridge and sample culvert project works.
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES	Aurizon Network are currently undertaking a Concept Study into increasing the capacity of the Goonyella system.	None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the infrastructure necessitates repairing, replacing or removing life-expired structures with new structures compliant with 300LA loading configurations. The selection of structures for renewal was based on poor condition, age and the risk associated with delaying the works further.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The works are considered necessary to maintain current and future load capacity requirements. Bridges and culverts play a key role in facilitating the natural flow of water throughout the network. The deterioration of these infrastructures not only poses a significant safety risk but also causes major disruptions in service.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	The works are consistent with the Aurizon Asset Management Plan. Culvert CU200453 was originally identified for replacement (due to condition) in FY28, however it was able to be incorporated into other major project works in FY23, allowing for earlier asset replacement at reduced cost and reduced impact to access.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Planned and pre-emptive replacement of the worn assets avoids unplanned failures and is in the interest of an efficient, whole-of-supply chain operation. Deferral of culvert works would potentially lead to simple culvert lining solutions becoming unfeasible requiring more expensive renewals and greater impact on access.	None	\$ -	

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	As per the EOFY Status Report, the works delivered meet the requirements of Aurizon Network's SMS, which includes CETS and CESS.	None	\$ -	
(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	N/A	No outcomes from user consultation that negatively impact access charges in relation to the structures work were witnessed in the information provided.	None	\$ -	
(H) Were the works necessary to comply with Renewals Strategy and Budget	YES		None	\$ -	
(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudency of Scope		The scope of works was warranted and justifiable due to poor condition and age of the assets, as well as network criticality and consequences on operation and safety of network.			
Prudency of Scope Documentation Quality		Medium			
Conclusion		Prudent			

STANDARD Assessed by Phil O'Connor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 Maintenance and Renewals Strategy and Budget (RSB) - FY23 EOFY Program Status Report - Structures Renewal Program - FY23 Asset Renewals - 7 Structures renewal - FY23 Capital Expenditure Claim - Aurizon Asset Maintenance and Renewal Policy - Network - IFC Drawings for Bridge and sample culvert project works.
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES	The works mitigate against the loss of structural integrity in bridges and culverts and the consequent loss of access and necessary drainage provisions.	None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Structures renewal is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, the works have been executed in accordance with all relevant industry standards and specifications.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	YES	The works are consistent with the Aurizon Asset Management Plan. Culvert CU200453 was originally identified for replacement (due to condition) in FY28, however it was able to be incorporated into other major project works in FY23 allowing for earlier asset replacement at reduced cost and reduced impact to access.	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Structures renewal is a key maintenance activity undertaken by Aurizon Network. Its Safety Management System includes Civil Engineering Track Standards (CETS) and Civil Engineering Structures Standard (CESS), and as per the EOFY Report, Aurizon Network has confirmed that the works have been delivered in accordance with the relevant CETS and CESS.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made the necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	From the information provided, it is considered that Aurizon Network has made the necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A			\$ -	
Comment on Prudence of Standard			Documentation (IFC Drawings) was provided for the bridge bearing renewal and for a sample of the various culvert linings and renewals. Design and construction solutions provided were of a type and standard consistent with typical solutions provided for similar applications on previous projects and are considered to provide good, low impact solutions where possible.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Program Status Report - Structures Renewal Program - FY23 Maintenance and Renewals Strategy and Budget (RSB) - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Assessment for each works involved summarised below: 1. Bridges - unit rate of completed works (\$2.28m/unit) is similar to the unit rate of the approved works (\$2.26m/unit) 2. Culvert Renewal - unit rate of completed works (\$0.72m/unit) is similar to the unit rate of the approved works (\$0.7m/unit) Overall, the total cost claimed (\$6.2m) is deemed prudent based on provided documentation.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	15
Project Name	Electrical Overhead Renewal
Project Number	IV.00826
System	Goonyella
Commissioned Year	FY22
Asset Category	Electrical
Claimed Expenditure	\$2.5M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Jimmy Hou

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB. Scope of works completed in FY23.	None	\$ -	FY22 EOFY Status Report Electricals Final FY23 EOFY Status Report - Electricals
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.						
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan (B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds? (C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe? (D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan (E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes) (F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements (G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB (H) Were the works necessary to comply with Renewals Strategy and Budget (I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A N/A N/A Insufficient information YES YES N/A YES N/A	Not able to be assessed as no condition monitoring data provided for the assets. Scope included the completion of outstanding works from approved FY22 scope due to deferral of resources or wet weather delays. Scope includes: - FW & Clearance Improvement Renewal - Headspan improvements - Registration Equipment These upgrades extends the operational life of the assets and are as per approved FY22 MRSB. Assumed scope required as approved by the MRSB. Clearer and more descriptive scope descriptions to be provided in the MRSB documentation to ensure that the scope undertaken adheres to the identified and approved projects.	None None None None None None None None	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$ -	Aurizon Network - FY22 Final Draft MRSB FY23 Final Draft MRSB (Final)_Redacted Aurizon Network - FY22 Capital Claim - FINAL Feeder Wire Clearance Drawings for Waitara Headspan improvement works Practical Completion Certificate Registration replacement Practical Completion Certificate

