



2015 Review Event - Moura Floods - Supplementary Report

Queensland Competition Authority

Jacobs' analysis

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2015 Review Event - Moura Floods - Supplementary Report

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Important note about your report

This report has been prepared by *Jacobs Group (Australia) Pty Ltd* (Jacobs), based on information that *Aurizon Network Pty Ltd* (Aurizon Network) has provided in respect of the damage caused to the Moura system as a result of the flood event arising from Cyclone Marcia in February 2015.

This report has been prepared exclusively for the Queensland Competition Authority (Jacobs' client). No liability is accepted for any use or reliance on the report by third parties.

1. Introduction

The Queensland Competition Authority (QCA) engaged Jacobs (us) to review Aurizon Network's Review Event claim relating to flood damage that happened to the Moura network in early 2015. The flood damage arose because of Cyclone Marcia, which occurred on 20 February 2015. Aurizon Network submitted its Review Event claim to the QCA on 30 November 2015, under the 2010 access undertaking's provisions.¹

This report is supplementary to our first report of 2 August 2016. Our first report reviewed a sample of four projects Aurizon Network undertook to repair the flood damage. The report identified two projects that we did not consider prudent and efficient, namely: MSL-1 (the replacement of a signalling cabinet at Mount Rainbow); and MSL-66 (ballast scour and washout in the Earlsfied to Dakenba track segments).

The QCA published its draft decision and our first report on its website in October 2016. The QCA said:

On the basis of Jacobs' review, we consider Aurizon Network should provide more detailed data to substantiate its claim and to address stakeholder concerns. In particular, it should be possible for us to determine that the costs are incremental to allowable maintenance and that there is no double-counting.²

The QCA has asked us to seek further information from Aurizon Network on projects for which we had said that insufficient or incomplete information had been provided. The QCA has also asked that we form a view on whether:

- The flooding caused by Cyclone Marcia resulted in Aurizon Network having to perform the relevant activities on the Moura network. This establishes that the flooding was in fact the *cause* of the activities
- The work was incremental. This means the work undertaken is classified as being beyond the business-as-usual maintenance requirements and capital expenditure (capex)
- If the work was incremental, the activity was maintenance rather than capex. We note that Anglo American submission on the QCA's draft decision considers that the activities Aurizon Network had performed are capex rather than maintenance³
- the performed activities were necessary to provide access to train services to operate on the network.

1.1 Key issues

Aurizon Network's access undertaking does not define 'capital expenditure'.⁴ This poses uncertainty for our assessment because re-instating, re-furbishing or replacing assets can be treated as either capex or maintenance. We have applied our professional judgement to establish whether an activity is capex or maintenance.

We consider the following activities to be capex: enhancements; expansions; augmentations; replacements; renewals; and duplications. We note that this position is consistent with the definition of 'extension' under Schedule 2 of the *Queensland Competition Authority Act 1997*. We consider maintenance to include maintaining or refurbishing an asset in a way that does not increase capacity or reflect technological improvements. Maintenance and refurbishments are different from replacements or renewals, in that, under the former category, the existing asset is still retained.

¹ Definition of 'Review Event' and Schedule F, Part A, clause 2.2.1

² QCA draft decision on Aurizon Network's 2015 Flood Review Event Claim: 7

³ Anglo American submission on QCA's draft decision: 2

⁴ We sought guidance from the Aurizon Network's 2016 access undertaking and Queensland Rail's 2016 access undertaking (both of which the QCA very recently approved) on this matter. Unfortunately, neither of these access undertakings provides a definition of capex.

1.2 Aurizon Network's submission on the QCA's draft decision

On 11 November 2016, Aurizon Network submitted a response to the QCA's draft decision. In advance of that submission, Aurizon Network provided us further information and sought clarification on two projects in the sample we reviewed, namely:

- MSL-1
- MSL-66.

