Appendix 20


GAS
WATER
POTENTIAL FUTURE SERVICES
PROJECT IRON BOOMERANG CONTINENTAL RAIL CORRIDOR
OPTIC FIBRE
COMMUNICATIONS
PROJECT
IRON BOOMERANG
east west line parks limited

Galilee Infrastructure Corridor Project
Pre-feasibility Financial and Commercial Report

20 December 2012

ERNST & YOUNG

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20 December 2012

Private and confidential

Galilee Infrastructure Corridor Project – Pre-Feasibility Financial and Commercial Report

Dear Tom

In accordance with your instructions, we have performed the work set out in our Professional Services Agreement ('PSA') dated 10 May 2012 (the "Engagement Agreement") in connection with the proposed Galilee Infrastructure Corridor Project, for East West Line Parks Limited ("you", "EWLP" or the "Client).

The PSA contains important information which should be read for a proper understanding of our work and this draft discussion paper.

Purpose of our report and restrictions on its use

The purpose of this report, undertaken in accordance with the scope of the Engagement Agreement, is to assess and document the economic feasibility of the Galilee Infrastructure Corridor Project ('GICP' or the 'Project') in association with Everything Infrastructure Services Pty Ltd, part of the Everything Infrastructure Group, ('EIG' or 'EI') and EWLP.

This report was prepared on your instructions solely for the purpose set out in the Engagement Agreement and should not be relied upon for any other purpose. In carrying out our work and preparing our report, we have worked solely on the instructions of the EWLP and for its purposes.

Our report may not have considered issues relevant to any third parties. Any use such third parties may choose to make of our report is entirely at their own risk and we shall have no responsibility whatsoever in relation to any such use.

We disclaim all responsibility to any other party for any loss or liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of this report, the provision of this report to the other party or reliance upon this report by the other party. Liability is limited by a scheme approved under professional standards Amendment Act.

Where this report is being disclosed to a third party, the Deed Poll, agreed between Ernst & Young and EWLP, shall be provided to the third party for confirmation.

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Scope of our work

To perform our analysis we had to:

- Develop preliminary access and tariff pricing principles.
- Review publicly available information setting out key demand parameters to identify potential demand side constraints.
- Utilise capital and operation cost inputs provided by EIG. As such, this report should be read in conjunction with EIG's "Above and below rail comparative cost estimates" report of July 2012 (attached at Appendix H).
- Develop a comparative pricing model to assess the economic feasibility of GICP.
- Document assumptions and obtain EWLP signoff
- Run scenarios as agreed with EWLP.

Outside of our scope and other Limitations

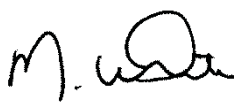
We have not:

- Validated any of the assumptions provided by EIG and EWLP.
- Validated any of the publicly available information used in this report.
- Performed an assessment of the ability of EWLP to finance the infrastructure.
- Performed an assessment of the environmental or regional community benefits arising from a single corridor solution.
- Performed market testing at this stage of the study.
- Held discussions with any third party referred to in this report. In particular, we have not engaged with either QR National Limited or GVK Power & Infrastructure Limited to test the assumptions applied in assessing the alternative solutions.

The financial model on which our estimations are based on has not been reviewed or audited at this stage of the study.

Our work in connection with this assignment is of a different nature to that of an audit or a due diligence assignment. Our report to you is based on inquiries of, and discussions with, management. We have not sought to verify the accuracy of the data or the information and explanations provided by management. Our work has been limited in scope and time and we stress that a more detailed review may reveal material issues that this review has not. If you would like to clarify any aspect of this review or discuss other related matters then please do not hesitate to contact us.

Yours sincerely



Mark White
Partner

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Contents

1. Key terms and definitions

Table 1: List of terms and definitions

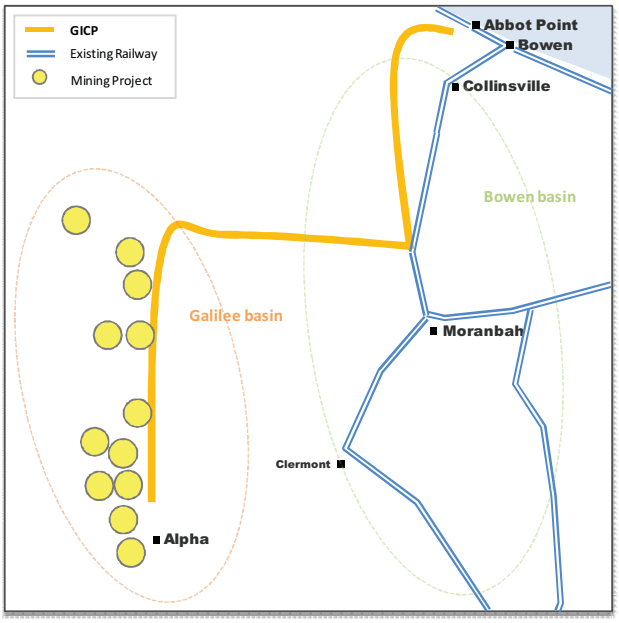
Term	Definition
%	Percentage
Adani	Adani Enterprises Limited
AMCI	AMCI Capital L.P
AUDm	Millions of dollars AUD
AUD	Australian Dollars
Bandanna	Bandanna Energy Limited
BHP	BHP Billiton Limited
Bn	Billions
CQIRP	Central Queensland Integrated Rail project
EIG or EI	Everything Infrastructure Services Pty Ltd (part of Everything Infrastructure Group)
EIS	Environmental impact statement
EWLP	East West Line Parks Limited
EY	Ernst and Young
GICP, GIC or the Project	Galilee Infrastructure Corridor Project
GVK	Refers to the GVK Group, in particular GVK Power & Infrastructure Limited
Hancock	Hancock Coal Pty Ltd
INR	Indian Rupees
Macmines	Macmines Austasia PTY LTD
NPV	Net Present Value at 31 December 2012
NQBP	North Queensland Bulk Port Corporation Limited
QCA	Queensland Competition Authority
QRN	QR National Limited
Vale	Vale S.A
Waratah	Waratah Coal Pty Ltd

2. Executive Summary

EWLP has developed its Galilee Infrastructure Corridor Project ('GICP' or the 'Project') with the aim of providing a multi-user solution capable of catering for the future demands of the Galilee Basin and beyond.

GICP is the only single-corridor solution amongst many publicly announced rail proposals to service the whole of the Galilee basin. The following graphic depicts the proposed rail alignment:

Graphic 1: Galilee Infrastructure Corridor Project's alignments[1]



In our role as Economic Infrastructure Consultants of the Project, along with EIG (EIG's report is included in Appendix H), we studied the estimated relative economic freight efficiency of the various Galilee basin rail proposals in the public arena.

The government's announcements on 6 June 2012 in relation to its support for two rail corridors, namely the QRN East-West corridor and the GVK North-South corridor, shaped the direction of this analysis.

The announcement states that Adani is currently developing the QRN alignment with QRN, therefore Adani's own corridor was not considered further within this assessment. The Adani and QRN corridors are, in any event, on a similar east-west alignment.

Waratah's proposed corridor, whilst similar in alignment and length to the corridor proposed by GVK, has been qualitatively assessed by EIG, on the basis of publicly available information, as having a lower operational efficiency factor and, as such, has not been assessed further within this report.

Our assessment is based on capital and operating cost estimations provided by EIG and uses current Queensland Competition Authority's ('QCA') regulatory pricing principles. The demand assumption in Galilee basin is based on publicly available information.

[1] This is an Ernst & Young graphical representation of alignment for information purposes and is not to scale.

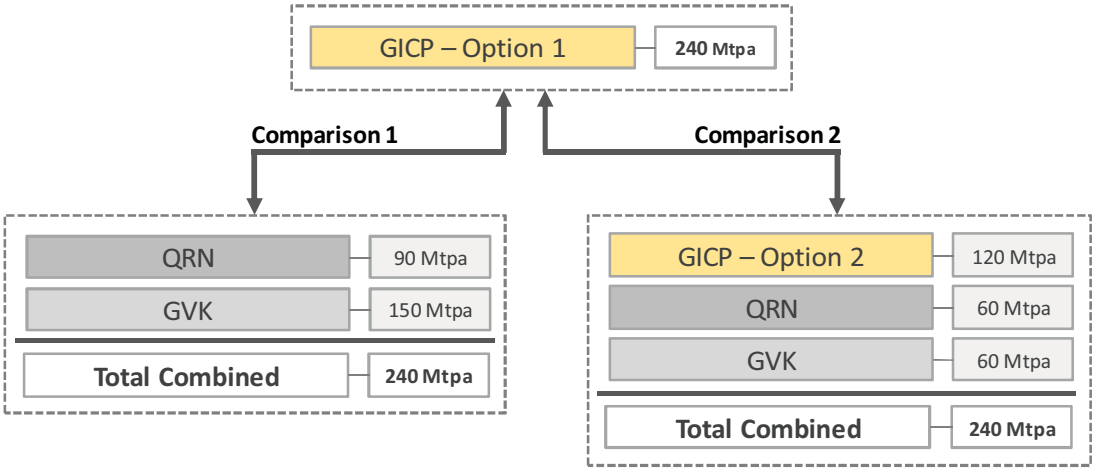
For the purpose of performing the assessment it was assumed that the capacity for Galilee coal was 240Mtpa, reflecting the Probable/Base Case port capacity. The 240Mtpa being reflective of 220Mtpa at port capacity at Abbot Point and 20Mtpa at Dudgeon Point port.

We devised a series of haulage scenarios and comparisons, each delivering this total tonnage, to assess the relative performance of the different Galilee rail proposals on a cost per tonne basis.

This report focuses on comparing EWLP's preferred solution, GICP Option 1, against alternative multi-alignment solutions involving QRN, GVK and smaller scale GICP Options.

The following diagram summarises the key comparisons performed.

Graphic 2: Definition of Comparison 1 and 2



The purpose of each comparison is:

- Comparison 1 seeks to identify the potential financial benefits associated with the GICP single alignment solution over a multiple alignment solution serviced by QRN and GVK.
- Comparison 2 seeks to assess the potential financial benefits available to miners of a smaller scale GICP solution where the alternative solutions proposed for QRN and GVK also exist.

While our assessment did not study the impact of GICP volumes between the 120Mtpa and 240Mtpa considered in Comparisons 1 and 2, the relationship between cost per tonne and volume is such that it allowed us to draw conclusions about the likely performance at intermediate volumes.

The table below lists, based upon information provided by EIG, the key characteristics of each of the rail lines under comparison:

Table 2: Key technical assumptions

Railway	Gauge	Axle Load	Length
GICP – Option 1	Standard Gauge	40 tonnes	577 km
QRN (90Mtpa)	Narrow Gauge	26.5 tonnes	425 km[2]
GVK (150Mtpa)	Standard Gauge	32.5 tonnes	564 km
GICP – Option 2	Standard Gauge	40 tonnes	577 km
QRN (60Mtpa)	Narrow Gauge	26.5 tonnes	381 km[3]
GVK (60Mtpa)	Standard Gauge	32.5 tonnes	485 km

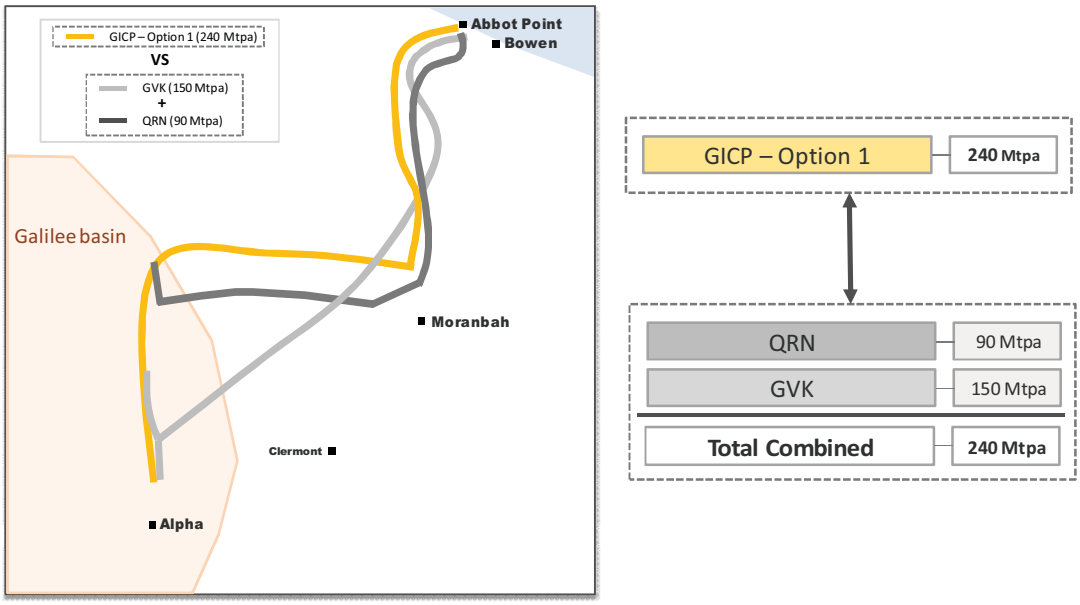
[2] The length of the existing QRN alignment upon which the financial modelling was performed was understated by around 22km, should be 447km. Difference does not impact the key messages and the figures within this report were not updated to reflect this understatement. During phase 2 the alignment length will be updated
[3] Comment as above footnote. Length understated in financial modelling by 22km, should be403km.

At this stage, we have not performed an assessment of the ability of EWLP to finance the infrastructure nor have we performed an assessment of the economic viability of Galilee thermal coal. In addition, we have not performed an assessment of the environmental or regional community benefits arising from a single corridor solution.

The key findings were as follows:

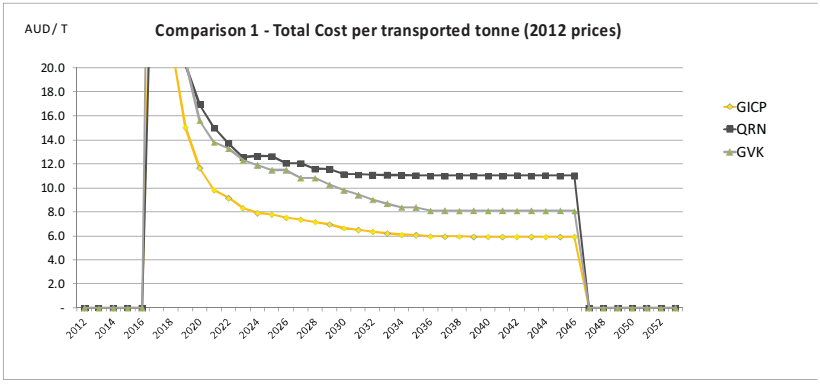
2.1 Comparison 1

Graphic 3: Rail alignments assessed in comparison 1[4]



Comparison 1 assesses a single alignment 240Mtpa GICP solution (GICP Option1) against a combined QRN (90Mtpa) and GVK (150Mtpa) alternative solution that would serve the same purpose of servicing all of the mines in the Galilee Basin. For the purpose of this assessment it is assumed that QRN serves the North Galilee mines while GVK serves the South Galilee mines. The following chart depicts the estimated cost per tonne for the system over the life of the concession:

Chart 1: Above and Below Rail combined cost per transported tonne



[4] This is an Ernst & Young graphical representation of alignment for information purposes and is not to scale.

The following tables depict the estimated price ranges, on a cost per tonne basis, for below and above rail resulting from the comparison 1 analysis. The bars represent the pricing range for the mine routes considered within this comparison while the X represents the estimated weighted average cost per tonne for the system over the life of the concession. A mine "route" is defined as being the section of the track used by a particular mine for a specified volume of coal.

Chart 2: Comparison 1 - Below Rail cost per transported tonne

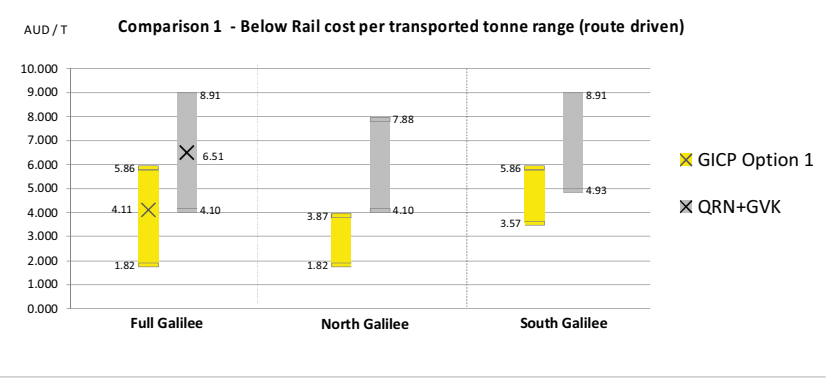
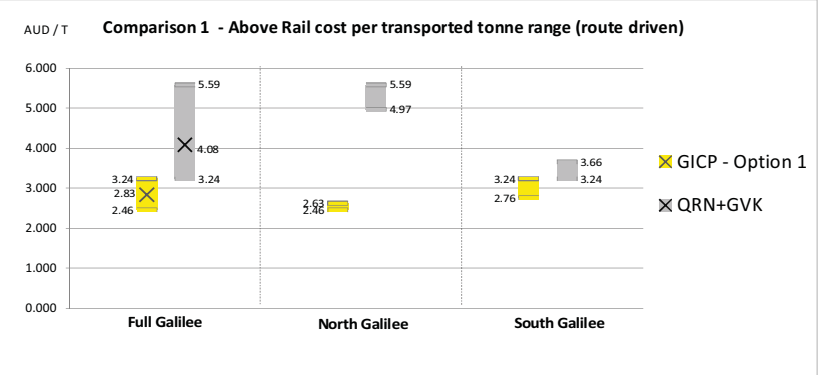


Chart 3: Comparison 1 - Above Rail cost per transported tonne



The key messages resulting from this comparison are:

- GICP 240Mtpa single alignment solution, with an average freight cost from the Galilee basin of around AUD7.00 per tonne, appears to offer a 50% to 55% benefit over a combined QRN (90Mtpa) and GVK (150Mtpa) alternative solution.

- When assessed at a mine level our analysis indicates that all mines included within this comparison benefited from a lower cost per tonne under the GICP Option 1 (240Mtpa). The cost benefit estimates for individual mines range from 10% to 165% with the cost per tonne ranging from approximately AUD4.50 to AUD9.00.

- This is driven by efficiencies from:

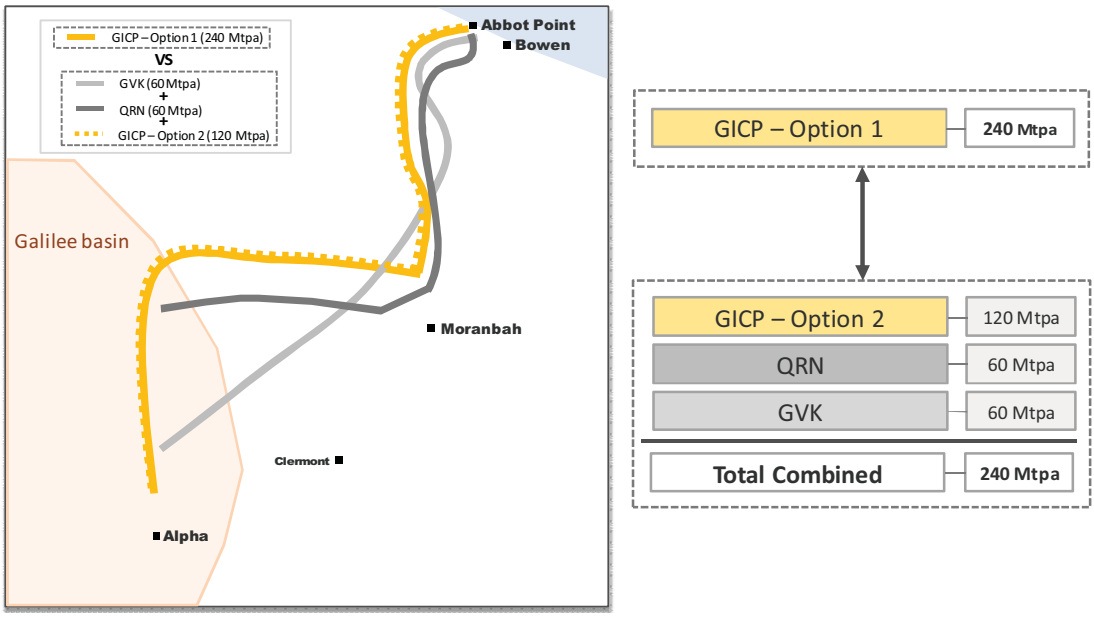
    - The lower cost of building one below rail alignment compared to the cost of building two alignments. The GICP option 1 construction cost (including staged augmentations of passing loops and duplications as required) is around AUD6.1bn in 2012 prices, a saving in the region of 70% to 75% over the combined alternative solution.

- Subject to further validation of the 40 tonne axle load wagon design (as yet not developed for Queensland coal mines although the benchmark for iron ore mines in Western Australia), the standard gauge, 40 tonne axle load, above rail solution proposed for GICP is estimated to be in the range of 15% to 20% more cost efficient than the proponent GVK, standard gauge, 32.5 tonne axle load solution and approximately 80% more efficient than the proponent QRN, narrow gauge, 26.5 tonne axle load solution. These results indicate that a 40 tonne axle load solution is more cost effective than 32.5 tonne axle load and that a narrow gauge above rail solution is less effective than standard gauge.