Comment on Prudency of Scope	Scope completed in FY23 for approved FY22 MSRB works. General lack of documentation provided to inform the scope and which projects were being undertaken and why.
Prudency of Scope Documentation Quality	Medium
Conclusion	Prudent

STANDARD

Assessed by Jimmy Hou

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB.	None	\$ -	FY22 EOFY Status Report Electricals Final
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	FY23 EOFY Status Report - Electricals
	(B) With regards to the current and likely future usage levels	Insufficient information		None	\$ -	Aurizon Network - FY22 Final Draft MRSB
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	Practical Completion Certificates provided for completed headspan improvement and registration replacement works which lists the standards that the installation was in compliance with. However, no drawings, installation photos or ITPs were provided to be reviewed. It is assumed that the installation has been completed in accordance with standards.	None	\$ -	FY23 Final Draft MRSB (Final)_Redacted
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	Feeder Wire Clearance Drawings for Waitara
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	Insufficient information	Noted in FY23 EOFY Status report that works have been delivered in accordance with relevant standards. However, no documentation was provided for more detailed assessment.	None	\$ -	Headspan improvement works Practical Completion Certificate
	(G) With regards to the Renewals Strategy and Budget	YES	Works completed as per approved FY22 MRSB.	None	\$ -	Registration replacement Practical Completion Certificate
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Aurizon Network provided confirmation in the FY23 EOFY Status report that works have been delivered in accordance with relevant standards and Aurizon Network standards. Practical completion certificates provided to support this. However, no design reports or drawings for registration replacement and headspan works were assessed.			
Prudence of Standard Documentation Quality			Low			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB.	None	\$ -	FY23 EOFY Status Report - Electricals FY22 EOFY Status Report Electricals Final
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	FY23 EOFY Status Report - Electricals Aurizon Network - FY22 Final Draft MRSB FY23 Final Draft MRSB (Final)_Redacted Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Prudent: The amount being claimed may differ from the amount incurred this financial year, as assets are claimed in the year in which they are commissioned.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	20
Project Name	Power Systems Renewal
Project Number	IV.00823
System	Goonyella
Commissioned Year	FY22
Asset Category	Electrical
Claimed Expenditure	\$0.8M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Jimmy Hou

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY22 RSB. In FY22, planned works were delayed due to resource constraints and extended lead times for relays, and these were completed in FY23.	None	\$ -	FY22 EOFY Status Report Electricals Final FY23 EOFY Status Report - Electricals Aurizon Network - FY22 Final Draft MRSB FY23 Final Draft MRSB (Final)_Redacted
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	N/A		None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL PSC Isolation Transformer SOW Motorised Isolator Practical Completion Mindi FS Relay Renewal Practical Completion
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	N/A		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	N/A		None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	Not able to be assessed as no condition monitoring data provided for the assets.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Scope included the completion of outstanding works from approved FY22 scope due to resource constraints and extended lead times for relays. Scope includes: - Motorised Isolators - PSC Renewal - Protection Relays These works included renewal of life expired assets that enable safe operation and increase the safety of the assets and are as per the approved FY22 MRSB.	None	\$ -	
	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES	Assumed scope required as approved by the MRSB	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	N/A		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	Works completed as per approved FY22 MRSB	None	\$ -	

	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A	Better planning of projects to ensure planned works are completed in the year of the approved MRSB.	None	\$ -	
Comment on Prudency of Scope		Scope completed in FY23 for approved FY22 MSRB works.				
Prudency of Scope Documentation Quality		Medium				
Conclusion		Prudent				