1.3 What our report addresses

This supplementary report answers the issues that the QCA has asked us to form a view on. Where we consider the projects to be incremental maintenance, we then assess their efficiency. We have reviewed MSL-1 (section 2) and MSL-66 (section 3) in turn.

We then offer points of clarification on the two other projects in the sample, namely: MSL-61 (Embankment and track washout along Bells Creek: Mt Rainbow to Dumgree); and MSL-69 (ballast washout at Earlsfied to Dakenba). Our analysis on those projects is presented in section 4.

Section 5 provides conclusions for this supplementary report.

The list of references we used in forming our positions is set out in Appendix A.

2. MSL-1

2.1 Project description

MSL-1 related to Aurizon Network's replacement of a signalling cabinet at Mount Rainbow. The project involved:

- recovering two separate damaged signalling cabinets, which were integral components to Aurizon Network's signalling and electronic points systems
- installing a single consolidated cabinet in one of the locations.⁵

2.2 Did the flood trigger the required activities?

Figure 1 shows the damage that the flood caused to the area around one of Aurizon Network's signalling cabinets. It shows that the concrete slab on which the cabinet sits was damaged, and that the earthworks supporting the slab were washed out. It also shows that water and debris entered the signalling cabinet.

Figure 1: Damage to one of the signalling cabinets and the surrounding area at Mount Rainbow



We consider the flood did trigger the need for Aurizon Network to address the signalling-cabinet issues. Reinstating the earthworks and replacing the concrete slabs were necessary to remedy the defect, and the repair of the cabinet itself was necessary.

2.3 Were the activities incremental to business-as-usual operations?

Table 1 (overleaf) shows Aurizon Network's proposed tasks, team members and hours for addressing the requirements of MSL-1.

⁵ Aurizon Network 11 November 2016 submission: 4

Table 1: Aurizon Network's method for repairing the signalling cabinets and associated areas

Tasks	Hours	Team members
Initial Site Inspection	32.5	1 x Engineer (Eng), 1 X Superintendent (Supt), 1 x Supervisor (Sup)
Isolate and secure 3 main cables to MR16/27 Loc Case A	33.5	1 x Eng, 2 x Electricians (Elect)
Disconnect all cables terminated in MR16/27 Loc Cases A and B and all Trackside equipment controlled by these Locs (25 cables)		
Meggar test all disconnected cables		
Remove axle counter heads and trackside unit		
Remove electro-hydraulic pump unit		
Remove 1 HM4 Detector Box and 2 HMX Detector boxes fitted to turnout		
Remove MR16/27 Loc cases A and B and return to Rockhampton Depot		
Remove existing concrete foundations clear of cable ends		
All disconnected cable ends secured above ground and highlighted to denote presence		
Consult with S&TE regarding option of consolidating the 2 existing SW Location Cases into 1 SW Location case. Requires relocation of the 4 Track relays and 1 track feed set currently in Case B into Case A. Design has been forwarded to who will check and approve. Consolidation into only one SW Loc will result in less space needing to be found to position the reinstalled Location into only one SW Loc will result in less space needing to be found to position the reinstalled Location Case once drainage works are completed	10	1 x Eng
Rockhampton Depot. Inspection of recovered 16/27 Loc Case A. Replace/Rewire/Recrimp/Relug as required. Modifications to install equipment removed from Case B.	133.75	2 x Eng, 1 x Supt, 1 x Sup, 4 x Elect
Install new Single Width Location case foundation	217.5	2 x Eng, 2 x Supt, 2 x Sup, 4 x Cab/Mech
Inspect all previously disconnected cables and reinstall in location case foundation. Some may require extending, depending on damage or direction of cable route		
Retermine all cables in 16/27 Loc (total 22)	343.9	2 x Eng, 2 x Supt, 2 x Sup, 3 x Cab/Mech, 5 x Elect
Meggar test all main cables (total 5)		
Function test 16/27 Loc		
Install new axle counter heads and trackside unit. Retermine and meggar test cable. Set up, test and certify axle counter track section (1 of)		
Install new electro-hydraulic pump unit and 3 detectors on 12 points. Retermine and meggar test cables (total 4). Set up and adjust mechanically and electrically. Test and certify operation of points.		
Reinstall track leads. Meggar test cables (total 5). Set up test and certify track circuits (total 4)		
Meggar cable to signals and push buttons (total 7). Test and certify all Signal aspects.		
Through test all functions to the SER		
Post-commissioning clean-up works	69.5	2 x Eng, 1 x Supt, 2 x Sup, 4 x Cab/Mech
Total	840.65	n/a