- Our results are calculated at a vanilla WACC equivalent to QRN's 15% pre-tax price[5]. However, we also performed sensitivity analysis to assess the result of this comparison at the regulated return determined by QCA, a vanilla WACC of 9.96%. The key messages do not change as a result of this sensitivity analysis.

2.2 Comparison 2

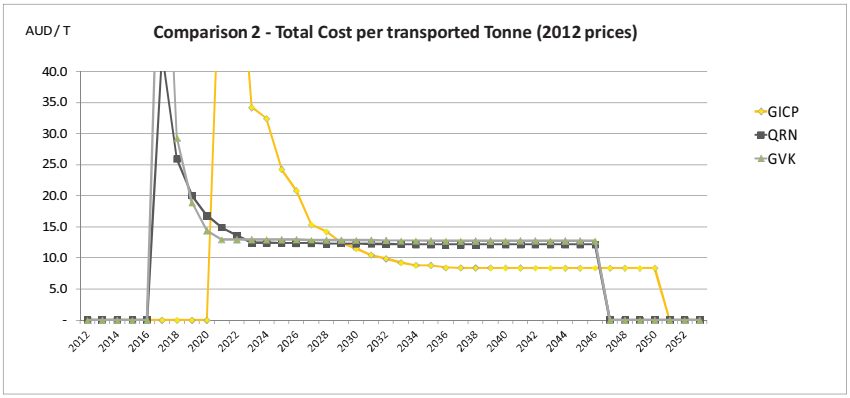
Graphic 4: Rail alignments assessed in comparison 2[6]



Comparison 2 assesses the same GICP Option 1 (240Mtpa) against a three alignments alternative solution comprising a GICP 120Mtpa solution (GICP Option2), QRN (60Mtpa) and GVK (60Mtpa). For GICP Option 2, due to port capacity restrictions it has been assumed, for the purpose of this study, that operations do not commence until 1 January 2021 as identified in the following chart.

[5] Page 8 of QCA report – Final Decision, QR Network's 2010 DAU, September 2010
[6] This is an Ernst & Young graphical representation of alignment for information purposes and is not to scale.

Chart 4: Above and Below Rail combined cost per transported tonne



The following tables depict the price ranges for below and above rail resulting from the comparison 2 analysis.

Chart 5: Comparison 2 - Below Rail cost per transported tonne

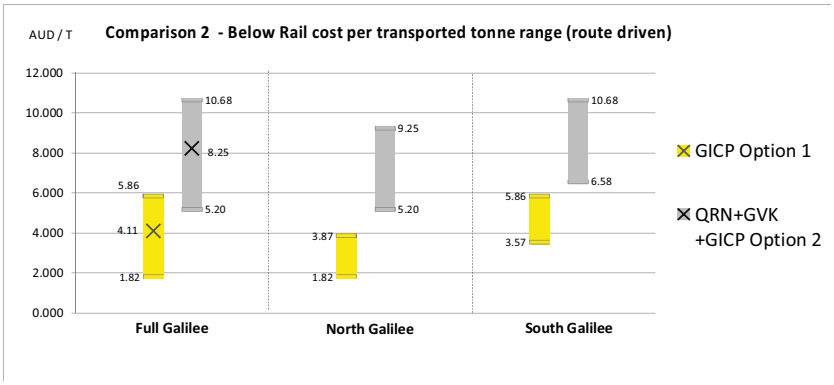
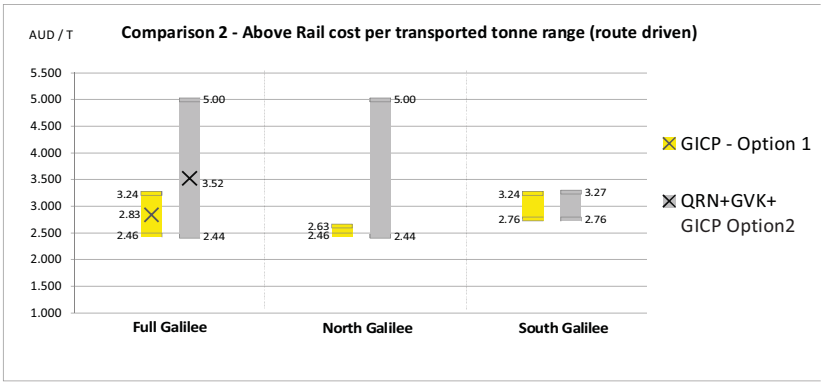


Chart 6: Comparison 2 - Above Rail cost per transported tonne



The key messages resulting from this comparison are:

- GICP Option 1 (240Mtpa) appears to be in the region of 65% to 70% more efficient, on a cost per tonne basis, than the combination of QRN (60Mtpa), GVK (60Mtpa) and GICP option 2 (120Mtpa). This is primarily due to the fact that three separate alignments require three infrastructure spends as well as to other influences such as the more efficient above rail solution.

- At around AUD10.00 the GICP Option 2 (120Mtpa) cost per tonne is estimated to be in the range of 25% to 40% lower than the QRN (60Mtpa) and GVK (60Mtpa) components

of Comparison 2. This is a positive indicator of the potential of the GICP's performance at lower volumes. However, in this comparison the different alignments service different mines and therefore further assessment of this performance was required.

The potential of the GICP Option 2 (120Mtpa) was explored further by assessing the alternative routes to port available to each of the mines serviced under this solution. The alternatives assumed for each mine were:

- Macmines' China Stone Project (South) mine – As explored in Comparison 1, Macmines could connect into the proposed QRN alignment, creating the QRN (90Mtpa) alternative solution.
- Vale's Degulla Coal Project mine – Vale could connect into the GVK alignment, forming part of the GVK (150Mtpa) alternative solution explored under Comparison 1.
- Waratah's China First Coal Project and Alpha North Coal Project mines – Both of these Waratah mines could connect into the GVK alignment, forming part of the GVK (150Mtpa) alternative solution explored under Comparison 1.
- The key messages resulting from these comparisons are:
  - Macmines South – The GICP Option 2 solution, at AUD9.80, indicates a cost per tonne benefit of AUD3.70 over the QRN (90Mtpa) alternative. The above rail solution provided AUD3.20 of this benefit, however, the below rail solution also performed favourably.
  - Vale - The GICP Option 2 solution has the potential to offer a benefit over the GVK (150Mtpa) alternative of around 20% to 25%, with benefits of AUD0.90 above rail and AUD1.50 below rail.
  - Waratah – The GVK (150Mtpa) alternative outperformed the GICP Option 2 (120Mtpa) solution by between 10% and 20% for the various Waratah mines serviced. However, as identified in Comparison 1 the GICP Option 1 (240Mtpa) solution outperformed the GVK (150Mtpa) alternative, indicating that the Waratah mines would also benefit if higher volumes are achieved on the GICP alignment.
  - A consistent message across all three comparisons (Macmines South, Vale and Waratah) was the importance of the GICP above rail solution with the estimated above rail cost per tonne benefits for the individual mines ranging from around 5% to 130%.
- From GVK's perspective, certainty around proponents timing and tonnages will be key to any expansion in capacity of this alternative solution above 60Mtpa. The above point indicates that it may be difficult for GVK to achieve commitments from proponents such as Vale, Macmines and Waratah where a GICP alternative exists.
- All of the above points indicate the potential viability, on a cost per tonne basis, of a GICP solution even if both the GVK and QRN alternative solutions are already in operation under long term commercial agreements.

The above results are calculated assuming the 240Mtpa of port capacity is achieved by 1 January 2030. However, we also performed a theoretical port access sensitivity that assessed the impact of accelerating the full 240Mtpa port capacity for delivery by 1 January 2017. The key messages are:

- In line with expectation, the more efficient use of the infrastructure resulted in a reduction in the cost per tonne. For the GICP option 2 component the reduction was in the region of 10% to approximately AUD8.90 per tonne.

- When compared against GICP option 1, the combined solution, at approximately AUD11.10, remains in the region of 50% to 60% less cost effective, on a cost per tonne basis. This reflects the fact that three alignments are required under this comparison. It should also be noted that the costs of GICP option 1 would similarly reduce if the port restrictions were removed.

2.3 Other sensitivity comparisons against alternative solutions

To further understand the competitiveness of the GICP solution we performed a number of theoretical sensitivities aimed at identifying the key strengths and weaknesses of the GICP solution when compared directly against the QRN and GVK alternative solutions.

The comparisons performed are:

- QRN (60Mtpa) against GICP (60Mtpa) servicing the same throughput coming from Adani's Carmichael Coal mine.

- GVK (60Mtpa) against GICP (60Mtpa) servicing the same throughput coming from GVK's Alpha and Kevin's Corner mines.

These comparisons assess the efficiency of the QRN and GVK corridors, each directly serving its dedicated mine(s), with that of the GICP corridor which is, for each comparison, restricted to carrying the same limited tonnage. The comparisons therefore ignore the alignment benefits offered by the GICP alignment. The results of these two separate comparisons are reported in 2.3.1.1 and 2.3.1.2 below.

Acknowledging the alignment advantages of the GICP (that it passes by the aforementioned GVK and Adani mines), we also performed the following more direct comparison:

- The combined GVK (60Mtpa) and QRN (60Mtpa) against GICP servicing the same throughput coming from both Adani's Carmichael Coal mine (60Mtpa) and GVK's Alpha and Kevin's Corner mines (60Mtpa).

This comparison sought to identify the efficiency resulting from GICP's favourable alignment over its direct competitors when carrying the same 120Mtpa. This comparison is reported in 2.3.1.3 below.

2.3.1.1 QRN

By comparing the GICP alignment with the QRN alternative solution under the same limited demand profile, our analysis indicated that even though the GICP corridor is significantly longer and restricted to tonnages significantly below its optimum capacity:

- The GICP solution offers a lower cost per tonne than the QRN alternative solution servicing only the 60Mtpa of Adani, at approximately AUD11.30 versus AUD12.90. This result is largely driven by the above rail solution which appears significantly more efficient for GICP. Based on the cost information provided by EIG, the GICP above rail cost per tonne, at AUD 2.60, is roughly 50% of the QRN cost per tonne which is approximately AUD5.00.

In addition, the alignment of the GICP solution passes closer to the Macmines South mine than the QRN alignment and, as demonstrated by Comparison 2, there appears to be a financial advantage to Macmines South in using the GICP alignment.

2.3.1.2 GVK

By comparing the GICP alignment with the GVK alternative solution under the same demand profile, our analysis indicated that even though the GICP corridor is significantly longer and restricted to tonnages significantly below its optimum capacity,:

- At approximately AUD 13.50, the overall cost per tonne resulting is broadly the same for both the GICP and GVK alignments. When considered at a below and above rail level, the GVK alternative solution appears around AUD0.20 cheaper for below rail while GICP is around AUD0.20 cheaper for above rail.

In addition, the alignment of the GICP solution means there appears to be a financial advantage to using the GICP alignment rather than the GVK alignment for many of the Galilee mines.

2.3.1.3 GICP as a combined solution servicing QRN (60Mtpa) and GVK (60Mtpa)

By combining the tonnages of the QRN (60Mtpa) and GVK (60Mtpa), this comparison sought to identify the efficiency resulting from GICP's favourable alignment over its direct competitors. Our analysis indicated that all three of the mines (Adani's Carmichael Coal, GVK's Alpha and GVK's Kevins Corner) considered in this analysis benefit from a lower cost per tonne for their access to the port under the GICP solution. The combined cost per transported tonne for the GICP solution would be approximately AUD8.60, in the region of 50% to 60% lower than the QRN and GVK two-alignment alternative solution.

2.4 Conclusions

The key messages resulting from our assessment are:

- For a whole-of Galilee 240 Mtpa scenario, the GICP Option 1 solution, with a combined above and below rail cost per tonne in the region of AUD7.00, appears to offer 50% to 55% more efficient solution, on a cost per tonne basis, than the combined QRN and GVK alternative solution announced by Government. Our analysis indicated that all mines included within this comparison benefited from a lower cost per tonne under the GICP alignment. This demonstrates the comparative financial efficiency of a single alignment solution to the Galilee Basin with the proposed 40 tonne axle load rolling stock.

- Our analysis indicates that Adani would benefit from a lower cost per tonne by using the GICP solution rather than the QRN alignment – even when assessed using just Adani's 60Mtpa. This benefit is largely driven from the efficiency of the GICP above rail solution.

- When operating at a reduced capacity of 120 Mtpa (combining 60 Mtpa from Adani and 60 Mtpa from the Hancock/GVK mines), the GICP solution would cost approximately AUD8.60 per tonne, estimated to be in the region of 50% to 60% lower than the QRN (60Mtpa) and GVK (60Mtpa) two-alignment alternative solution. All three of the mines assessed in the option benefit from a lower cost per tonne from the GICP solution.

- If the GVK alignment is the only alternative solution developed, our analysis indicates that the GICP alignment can be developed to provide an economically efficient

solution, measured on a cost per tonne basis, for the Vale, Macmines and Adani mines. Waratah also benefits where higher volumes are achieved.

- Even if the QRN (60Mtpa) and GVK (60Mtpa) corridors are developed and operate with the support of their proponents' dedicated tonnages (Adani and GVK/Hancock respectively), our analysis indicates the GICP can still be developed to provide an economically efficient 120Mtpa solution, measured on a cost per tonne basis, for the Vale and Macmines mines and a competitive alternative for the Waratah mines.

- Our analysis indicates that the economic efficiencies offered by the GICP solution increase broadly proportionately as the volumes using the alignment increase towards the 240Mtpa considered in GICP Option 1.

- The GICP standard gauge 40 tonne axle load wagon solution is estimated to be approximately 80% more efficient than the QRN, narrow gauge, 26.5 tonne axle load solution and in the range of 15% to 20% more cost efficient than the GVK, standard gauge, 32.5 tonne axle load solution. This result is subject to further validation of the 40 tonne axle load wagon design which, although the benchmark for iron ore mines in Western Australia, has yet not been developed for Queensland coal mines.

- Further work needs to be undertaken with individual miners to define the demand and timing assumptions and further refine the cost per tonne analysis.

3. Introduction

3.1 Background and context

The Project involves "the development of a multi-user, multi-purpose freight and communications corridor, complete with heavy haul freight rail and telecommunications infrastructure", approximately 577 kilometres in total length.

EWLP has developed its Galilee Infrastructure Corridor Project ('GICP' or the 'Project') with the aim of providing a multi-user solution capable of catering for the future demands of the Galilee Basin and beyond.

The Project seeks to provide an alternative solution to those proposed by QR National ('QRN') and the Mining led proponents by providing a single corridor multi-user solution.

EWLP appointed Ernst & Young ('EY') and Everything Infrastructure Services Pty Limited, part of the Everything Infrastructure Group, ('EIG' or 'EI') as Economic Infrastructure Consultants of the Project.

- Our role was to perform a number of tasks related to financial aspects of the GICP (as listed in chapter 3.3.1).

- EIG's role was to perform works related to technical scoping and costing workstream.

3.2 Objectives of the GICP

The Initial Advice Statement prepared by EWLP clearly sets out the objectives of the GICP as:

"The Project will facilitate the Proponent's vision for an open access freight Corridor to Abbot Point, which is justified for the compelling economic and community benefits it will provide, including the following:

- Services the doorstep of all Galilee Basin mining tenements and aggregates their freight volumes via a single multi user, infrastructure Corridor containing a standard gauge, heavy haul rail system that delivers optimum economic efficiency to all users;

- Simultaneously introduces a standard gauge, heavy haul freight solution to Abbot Point from an integrated rail location central to the Bowen Basin coalfields;

- Provides the Abbot Point State Development Area and the proposed new port facilities with a high capacity rail connection incorporating state-of-the-art, carrier grade telecommunications to assist the centralised management of all rail traffic entering;

- For the entire Corridor incorporates advanced train control signalling on a common shared platform for optimised freight efficiency in a multi user environment;

- Promotes the State's yet unrealised ambition to connect the minerals region around Mt Isa (the North West Minerals Province) to the east coast via a heavy haul rail corridor of optimum economic efficiency by advancing such an asset nearly half the required distance; and

- Provides for future community utility services to be located within the corridor.

Further, the Corridor is sensitive to the need to preserve valuable cropping land and existing farming and other key established land uses in the parts of regional Queensland that it traverses".

3.3 Overview of preliminary financial and commercial feasibility work

3.3.1 Scope of Phase 1 works

Our response to the RFP identified a two staged approach to our work. This report focuses on the first of the two phases. In this first phase, working closely with EWLP, we had to:

- Develop preliminary access and tariff pricing principles.
- Review publicly available information setting out key demand parameters to identify potential demand side constraints.
- Utilise capital and operation cost inputs provided by EIG.
- Develop a comparative pricing model to assess the economic feasibility of GICP.
- Document assumptions and obtain EWLP signoff
- Run scenarios as agreed with EWLP.

From an early stage it became apparent that the demand scenarios were best aligned with the financial model. As such, we also developed the demand model which forms part of the financial model and enables real time sensitivity analysis.

In performing our assessment we have applied consistent pricing assumptions to the input costs provided by EIG for the purpose of comparison. However, we have not engaged with either QRN or GVK to test the assumptions applied for the alternative solutions.

3.3.2 EIG cost analysis

During Phase 1 EIG has performed "order of magnitude costing analysis", split between below and above rail, for the demand and operating scenarios identified and agreed with EWLP. EIG has provided a separate "Above and below rail comparative cost estimates" report detailing this work.

The outputs of EIG's work form a key input to our financial model and, to ensure an efficient transfer of information from EIG to EY, a number of cost templates were agreed which were used to populate our financial model. We have included the templates in Appendix D to this report to provide a clear audit trail between the two reports, Appendix E also provides a reconciliation from the financial model back to these costs.

Key limitations on risk identified in EIG's report, that are important to understand in the context of our work, include:

- The cost assessments performed by EIG for both above and below rail comparable costs have been prepared as a desktop study only at this stage.
- Key assumptions have been based on preliminary alignment and earthworks volume information provided by EWLP, information available from the public domain and the above and below rail experience of the EIG team.

- It is anticipated that further scope definition including design of specific items such as the standard profile, the vertical and horizontal rail alignment, the sizing of structures and drainage through floodplains, coal wagon technical performance specifications and detailed train system operational modelling will increase the level of project definition and improve the accuracy of the cost estimates for both above and below rail components.

- With the aim of achieving valuable economies of scale, EWLP propose using a 40 tonnes axle load wagon. This theoretical wagon will be based on the characteristics of wagons existing today. Further design and manufacture of a 40 tonnes axle load wagon may impact the preliminary modelling undertaken for this assessment. Further detail modelling will be undertaken at a later stage to test the assumptions related to the 40 tonnes axle load wagons' design.

3.3.3 Work to be performed at Phase 2

A number of the activities identified as Phase 1 activities in the Professional Services Agreement will now fall into Phase 2 as residual Phase 1 activities. This reflects the dynamic nature of the Project which has witnessed numerous government announcements since our engagement. The activities are:

Structuring and commercial workstream

- Identify other supply chain risks that impact commercial structure.

- Develop engagement plan for both government and miners.

- Develop entity / governance structure options, workshop these with EWLP and assess the options against EWLP objectives.

- Develop and workshop commercial risk allocation addressing delivery, operations and financing risks.

- Develop key principles supporting a financing package.

- Develop contractual framework for preferred commercial options.

- Facilitate engagement with government and miners.

Financial modelling workstream

- Agree with EWLP on an indicative financing package to be modelled. Consider key parameters including tenor, currency, gearing, margins, target return, etc.

- In the first phase, the length of the existing QRN alignment upon which the financial modelling was performed was understated by around 22 kilometres. In terms of costs, this difference only impacts the track maintenance costs which are driven by kilometres, all other costs provided by EIG are driven by tonnages. As the scale of impact on the costs is small in comparison with the project costs and does not impact the key messages the figures within this report were not updated to reflect this understatement. During Phase 2 the alignment length will be updated.

4. Current proposed Galilee rail solutions

This section considers the qualitative characteristics of the alternative rail solutions being proposed for infrastructure to the Galilee Basin.

At the outset of our engagement on this Project there were four proponents seeking approvals to construct railway infrastructure to the Galilee Basin:

- Adani – An East-West corridor seeking access to the existing QRN network near Moranbah.
- GVK / Hancock – A North-South corridor from Abbot Point Port to the GVK / Hancock coal reserves in South Galilee.
- QRN – An extension of QRN's existing capacity with a corridor connecting the North Galilee and another connecting the South Galilee. The existing network would be upgraded.
- Waratah - A North-South corridor from Abbot Point Port to the Waratah coal reserves in South Galilee.

Note – The BHP Billiton proposed rail infrastructure from Abbot Point to near Moranbah is not being assessed for the purposes of this engagement as this line would not service the Galilee Basin.

However, an announcement from the Queensland Government on 6 June 2012 stated its support for " two rail corridors to service new and existing coal mines in both the Galilee and Bowen Basins", namely:

- QRN - "An east-west corridor will see an extension of the existing QR National network from near Moranbah to the central Galilee Basin and will provide links to coal ports of Abbot Point, Dalrymple Bay and Dudgeon Point".
- GVK - "A north-south rail corridor will be defined along the proposed GVK-Hancock Coal alignment to facilitate the construction of new standard gauge rail lines to link the proposed large-scale, vertically integrated mining operations in the southern Galilee Basin to Abbot Point".