STANDARD

Assessed by Jimmy Hou

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY22 EOFY Status Report Electricals Final
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	FY23 EOFY Status Report - Electricals
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	Aurizon Network - FY22 Final Draft MRSB
	(B) With regards to the current and likely future usage levels	Insufficient information		None	\$ -	FY23 Final Draft MRSB (Final)_Redacted
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	Practical Completion Certificates provided for the motorised isolator renewals and protection relay renewals which lists the standards that the installation was in compliance with. However, no drawings, installation photos or ITPs were provided to be reviewed. It is assumed that the installation has been completed in accordance with standards.	None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	PSC Isolation Transformer SOW
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	Motorised Isolator Practical Completion
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	Insufficient information	Noted in FY23 EOFY Status report that works have been delivered in accordance with relevant standards. However, no documentation was provided for a more detailed assessment.	None	\$ -	Mindi FS Relay Renewal Practical Completion
	(G) With regards to the Renewals Strategy and Budget	YES	Works completed as per approved FY22 MRSB	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Aurizon Network provided confirmation in the FY23 EOFY Status report that works have been delivered in accordance with relevant standards and Aurizon Network standards. Practical completion certificates were provided to support this. However no design reports or drawings for the completed works were assessed.			
Prudence of Standard Documentation Quality			Low			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Electricals FY23 EOFY Status Report - Electricals
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	Aurizon Network - FY22 Final Draft MRSB FY23 Final Draft MRSB (Final)_Redacted Aurizon Network - FY22 Capital Claim - FINAL
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$0.8M - deemed prudent based on provide documentation.			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	17
Project Name	Formation Renewal
Project Number	IV.00807
System	Goonyella
Commissioned Year	FY22
Asset Category	Civil Assets
Claimed Expenditure	\$2.0M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY22 RSB. Of the planned works in FY22, works at two site weren't completed due to wet weather and was completed in FY23.	None	\$ -	- FY23 EOFY Status Report - Civil Assets
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	- FY22 EOFY Status Report - Formation Renewals
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	- FY23 MRSB
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB. Moreover, the solution is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructure required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	Given that the works were approved in the FY22 RSB, it is assumed that the works were required considering age and condition of the assets. Moreover, as a Capital Infrastructure activity, formation renewal works are needed where the TQI is poor due to formation movement and plastic failure. The works are required to: 1. Eliminate the risk of the loss of top and line. 2. Eliminate wheel unload that may result in derailment. 3. Remove existing and eliminate future speed restrictions. 4. Keep track quality within the track quality index for the passage of traffic at line-speed.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Scope included the completion of outstanding works from approved FY22 scope due to wet weather conditions. The renewal of formation in poor condition enable safe operation and increase the safety of the assets.	None	\$ -	

<p>(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements</p>	<p>YES</p>	<p>Sites for formation renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.</p>	<p>None</p>	<p>\$ -</p>	
<p>(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB</p>	<p>Insufficient information</p>		<p>None</p>	<p>\$ -</p>	
<p>(H) Were the works necessary to comply with Renewals Strategy and Budget</p>	<p>YES</p>		<p>None</p>	<p>\$ -</p>	
<p>(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders</p>	<p>N/A</p>	<p>It is not clear from the provided documentation what the detailed scope of the FY22 Goonyella renewals was. The difference in the planned scope vs actually completed scope need more detailed substantiation</p>	<p>None</p>	<p>\$ -</p>	
<p>Comment on Prudency of Scope</p>		<p>Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.</p>			
<p>Prudency of Scope Documentation Quality</p>		<p>Medium</p>			
<p>Conclusion</p>		<p>Prudent</p>			

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Civil Assets - FY22 EOFY Status Report - Formation Renewals - FY23 MRSB
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	Insufficient information	Aurizon Network has stated the works were carried out to standard in the submission. No details have been provided demonstrating that the works were constructed and/or completed to the design.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Formation renewals follow an approved and prescribed design approach	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST

Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Civil Assets - FY22 EOFY Status Report - Formation Renewals - FY23 MRSB
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			

Comment on Prudence of Cost	Prudent as unit rate is reasonable.
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Prudence of Cost Documentation Quality	Low
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Conclusion	Prudent
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	23
Project Name	Track Renewal
Project Number	IV.00801
System	Moura
Commissioned Year	FY22
Asset Category	Permanent Way
Claimed Expenditure	\$1.7M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was approved in the FY22 RSB. A portion of works related to sleeper renewal were delayed due to wet weather and was completed in FY23. Based on the information provided, the completed scope in FY23 hasn't departed from what was originally approved in FY22 RSB.	None	\$ -	FY23 EOFY Status Report - Permanent Way (referenced) FY 2022 EOFY Status Report Formation Renewal - FY23 Asset Renewals AIC Submission (referenced) FY22 EOFY Status Report Formation Renewals FINAL-Signed Aurizon Network - FY22 Capital Claim - FINAL
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	While the completed works were approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of Track renewals has been identified and approved through Aurizon Network's established processes. Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	There are several locations on the Moura System where sleeper renewals would provide long term net benefit to the future reliability and operational and/or maintenance needs.	None	\$ -	