Source: RFI01-MSL 1 additional information.xlsx

The key question to consider is whether Aurizon Network has avoided any future maintenance activities from having undertaken the activities described in Table 1. Aurizon Network provided us information about defects in the relevant area before the flood. The defects included: rough track (recorded on 18 September 2014); and an unstable/eroded cutting (12 December 2014). We note that rough track occurred at the 89.200 km marker and that the cutting issue related to the 89.800 km marker. The MSL-1 works happened at the 89.650 km marker. Accordingly, none of the two defects relate to the signalling cabinets and surrounding area.

We also reviewed Aurizon Network's planned maintenance activities for signalling and telecommunications equipment before the flood (six months) and after the flood (six months). At the time of the flood, the works outstanding were 8-weekly inspections (assigned to take place on 26 February 2015 (i.e. six days after the cyclone)) of signalling and telecommunication assets in the relevant area. We assessed whether Aurizon Network eventually undertook those inspections. The data tell us that the inspections took place on 10 March 2015. Accordingly, Aurizon Network did not avoid future maintenance costs from performing the MSL-1 works.

2.3.1 If incremental, were the activities considered to be maintenance or capex?

Table 2 shows our assessment of whether the works Aurizon Network performed were maintenance or capex.

Our view is that the initial site inspections and safely removing the signalling cabinets to be maintenance. However, once Aurizon Network's engineers were consulted about consolidating the signalling cabinets into a single unit, an element of capex could have been introduced. It could have been argued that the consolidated signalling cabinet had more capacity or capability than the unit that had stood before.

However, we note that the consolidation of the signalling cabinets did not have the effect of enhancing overall system capacity or allow for Aurizon Network to increase the number of train paths on the Moura system. Given this, all of the MSL-1 works are, in our view, better classified as maintenance.

In the absence of a definition of capex, there is some ambiguity. We recommend that the QCA review Aurizon Network's 2015-16 capex claim to ensure there is no double counting of this flood event expenditure.

Table 2: MSL-1 - were the works maintenance or capex?

Aurizon Network's tasks	Maintenance / Capex
Initial Site Inspection	Maintenance
Isolate and secure 3 main cables to MR16/27 Loc Case A	Maintenance
Disconnect all cables terminated in MR16/27 Loc Cases A and B and all Trackside equipment controlled by these Locs (25 cables)	
Megger test all disconnected cables	
Remove axle counter heads and trackside unit	
Remove electro-hydraulic pump unit	
Remove 1 HM4 Detector Box and 2 HMX Detector boxes fitted to turnout	
Remove MR16/27 Loc cases A and B and return to Rockhampton Depot	
Remove existing concrete foundations clear of cable ends	
All disconnected cable ends secured above ground and highlighted to denote presence	
Consult with S&TE regarding option of consolidating the 2 existing SW Location Cases into 1 SW Location case. Requires relocation of the 4 Track relays and 1 track feed set currently in Case B into Case A. Design has been forwarded to who will check and approve. Consolidation into only one SW Loc will result in less space needing to be found to position the reinstalled Location into only one SW Loc will result in less space needing to be found to position the reinstalled Location Case once drainage works are completed	Maintenance
Rockhampton Depot. Inspection of recovered 16/27 Loc Case A. Replace/Rewire/Recrimp/Relug as required. Modifications to install equipment removed from Case B.	Maintenance