The announcement states that Adani is currently developing the QRN alignment with QRN, therefore Adani's own corridor was not considered further within this assessment. The Adani and QRN corridors are, in any event, on a similar east-west alignment.

Waratah's proposed corridor, whilst similar in alignment and length to the corridor proposed by GVK, has been qualitatively assessed by EIG, on the basis of publicly available information, as having a lower operational efficiency factor and, as such, has not been assessed further within this report.

In light of this announcement this section focuses on assessing the QRN and GVK solutions.

The table below details the high level technical characteristics of the proposed solutions, including comparable information for the EWLP Project.

Table 3: Summary of proponents projects against the GICP project

Project Proponent	Areas Served	Total Length (km)	Gauge system	Axle loading / train payload	Capacity
EWLP	North and South Galilee	577 km	Standard Gauge	40t	With passing loops and duplication capable of in excess of 300Mtpa
QRN[7]	North Galilee	381km from Adani mine to Abbot Point port[8]	Expected to be Narrow Gauge, consistent with existing track	Expected to be 26.5t consistent with existing track	60Mtpa to 80Mtpa[9]
GVK[4]	South Galilee	495 km[10]	Standard gauge	32.5t	Initial capacity of 60Mtpa, scalable to 120Mtpa with duplication increasing capacity to 250Mtpa[11]

4.1 Galilee mines serviced by railway solutions

The table below summarises which mining sites have potential, for the purpose of this assessment, to be served by each of the railway projects.

- GICP is a single corridor solution designed to service the whole of the Galilee Basin.
- QRN is a North Galilee solution.
- GVK is primarily a South Galilee solution.

Table 4: Summary of mines serviced by rail infrastructure

Mine site	Proponent	EWLP	QRN	GVK / Hancock
South Galilee Coal Project	AMCI & Bandanna Energy Ltd	Potential with spur	Potential with spur	No
China First Coal Project	Waratah	Yes	No	Yes
Alpha Coal Project	Hancock/GVK	Yes	No	Yes
Alpha West Project	Hancock/GVK	Yes	No	Yes
Kevin's Corner Project	Hancock/GVK	Yes	No	Yes
Alpha North Coal Project	Waratah	Yes	No	Yes
Alpha West Coal Project	Waratah	Yes	No	Yes
Degulla Coal Project	Vale	Yes	No	Yes

[7] QR National IAS – December 5 2011
[8] The length of the existing QRN alignment upon which the financial modelling was performed was understated by around 22km, should be 403km. Difference does not impact the key messages and the figures within this report were not updated to reflect this understatement. During phase 2 the alignment length will be updated
[9] Reuters article of 2 July 2012 http://uk.reuters.com/article/2012/07/02/uk-adani-rail-idUKBRE86104420120702?feedType=RSS&feedName=businessNews
[10] May 2012 presentation from Paul Mulder, MD Coal at GVK length is 495km, 10km longer than information assumed in EIG costing which is 485km
[11] May 2012 presentation from Paul Mulder, MD Coal at GVK

Mine site	Proponent	EWLP	QRN	GVK / Hancock
Carmichael East Coal Project	Waratah	Yes	Yes	No
Carmichael Coal Project	Adani	Yes	Yes	No
China Stone Project - South	Macmines	Yes	Yes	No
China Stone Project - North	Macmines	Potential with spur	No	Potential with spur

5. Capacity and demand parameters

In this section we consider the scale and timing of the railway operation. For the purpose of doing this analysis we had to make assumptions on three key components:

- Proposed port capacity.
- Mining demand and throughput.
- Corridor capacity.

Together, this information has been used to determine the demand for each of the options under consideration.

5.1 Abbot Point Port capacity

5.1.1 Current port situation

5.1.1.1 Existing terminal (Terminal 1)

The existing terminal is leased and operated by a subsidiary of the Adani Group. The actual throughput of the terminal is currently in the region of approximately 14Mtpa (2011/12 actuals[12]). However, we understand that the terminal is fully subscribed for its 50Mtpa capacity. As such, we understand that there is no capacity available at the existing terminal.

5.1.1.2 Proposed expansions

A government press release by the Deputy Premier Jeff Seeney on 31 May 2012 stated that there would be 160Mtpa resulting from the expansion of three terminals at Abbot Point, Terminals 0, 2 and 3. The following table summarises our understanding of the capacities at each and also the availability to service Galilee Basin coal.

Table 5: Abbot Point port capacity

Terminal	Investor	Expansion Capacity (Mtpa)	Utilised by Bowen Basin Coal	Residual Capacity
Terminal 1 expansion (also known as Terminal 0)	Mundra Port Pty Ltd (Adani Group)	40	-	40
Terminal 2	BHP Billiton Limited	60	60	-
Terminal 3	GVK-Hancock	60	-	60
Total proposed expansions		**160**	**60**	**100**

[12] NQBP website

5.1.1.3 *Future expansion*

The same government press release (31 May 2012) stated that the government "*will be discussing with industry what additional capacity is needed beyond that*".

It also stated that the "*approach to expansion of infrastructure at Abbot Point is a more practical, more realistic, more sensible and more deliverable plan than the unrealistic and undeliverable proposals from the former, failed Bligh Government*".

This followed a previous press article on 19 May 2012 that effectively cancelled the previously proposed Terminals 4 to 9 expansions and Multi Cargo Facility.

It is therefore clear that the government intends to propose a port solution for parties not catered for under the existing expansion proposals. However, there is uncertainty as to the nature, location and timing of any future expansions.

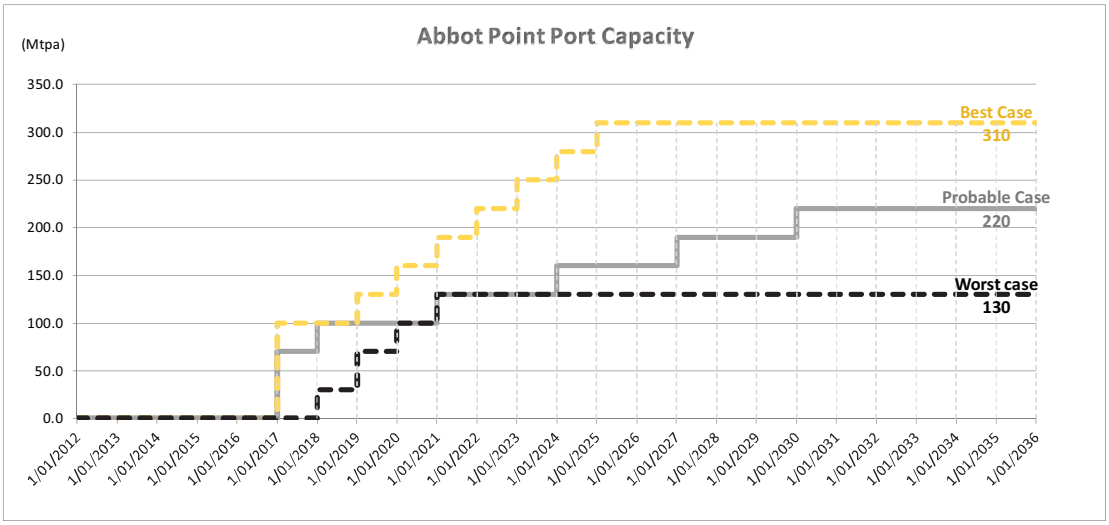
5.1.2 Abbot Point Port capacity scenarios

The development of port capacity scenarios is of vital importance for determining the timing and scale of the EWLP rail system, especially in light of the uncertainty surrounding the future expansion of Abbot Point Port. A demand model has been developed utilising the port capacity and publicly available miner volumes to determine the demand of the project.

Abbot Point port capacity scenarios were identified and agreed with EWLP at operational scenario meetings held on 29 May 2012 and 31 May 2012. These scenarios consider the capacity available to service Galilee coal, it is assumed that Bowen Basin coal will be serviced outside of this capacity.

The following chart summarises the agreed port capacity scenarios.

Chart 7: Abbot Point port capacity for Galilee coal



The key assumptions underlying the above chart are as follows:

5.1.2.1 *Best case*

- 1 July 2017 delivery of T0 (40Mtpa) and T3 (60Mtpa)
- 1 January 2019 ramp up of capacity at 30Mtpa per year for 7 years

- Ultimate capacity of 310Mtpa achieved at 1 January 2025

5.1.2.2 Probable case (base case)

- 1 January 2017 delivery of T0 (40Mtpa) and T3 (30Mtpa)
- 1 January 2018 delivery of remaining 30Mtpa at T3
- 1 January 2021 delivery of 30Mtpa additional capacity every 3years for 4 tranches (120Mtpa in total)
- Ultimate capacity of 220Mtpa achieved at 1 January 2030

5.1.2.3 Worst case

- 1 January 2018 delivery of T3 (first 30Mtpa)
- 1 January 2019 delivery of T0 (40Mtpa)
- 1 January 2020 delivery of remaining 30Mtpa at T3
- 1 January 2021 delivery of 30Mtpa additional capacity once only
- Ultimate capacity of 130Mtpa at 1 January 2021

5.2 Dudgeon Point Port capacity

In addition to the capacities available at Abbot Point Port, the GICP Option 1 alignment (considered in section 6.2) includes a link into the QRN network and assumes that Adani will utilise this access to transport 20Mtpa of coal to Dudgeon Point Port where it also has terminal facilties.

This capacity does not exist for GICP Option 2 (considered in Comparisons 2 in sections 11) which does not link into the QRN network.

When considering the alternative solutions:

- The QRN solution is linked to the existing QRN network and therefore has access to this 20 Mtpa of Dudgeon Point Port.
- The GVK solution does not link into the existing QRN network and therefore does not have access to this additional capacity.

When combined with the Abbot Point port capacity this creates capacity of up to:

- Best Case = 330 Mtpa
- Probable Case = 240Mtpa
- Worst Case = 150Mtpa

5.3 Mine demand and throughput

5.3.1 Galilee Basin Mines

In assessing the miner demand we performed a review of publicly available information. There are currently 12 mines proposed in the Galilee Basin, the following table provides a summary of the key characteristics of each. Details of our study are included in Appendix A.

Table 6: Miner demand assumptions

	Project Name	Proponent	Type	Range of volume of cleaned coal (Mtpa)	Volumes assumed for analysis (Mtpa)[13]	Operational commencement [14]	Reserve Mine Life
1	South Galilee Coal Project	AMCI & Bandanna Energy Ltd	open-cut & underground coal	15-20	15	2015	1 Bn Tonnes 43 years
2	China First Coal Project	Waratah	open-cut & underground coal	40	40	2014	3.7 Bn Tonnes[15] 66 years
3	Alpha Coal Project	Hancock / GVK	Open-cut coal	30	30	Q2 2015	1.82 Bn tonnes 30 years
4	Alpha West Project	Hancock / GVK	Underground coal	16-24	16	2016	1.8 Bn tonnes 30+ years
5	Kevin's Corner Project	GVK	open-cut & underground coal	30	30	Q4 2015	4.3 Bn tonnes About 30 years
6	Alpha North Coal Project	Waratah	coal	40	40	Q4 2016	3.5 Bn tonnes About 62.5 years
7	Alpha West Coal Project	Waratah	Coal	No details	-	No details	No details
8	Degulla Coal Project	Vale	coal	20-40	20	Unknown 2016[16] assumed for purpose of study as agreed with EWLP	No details
9	Carmichael East Coal Project	Waratah	Coal	No details	-	No details	No details
10	Carmichael Coal Project	Adani	open-cut & underground coal	60 (from 2022)	60	2014[17]	7.8 Bn tonnes Over 100 years
11	China Stone Project - South	Macmines	open-cut & underground coal	30	30	2016	3.7 Bn tonnes[18] About 46 years
12	China Stone Project - North	Macmines	open-cut & underground coal	30	30	No details 2016 assumed for purpose of study as agreed with EWLP	No details
	Total Galilee Basin			311-344	311		

[13] Assumes the lower figure within the range proposed by miners
[14] Assumes 1 January for modelling purposes where not stated otherwise.
[15] Subject to mining permit extension
[16] Bloomberg article : Australia's $32 Billion Galilee Coal Basin Needs Joint Rail, Vale Says. (http://mobile.bloomberg.com/news/2011-11-23/australia-s-32-billion-galilee-coal-basin-needs-joint-rail-vale-says)
[17] Adani press article of 2 July 2012 suggests July 2013 operational commencement. Original timing retained for purpose of financial modelling (http://in.reuters.com/article/2012/07/02/us-adani-rail-construction-idINBRE86107H20120702)
[18] Could go up to 9.7 Bn depending on permit extension (largest coal resource in the Galilee Basin)

Our analysis has identified that there is a significant degree of uncertainty surrounding the timing of these mines. This appears to be driven by a number of factors including potential constraints imposed by port and rail connectivity.

5.3.2 Bowen Basin Mines

The Galilee Basin mines will experience competition for port capacity from the Bowen Basin mines. In particular, this is evidenced by the fact that Rio Tinto, Anglo and NQCT (made up of Peabody, New Hope, Middlemount and Carabella) were all involved in the recently cancelled T4-T9 proposals with 30Mtpa each.
As well as Abbot Point Port, the Bowen Basin miners, serviced by the QRN network, will have the option to go south to Dudgeon Point Port.

For the purpose of our assessment, we have assumed that there will be sufficient port capacity for Bowen Basin miners at Abbot Point port and Dudgeon Point Port.

5.3.3 Ability of mines to deliver on time

Most of the mines noted in the above table are expected to deliver between 2014 and 2016. However, the initial tranches of port capacity are owned by Adani and GVK / Hancock and it is not until 1 January 2019 at the earliest (in the Best Case scenario) that the demand of other miners can be satisfied.

These timeframes have been assumed deliverable for the purpose of our study. An important aspect of Phase 2 will be the market testing exercise to be performed with the mining community. This activity will allow refinement of the demand assumptions and provide further confidence in the analysis.

5.4 Corridor capacity

It has been assumed for the purpose of this study that the corridor capacity will be increased using passing loops and duplication to meet the modelled demand.

5.5 Demand profile assumptions

In assessing the demand profiles applicable for each of the options and comparisons we applied a number of assumptions, they were:

- Mine demand will be delayed until railway and port infrastructure is available to service the demand. The port capacity is treated as the restricting factor.
- Mines can be delivered by the dates stated in Table 6 above, delayed as appropriate to match the port capacity.
- The contracted tonnages may be lower than the ultimate annual demand of a mine where this is necessary for maximising the demand throughput.
- The minimum level of tonnages contracted for is assumed as 15Mtpa for each mine. Where a mine has already contracted the minimum 15Mtpa and has additional demand, no minimum is applied to any subsequent contracted volumes.
- It is assumed that Terminal 0 services the Adani mine only and Terminal 3 services the GVK / Hancock mines only.

- Where Adani and GVK / Hancock mines are not involved in a scenario it is assumed that their port capacity is also not available. All remaining port capacity is assumed to be available to the Project.

- The tonnage volumes proposed by miners will take a number of years to be achieved. For the purpose of the study we have assumed the mines ramp up on the following profiles:

Table 7: Ramp up profiles

Profile	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Source
Adani	14.3%	28.6%	42.9%	57.1%	71.4%	85.7%	100.0%	Adani IAS full capacity by 2022. Assumed straight line
GVK / Hancock	25.0%	50.0%	75.0%	100.0%	100.0%	100.0%	100.0%	GVK presentation by Paul Mulder (May 2012) – Kevins Corner 2016 to 2019 ramp up. Assumed straight line.
All others mines	25.0%	25.0%	50.0%	50.0%	75.0%	75.0%	100.0%	EWLP agreed

These assumptions reflect the approach agreed with EWLP at the operational scenario meetings held on 29 May 2012 and 31 May 2012.

6. Definition of GICP Options and key comparisons

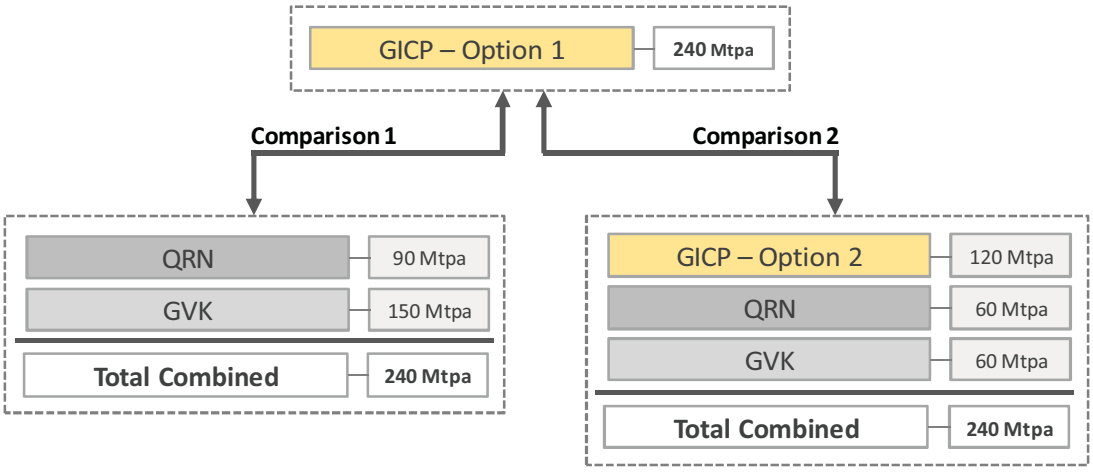
This section defines the GICP Options and comparisons considered within this report.

6.1 Options under consideration

The government's announcements on 6 June 2012 in relation to its support for two rail corridors, namely the QRN East-West corridor and the GVK North-South corridor, shaped the direction of this analysis[19].

As a result, this report focuses on comparing EWLP's preferred solution, GICP Option 1, against alternative multi-alignment solutions involving QRN, GVK and smaller scale GICP Options. EWLP's Option 1 and the various comparisons are defined below.

Graphic 5: Definition of Comparison 1 and 2



6.2 GICP Option 1 - single alignment solution

GICP Option 1 is a single alignment Galilee Basin solution capable of serving all miners in the Basin. It has the following key characteristics:

- Route from Abbot Point to South Galilee capturing all proposed Galilee mines with the exception of:
  - AMCI – Proposed alignment does not extend as far South as this mine. However, the proposed alignment of the GICP provides the ability for AMCI to connect to the alignment using a spur.
  - Macmines North – Proposed alignment does not currently extend north to this mine. However, the proposed alignment of the GICP provides the ability for Macmines North to connect to the alignment using a spur

[19] On 7 June 2012 EWLP received a letter from Deputy Premier Jeff Seeney dated 6 June 2012 in relation to the government's announcement. A workshop between EWLP, EIG and EY was held on 8 June 2012 to discuss the implications of this letter and agree the direction of the analysis. GICP Options 1, comparison 1 and comparison 2 were defined in this workshop. An unrestricted port access scenario was subsequently agreed at a workshop on 26 June 2012, this is included as a sensitivity to Comparison 2.

- Assumes no competing rail alignments.
- Alignment links to QRN existing network to allow Adani access to Dudgeon Point where 20Mtpa of coal is assumed to flow. The track needs to be Dual Gauge from Adani to North Goonyella where the EWLP track meets the QRN track to accommodate the fact that the QRN track is narrow gauge. It is assumed that no coal hub is required at this connection point and that Adani will separately negotiate access to QRN track.
- Standard gauge for the remainder of the track.
- 40t axle load is assumed for the full alignment.
- Timing and scale is restricted by Abbot Point port capacity which is 220Mtpa in the Probable Case (refer to section 5.1.2.2) with 20Mtpa being assumed for Dudgeon Point port from 2017.

The following table summarises the mines serviced by GICP Option 1.

Table 8: GICP Option 1 mines serviced

Mine site	Proponent	Mines Serviced
South Galilee Coal Project	AMCI & Bandanna Energy Ltd	No
China First Coal Project	Waratah	Yes
Alpha Coal Project	Hancock/GVK	Yes
Alpha West Project	Hancock/GVK	Yes
Kevin's Corner Project	Hancock/GVK	Yes
Alpha North Coal Project	Waratah	Yes
Alpha West Coal Project	Waratah	Yes
Degulla Coal Project	Vale	Yes
Carmichael East Coal Project	Waratah	Yes
Carmichael Coal Project	Adani	Yes
China Stone Project - South	Macmines	Yes
China Stone Project - North	Macmines	No

6.2.1 Assumed demand profile

The chart below depicts the assumed demand profiles for GICP Option 1 under the Probable Case Port scenario. The first summarises the proposed contracted volumes and the second the volume throughput. Appendix C includes tables with the figures supporting the charts.