	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	Insufficient information	Sites for track renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The scope of the completed works were agreed in the FY22 RSB.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope			Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.			
Prudency of Scope Documentation Quality			Medium			
Conclusion			Prudent			

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way (referenced) FY 2022 EOFY Status Report
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	Formation Renewal - FY23 Asset Renewals AIC Submission (referenced) FY22 EOFY Status Report Formation Renewals FINAL-Signed
	(B) With regards to the current and likely future usage levels	YES	The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	Aurizon Network - FY22 Capital Claim - FINAL
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Track renewal is a core maintenance activity undertaken by Aurizon Network. Given that the completed works were approved in the FY22 RSB, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Permanent Way - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	YES	Unit rate of completed works is considered reasonable	None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	N/A		None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES		None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$1.7M - deemed prudent based on provided documentation. Moreover, the claimed amount is less than the total spend (\$3.1m).			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	26
Project Name	Track Renewal
Project Number	IV.00802
System	Moura
Commissioned Year	FY23
Asset Category	Permanent Way
Claimed Expenditure	\$5.1M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY23 RSB. Of the completed works, the scope that deviated from what was approved were: - Reduced length of track upgrades due to inaccurate planning; and - Completion of a portion of sleeper renewal delayed from FY22.	None	\$ -	FY23 EOFY Status Report - Permanent Way FY 2022 EOFY Status Formation Renewal - FY23 Asset Renewals AIC Submission FY23 Renewals Strategy and Budget (RSB) 20220121_FY23 FINAL DRAFT MRSB (Final)_Redacted
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	N/A	Aside from a delayed FY22 scope, no additional scope was completed in FY23. The scope of track upgrade was reduced as it wasn't accurately planned.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	There are a number of locations within the network where rail renewals provide long term net benefit to the future reliability and operational and/or maintenance needs.	None	\$ -	
	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	Insufficient information	Sites for track renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.	None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	

	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	A portion of approved FY22 track renewal scope was delayed and completed in FY23.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope			The total scope of completed works included what was approved in the FY23 MRSB and the completion of significant works left over from FY22. Overall, the scope of the works is considered prudent. However, it is worth noting that the works for track upgrade didn't occur in line with the original plan.			
Prudency of Scope Documentation Quality			Medium			
Conclusion			Prudent			

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way FY 2022 EOFY Status Formation Renewal - FY23 Asset Renewals AIC Submission FY23 Renewals Strategy and Budget (RSB) 20220121_FY23 FINAL DRAFT MRSB (Final)_Redacted
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The asset upgrades are undertaken to a documented and approved standards. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Track renewal is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -		
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)		-\$ 650,000	- Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	-\$ 650,000	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	Insufficient information	Incurred cost is significantly higher than the projected cost derived from the FY23 budget and planned scope. Refer to the findings below for further detail.			
	(2) labour?	Insufficient information	Incurred cost is significantly higher than the projected cost derived from the FY23 budget and planned scope. Refer to the findings below for further detail.			
	(3) materials?	Insufficient information	Incurred cost is significantly higher than the projected cost derived from the FY23 budget and planned scope. Refer to the findings below for further detail.			
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	There is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			

<p style="text-align: right;">Comment on Prudency of Cost</p>	<p>The total cost incurred on Rail Renewal works was \$2.6M. In FY23, a total of 6.13km of rail renewal works was completed, which is 0.1km more than what was planned. Using the approved unit rate (\$0.31M/km), derived from the FY23 Budget (\$1.8M) and FY23 planned scope (6.03km), the cost of the completed work was projected at \$1.9M.</p> <p>While the EOFY status report highlights that the works were delayed and incurred additional costs due to mobilisation, this is deemed insufficient to justify the observed additional cost of \$0.7M. As such, the project is considered imprudent. AECOM, considering a provision of \$50K for mobilisations costs, recommends an adjusted claim to \$4.45M.</p>
<p style="text-align: right;">Prudency of Cost Documentation Quality</p>	<p>Low</p>
<p style="text-align: right;">Conclusion</p>	<p>Not Prudent</p>

Assessment Number	27
Project Name	Track Renewal
Project Number	IV.00802
System	Newlands / GAPE
Commissioned Year	FY23
Asset Category	Permanent Way
Claimed Expenditure	\$6.87M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the approved FY23 RSB. In FY23, the planned works were completed, in addition to additional track upgrade (2km) scope which was completed due to accelerated rail wear.	None	\$ -	FY23 EOFY Status Report - Permanent Way Formation Renewal - FY23 Asset Renewals AIC Submission
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	FY23 Renewals Strategy and Budget (RSB) 20220121_FY23 FINAL DRAFT MRSB (Final)_Redacted
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES	Overall the additional scope of works is in line with the Network Development plan.	None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The solution is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels. Track and rail are key infrastructures required to operate the network and its deterioration not only poses significant safety risks but also cause major disruptions to services. Following an asset condition assessment, additional scope of track upgrade was completed. Given its importance in operating a safe and efficient network, ensuring that these components are performing well is required.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	Insufficient information	While the additional scope of works is considered necessary, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of track renewals has been identified and approved through Aurizon Network's established processes. Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	

(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)

YES

There are a number of locations within the network where rail renewals provide long-term net benefit to the future reliability and operational and/or maintenance needs.