Aurizon Network’s tasks	Maintenance / Capex
Install new Single Width Location case foundation	Maintenance
Inspect all previously disconnected cables and reinstall in location case foundation. Some may require extending, depending on damage or direction of cable route	
Reterminate all cables in 16/27 Loc (total 22)	Maintenance
Megger test all main cables (total 5)	
Function test 16/27 Loc	
Install new axle counter heads and trackside unit. Reterminate and meggar test cable. Set up, test and certify axle counter track section (1 of)	
Install new electro-hydraulic pump unit and 3 detectors on 12 points. Reterminate and meggar test cables (total 4). Set up and adjust mechanically and electrically. Test and certify operation of points.	
Reinstall track leads. Meggar test cables (total 5). Set up test and certify track circuits (total 4)	
Megger cable to signals and push buttons (total 7). Test and certify all Signal aspects.	
Through test all functions to the SER	
Post-commissioning clean-up works	Maintenance

Source: RFI01-MSL 1 additional information.xlsx

The next subsection considers whether the activities Aurizon Network undertook were efficient.

2.3.2 If maintenance, were the activities efficient?

In our first report, we considered the replacement of the signalling cabinet at Mount Rainbow would take 32 labour hours. We estimated the hourly labour rate to be \$250, culminating in a total labour cost of \$8,000. Our initial view had been that MSL-1 was about replacing a like-for-like cabinet *only*; our initial labour-cost estimate was shaped on that basis. We were not aware that:

- Flooding was so significant that the signalling cabinets at two locations needed repair
- The signalling cabinets were submerged half way under flood waters and sustained substantial damage
- Reconstituting earthworks/formation and reconstructing concrete slabs were necessary
- Access to the site was difficult, given its location in a high cutting. This was further exacerbated by the extent of flooding that had happened
- The access road adjacent to the Mount Rainbow site was the only access available for work crews working on recovery at other sites along the Moura corridor. The equipment at Mount Rainbow had to be continually repositioned to allow safe passage of vehicles and plant through the site to other locations throughout the recovery works.⁶

The considerations above reflect the extent of activities (see Table 1) that Aurizon Network undertook. Aurizon Network’s response notes that 840.65 labour hours⁷ (see Table 1 for a full breakdown) over and above business-as-usual operations were required.

We met with Aurizon Network senior engineering staff to discuss the scope of activities in Table 1 (see first column) and the time taken to complete those activities (see second column). Following our review of Aurizon Network’s 11 November 2016 submission and the meeting with Aurizon Network’s senior engineering staff, we have revised our conclusion and consider reasonable the allocation of hours (i.e. 840.65) to MSL-1. Indeed, we note that Aurizon Network could have consumed more than 840.65 hours if it had had to reinstate earthworks and concrete slabs for both signalling cabinet locations.

⁶ Aurizon Network’s submission on QCA’s draft decision: 6

⁷ Aurizon Network’s submission says that all hours recorded and presented against each project are incremental. We have assumed this to be true for all projects that are part of the Review Event and associated flood claim.

We also consider the labour rates, \$112-\$120 per hour, to be reasonable. Overall, we consider Aurizon Network's proposed solution and activities to repair the signalling cabinets to be efficient.

2.4 Were the activities required for the operation of train services?

The damage to the signalling cabinet would have resulted in certain signals failing, resulting in trains not being able to operate safely on the network. Therefore, the repair of the signalling cabinet, including the reinstatement of the formation and concrete slabs supporting it, was necessary for providing access to train services to operate.

2.5 Conclusion

Based on our analysis above, we consider that the MSL-1 works were:

- directly required as a result of the flood
- incremental to business-as-usual operations
- maintenance-related
- efficient
- required to provide access for train services to operate on the network.