Chart 8: Option 1 contracted volumes

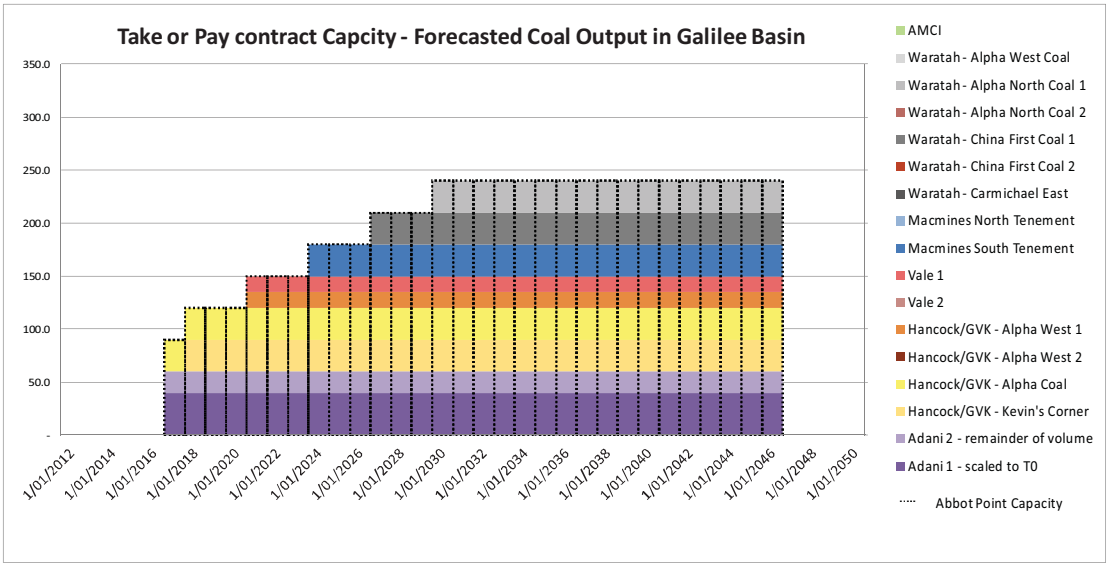
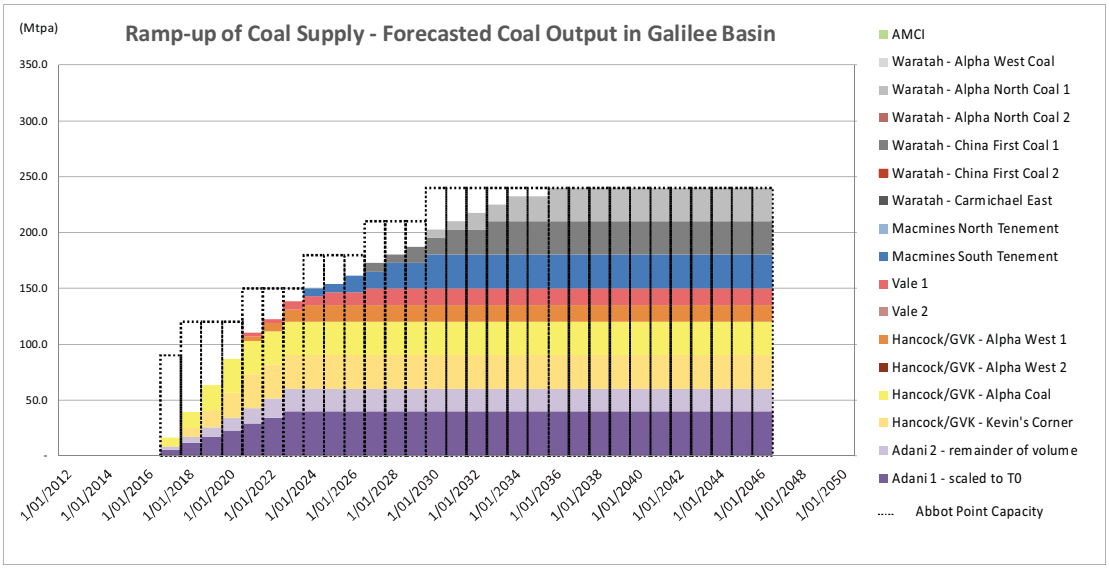


Chart 9: Option 1 volume throughput



6.3 Key Comparisons

Two key scenarios were selected for comparison against GICP Option 1, each is detailed below.

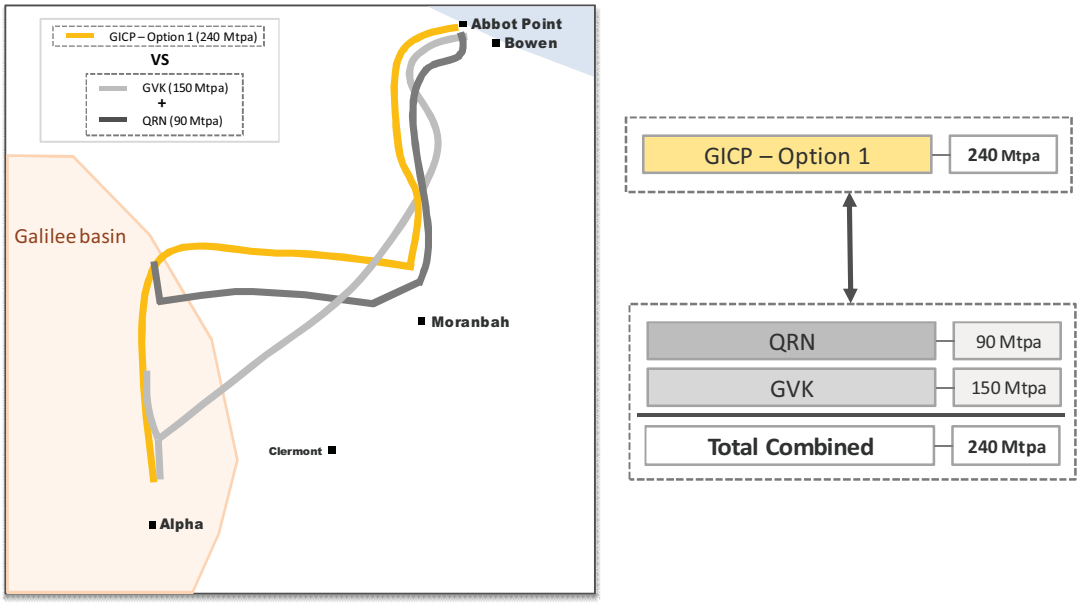
The demand profiles specific to each comparison are included within the relevant sections 10 to 12 which assess the comparisons performed. Demand profiles were shared with EWLP and EIG for comment and agreement and used by EIG in its staging and costing exercise.

6.3.1 Comparison 1

Comparison 1 compares GICP Option 1 against a combined QRN and GVK solution that would serve the same purpose of servicing all of the mines in the Galilee Basin. The comparison is performed on a directly comparable basis using the tonnage profiles proposed for GICP option 1, with:

- QRN servicing North Galilee – 90Mtpa solution of which 20Mtpa (Adani) is transported to Dudgeon Point with the remaining 70Mtpa being transported to Abbot Point.
- GVK servicing South Galilee – 150Mpta solution, all of which is transported to Abbot Point.

Graphic 6: Rail alignments assessed in comparison 1[20]



The following table summarises the assumed split of mines between QRN and GVK for the purpose of Comparison 1.

Table 9: Comparison 1 mines serviced

Mine site	Proponent	GICP Option 1		QRN	GVK
South Galilee Coal Project	AMCI & Bandanna Energy Ltd	No		No	No
China First Coal Project	Waratah	Yes		No	Yes
Alpha Coal Project	Hancock/GVK	Yes		No	Yes
Alpha West Project	Hancock/GVK	Yes		No	Yes
Kevin's Corner Project	Hancock/GVK	Yes		No	Yes
Alpha North Coal Project	Waratah	Yes		No	Yes
Alpha West Coal Project	Waratah	Yes		No	Yes
Degulla Coal Project	Vale	Yes		No	Yes
Carmichael East Coal Project	Waratah	Yes		Yes	No
Carmichael Coal Project	Adani	Yes		Yes	No
China Stone Project - South	Macmines	Yes		Yes	No
China Stone Project – North	Macmines	No		No	No

The characteristics of the alternative solutions are considered further in section 4.

[20] This is an Ernst & Young graphical representation of alignment for information purposes and is not to scale.

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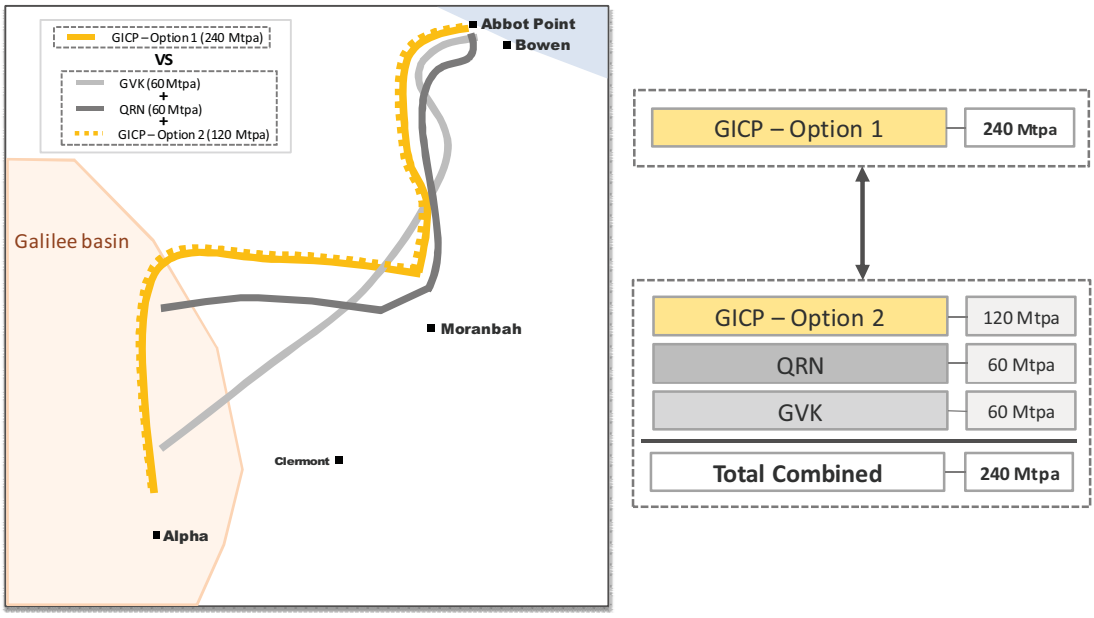
6.3.2 Comparison 2

Comparison 2 compares GICP Option 1 against a solution comprising three railways:

- QRN servicing Adani only, assuming Adani services its own port capacity – 60Mtpa solution of which 20Mtpa is transported to Dudgeon Point with the remaining 40Mtpa being transported to Abbot Point. The scale of this railway being restricted by the scale of Abbot Point port capacity that Adani has secured (refer to section 5.1.1.2).
- GVK servicing GVK's first 60Mtpa, assuming GVK services its own port capacity – 60Mpta solution, all of which is transported to Abbot Point. The scale of this railway being restricted by the scale of Abbot Point port capacity that GVK has secured (refer to section 5.1.1.2).
- GICP Option 2 servicing all remaining mines to a maximum of 120Mtpa – 120Mpta solution, all of which is transported to Abbot Point. It is assumed that EWLP will secure all future port capacity and has access to all remaining miner demand. The entire alignment will be a standard gauge track as no access to the QRN network or other ports is assumed. All other characteristics remain consistent with GICP Option 1.

Graphic 7: Rail alignments assessed in comparison 2[21]



The purpose of this comparison is twofold:

- To assess the viability of the EWLP alignment at lower volumes solution.
- To assess the viability of a segregated solution against a single line solution.

[21] This is an Ernst & Young graphical representation of alignment for information purposes and is not to scale.

The following table summarises the assumed split of mines for the purpose of Comparison 2.

Table 10: Comparison 2 mines serviced

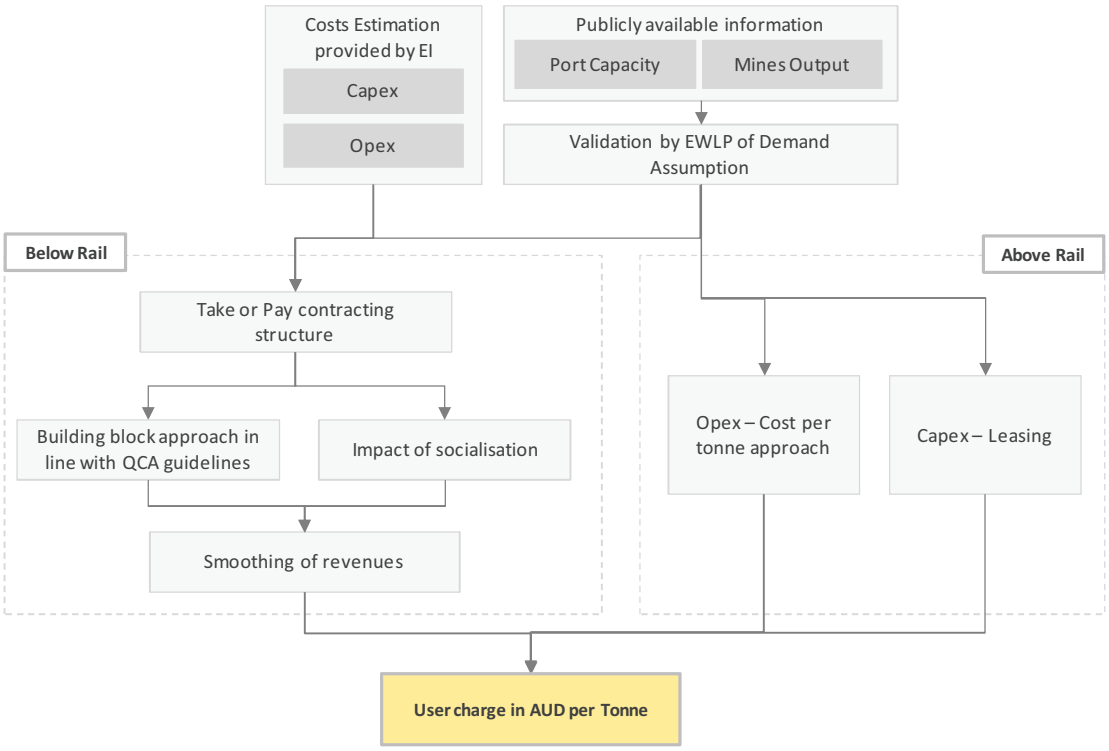
Mine site	Proponent	GICP Option 1		GICP Option 2	QRN	GVK
South Galilee Coal Project	AMCI & Bandanna Energy Ltd	No		No	No	No
China First Coal Project	Waratah	Yes		Yes	No	No
Alpha Coal Project	Hancock/GVK	Yes		No	No	Yes
Alpha West Project	Hancock/GVK	Yes		Yes	No	No
Kevin's Corner Project	Hancock/GVK	Yes		No	No	Yes
Alpha North Coal Project	Waratah	Yes		Yes	No	No
Alpha West Coal Project	Waratah	Yes		Yes	No	No
Degulla Coal Project	Vale	Yes		Yes	No	No
Carmichael East Coal Project	Waratah	Yes		Yes	No	No
Carmichael Coal Project	Adani	Yes		No	Yes	No
China Stone Project - South	Macmines	Yes		Yes	No	No
China Stone Project - North	Macmines	No		No	No	No

The characteristics of the alternative solutions are considered further in section 4.

7. Methodology of analysis

The diagram below summarises the methodology employed in our analysis.

Graphic 8: Methodology diagram



The key aspects are considered in detail below.

7.1 Take or Pay contracting structure

The EWLP railway is being developed as a multi user solution for the Galilee Basin. As such, it is assumed that the railway will operate Take or Pay when contracting the capacity.

Take or Pay contracts are commonly used by infrastructure companies when transacting with the mining community and are accepted as the market norm.

7.2 Tariff structure and socialisation – Below Rail

For the purpose of this assessment we have assumed that the tariff structure for the below rail assets follows a building block approach, an approach is closely associated with regulated industries. The Queensland coal rail infrastructure is currently regulated by QCA and this approach has historically been used to price below rail access and is an acceptable approach to the mining community.

In the public domain there are two levels of return used for price setting:

- QCA regulated return of 9.96% vanilla WACC – This reflects the QCA's determination for QRN.

- Above regulated return of 13.62% vanilla WACC – This reflect the return that QRN secured on its recent GAPE project.

We have assumed that the above regulated return applies for the purpose of our financial modelling. However we have performed sensitivity analysis applying the QCA regulated return within Comparison 1 to provide a range of outcomes.

7.2.1 Socialisation

The socialisation of costs between miners is an important component of the tariff structure. In the market, there are a couple of variations on the approach to the socialisation of costs, however, for the purpose of this assessment we have assumed that at any point in time, the costs associated with a zone are shared between users based upon the contracted volumes of each user of the zone.

We will explore socialisation options further at Phase 2 of the project.

7.2.2 Building Block approach

The building block approach can be applied using either a post-tax or pre-tax approach. For the purposes of this analysis, a post-tax approach has been used.

Under the post-tax building block approach, there are five building blocks which make up the revenue requirement:

1. Return of Asset - is an allowance for the depreciation of the assets that compensates investors for their loss in value over time. This is calculated based on the value of the Asset Base and the assumed asset lives.

2. Return on Asset - is derived by applying a rate of return (e.g. the WACC) to the value of the Asset Base.

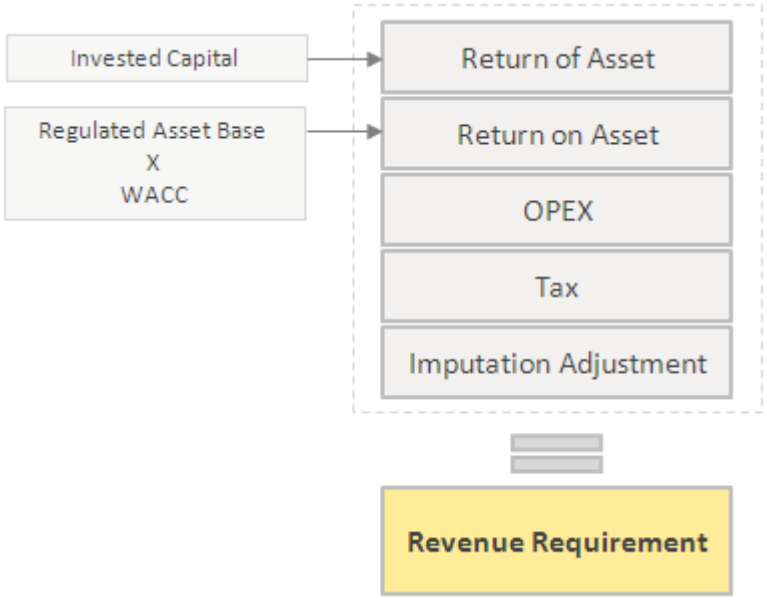
3. An allowance for the efficient operating and administrative costs required to provide the service.

4. An allowance for the expected tax liability arising from the revenue.

5. An adjustment related to Dividend Imputation corporate tax policy in Australia.

The following diagram captures the key components of the building blocks logic.

Graphic 9: Building Bloc Logic – Revenue construction



The calculation methodology associated with each of these building blocks is considered below.

7.2.2.1 Return of Asset

With Return of Asset, the consortium is able to recover its invested capital through regulatory depreciation.

7.2.2.2 Return on Asset

Under the post-tax building block approach, the 'Return on Asset' is derived by applying a rate of return to the RAB. In determining a rate of return on an asset, the building block approach assumes that the consortium:

- Meets benchmark levels of efficiency; and
- Uses a financing structure that meets benchmark standards of gearing and other financial parameters for a going concern and reflects in other respects best practice.

The rate of return under a post-tax framework typically assumes the WACC to be representative of the rate of return. For example, the formula to calculate a "post-tax WACC" (also known as a vanilla WACC) is shown below.

$$WACC = Ke \times \frac{E}{V} + Kd \times \frac{D}{V}$$

Ke is the return on equity (determined using the CAPM) and is calculated as rf + βe × MRP

rf	is the nominal risk free rate
βe	is the equity beta; and
MRP	is the market risk premium;

Kd is the return on debt and is calculated as rf + DRP, where:

DRP	is the debt risk premium

E/V is the value of equity as a proportion of the value of equity and debt, which is 1 - D/V; and

D/V is the value of debt as a proportion of the value of equity and debt.

The WACC used within our financial model is a nominal WACC and therefore must be applied to nominal costs. To ensure that the Return on Asset calculates correctly the Asset was inflated before the WACC was applied to it. It was then necessary to include a negative inflation adjustment to the Return of Asset to ensure that this component was not overstated.

7.2.2.3 OPEX

Operating expenditure reflects the costs that would be incurred by a prudent service provider, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of service delivery.

7.2.2.4 Tax

Under a post-tax framework, the cost of tax is calculated explicitly as a separate building block. This requires the WACC to be defined as a nominal Vanilla WACC (i.e. Excluding the impact of tax).

The calculation of taxable income assumes that:

- Required revenue qualifies as assessable income;
- ►There are three tax deductible expenses –allowed opex, interest expense (which is calculated based on the assumed cost of debt in the allowed WACC and the debt proportion of the capital base) and depreciation of assets using applicable tax depreciation rules and rates.

7.2.2.5 Imputation Adjustment

The Australian Tax system allows companies to attach franking credits to dividend paid in an attempt to eliminate double taxation upon company profits.

$$\text{Franking credit} = \frac{T}{1-T} \text{x Dividend x Y}$$

T Company Tax Rate

Y Imputation Credit Utilisation Rate

The imputation Adjustment block takes into account the impact of this tax credit on the maximum allowable revenue calculation.