None

\$ -

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements

Insufficient information

Sites for track renewals are stated as adopting Aurizon Network's Scope Priority Model and should be prioritised based on criticality and condition.

None

\$ -

(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB

Insufficient information

A number of provided documents mention that that both the proposed works and reasoning as to changes in completed works against original plan have been discussed with the relevant user groups.

None

\$ -

(H) Were the works necessary to comply with Renewals Strategy and Budget

YES

The works is considered necessary on the assumption that Aurizon Network have followed their Scope Priority Model.

None

\$ -

(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders

YES

It should be stated that a project description, project management plan describing the project scope, budget and program have been reviewed and accepted by the expansion funders.

None

\$ -

Comment on Prudency of Scope

Given that the additional scope of works was based on noticeable rail wear, the completed works is considered prudent.

Prudency of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	FY23 EOFY Status Report - Permanent Way Formation Renewal - FY23 Asset Renewals AIC Submission FY23 Renewals Strategy and Budget (RSB) 20220121_FY23 FINAL DRAFT MRSB (Final)_Redacted
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The asset upgrades are undertaken to a documented and approved standard. The works are fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Track renewal is a core maintenance activity undertaken by Aurizon Network. Given that the completed works were approved in the FY22 RSB, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES		None	\$ -	
(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -		
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Permanent Way - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
(7) aligning other elements in the supply chain?	N/A	Operational consideration	None			
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Assessment of each works involved in the project summarised below: 1. Rail Renewal - claim amount (\$2.2m) is less than total spend (\$2.4m) 2. Track Upgrade - prudent given the additional scope added 3. Permanent Way Other - claim amount (\$0.1m) is less than total spend (\$0.2m) Overall, the total claimed (\$6.9M) is deemed prudent based on provided documentation .			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

Assessment Number	6
Project Name	Bridge Ballast Renewal
Project Number	IV.00804
System	Newlands / GAPE
Commissioned Year	FY22
Asset Category	Ballast Cleaning
Claimed Expenditure	\$0.7M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dave Taylor

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(l). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was approved in the FY22 RSB. All of the planned work at one site was delayed due to limited possession time and it was subsequently completed in FY23. Based on the information provided, the completed scope in FY23 hadn't departed from what was originally approved in FY22 RSB.	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY22 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning - FY22 EOFY Status Report - Bridge Ballast FINAL
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(l) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES		None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The completed works in FY23 were approved in the FY22 RSB.	None	\$ -	
	(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan	YES	While the completed scope was approved in the FY22 RSB, the assessment of prioritisation of nominated locations based on condition, age and prior performance is not immediately or easily visible to the reviewer. It is assumed that the prioritisation of bridge ballast renewals has been identified and approved through Aurizon Network's established processes. Renewals of life expired and fully worn infrastructure is sound practice to minimise unplanned rail failures and to ensure safe operation of the rail network. The extent and consistency is not able to be demonstrated from the provided information.	None	\$ -	
	(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)	YES	Undertaking renewals of deteriorated bridge ballast provide long-term net benefit to the future reliability and operational and/or maintenance needs.	None	\$ -	

	(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements	YES		None	\$ -	
	(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB	Insufficient information		None	\$ -	
	(H) Were the works necessary to comply with Renewals Strategy and Budget	YES	The scope of the completed works were agreed in the FY22 RSB.	None	\$ -	
	(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudency of Scope		Given that the completed scope of works didn't deviate from what was approved in the FY22 RSB, the completed scope is considered prudent.				
Prudency of Scope Documentation Quality		Medium				
Conclusion		Prudent				

STANDARD Assessed by Dave Taylor

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY22 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Ballast Cleaning - FY22 EOFY Status Report - Bridge Ballast FINAL
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	N/A		None	\$ -	
	(B) With regards to the current and likely future usage levels	N/A		None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES		None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	Insufficient information		None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	Insufficient information		None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	Aurizon Network is required as the RIM to demonstrate to ONSR that they operate and maintain the rail infrastructure in accordance with relevant legislation. Aurizon Network use their Safety Management System to undertake these works.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	Insufficient information		None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			A review of AN's policies and the reviewer's professional judgement based on the documentation provided indicated prudence in the standard of works.			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY22 Renewals Strategy and Budget (RSB)
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	- FY23 EOFY Status Report - Ballast Cleaning - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023 - FY22 EOFY Status Report - Bridge Ballast FINAL
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$0.7M - deemed prudent based on provided documentation. Moreover, the claimed amount is equal to the total spend (\$0.7m)			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