Applying the range of hourly labour rates, we obtain a total labour cost of \$94,153 to \$100,878. To confirm this figure, we requested the SAP breakdown from Aurizon Network staff. Labour costs amounted to \$94,974, which are within the range. We note that Aurizon Network's proposed total cost is \$113,565 (see first row of figure below). The difference between that cost and labour costs is \$18,591. The SAP breakdown showed those costs were mostly made up of project materials, electrical components, general hardware, accommodation, airfares and taxis. An 8% corporate overhead figure was then applied to that sum, culminating in the total figure of \$18,591. We consider these figures reasonable.

Figure 2: Recommendation from our first report on MSL-1

Asset Types	Rate (\$) & quantity	Aurizon Network Claim	Jacobs Incremental Maintenance estimation Costs	Difference (Aurizon Network-Jacobs)
Track labour and plant (installation and transport)	\$250 (signalling RSD engineer) x 32h (projected hours from Moura Flood recovery baseline)	\$113,565	\$8,000	\$105,565
Site Clearance	5 m ²		\$100	-\$100
Site Clearance clean material (excavate and disposal) m ³	45 m ³		\$900	-\$900
Trackside Drainage	\$400 linear m		\$8,000	-\$9,000
Material		\$27,279	\$27,279	\$0
Management	64 h reasonable for management and design work	\$16,016	\$16,016	\$0
Asset maintenance	Various	\$34,788	\$34,439	\$2,349
Total		\$191,648	\$93,934	\$97,714

We do not seek to update the contents of the figure above as the key difference between Aurizon Network's and our cost estimate for track labour and plant has been resolved.

3. MSL-66

3.1 Project description

MSL-66 relates to ballast washout that occurred over 200 metres of track between Earlsfield and Dakenba in the Moura system. Aurizon Network had to reinstate the affected track (including ballast, formation and rail) to a safe condition.

Figure 3: MSL-66 - ballast washout and formation loss between Earlsfield and Dakenba



3.2 Did the flood trigger the required activities?

Aurizon Network's client requirements brief (CRB) for MSL-66 is presented in Figure 4 below.

Figure 4: CRB for MSL-66

Client Requirements Brief (CRB) Remediation Summary Sheet		
Project / Site: MSL 66 Earlsfield-Dakenba MSL		
Start km	End km	Works Required
8.850	9.143	Debris removal
8.730 (2 bays)	8.732	Replace ballast
8.900 (2 bays)	8.902	Replace Ballast
8.769	8.850	Replace ballast
8.850	8.938	Ballast resurface
8.816	8.850	Formation reconstruction
8.816	8.850	Track slewing, welding and clipping
8.730	8.938	Resurface and stabilise track
8.730	8.938	Restress
8.730	8.938	Final Track Inspection

Source: Appendix F in our first report

The flood washed significant amount of ballast and formation away. The repairs were needed to reinstate the track in its former condition. Arguably, the overall standard of the track would have been higher after the repair because the ballast had been replaced. The same can be said about the formation reconstruction that accompanied the ballast replacement. However, given these activities would have been required at a minimum

to address the flood damage, we consider the activities to be maintenance. We also note that network capacity would not necessarily have changed because of the repairs.

3.3 Were the activities incremental to business-as-usual operations?

Based on our review of the CRB that Aurizon Network has provided, the activities undertaken would be counted as incremental to business-as-usual operations.

Undertaking debris removal, followed by ballast replacement and resurfacing, would be beyond the scope of business-as-usual operations. The further activities (e.g. formation reconstruction, slewing and additional resurfacing) that Aurizon Network undertook also fall in that category.

To test the veracity of our position, we reviewed the list⁸ of defects Aurizon Network had in relation to the relevant area (i.e. 8.730 km to 9.143 km markers, as per the CRB in Figure 4) before the flood. None of the reported defects related to the assets that the flood affected.⁹

We also reviewed Aurizon Network's planned maintenance activities before the flood and then checked whether those activities were eventually undertaken after the flood. We filtered the raw data that Aurizon Network provided us, so we could identify maintenance activities scheduled to occur in the Earlsfield and Dakenba areas. There were five maintenance activities that had been cancelled and/or rejected. However, none of those activities related to the flood-affected area. Accordingly, we retain our view that Aurizon Network's activities were incremental to business-as-usual operations.