7.2.3 Revenue requirement and smoothing

The revenue requirement results from the combination of these components. For the purpose of this assessment we smoothed the revenue requirement over the life of the railway operation. To perform this smoothing we calculated the Net Present Value ('NPV') of the revenue cashflows resulting from the building block model and targeted the same NPV using revenues that remain constant over the operational life in 2012 prices. These figures were used to calculate the cost per tonne charged to the miners.

7.3 Above Rail – Lease and Operating Expenditure

Above rail assets are not modelled on the same basis as the below rail assets. It is common for Rolling Stock to be procured via a lease from a Rolling Stock lessor (typically a bank or finance house).

For the purpose of this financial analysis, we have reflected the lease charges associated with the initial investment and overhauls of rolling stock as a constant annuity payable over the useful economic life of the asset.

The operational expenditure of the above rail assets for each mine is directly derived from the tonnages and distance travelled.

The financial model determines the rail haulage charges for routes from each of the mines based upon the tonnage profiles described previously. These charges are provided on both a price per tonne and a price per tonne kilometre basis.

7.4 Tariff structure – Above Rail

The structuring and charges associated with the above rail assets can be handled in a number of different manners, including:

- Infrastructure company focused – Infrastructure company acquires or leases rolling stock and operates.
- User focused – The user of the rolling stock acquires or leases the assets and operates.
- Other solutions may include third parties operating the assets or "wet leases" where the lessor is also responsible for the operation of the assets.

For the purpose of our analysis the tariff rates for the above rail assets are set based upon the infrastructure company entering rolling stock leases with a pass through of operating expenditure to the user. We will explore the structuring options further at Phase 2 of the project.

8. Financial Model and Key Financial Assumptions

8.1 Financial Model

The Financial Model (the "Model") generates the following deliverables:

- Key input assumptions that allow for the calculation of capacity, cost sensitivities and key financial outputs.
- Key outputs that focus on user charges and visual representations of comparisons with alternative proposals.

8.1.1 Key modelling assumptions

The following table outlines key generic assumption on which the Pre-feasibility Financial Model has been built

Table 11: Generic input assumptions

Input	Assumption	Source
Periodicity of model	▪ Construction: Monthly ▪ Operations: Yearly	EIG and EY
General Timeframe	▪ For the purposes of the model calculations, general timeframe is driven by the level of demand. ▪ Financial analysis is performed over a 30 years' time horizon starting from the first operating day of the first mine to open.	EY
Timing of construction	All construction commences on 1 January	EY
Capitalisation of interest	Interests are calculated and capitalised on a monthly basis during the construction period	EY

8.1.2 Outputs

The financial model delivers the following key outputs

Table 12: Key outputs

Output	Comments
Below Rail User Charge – overall and by mine	$ per tonne ($/t) and $ per tonne kilometre ($tk) on contracted volumes and also on volume throughput
Above Rail User Charge –by mine	$ per tonne kilometre ($tk)
Graphs	Contracted volumes over 30 years – by mine and by zone Demand throughput over 30 years – by mine and by zone Below Rail User charge over 30 years – by mine and zone on contracted volumes and also on volume throughput Above Rail User charge over 30 years – by mine Port Capacity

The financial model does not include financial statements at this stage, this is something that will be added when the full Project Finance functionality is added.

8.1.3 Scenario capabilities

The financial model is capable of assessing the following scenarios.

Scenarios	Comments
GICP Option 1	As defined in section 6.2
GICP Option 2	As defined in section 6.3
Port capacity alternatives for Options 1 and 2	Utilising the Base Case and Worst Case port capacities as defined by EWLP
Alternative solution –GVK	As defined in section 6.3
Alternative solution – QR National	As defined in section 6.3

8.2 Key Financial Assumptions

The following generic assumptions are used across all the scenarios in our analysis.

8.2.1 Pricing assumptions

8.2.1.1 Key pricing input assumptions – below rail

Table 13: Generic input assumptions

Input	Assumption	Source
Approach to depreciation (for pricing purposes)	30 year straight line	Consistent with other regulated rail assets
Gearing	55%	Consistent with QCA determination for QRN
WACC used for return on capital	Vanilla WACC equivalent to QRN's 15% pre-tax price[22] Model is capable of switching to Regulated Vanilla WACC of 9.96% (reflective of QCA determination for QRN). Comprising: Equity at 9.99% Debt at 9.94% (including a margin of 4.75%)	QCA
WACC used for capitalised interest	Regulated Vanilla WACC of 9.96% (reflective of QCA determination for QRN).	Reflective of QCA determination for QRN
Deprecation of assets (for the purpose of calculating taxable income) – below rail	30 year straight line	Consistent with other regulated rail assets
Corporate Tax	30%	Consistent with QCA determination for QRN
Imputation Tax Adjustment	0.5 – effectively 50% adjustment to the level of Corporate Tax	Consistent with QCA determination for QRN

[22] Page 8 of QCA report – Final Decision, QR Network's 2010 DAU, September 2010

8.2.1.2 Key economic input assumptions – below rail

All cost inputs are in 2012 prices, a full year's inflation is applied on 1 January each year using the following economic assumptions.

Table 14: Economic assumptions – below rail

Input	Assumption	Source
Construction inflation	4.00%	EIG
Maintenance inflation	2.50%	EIG
CPI	2.50% (applicable to all other inflation calculations)	Mid point of Royal Bank of Australia long term target for inflation

8.2.1.3 Key pricing input assumptions – above rail

Above rail is financed via leasing contracts characterized by the following metrics:

Table 15: Generic input assumptions

Input	Assumption	Source
Rolling stock lease	10 years for Locomotives 15 years for Wagons	Lease matches economic life provided by EIG
Amortisation of lease	Constant annuities	Market approach
Base Interest Rate	5.5%	Australian Government 10yr government bond coupon at 2/7/2012
Interest Credit Spread	0.3%	Market rate
Interest Margin	2.5%	Market rate
Upfront financing fee	1.5%	Market rate
Mark up on asset value	10% for asset lessor	Market rate

8.2.1.4 Key economic input assumptions – above rail

All costs are in 2012 prices, a full year's inflation is applied on 1 January each year using the key economic assumptions for Above Rail are described in the table below.

Table 16: Economic assumptions – above rail

Input	Assumption	Source
Construction inflation – USD elements	0.40%	EIG
Construction inflation – AUD	3.15%	EIG

Input	Assumption	Source
elements		
Fuel inflation	2.70%	EIG
Maintenance inflation – USD elements	0.40%	EIG
Maintenance inflation – AUD elements	3.15%	EIG
Labour inflation	3.68%	EIG
CPI	2.50% (applicable to all other inflation calculations)	Mid point of Royal Bank of Australia long term target for inflation
FX rate – US$:A$	1.00:1.00	Reflective of recent foreign exchange rates

8.2.2 Other input assumptions

The Special Purpose Vehicle created to develop and operate the Project is assumed to have the following costs.

Table 17: Organisational management structure and costs assumptions

Input	Assumption (All figures in 1 January 2012 prices)	Source
Salaries	Chief Executive Officer = $450,000pa Chief Operating Officer = $375,000pa Financial Director = $300,000pa Project Director = $300,000pa Project Management Team = $750,000pa ($125,000 each for team of 6) Executive Assistant = $50,000 Total = $2,225,000pa	EWLP agreed
Management fee	$500,000	EWLP agreed
Accommodation	$123,750 ($11,250 per employee)	EWLP agreed
Accounting, tax and advisor fees	$150,000	EWLP agreed
Overheads	$749,688 (25% of direct management fees)	EWLP agreed
Profit margin uplift	$374,844 (10% of direct management fees and overheads)	EWLP agreed

Whilst these cost assumptions are based on a preliminary assessment of the proposed organisation overheads and will no doubt alter as planning advances, their relatively small scale, in comparison to the scale of Project costs for each of the solutions, means that cost variances in respect of the Special Purpose Vehicle operational management are unlikely to impact the cost per tonne significantly. Also, we would not expect such cost variances to impact the key messages of this assessment.

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9. Financial Analysis - GICP Option 1

9.1 Definition of the GICP Option 1

GICP Option 1 is a single line solution that serves both the North and South Galilee miners as defined in section 6.2. The following table summarises the mines serviced by GICP Option 1.

Table 18: GICP Option 1 mines serviced and allocation between North and South Galilee

Mine site	Proponent	Mines Serviced	North / South allocation
South Galilee Coal Project	AMCI & Bandanna Energy Ltd	No	South
China First Coal Project	Waratah	Yes	South
Alpha Coal Project	Hancock/GVK	Yes	South
Alpha West Project	Hancock/GVK	Yes	South
Kevin's Corner Project	Hancock/GVK	Yes	South
Alpha North Coal Project	Waratah	Yes	South
Alpha West Coal Project	Waratah	Yes	South
Degulla Coal Project	Vale	Yes	South
Carmichael East Coal Project	Waratah	Yes	North
Carmichael Coal Project	Adani	Yes	North
China Stone Project - South	Macmines	Yes	North
China Stone Project - North	Macmines	No	North

The above assumed allocation between North and South Galilee applies throughout this report in all scenarios considered.

9.2 Demand assumptions

The charts below depict the demand profiles for GICP Option 1 under the Probable Case Port scenario resulting from the demand and capacity parameters included in section 5. The first summarises the proposed contracted volumes and the second the volume throughput. Appendix C includes tables with the figures supporting the charts.

Chart 10: GICP Option 1 contracted volumes

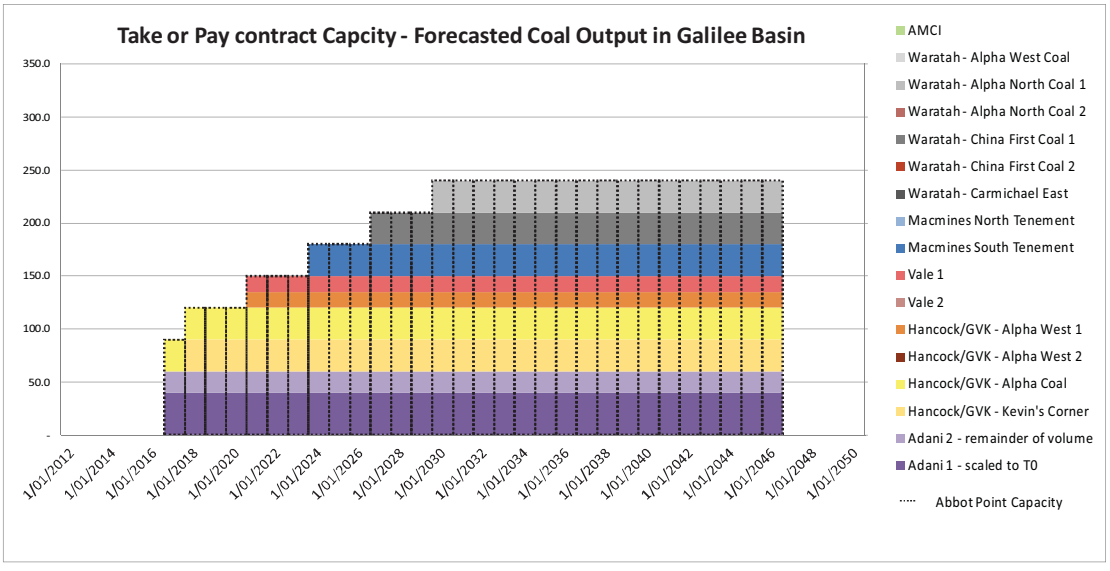
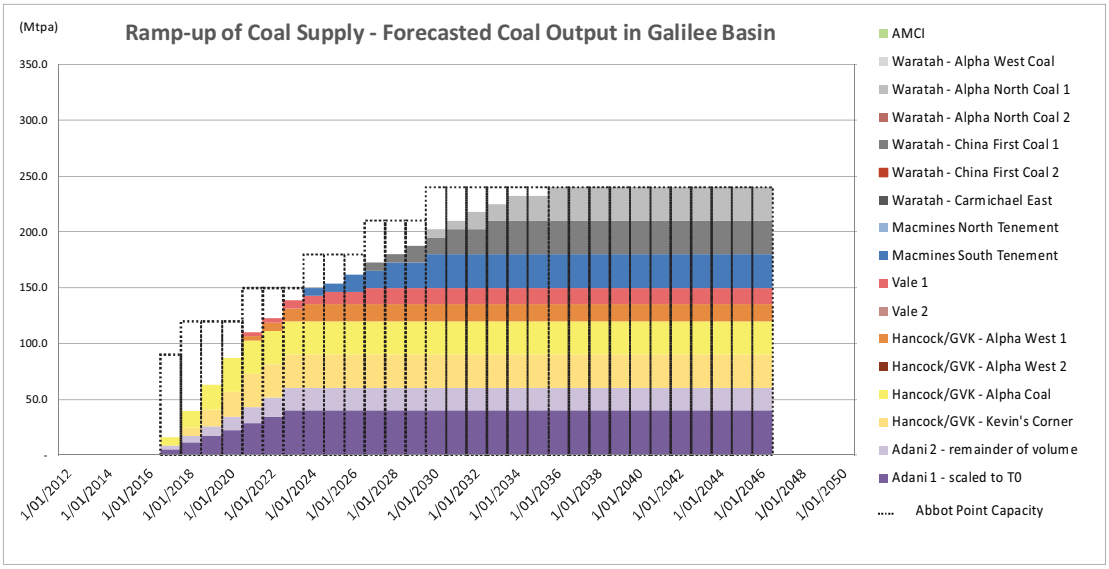


Chart 11: GICP Option 1 volume throughput



The above demand profiles are indicative only and reflective of the demand and capacity parameters assumed. The profiles will be refined at the next stage when EWLP engages the miners and port to test its assumptions.

The above demand profiles result in the following railway construction delivery profile.

Table 19: GICP Option 1 construction delivery profiles

Zone	First day of delivery	Term of construction
Zone1 - Abbot Point to North of Moranbah	1 January 2017	36 months
Zone2 - North of Moranbah to North Galilee	1 January 2017	36 months
Zone3 - North Galilee to Macmines South	1 January 2017	36 months
Zone4 - Macmines South to Adani Carmichael	1 January 2017	36 months
Zone5 - Adani Carmichael to Waratah Carmichael	1 January 2017	36 months
Zone6 - Waratah Carmichael to Vale Degulla	1 January 2017	36 months
Zone7 - Vale Degulla to Waratah Alpha West	1 January 2017	36 months
Zone8 - Waratah Alpha West to GVK Kevin's Corner	1 January 2017	36 months
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal	1 January 2027	12 months

9.3 Key technical assumptions

9.3.1 Below Rail

9.3.1.1 Capex costs

The following tables summarise the capital costs associated with GICP option 1.

Table 20: Below Rail Construction Costs (2012 prices)

AUDm	GICP option 1
Construction Spend	3,807.0
Passing Loops Capital Expenditure	833.0
Duplication Capital Expenditure	1,474.2
Total	6,114.2

Table 21: Below Rail Construction Costs (forecast cashflows)

AUDm	GICP option 1
Construction Spend	4,357.9
Passing Loops Capital Expenditure	1,031.9
Duplication Capital Expenditure	2,522.5
Total	7,912.3

It is assumed that the construction costs associated with passing loops and duplication are incurred over a 12 month periods as agreed with EIG. Passing loop and duplication cost templates are included within the EIG cost templates.

Refer to Appendix D for EIG cost templates and Appendix E for a reconciliation from the Financial Model to the EIG cost template. The 2012 prices included in the above table reflect the EIG costs with contract pricing escalation / inflation removed.

9.3.1.2 Opex and maintenance costs

The following tables summarise the annual track maintenance costs associated with GICP option 1.

Table 22: Below Rail Annual track maintenance costs (2012 prices)

Annual costs per km AUD (2012 prices)	GICP option 1
0Mtpa to 10Mtpa	12,000
Greater than 10Mtpa to 30Mtpa	22,000
Greater than 30Mtpa to 50Mtpa	30,000
Greater than 50Mtpa to 100Mtpa	60,000
Greater than 100Mtpa to 400Mtpa	60,000

9.3.2 Above Rail

9.3.2.1 Capex costs

The following table summarise the rolling stock capital costs associated with GICP option 1.

Table 23: Above Rail Construction Costs (2012 prices)

	GICP option 1
Train capacity range - Mtpa per train	7.10 – 8.66
No. of Loco's per train	3.3
Cost per Loco – USD element	3,570,000
No. of Wagon's per train	283.5
Cost per Wagon – USD element	132,600
Loco overhaul every x years	10
Cost per Loco overhaul – USD element	1,785,000
Cost per Loco overhaul – AUD element	892,500
Wagon overhaul every x years	15
Cost per Wagon overhaul – USD element	33,150
Cost per Wagon overhaul – AUD element	33,150

9.3.2.2 Opex and maintenance costs

The following tables summarise the rolling stock operating and maintenance costs associated with each of the rail alignments within this comparison.

Table 24: Above Rail operating and maintenance costs (2012 prices)

Cost per tonne	GICP option 1
Fuel costs range (AUD)	1.03 - 1.39
Maintenance costs range – USD element	0.06 - 0.08
Maintenance costs range – AUD element	0.54 - 0.66
Labour costs range (AUD)	0.12 – 0.15

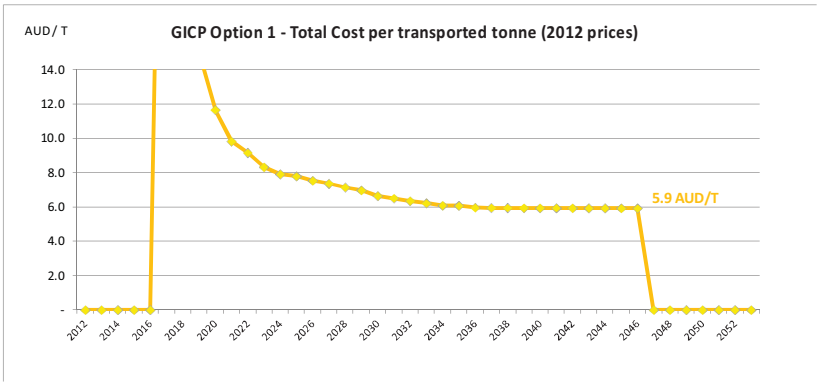
9.4 Financial results

The table and charts below depict the key outputs resulting for GICP Option 1.

Table 25: Key outputs

Comparison 1	GICP Option 1
Capex (2012 prices)	6,114
Alignment Length (Km)	577
Maximum tonnages	240
Below Rail (2012 prices) AUD per Transported Tonne - Weighted average	4.11
Above Rail (2012 prices) AUD per Transported Tonne - Weighted average	2.83
Total Cost (2012 prices) AUD per Transported Tonne - Weighted average	6.95

Chart 12: Above and Below Rail combined cost per transported tonne



The competitiveness of the results will be assessed in the comparisons and benchmarking sections that follow.

9.5 Port Capacity sensitivity analysis

In this sensitivity we assess the impact that port capacity has on the main metrics of the GICP Option 1 solution. Section 5 defines the best and worst case port capacities used for this sensitivity.

The following charts demonstrate the range of outcomes resulting. The bars represent the pricing range for the mine routes considered within this comparison while the X represents the weighted average cost per tonne for the system over the life of the concession. A mine "route" is defined as being the section of the track used by a particular mine for a specified volume of coal.

Chart 13: Below Rail cost per transported tonne range

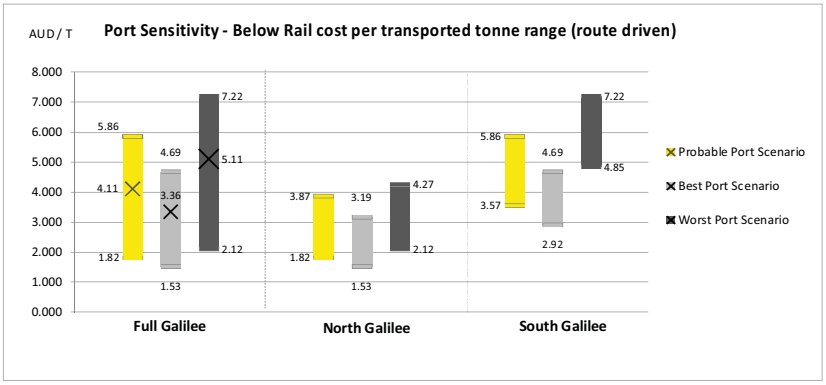
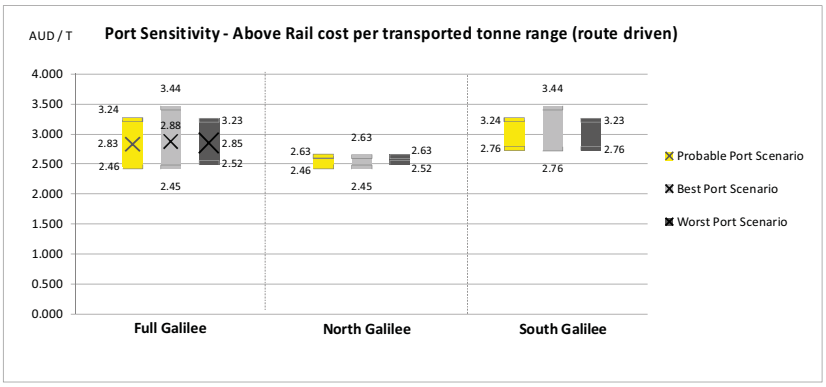


Chart 14: Above Rail cost per transported tonne range



In line with expectation the overall cost per tonne range increases where the Best Case and Worst Case port scenarios are considered.