	10
Project Name	Control Systems Renewal
Project Number	IV.00820
System	Newlands / GAPE
Commissioned Year	FY22
Asset Category	Control Systems
Claimed Expenditure	\$1.6M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
<p>Clause 7A.11.6 (b)(iii)</p> <p>Pre-approval</p>	<p>Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?</p>	<p>YES</p>	<p>The project has been included in the approved FY22 MRSB. In FY22, several planned scopes were deferred to FY23, and of these, the works that were either completed or further delayed in FY23 were:</p> <ul style="list-style-type: none"> - Removal of scope related to power resilience works - Deferral of asset protection works at Aberdeen, now planned for FY24 	<p>None</p>	<p>\$ -</p>	
<p>If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.</p>		Response	Comment	Impact on Claim	Recommended Adjustment	
<p>2.2 (b)(i)</p> <p>Were the works reasonably required?</p>	<p>(A) Were the works relevant to any Network Development Plan</p>	<p>YES</p>		<p>None</p>	<p>\$ -</p>	
	<p>(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?</p>	<p>YES</p>	<p>The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.</p>	<p>None</p>	<p>\$ -</p>	
	<p>(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?</p>	<p>YES</p>	<p>The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.</p>	<p>None</p>	<p>\$ -</p>	

(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan

YES	Asset monitoring and protection - weighbridge component renewals & WILD detector that improves detection of flat wheels and hence reducing damage to rail infrastructure Power Resilience provision of backup power to keep vital systems running - battery replacement and monitoring equipment Data network - replacement equipment - required to maintain operational equipment and railway Transmission upgrades to radio dishes and power supplies systems required to maintain operational equipment and railway UTC - updates to life expired and obsolete equipment - required to maintain safe operating systems- provision of greater redundancy in the new digital solutions	None	\$ -
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(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)

YES	Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.	None	\$ -
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(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements

YES	As per the EOFY Status Report, Aurizon Network must deliver the projects meeting the requirements of the RSNL and ONRSR. The Renewals are required to maintain safe operation of the railway replacing life expired systems.	None	\$ -
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(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB

Insufficient information		None	\$ -
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(H) Were the works necessary to comply with Renewals Strategy and Budget

YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service. A lot completed to RSB WILD System not completed due to protracted supplier negotiations and long lead times Minor works defer resourcing equipment supplies or awaiting cyber security standards to be resolved other delays mostly to resourcing availability or equipment supply. Power resilience completed to plan except one. Some transmission and data Scope removed as doubled up from previous years noted, UTC scope reduced with items deferred.	None	\$ -
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(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders

N/A		None	\$ -
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Comment on Prudence of Scope

The scope is prudent for the replacement of obsolete and life expired equipment to maintain a safe and operational railway

Prudence of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Renewal of control systems is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	YES	The renewal of assets and/or components of the control system aligns with the whole of life management of this system.	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Renewal of control systems renewal is a core maintenance activity undertaken by Aurizon Network. Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	

Comment on Prudence of Standard

Based on limited information provided and EOFY statement on delivered to standards work is prudent

Prudence of Standard Documentation Quality

Medium

Conclusion

Prudent

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023 - FY22 EOFY Report_Control systems_Signed
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
	(8) meeting contractual timeframes and dealing with external factors?	N/A		None		
	(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None		
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$1.6M - deemed prudent based on provided documentation. Moreover, the total claimed amount on the project (\$2m in FY22 and \$1.6m in FY23) is less than the total spend (\$3.7m).			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			

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Project Name	Control Systems Renewal
Project Number	IV.00821
System	Newlands / GAPE
Commissioned Year	FY23
Asset Category	Control Systems
Claimed Expenditure	\$1.5M

Reason for Project	
Expansion	<input type="checkbox"/>
Renewal	<input checked="" type="checkbox"/>
Environmental Compliance	<input type="checkbox"/>
Safety Compliance	<input type="checkbox"/>
Risk Mitigation	<input type="checkbox"/>