3.3.1 If incremental, were the activities considered to be maintenance or capex?

Based on our review of the CRB, we consider the activities to be maintenance. The activities identified in the CRB related to reinstating the track to its former state. Capacity has not increased.

3.3.2 If maintenance, were the activities efficient?

Aurizon Network said incremental-maintenance-related costs for track (labour and plant) for MSL-66 amounted to \$161,634.¹⁰

Aurizon Network said that MSL-66 was part of a package of works to repair the track infrastructure in the Earlsfield-to-Dakenba section.¹¹ Its submission on the QCA's draft decision identified four projects (i.e. MSL-66, MSL-67, MSL-68 and MSL-69) that were part of that package. Aurizon Network said that it had considered the costs for those four projects as a whole, and that the total incremental-maintenance-related cost was \$290,941.31. Aurizon Network said it had allocated costs on the basis of distance coverage of each of the projects (see Figure 5 below).

Figure 5: Aurizon Network's cost-allocation method for damage to the Earlsfield-to-Dakenba section

PRIORITY 1 - INTERNAL							
MSL Refere Area		Work Group	Km From	Km To	Distance in Mtrs	Cost Apportionment	Cost Allocation
MSL-66	Earlsfield - Dakenba	TCC	8.7	8.9	200	56%	\$ 161,634.06
MSL-67	Earlsfield - Dakenba	TCC	12.01	12.02	10	3%	\$ 8,081.70
MSL-68	Earlsfield - Dakenba	TCC	14.1	14.15	50	14%	\$ 40,408.52
MSL-69	Earlsfield - Dakenba	TCC	15.05	15.15	100	28%	\$ 80,817.03
TOTAL	Earlfield - Dakenba				360	100%	\$ 290,941.31

Source: Aurizon Network's submission QCA's draft decision, p. 6

⁸ We reviewed the list as at 20 February 2015; the list on 21 February 2015 would capture the list of defects post the flood.

⁹ There was a reported defect of debris in a blocked culvert at the 9.120 km to 9.121 km markers. However, the culvert was not damaged during the flood and is not part of MSL-66.

¹⁰ See page 24 of our first report

¹¹ Aurizon Network's submission on QCA draft decision: 6

Our first report had approached the issue differently. We had identified what a benchmark unit rate for track labour (installation and transport)¹² was and then applied that rate to the distance of works. We said that the benchmark unit rate was \$712 per linear metre.¹³

Given the difference of Aurizon Network's approach and hours, we have sought an alternative comparison method. We have inferred what the unit rate for track labour (installation and transport) costs are under Aurizon Network's cost-allocation method. As \$290,941.31 covers 360 metres of activity, the inferred unit rate is \$808 per linear metre. This is 13.5% higher than our benchmark unit rate of \$712. Because this figure is within 30%¹⁴ of our benchmark cost, we consider Aurizon Network's costs to be efficient. We further note that the inferred unit rate from Aurizon Network's assessment includes plant, which means Aurizon Network's like-for-like inferred unit rate would have been lower than \$808.¹⁵

3.4 Were the activities required for the operation of train services?

The ballast washout and formation damage prevented trains from operating safely on the network. Without the ballast and formation repairs, the rail would collapse under substantial weight. We therefore consider that the works performed under MSL-66 were required to provide access for train services to operate on the network.

3.5 Conclusion

We consider that MSL-66 works were:

- directly required as a result of the flood
- incremental to business-as-usual operations
- maintenance
- efficient
- required to provide access for train services to operate on the network.

In the figure below, we present the original recommendation that came from our first report.