- Below Rail – As expected the range extends to a lower cost per tonne under the Best Case and a higher cost per tonne under the Worst Case reflecting better and worse utilisation of the asset respectively.

- Above Rail – The movement in cost per tonne above rail are not significant, this reflects the fact that rolling stock is procured on an as needed basis and there is little scope for efficiencies of scale under the current structure. The small movements identified are reflective of the location and scale of the mines served under each scenario.

10. Financial Analysis - Comparison 1

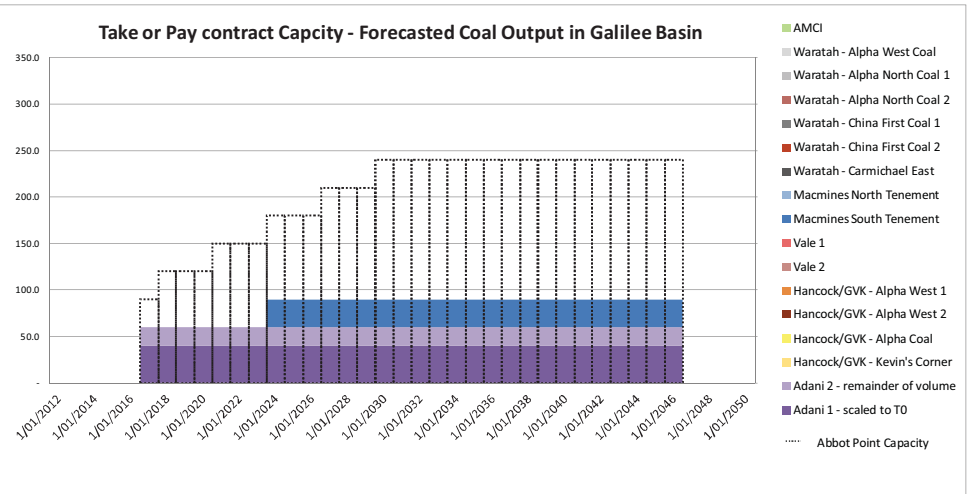
10.1 Definition of comparison 1

Comparison 1 assesses GICP Option 1 against a combined QRN (90Mtpa) and GVK (150Mtpa) solution that would serve the same purpose of servicing all of the mines in the Galilee Basin. Comparison 1 is defined in detail in section 6.

10.2 Demand assumptions

The charts below depict the comparable demand profiles for QRN and GVK under the Probable Case Port scenario resulting from the demand and capacity parameters included in section 5. Appendix C includes tables with the figures supporting the charts.

Chart 15: Comparison 1 QRN (90Mtpa) contracted and transported throughput (Mtpa)



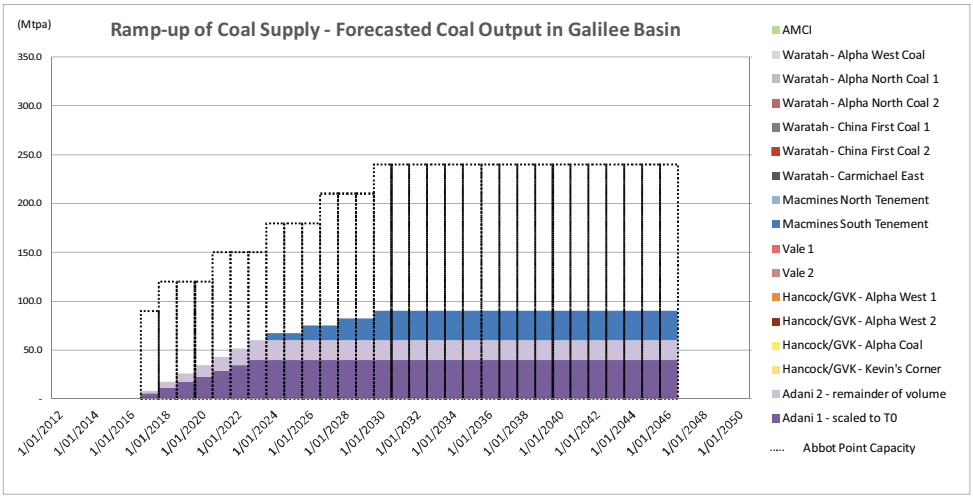
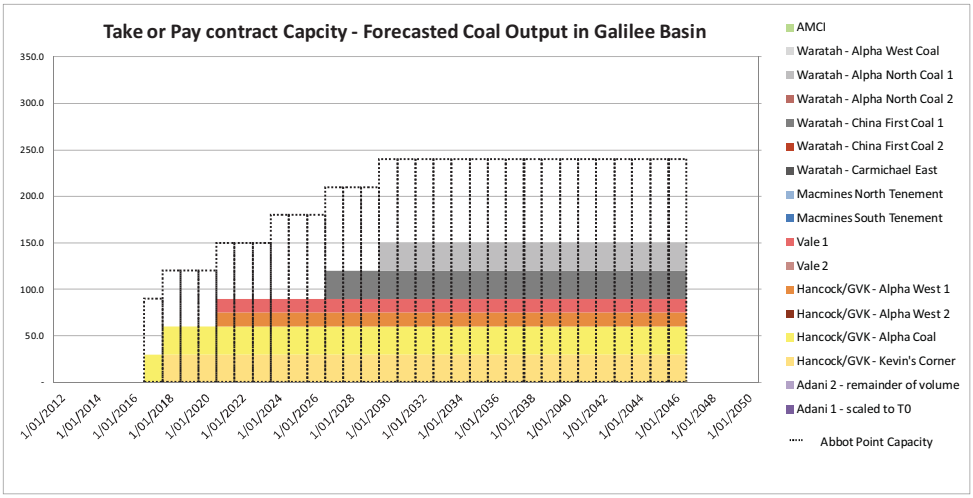
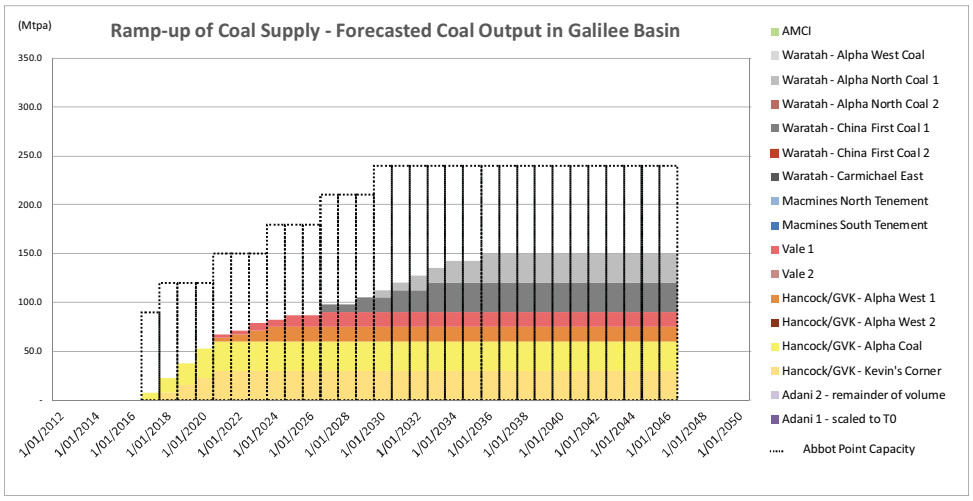


Chart 16: Comparison 1 GVK (150Mtpa) contracted and transported throughput (Mtpa)





The above demand profiles are indicative only and reflective of the demand and capacity parameters assumed. The profiles will be refined at the next stage when EWLP engages the miners and port to test its assumptions.

The above demand profiles result in the following railway construction delivery profiles.

Table 26: Comparison 1 QRN (90Mtpa) construction delivery profiles

Zone	First day of delivery	Term of construction
Existing asset – Abbot Point to North Goonyella	1 January 2017	N/A
QRN Mainline – North Goonyella to Adani Carmichael	1 January 2017	36 months
Zone 4 - Macmines South to Adani Carmichael	1 January 2024	12 months

Table 27: Comparison 1 GVK (150Mtpa) construction delivery profiles

Zone	First day of delivery	Term of construction
GVK Mainline – Abbot Point to GVK Kevin's Corner	1 January 2017	36 months
Zone 7 - Vale Degulla to Waratah Alpha West	1 January 2021	24 months
Zone 8 - Waratah Alpha West to GVK Kevin's Corner		
Zone 9 - GVK Kevin's Corner to Waratah China 1st Coal	1 January 2027	12 months

10.3 Key technical assumptions

10.3.1 Below Rail

10.3.1.1 Capex costs

The following tables summarise the capital costs associated with each of the rail alignments within this comparison.

Table 28: Below Rail Construction Costs (2012 prices)

AUDm	QRN (90Mtpa)	GVK (150Mtpa)	QRN + GVK	GICP option 1
Construction Spend	2,357.1	4,003.9	6,361.0	3,807.0
Passing Loops Capital Expenditure	214.5	597.5	812.0	833.0
Duplication Capital Expenditure	2,371.5	990.0	3,361.5	1,474.2
Total	4,943.1	5,591.4	10,534.5	6,114.2

Table 29: Below Rail Construction Costs (forecast cashflows)

AUDm	QRN (90Mtpa)	GVK (150Mtpa)	QRN + GVK	GICP option 1
Construction Spend	2,797.3	4,659.6	7,456.8	4,357.9
Passing Loops Capital Expenditure	250.9	773.0	1,024.0	1,031.9
Duplication Capital Expenditure	2,930.8	1,785.7	4,716.5	2,522.5
Total	5,979.0	7,218.3	13,197.3	7,912.3

In assessing the QRN alignment it was necessary to assume an asset value for the elements of the existing QRN alignment that will be used in delivering its solution. For the purpose of this assessment was assumed that $1bn of existing assets is added to the asset base of the QRN solution.

We have also assumed that the existing QRN asset is contracted for and operates at 50Mtpa for the purpose of socialising the costs of the existing asset and the associated upgrades.

It is assumed that the construction costs associated with passing loops and duplication are incurred over a 12 month periods as agreed with EIG. Passing loop and duplication cost templates are included within the EIG cost templates.

Refer to Appendix D for EIG cost templates and Appendix E for a reconciliation from the Financial Model to the EIG cost template. The 2012 prices included in the above table reflect the EIG costs with contract pricing escalation / inflation removed.

10.3.1.2 Opex and maintenance costs

The following tables summarise the annual track maintenance costs associated with each of the rail alignments within this comparison.

Table 30: Below Rail Annual track maintenance costs (2012 prices)

Annual costs per km AUD (2012 prices)	QRN (90Mtpa)	GVK (150Mtpa)		GICP option 1
0Mtpa to 10Mtpa	12,000	12,000		12,000
Greater than 10Mtpa to 30Mtpa	22,000	22,000		22,000
Greater than 30Mtpa to 50Mtpa	30,000	30,000		30,000
Greater than 50Mtpa to 100Mtpa	45,000	50,000		60,000
Greater than 100Mtpa to 400Mtpa	45,000	50,000		60,000

10.3.2 Above Rail

10.3.2.1 Capex costs

The following table summarise the rolling stock capital costs associated with each of the rail alignments within this comparison.

Table 31: Above Rail Construction Costs (2012 prices)

	QRN (90Mtpa)	GVK (150Mtpa)		GICP option 1
Train capacity range - Mtpa per train	3.07 – 3.36	5.91 – 6.34		7.1 – 8.66
No. of Loco's per train	4.4	3.3		3.3
Cost per Loco – USD element	5,100,000	3,570,000		3,570,000
No. of Wagon's per train	126	252		283.5
Cost per Wagon – USD element	112,200	122,400		132,600
Loco overhaul every x years	10	10		10
Cost per Loco overhaul – USD element	2,550,000	1,785,000		1,785,000
Cost per Loco overhaul – AUD element	1,275,000	892,500		892,500
Wagon overhaul every x years	15	15		15
Cost per Wagon overhaul – USD element	28,050	30,600		33,150
Cost per Wagon overhaul – AUD element	28,050	30,600		33,150

10.3.2.2 Opex and maintenance costs

The following tables summarise the rolling stock operating and maintenance costs associated with each of the rail alignments within this comparison.

Table 32: Above Rail operating and maintenance costs (2012 prices)

Cost per tonne	QRN (90Mtpa)	GVK (150 Mtpa)		GICP option 1
Fuel costs range (AUD)	2.27 - 2.60	1.53 - 1.72		1.03 - 1.39
Maintenance costs range - USD element	0.20 - 0.22	0.08 - 0.09		0.06 - 0.08
Maintenance costs range - AUD element	0.89 - 0.97	0.67 - 0.72		0.54 - 0.66
Labour costs range (AUD)	0.32 - 0.35	0.17 - 0.18		0.12 - 0.15

10.4 Financial results

The financial results of this comparison have assessed under the following headers:

- Key outputs
- Commentary on the results

10.4.1 Key outputs

The table and charts below depict the key outputs resulting from the above inputs, presented on a cost per tonne and cost per tonne kilometre basis.

Table 33: Comparison 1 key outputs

Comparison 1	QRN (90Mtpa)	GVK (150Mtpa)	QRN + GVK	GICP Option 1
Capex (2012 prices)	4,943	5,591	10,535	6,114
Alignment Length (Km)	425	564	989	577
Maximum tonnages	90	150	240	240
Below Rail (2012 prices) AUD per Transported Tonne - Weighted average	6.73	6.36	6.51	4.11
Above Rail (2012 prices) AUD per Transported Tonne - Weighted average	5.14	3.36	4.08	2.83
Total Cost (2012 prices) AUD per Transported Tonne - Weighted average	11.87	9.72	10.58	6.95

Chart 17: Above and Below Rail combined cost per transported tonne

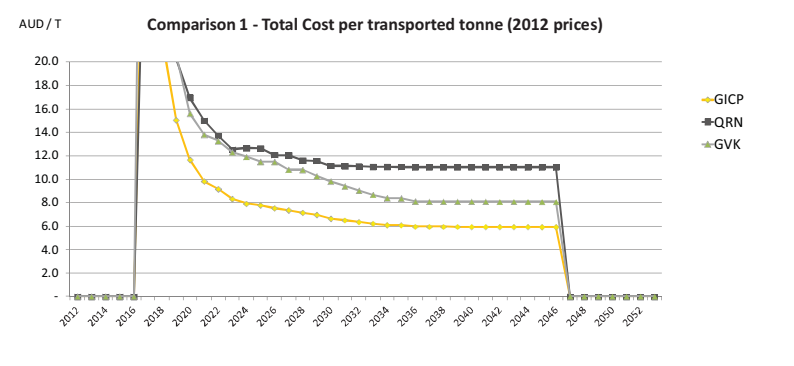


Chart 18: Above and Below Rail combined cost per transported tonne kilometre

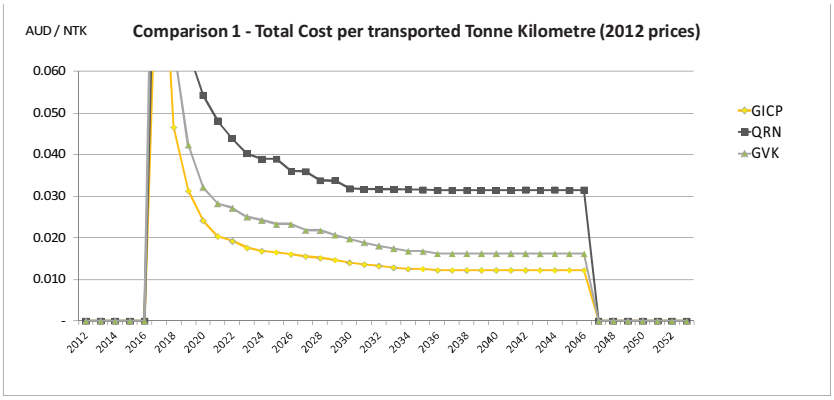


Chart 19: Below Rail cost per transported tonne range

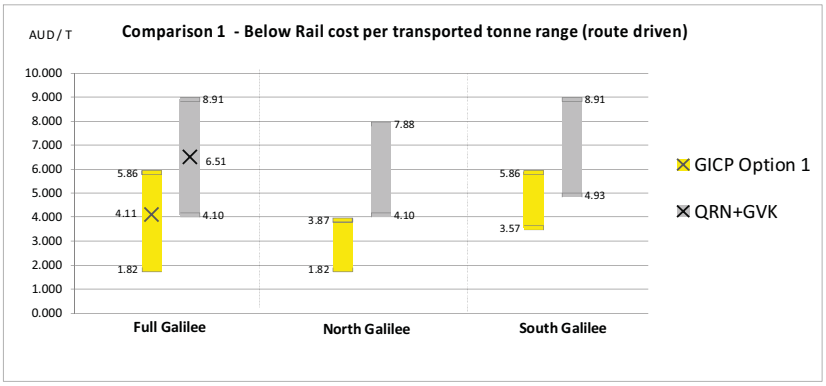
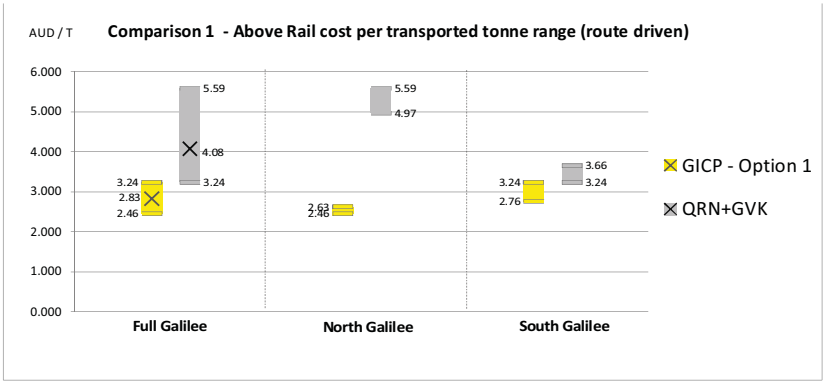


Chart 20: Above Rail cost per transported tonne range



10.4.2 Commentary on the financial results

The key results of our analysis are:

- GICP 240Mtpa single alignment solution, with an average freight cost from the Galilee basin of around AUD7.00 per tonne, appears to offer a 50% to 55% benefit over a combined QRN (90Mtpa) and GVK (150Mtpa) solution.

- When assessed at a mine level our analysis indicates that all mines included within this comparison benefited from a lower cost per tonne under the GICP Option 1 (240 Mtpa). The cost benefit estimates for individual mines range from 10% to 165% with the cost per tonne ranging from approximately AUD4.50 to AUD9.00.

- This is driven by efficiencies from:
  - The lower cost of building one below rail alignment compared to the cost of building two alignments. The GICP option 1 construction cost (including staged augmentations of passing loops and duplications as required) is around AUD6.1bn in 2012 prices, a saving in the region of 70% to 75% over the combined alternative solution.
  - Subject to further validation of the 40 tonne axle load wagon design (as yet not developed for Queensland coal mines although the benchmark for iron ore mines in Western Australia), the standard gauge, 40 tonnes axle load, above rail solution proposed for GICP is estimated to be in the range of 15% to 20% more cost efficient than the proponent GVK, standard gauge, 32.5 tonnes axle load solution and approximately 80% more efficient than the proponent QRN, narrow gauge, 26.5 tonnes axle load solution. These results indicate that a 40 tonne axle load solution is more cost effective than 32.5 tonne axle load and that a narrow gauge above rail solution is less effective than standard gauge.

10.5 Sensitivity analysis – below rail regulated return

The above results are calculated using a WACC equivalent to QRN's current pricing structure. This sensitivity seeks to demonstrate the below rail cost impact of using the regulated return determined by QCA, a vanilla WACC of 9.96%.

The following tables and charts depict the key outputs resulting from this sensitivity analysis.