SCOPE Assessed by Dale Gilks

Assessing the prudence of scope of works involves assessing whether the works are reasonably required. QCA will accept the scope of a capital expenditure project if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in clause 2.2(b)(i). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	The project was included in the FY23 RSB. In FY23, the planned works were either completed or delayed to future years: - Completion of interlockings works - Partial completion (49 out of 57) of transmission & data renewals. Five scopes were delayed to future years, while three were removed from the program as these were no longer needed.	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems
If YES to the above, please only consider the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(i) Were the works reasonably required?	(A) Were the works relevant to any Network Development Plan	YES		None	\$ -	
	(B) Were the works required to accommodate what is reasonably required to comply with Access Agreements and Train Operations Deeds?	YES	The access agreement and Train Operation Deed require that Aurizon Network provide, maintain and manage the rail infrastructure while also facilitating and overseeing access to it. Ensuring the optimal functionality of the control systems necessitates maintaining operational equipment and introduction of technology improvements and innovations to deliver a more cost-effective service.	None	\$ -	
	(C) Were the works reasonably required in regards to the need for new capital expenditure projects to accommodate the current contracted demand and potential future demand that Aurizon Network, acting reasonably, considers is required within a reasonable timeframe?	YES	The solution is considered necessary to maintain current and future capacity levels. Control systems projects include Aurizon Network's train control systems, asset protection and signalling control assets. Not renewing these assets or components which are reaching the end of their service life can impact the continuity of safe train operations.	None	\$ -	

(D) Considering the age and condition of existing assets, was there a need for asset replacement capital expenditure projects and the extent of consistency with the Asset Management Plan

YES

Replacement of old relay interlocking with reduced spare holdings. Interlockings is key to safe and reliable operation

Asset monitoring and protection - minor updates - insufficient information to confirm changes.

Telecoms infrastructure upgrades for AC units and battery back up - required to maintain operational equipment and railway

Data network - replacement of life expired equipment - required to maintain operational equipment and railway

Transmission upgrades to cyber security and battery systems - required to maintain operational equipment and railway

UTC - updates to life expired and obsolete equipment - required to maintain safe operating systems- provision of greater redundancy in the new digital solutions

None

\$ -

(E) Comment on the extent to which the capex project promotes the economically efficient operation of, use of or investment in the Rail Infrastructure, whether present or future (for example, in relation to extending the life of assets whose economic and/or functional life would otherwise have expired, reducing the future operating and maintenance costs or improving the capability or capacity of existing assets, systems and processes)

YES

Planned and pre-emptive replacements of these worn assets avoids unplanned failures and is in the interest of efficient whole of supply chain operation.

None

\$ -

(F) Were the works necessary for compliance with Aurizon Network's legislative and tenure requirements, including relating to rail safety, workplace health, safety and environmental requirements

YES

As per the EOFY Status Report, Aurizon Network must deliver the projects meeting the requirements of the RSNL and ONRSR. The Renewals are required to maintain safe operation of the railway replacing life expired systems.

None

\$ -

(G) Comment on the outcomes of consultation (if any) about the capex project, with Access Seekers and Access Holders whose Access Charges (or likely Access Charges) would be affected by including the amount of capex for the capex project into the RAB

Insufficient information

None

\$ -

(H) Were the works necessary to comply with Renewals Strategy and Budget

YES

The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service. A lot completed to RSB

Power resilience was removed from program pending a review of the renewal strategy for the batteries

Other delays mostly to resourcing availability or equipment supply

UTC for Collinsville brought forward to be completed during interlocking works providing efficiencies in the completion activities.

None

\$ -

(I) Comment on any other matters in submissions to the QCA by Aurizon Network or Expansion Funders

N/A

None

\$ -

Comment on Prudency of Scope

The scope is prudent for the replacement of obsolete and life expired equipment to maintain a safe and operational railway