Figure 6: Recommendation on our first report in relation to MSL-66

Table 6.16 : Comparison of Aurizon Network's cost claim and our cost estimates for the MSL-66 flood damage repairs

Asset Types	Rate (\$) & quantity	Aurizon Network Claim	Jacobs Incremental Maintenance estimation Costs	Difference (Aurizon Network-Jacobs)
Track labour (installation and transport)	712 linear m	\$161,634	\$71,200	\$90,434
Site Clearance	5 m ²		\$6,000	-\$6,000
Site Clearance clean material (excavate and disposal) m ³	45 m ³		\$9,180	-\$9,180
Site Clearance – contaminated material m ³	195 m ³		\$39,780	-\$39,780
Management		\$16,016		\$16,016
Construction Management		\$3,360		\$3,360
Track Slewing	\$350 linear m		\$11,900	
Track labour Total		\$181,011	\$138,060	-\$42,951
Capping Layer (formation) m ³	144 m ³	\$59,304	\$29,376	
Ballast	60m ³	\$6,298	\$5,100	
Asset management		\$54,693	\$51,000	\$3,693
Grand total		\$301,306	\$223,536	\$77,770

Given our overall acceptance of Aurizon Network's unit rate of \$808 per linear metre, Aurizon Network's claim (see third column) would have been within 30% of our incremental-maintenance-cost estimate (see fourth column).

¹² We note our categorisation of this labour rate excludes plant.

¹³ Our first report: 19. See middle area of table.

¹⁴ We nominated a 30% tolerance rate in our first report. If Aurizon Network's cost did not exceed 30% of our benchmark estimate, we considered the costs efficient. For example, see Table 2 of our first report.

¹⁵ See Table 5.4 of page 24 of our first report.

4. Points of clarification – MSL-61 and MSL-69

In our first report, we found that the amounts that Aurizon Network had claimed as incremental maintenance for MSL-61 and MSL-69 to be reasonable. This section provides clarification on establishing that the flood damage from Cyclone Marcia did, in respect of those two projects:

- necessitate the works undertaken
- represent incremental activities to business-as-usual operations
- constitute maintenance rather than capex
- affect the operation of train services.

As we have provided a full description of projects MSL-61 and MSL-69 in our first report, we do not provide that information in this supplementary report.

4.1 Did the flood trigger the activities undertaken as part of MSL-61 and MSL-69?

4.1.1 MSL-61

We have reviewed the damage that occurred on the relevant part of the Moura network, and are satisfied that Aurizon Network had to undertake the activities part of MSL-61 to remedy the damage.

4.1.2 MSL-69

We have reviewed the damage that occurred on the relevant part of the Moura network, and are satisfied that Aurizon Network had to undertake the activities part of MSL-69 to remedy the damage.

4.2 Were the activities incremental to business-as-usual operations?

4.2.1 MSL-61

We reviewed the maintenance activities that Aurizon Network had planned before the flood and whether Aurizon Network eventually undertook those activities after the flood.¹⁶ The MSL-61 project took place at the 100.3 km and 100.5 km chainage marks. None of the maintenance projects related to the MSL-61 location. Accordingly, the MSL-61 work was incremental to business-as-usual operations and there was no double-counting of costs.

4.2.2 MSL-69

We reviewed the maintenance activities that Aurizon Network had planned before the flood and whether Aurizon Network eventually undertook those activities after the flood.¹⁷ The MSL-69 project took place at the 15.05 km and 15.15 km marks. None of the maintenance projects related to the MSL-69 location. Accordingly, the MSL-69 work was incremental to business-as-usual operations and there was no double-counting of costs.

4.3 Were the activities maintenance rather than capex?

4.3.1 MSL-61

We reviewed the activities Aurizon Network undertook for MSL-61.¹⁸ We are satisfied the activities (comprising embankment stabilisation and rebuild, new rock walls, temporary water-course diversions, ballast replacement, and track reinstatement) were maintenance rather than capex. This is because capacity did not increase following the implementation of those activities.

¹⁶ We reviewed Aurizon Network's Primavera Work Plan for the relevant period.