Table 34: Comparison 1 key outputs for sensitivity

Comparison 1 with Regulated WACC	QRN (90Mtpa) Reg	GVK (150Mtpa) Reg	QRN + GVK Reg	GICP Option 1 Reg
Capex (2012 prices)	4,943	5,591	10,535	6,114
Alignment Length (Km)	425	564	989	577
Maximum tonnages	90	150	240	240
Below Rail (2012 prices)				
AUD per Transported Tonne - Weighted average	4.92	4.73	4.81	3.08

Chart 21: Above and Below Rail combined cost per transported tonne for sensitivity

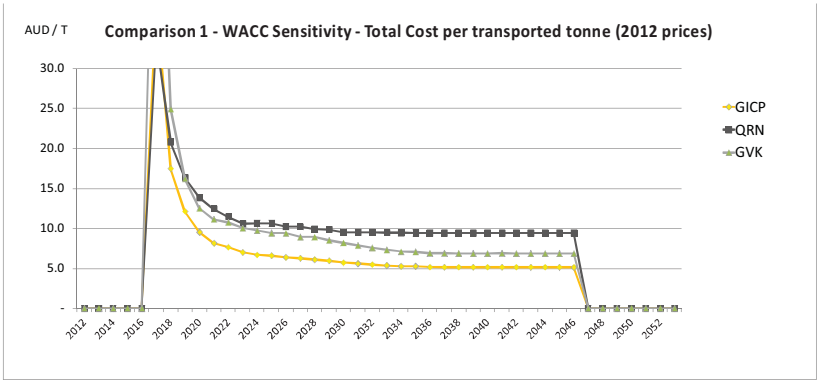
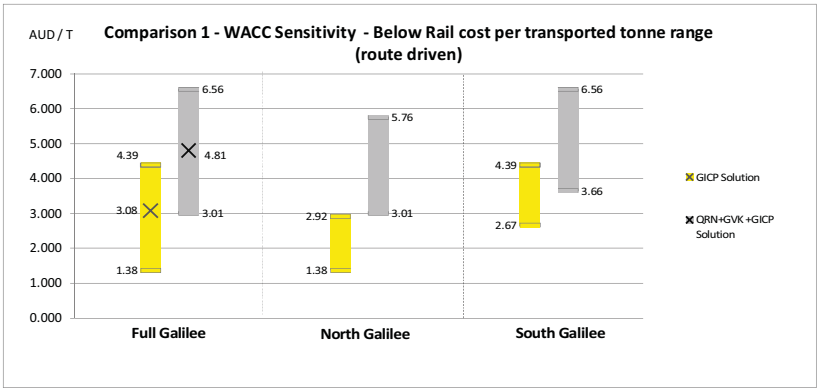


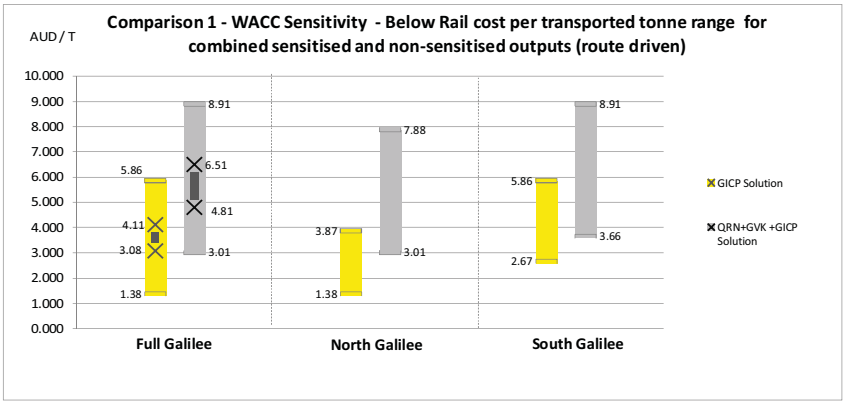
Chart 22: Below Rail cost per transported tonne range for sensitivity



The above results confirm that the key messages identified in section 10.4.2 remain valid at this lower cost of capital.

Combining the results of this sensitivity analysis with the non-sensitised outputs creates the following wider cost per tonne range for the below rail assets.

Chart 23: Below Rail cost per transported tonne range from combined range of sensitised and non-sensitised outputs



11. Financial Analysis - Comparison 2

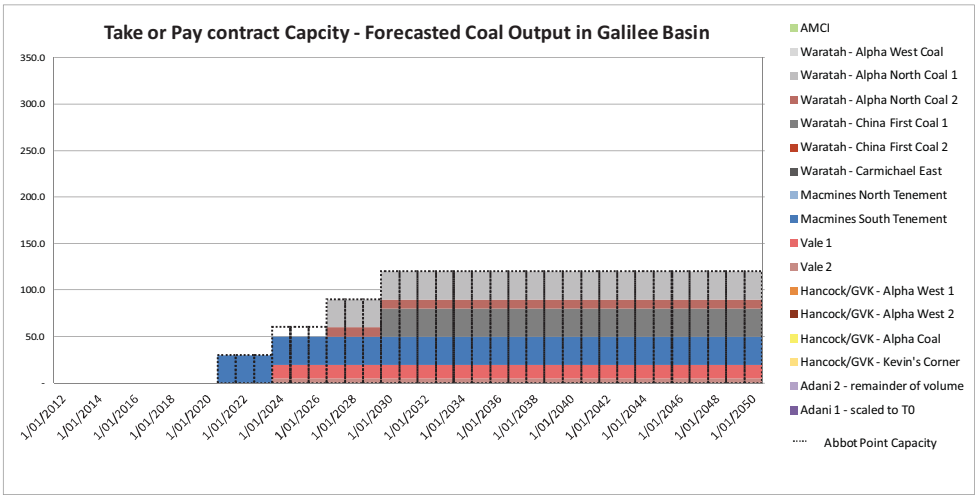
11.1 Definition of comparison 2

Comparison 2 assesses GICP Option 1 against a three alignments solution comprising a GICP 120 Mtpa solution (GICP Option2), QRN (60Mtpa) and GVK (60Mtpa). Comparison 2 is defined in detail in section 6.

11.2 Demand assumptions

The charts below depict the demand profiles for GICP, QRN and GVK under comparison 2 hypotheses and Probable Case Port scenario resulting from the demand and capacity parameters included in section 5. Appendix C includes tables with the figures supporting the charts.

Chart 24: GICP Option 2 contracted and transported throughput (Mtpa)



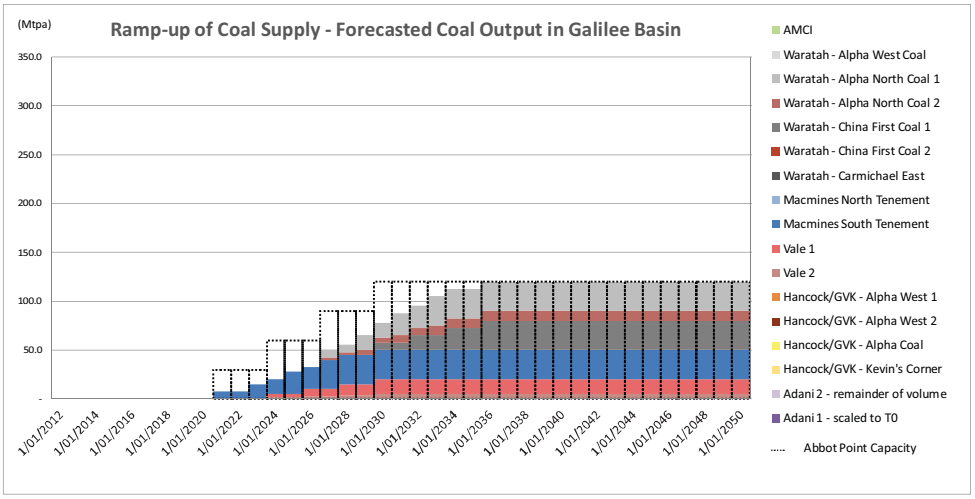
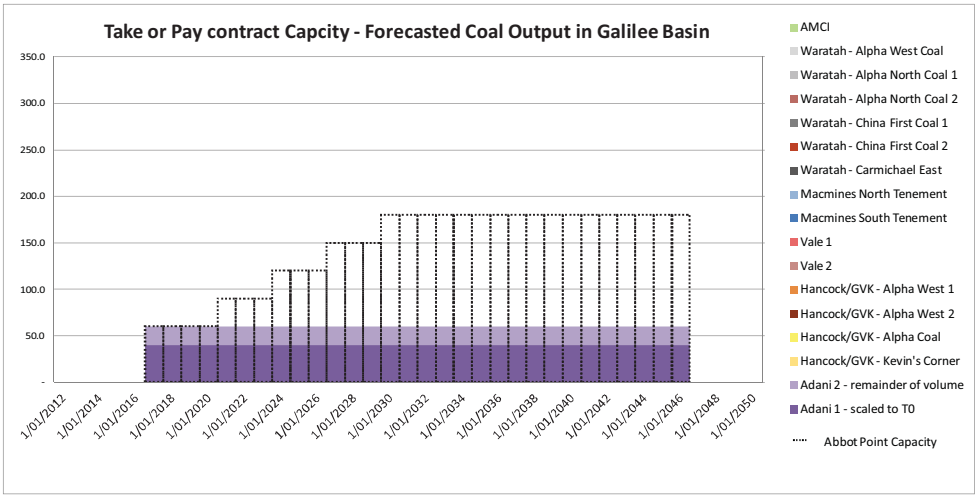


Chart 25: Comparison 2 QRN (60Mtpa) contracted and transported throughput (Mtpa)



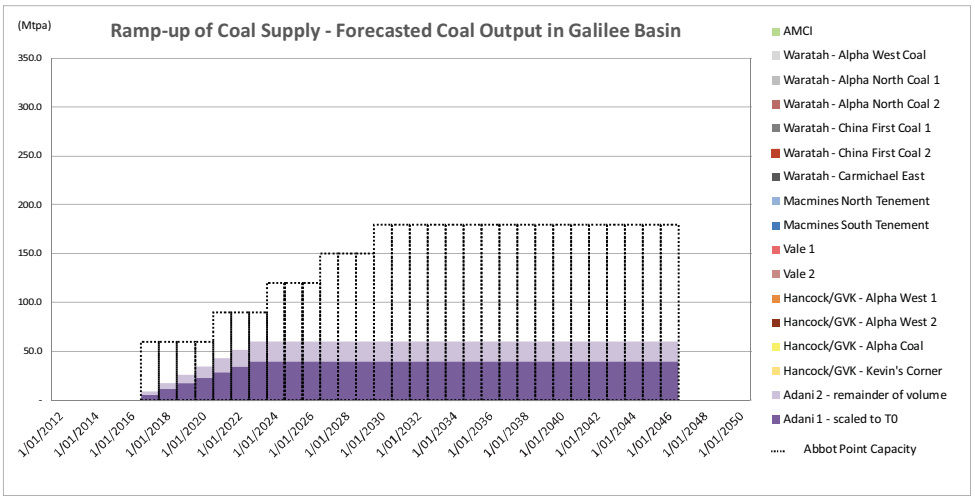
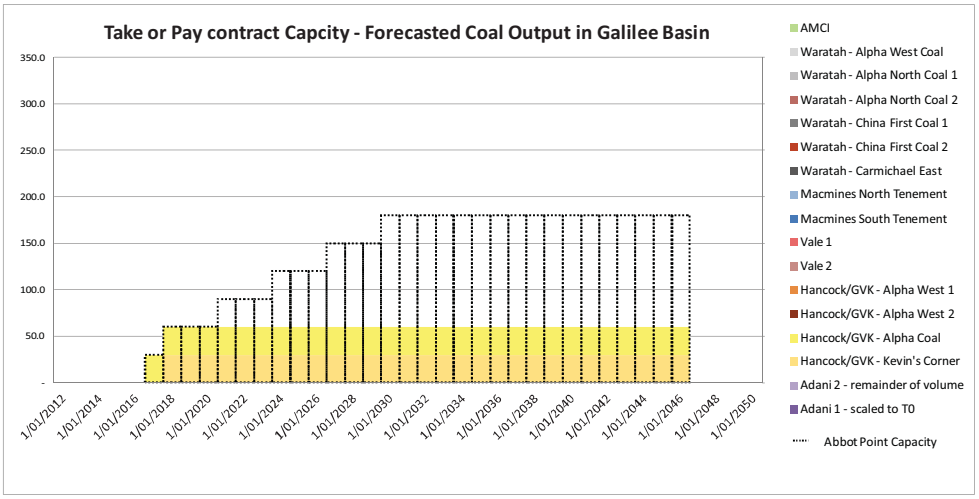
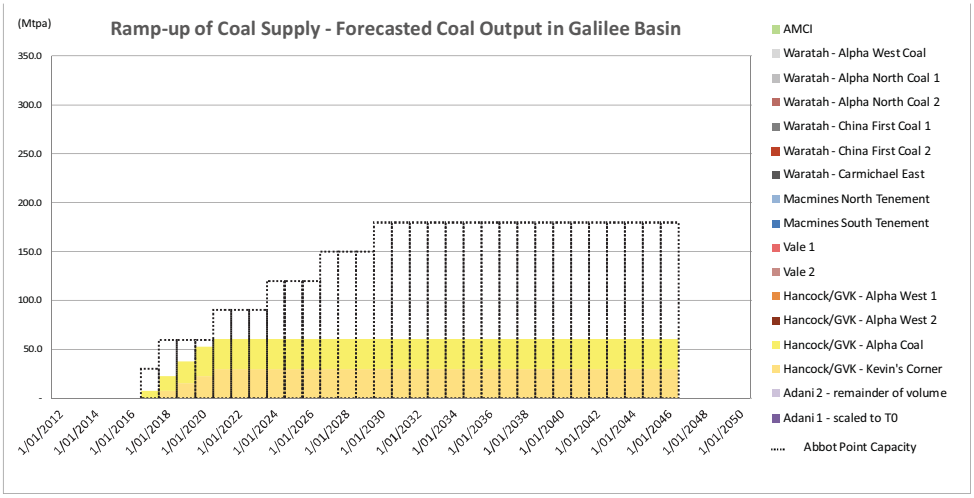


Chart 26: Comparison 2 GVK (60Mtpa) contracted and transported throughput (Mtpa)





The above demand profiles are indicative only and reflective of the demand and capacity parameters assumed. The profiles will be refined at the next stage when EWLP engages the miners and port to test its assumptions.

The above demand profiles result in the following railway construction delivery profiles.

Table 35: GICP Option 2 construction delivery profiles

Zone	First day of delivery	Term of construction
Zone 1 - Abbot Point to North of Moranbah	1 January 2021	36 months
Zone2 - North of Moranbah to North Galilee		
Zone3 - North Galilee to Macmines South		
Zone4 - Macmines South to Adani Carmichael	1 January 2024	24 months
Zone5 - Adani Carmichael to Waratah Carmichael		
Zone6 - Waratah Carmichael to Vale Degulla		
Zone7 - Vale Degulla to Waratah Alpha West	1 January 2027	12 months
Zone8 - Waratah Alpha West to GVK Kevin's Corner	1 January 2030	12 months
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal		

Table 36: Comparison 2 QRN (60Mtpa) construction delivery profiles

Zone	First day of delivery	Term of construction
Existing asset – Abbot Point to North Goonyella	1 January 2017	N/A
QRN Mainline – North Goonyella to Adani Carmichael	1 January 2017	36 months

Table 37: Comparison 2 GVK (60Mtpa) construction delivery profiles

Zone	First day of delivery	Term of construction
GVK Mainline – Abbot Point to GVK Kevin's Corner	1 January 2017	36 months

11.3 Key technical assumptions

11.3.1 Below Rail

11.3.1.1 Capex costs

The following tables summarise the capital costs associated with each of the rail alignments within this comparison.

Table 38: Below Rail Construction Costs (2012 prices)

AUDm	GICP option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP opt. 2 + QRN + GVK	GICP option 1
Construction Spend	3,658.6	2,091.3	3,501.4	9,251.3	3,807.0
Passing Loops Capital Expenditure	790.1	221.8	396.7	1,408.6	833.0
Duplication Capital Expenditure	-	2,121.6	-	2,121.6	1,474.2
Total	4,448.7	4,434.7	3,898.1	12,781.5	6,114.2

Table 39: Below Rail Construction Costs (forecast cashflows)

AUDm	GICP option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP opt. 2 + QRN + GVK	GICP option 1
Construction Spend	5,190.1	2,388.0	3,936.8	11,514.9	4,357.9
Passing Loops Capital Expenditure	1,304.9	259.5	474.0	2,038.3	1,031.9
Duplication Capital Expenditure	-	2,482.0	-	2,482.0	2,522.5
Total	6,494.9	5,129.5	4,410.8	16,035.2	7,912.3

In assessing the QRN alignment, just as for comparison 1, it was necessary to assume an asset value for the elements of the existing QRN alignment that will be used in delivering its solution. For the purpose of this assessment was assumed that $1bn of existing assets are added to the asset base of the QRN solution.

We have also assumed that the existing QRN asset is contracted for and operates at 50Mtpa for the purpose of socialising the costs of the existing asset and the associated upgrades.

It is assumed that the construction costs associated with passing loops and duplication are incurred over a 12 month periods as agreed with EIG. Passing loop and duplication cost templates are included within the EIG cost templates.

Refer to Appendix D for EIG cost templates and Appendix E for a reconciliation from the Financial Model to the EIG cost template. The 2012 prices included in the above table reflect the EIG costs with contract pricing escalation / inflation removed.

11.3.1.2 Opex and maintenance costs

The following tables summarise the annual track maintenance costs associated with each of the rail alignments within this comparison.

Table 40: Below Rail Annual track maintenance costs (2012 prices)

Annual costs per km AUD (real – 2012 prices)	GICP option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP option 1
0Mtpa to 10Mtpa	12,000	12,000	12,000	12,000
Greater than 10Mtpa to 30Mtpa	22,000	22,000	22,000	22,000
Greater than 30Mtpa to 50Mtpa	30,000	30,000	30,000	30,000
Greater than 50Mtpa to 100Mtpa	60,000	45,000	50,000	60,000
Greater than 100Mtpa to 400Mtpa	60,000	45,000	50,000	60,000

11.3.2 Above Rail

11.3.2.1 Capex costs

The following table summarise the rolling stock capital costs associated with each of the rail alignments within this comparison.

Table 41: Above Rail Construction Costs (2012 prices)

	GICP option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP option 1
Train capacity range - Mtpa per train	6.82 – 8.66	3.36	6.29 – 6.34	7.1 – 8.66
No. of Loco's per train	3.3	4.4	3.3	3.3
Cost per Loco – USD element	3,570,000	5,100,000	3,570,000	3,570,000
No. of Wagon's per train	283.5	126	252	283.5
Cost per Wagon – USD element	132,600	112,200	122,400	132,600
Loco overhaul every x years	10	10	10	10
Cost per Loco overhaul – USD element	1,785,000	2,550,000	1,785,000	1,785,000
Cost per Loco overhaul – AUD element	892,500	1,275,000	892,500	892,500
Wagon overhaul every x years	15	15	15	15

	GICP option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP option 1
Cost per Wagon overhaul – USD element	33,150	28,050	30,600	33,150
Cost per Wagon overhaul – AUD element	33,150	28,050	30,600	33,150

11.3.2.2 Opex and maintenance costs

The following tables summarise the rolling stock operating and maintenance costs associated with each of the rail alignments within this comparison.

Table 42: Above Rail operating and maintenance costs (2012 prices)

Cost per tonne	GICP option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP option 1
Fuel costs range (AUD)	1.03 - 1.49	2.27	1.53 – 1.55	1.03 - 1.39
Maintenance costs range – USD element	0.06 - 0.08	0.20	0.08	0.06 - 0.08
Maintenance costs range – AUD element	0.54 - 0.68	0.89	0.67 – 0.68	0.54 - 0.66
Labour costs range (AUD)	0.12 – 0.15	0.32	0.17	0.12 – 0.15

11.4 Financial results

The financial results of this comparison have assessed under the following headers:

- Key outputs
- Commentary on the results

11.4.1 Key outputs

The table and charts below depict the key outputs resulting from the above inputs, presented on a cost per tonne and cost per tonne kilometre basis.