Prudency of Scope Documentation Quality

Medium

Conclusion

Prudent

STANDARD

Assessed by Dale Gilks

Assessing the prudence of standard of works involves assessing whether the works are of a reasonable standard to meet the requirements of the scope and are not overdesigned such that they are beyond the requirements of the scope. The QCA will accept the standard of works undertaken if Aurizon Network can demonstrate to the QCA's reasonable satisfaction, having regard, where relevant, to the factors set out in Clause 2.2(b)(ii). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 EOFY Status Report - Control Systems
If YES to the above, please only consider the standard of the scope that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(ii) Were the works of a reasonable standard to meet the requirements of the scope?	(A) With regards to the requirements of Railway Operators and what is reasonably required to comply with Access Agreements and Train Operations Deeds	YES		None	\$ -	
	(B) With regards to the current and likely future usage levels	YES	The upgraded asset is fit for purpose for current and known future capacity requirements and aligns with engineering standards for similar operations. The renewal program minimises downtime of the network due to outages by renewal of existing systems and the implementation of system improvements.	None	\$ -	
	(C) With regards to the requirements of relevant Australian design and construction standards	YES	Renewal of control systems is a core maintenance activity undertaken by Aurizon Network. Based on the information provided, it is considered that the work undertaken is in alignment with industry recognised standards.	None	\$ -	
	(D) If applicable, with regards to the extent of consistency with the Asset Management Plan	YES	The renewal of assets and/or components of the control system aligns with the whole of life management of this system.	None	\$ -	
	(E) With regards to Aurizon Network's design standards contained within its Safety Management System	YES	Renewal of control systems renewal is a core maintenance activity undertaken by Aurizon Network. Its Safety Management System includes Aurizon Network's technical standards (AZN), and as per the EOFY Report, Aurizon Network have confirmed that the works have been delivered in accordance with the relevant standards.	None	\$ -	
	(F) With regards to all relevant laws and the requirements of any Authority (including the Safety Regulator).	YES	From the information provided, it is considered that Aurizon Network has made necessary consideration with regards to compliance with relevant laws and requirements.	None	\$ -	
	(G) With regards to the Renewals Strategy and Budget	YES	The works align with the objectives of RSB to deliver the appropriate level of asset renewal and maintenance activity, and at the right time to ensure continuity of service.	None	\$ -	
	(H) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders	N/A		None	\$ -	
Comment on Prudence of Standard			Based on the limited information provided and EOFY statement, the standard of work is prudent			
Prudence of Standard Documentation Quality			Medium			
Conclusion			Prudent			

COST Assessed by Gary McDonald

Assessing the prudence of costs for a capex project involves assessing whether the costs are reasonable for the scope and standard of work done. The QCA will accept the prudence of a capex project if the costs are reasonable for the scope of works undertaken, having regard, where relevant, to the matters set out in clause 2(b)(iii) given the circumstances relevant at the time when the costs were incurred or the capex was undertaken (as applicable). The QCA must, in assessing under clause 2.2(b) whether capital expenditure is prudent and efficient, consider only the circumstances relevant at the time of making the decision to incur the capital expenditure.

Requirement	Considerations	Response	Comment	Impact on Claim	Recommended Adjustment	Information assessed
Clause 7A.11.6 (b)(iii) Pre-approval	Is the capex project included in Aurizon Network's Renewals Strategy and Budget (RSB) as approved by the Rail Industry Group?	YES	See response above to Clause 7A.11.6 (b)(iii)	None	\$ -	- FY23 Renewals Strategy and Budget (RSB) - FY23 EOFY Status Report - Control Systems - Aurizon - FY23 Capital expenditure claim - workbook - Sep 2023
If YES to the above, please only consider the capex claim that departs from the approved RSB. Otherwise, assess the project as a whole.		Response	Comment	Impact on Claim	Recommended Adjustment	
2.2 (b)(iii) Are costs reasonable for the scope and standard of work done?	(A) With regards to any relevant Network Development Plan	N/A		None	\$ -	
	(B) With regards to the level of such costs relative to the scale, nature, cost and complexity of the project	N/A		None		
	(C) With regards to the circumstances prevailing in the markets for:	N/A		None		
	(1) engineering, equipment supply and construction?	YES	Unit rate of completed works is considered reasonable	None		
	(2) labour?	YES	Unit rate of completed works is considered reasonable	None		
	(3) materials?	YES	Unit rate of completed works is considered reasonable	None		
	(D) With regards to the Asset Management Plan	N/A		None		
	(E) With regards to Aurizon Network's actions, or proposed actions, in relation to:	N/A		None		
	(1) safety during construction and operation?	N/A		None		
	(2) compliance with environmental requirements during construction and operation?	N/A		None		
	(3) compliance with Laws and the requirements of Authorities?	N/A		None		
	(4) minimising disruption to the operation of Train Services during construction?	N/A		None		
	(5) accommodating reasonable requests of Access Holders and End Users to amend the scope and sequence of works undertaken to suit their needs?	N/A		None		
	(6) minimising total project cost which may at times not be consistent with minimisation of individual contract costs?	Insufficient information	Unit rate of completed works is considered reasonable however, there is no information on the total work package	None		
	(7) aligning other elements in the supply chain?	N/A	Operational consideration	None		
(8) meeting contractual timeframes and dealing with external factors?	N/A		None			
(F) With regards to the Renewals Strategy and Budget	YES	Project was approved in the RSB	None			
(G) With regards to any other matters in submissions to the QCA by Aurizon Network or Expansion Funders.	N/A		None			
Comment on Prudence of Cost			Cost claimed \$1.5M - deemed prudent based on provided documentation. Moreover the claimed amount is less than the total spend (\$2.8m).			
Prudence of Cost Documentation Quality			Low			
Conclusion			Prudent			