¹⁷ We reviewed Aurizon Network's Primavera Work Plan for the relevant period.

¹⁸ See Table 5.2 in our first report.

4.3.2 MSL-69

We reviewed the activities Aurizon Network undertook for MSL-69.¹⁹We are satisfied the activities (comprising debris removal, track slewing, welding and clipping, formation reconstruction, ballast replacement, resurfacing and track stabilisation) were maintenance rather than capex. This is because capacity did not increase following the implementation of those activities.

4.4 Were the activities required for the operation of train services?

4.4.1 MSL-61

The MSL-61 temporary rail infrastructure and the reinstatement of track, formation and ballast were necessary for the operation of train services.

4.4.2 MSL-69

The MSL-69 reinstatement of track, formation and ballast were necessary for the operation of train services.

4.5 Conclusion

4.5.1 MSL-61

We retain the summary findings of our first report (see page 34) in relation to MSL-61.

4.5.2 MSL-69

We retain the summary findings of our first report (see page 38) in relation to MSL-69.

¹⁹ See Table 5.2 in our first report.

5. Conclusion

Our overall conclusion is that projects (i.e. MSL-1, MSL-61, MSL-66 and MSL-69) in the sample that we assessed fulfil the following requirements:

- The activities were triggered by the flooding induced by Cyclone Marcia
- The activities were incremental to Aurizon Network's business-as-usual operations
- The activities were maintenance-related, rather than capex
- The activities were performed efficiently
- The activities were required to provide access for train services to safely operate on the network.

As per our first report, we have extended this position to projects that were not in our assessed sample. We considered this approach appropriate because three of the four projects (i.e. MSL-61, MSL-66 and MSL-69) were reasonably representative of the projects outside the sample. On this issue, our first report had said:

These three track wash out sample sites are a reasonable representation of the remainder of the sites requiring flood damage repair expenditure by Aurizon Network and hence we are confident that our conclusions on prudence can be extrapolated to the remaining sites using a weighted extrapolation method based on a confidence level.²⁰

Given the above, we do not recommend any adjustment to the \$4,048,455 (excluding escalation) that Aurizon Network has claimed as part of its Review Event application.

We thank Aurizon Network staff, particularly Matt Dall (Principal Analyst Network Regulation), for being forthcoming and prompt with providing the information that we required to complete this supplementary report.

²⁰ See page 1 of our first report.

Appendix A. References

Aurizon Network's 2010 access undertaking

Aurizon Network's 2016 access undertaking

Jacobs, Aurizon Network's 2015 Flood Infrastructure Claim Review, 2 August 2016

Moura Possessions FY15.xlsx (provided on 22 November and 24 November 2016)

MSL-1:

- Additional pictures of damage to the two signalling cabinets at Mount Rainbow (provided 15 November 2016)
- Client Requirements Brief
- List of defects before the Review Event (provided on 15 November 2016)
- Maintenance schedules for the area around the signalling cabinets (provided on 22 November 2016)
- MtRainbow_Live_Defects.xlsx (provided on 15 November 2016)
- RFI01-MSL 1 additional information.xlsx (provided via QCA staff on 28 October 2016)
- SAP excerpt from Aurizon Network (provided on 21 November 2016)
- TSMS Mount Rainbow PM Tasks 20150101 to 20150319.xls (provided on 22 November 2016).

MSL-66:

- Client Requirements Brief (provided on 17 November 2016)
- List of defects before the Review Event (provided on 15 and 22 November 2016).

MSL-61 and MSL-69:

- Client Requirements Brief (provided on 17 November 2016)
- List of defects before the Review Event (provided on 22 November 2016).

Primavera Work Plan.xlsx for Moura system (provided on 24 November 2016)

QCA, Draft Decision on Aurizon Network's review event: 2015 flood claim, 11 October 2016

Queensland Competition Authority Act 1997

Queensland Rail's 2016 access undertaking

RIMS Defects.xls (provided on 22 November 2016)