Table 43: Comparison 2 key outputs

Comparison 2	GICP Option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP2 + QRN + GVK	GICP Option 1
Capex (2012 prices)	4,449	4,435	3,898	12,781	6,114
Alignment Length (Km)	577	381	485	1,443	577
Maximum tonnages	120	60	60	240	240
Below Rail (2012 prices) AUD per Transported Tonne - Weighted average	7.18	7.90	10.29	8.25	4.11
Above Rail (2012 prices) AUD per Transported Tonne - Weighted average	2.80	4.98	3.26	3.52	2.83
Total Cost (2012 prices) AUD per Transported Tonne - Weighted average	9.98	12.88	13.55	11.77	6.95

Chart 27: Above and Below Rail combined cost per transported tonne

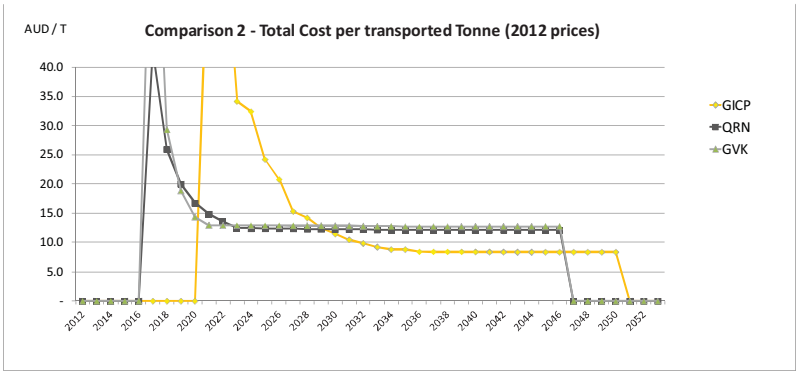


Chart 28: Above and Below Rail combined cost per transported tonne kilometre

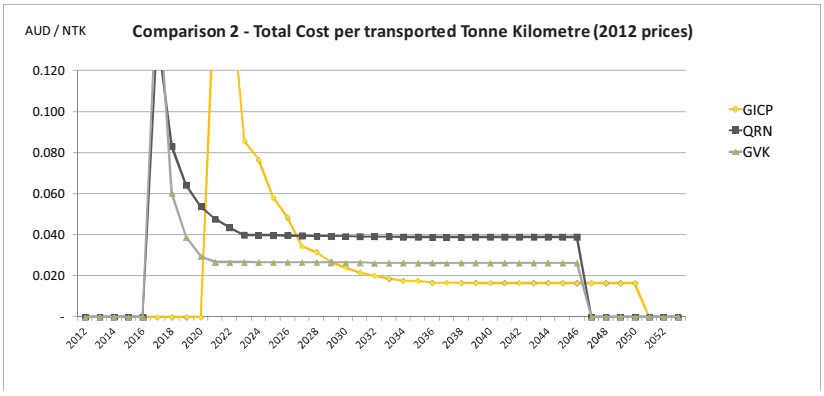


Chart 29: Below Rail cost per transported tonne range

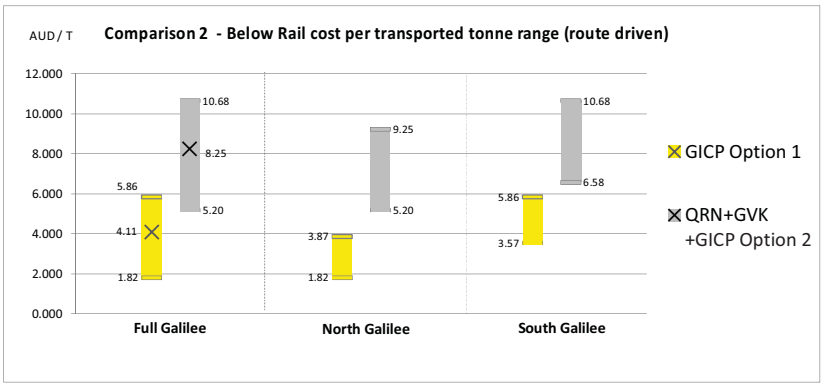
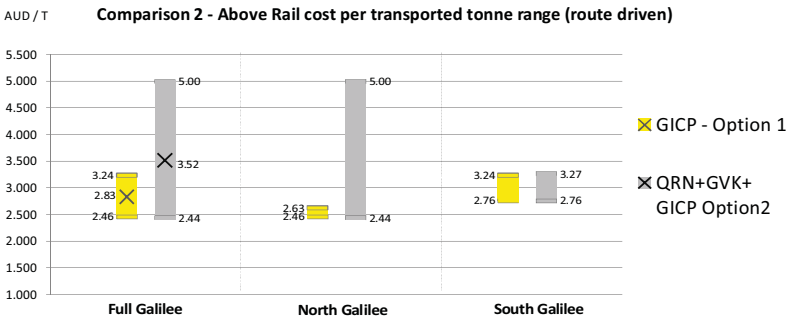


Chart 30: Above Rail cost per transported tonne range



11.4.2 Commentary on the financial results

Based on the costs provided by EIG, the key messages resulting from our analysis are:

- GICP Option 1 (240Mtpa) appears to be in the region of 65% to 70% more efficient, on a cost per tonne basis, than the combination of QRN (60Mtpa), GVK (60Mtpa) and GICP option 2 (120Mtpa). This is primarily due to the fact that three separate alignments require three infrastructure spends as well as to other influences such as the more efficient above rail solution.

- At around AUD10.00 the GICP Option 2 (120Mtpa) cost per tonne is estimated to be in the range of 25% to 40% lower than the QRN (60Mtpa) and GVK (60Mtpa) components of Comparison 2. This is a positive indicator of the potential of the GICP's performance at lower volumes. However, in this comparison the different alignments service different mines and therefore further assessment of this performance was required.

The potential of the GICP Option 2 (120Mtpa) was explored further by assessing the alternative routes to port available to each of the mines serviced under this solution. The alternatives assumed for each mine were:

- Macmines' China Stone Project (South) mine – As explored in Comparison 1, Macmines could connect into the proposed QRN alignment, creating the QRN (90Mtpa) solution.

- Vale's Degulla Coal Project mine – Vale could connect into the GVK alignment, forming part of the GVK (150Mtpa) solution explored under Comparison 1.

- Waratah's China First Coal Project and Alpha North Coal Project mines – Both of these Waratah mines could connect into the GVK alignment, forming part of the GVK (150Mtpa) solution explored under Comparison 1.

- The key messages resulting from these comparisons are:

    - Macmines South – The GICP Option 2 solution, at AUD9.80, indicates a cost per tonne benefit of AUD3.70 over the QRN (90Mtpa) alternative. The above rail solution provided AUD3.20 of this benefit, however, the below rail solution also performed favourably.

    - Vale - The GICP Option 2 solution has the potential to offer a benefit over the GVK (150Mtpa) alternative of around 20% to 25%, with benefits of AUD0.90 above rail and AUD1.50 below rail.

- Waratah – The GVK (150Mtpa) alternative outperformed the GICP Option 2 (120Mtpa) solution by between 10% and 20% for the various Waratah mines serviced. However, as identified in Comparison 1 the GICP Option 1 (240Mtpa) solution outperformed the GVK (150Mtpa) alternative, indicating that the Waratah mines would also benefit if higher volumes are achieved on the GICP alignment.

- A consistent message across all three comparisons (Macmines South, Vale and Waratah) was the importance of the GICP above rail solution with the estimated above rail cost per tonne benefits for the individual mines ranging from around 5% to 130%.

- From GVK's perspective, certainty around proponents timing and tonnages will be key to any expansion in capacity of this alternative solution above 60Mtpa. The above point indicates that it may be difficult for GVK to achieve commitments from proponents such as Vale, Macmines and Waratah where a GICP alternative exists.

- All of the above points indicate the potential viability, on a cost per tonne basis, of a GICP solution even if both the GVK and QRN solutions are already in operation under long term commercial agreements.

11.5 Sensitivity analysis – Port Access Sensitivity

11.5.1 Definition

Comparisons 1 and 2 assumed that the Abbot Point port capacity restricted the timing of mining development. This sensitivity compares GICP Option 1 against a solution where the port is not the constraining factor and is effectively a mine demand led variation of Comparison 2. This is a theoretical sensitivity that, whilst unlikely to occur, is used to further assess whether our previous findings hold true.

It assumes that all three railways are constructed in full in preparation for operational commencement on 1 January 2017. For comparison purposes the 240Mtpa applicable for GICP Option 1 is used as the tonnages cap for this sensitivity.

11.5.2 Financial results

The table and charts below depict the key outputs resulting from the above inputs, presented on a cost per tonne and cost per tonne kilometre basis.

Table 44: Port Access Sensitivity - key outputs

Port Access Sensitivity	GICP (120Mtpa)	QRN (60Mtpa)	GVK (60Mtpa)	GICP + QRN + GVK	GICP Option 1
Capex (2012 prices)	4,449	4,435	3,898	12,781	6,114
Alignment Length (Km)	577	381	485	1,443	577
Maximum tonnages	120	60	60	240	240
Below Rail (2012 prices) AUD per Transported Tonne - Weighted average	6.08	7.90	10.16	7.59	4.11
Above Rail (2012 prices) AUD per Transported Tonne - Weighted average	2.83	4.98	3.25	3.47	2.83
Total Cost (2012 prices) AUD per Transported Tonne - Weighted average	8.90	12.88	13.42	11.06	6.95

Chart 31: Above and Below Rail combined cost per transported tonne

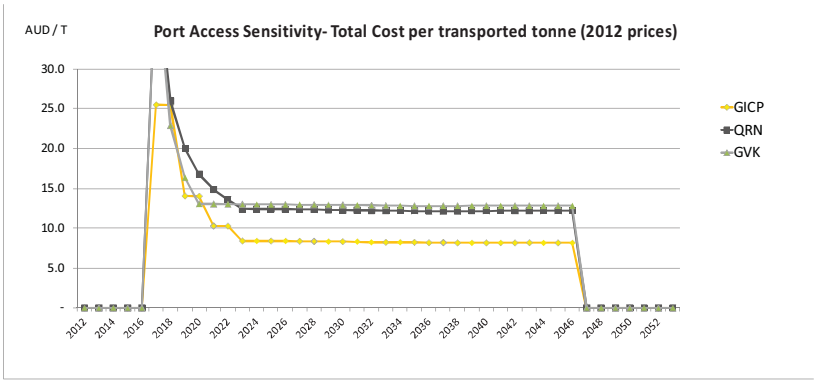


Chart 32: Above and Below Rail combined cost per transported tonne kilometre

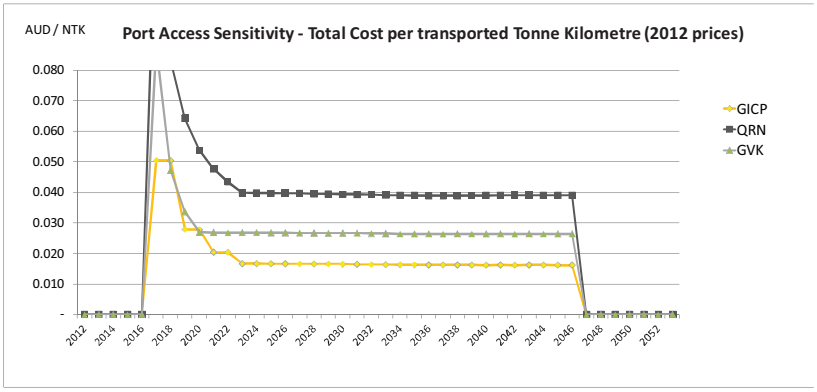


Chart 33: Below Rail cost per transported tonne range

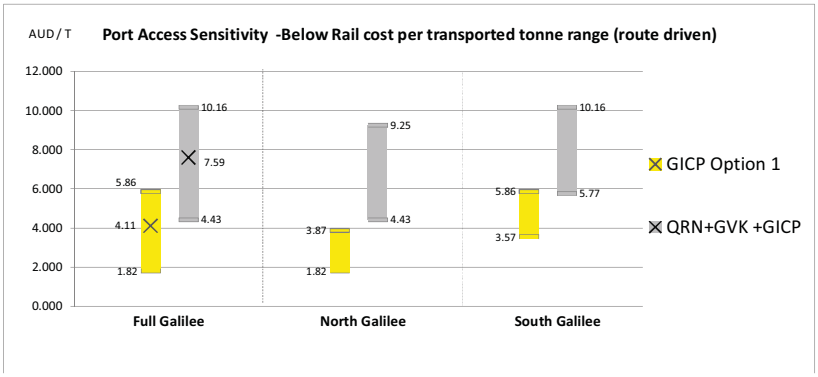
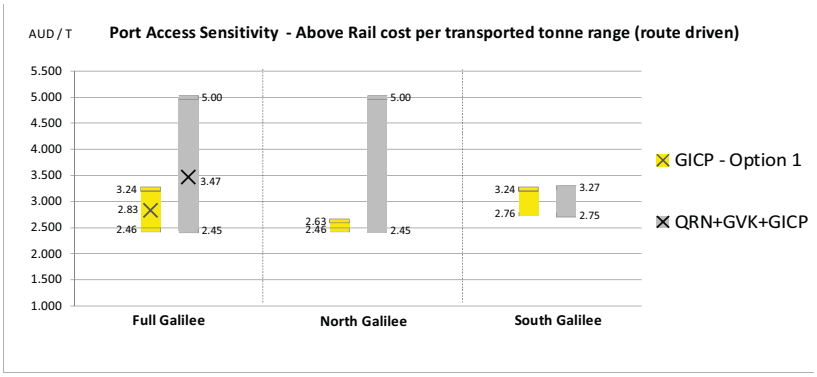


Chart 34: Above Rail cost per transported tonne range



11.5.3 Commentary on Port Access Sensitivity

The key messages resulting from our analysis are:

- This theoretical scenario indicates a reduction in cost per tonne from approximately AUD10.00 under GICP option 2 to approximately AUD8.90 reflecting more efficient use of the infrastructure. Overall, the combined solution (QRN + GVK + GICP) is approximately AUD0.70 cheaper than in Comparison 2.

When compared against GICP option 1, the combined solution, at approximately AUD11.10, remains in the region of 50% to 60% less cost effective, on a cost per tonne basis. This reflects the fact that three alignments are required under this comparison. It should also be noted that the costs of GICP option 1 would similarly reduce if the port restrictions were removed.

12. Financial Analysis – Other sensitivity comparisons against alternative solutions

To further understand the competitiveness of the GICP solution we performed a number of theoretical sensitivities aimed at identifying the strengths and weaknesses of the GICP solution when compared directly against the QRN and GVK alternative solutions at 60 Mtpa. In this analysis the level of user charge forecasted by our financial model are compared for:

- A QRN line servicing 60 Mtpa of Adani coal in north Galilee and a GICP line servicing the exact same 60 Mtpa throughput under the same condition of demand.

- A GVK line servicing 60 Mtpa of GVK / Hancock coal in south Galilee and a GICP line servicing the exact same 60 Mtpa throughput under the same condition of demand.

These comparisons assess the efficiency of the QRN and GVK corridors, each directly serving its dedicated mine(s), with that of the GICP corridor which is, for each comparison, restricted to carrying the same limited tonnage. The comparisons therefore ignore the alignment benefits offered by the GICP alignment.

Acknowledging the alignment advantages of the GICP (that it passes by the aforementioned GVK and Adani mines), we also performed the following more direct comparison:

- The combined GVK (60Mtpa) and QRN (60Mtpa) against GICP servicing the same throughput coming from both Adani's Carmichael Coal mine (60Mtpa) and GVK's Alpha and Kevin's Corner mines (60Mtpa).

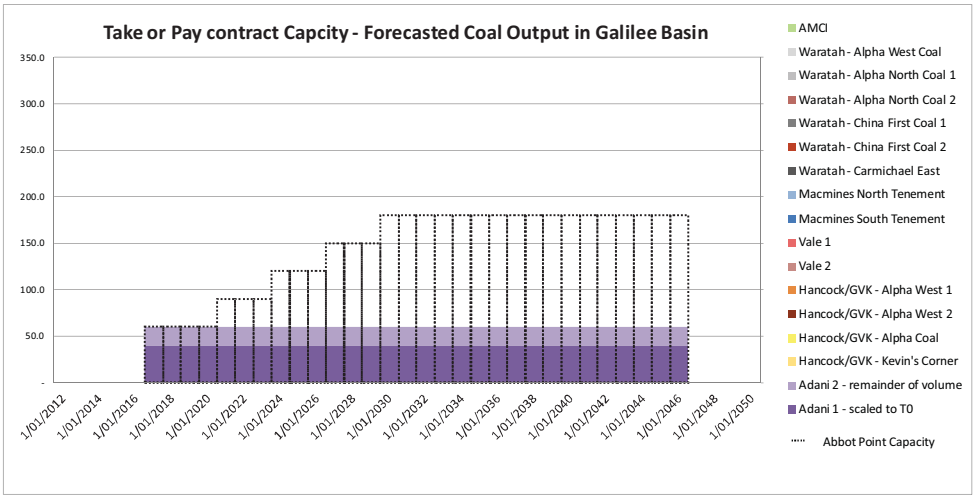
This comparison sought to identify the efficiency resulting from GICP's favourable alignment over its direct competitors when carrying the same 120Mtpa. This comparison is reported in section 12.3.2.3 below

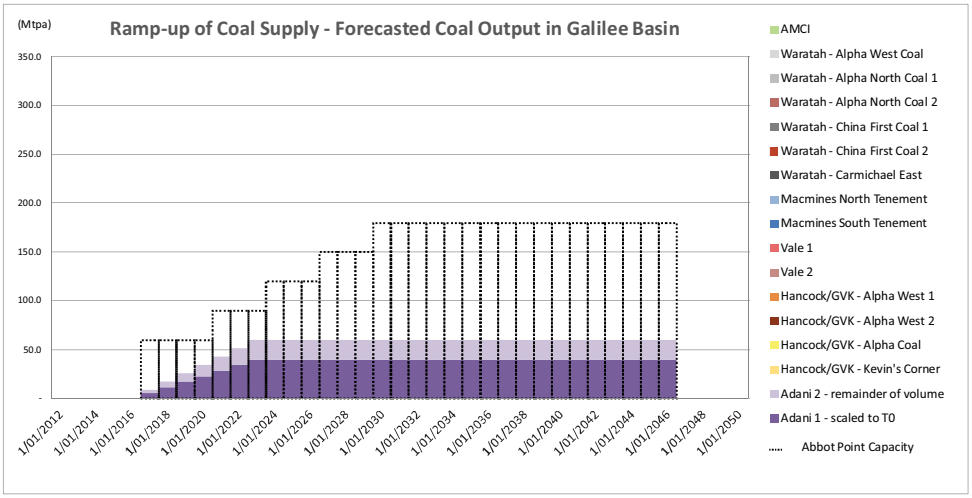
12.1 Demand assumptions

The charts below depict the demand profiles used for direct comparison of the QRN (60Mtpa) and GVK (60Mtpa) alternatives against GICP. The profiles were extracted from Comparison 2.

12.1.1 QRN (60Mtpa)

Chart 35: QRN (60 Mtpa) Direct Comparison contracted and transported throughput (Mtpa)



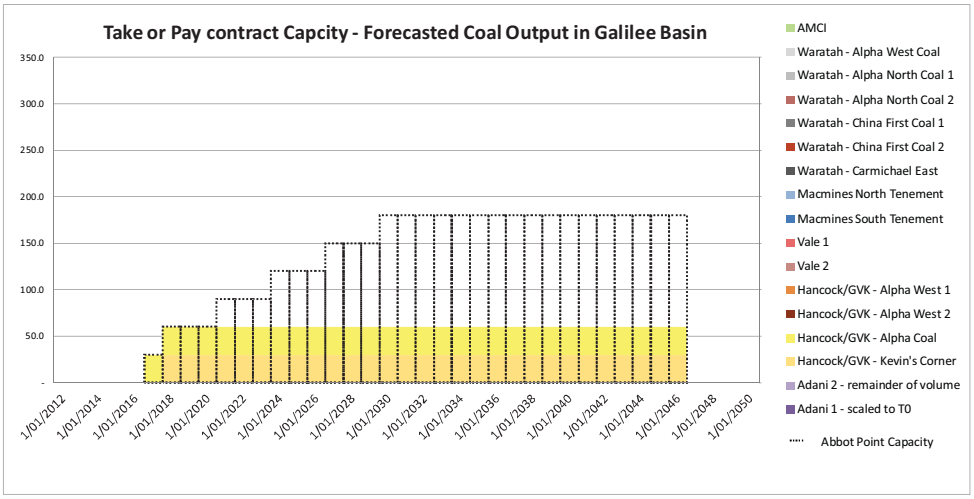


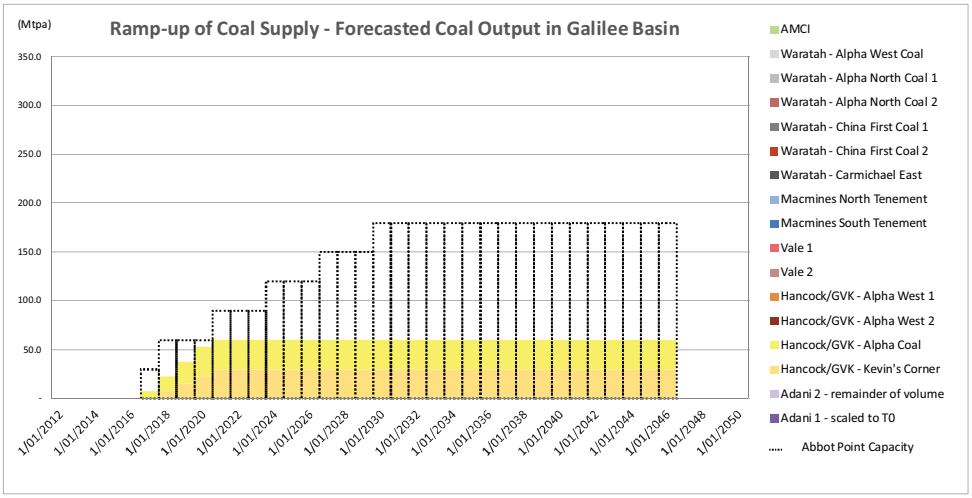
For the purpose of assessing GICP against the QRN (60Mtpa) solution, we made the following key construction assumptions:

- GICP option 1 costs were used as basis as they include a dual gauge track element for Adani's delivery to Dudgeon Point port.
- Alignment built from Abbot Point port as far as Adani (zone 4).

12.1.2 GVK (60Mtpa)

Chart 36: GVK (60Mtpa) Direct Comparison contracted and transported throughput (Mtpa)





For the purpose of assessing GICP against the GVK (60Mtpa) solution, we made the following key construction assumptions:

- GICP option 3 costs were used as basis as they exclude dual gauge which is not required for the GVK solution.
- Alignment built from Abbot Point port as far as GVK Kevin's Corner (zone 8).

The above demand profiles are indicative only and reflective of the demand and capacity parameters assumed. The profiles will be refined at the next stage when EWLP engages the miners and port to test its assumptions.

12.2 Key technical assumptions

12.2.1 Below Rail

12.2.1.1 Capex costs

The following tables summarise the capital costs associated with each of the rail alignments within this comparison.

Table 45: Below Rail Construction Costs (real – 2012 prices)

AUDm	QRN (60Mtpa)	GICP (QRN 60)		GVK (60Mtpa)	GICP (GVK 60)
Construction Spend	2,091.3	2,960.5		3,501.4	3,531.0
Passing Loops Capital Expenditure	221.8	223.1		396.7	433.1
Duplication Capital Expenditure	2,121.6	-		-	-
Total	4,434.7	3,183.6		3,898.1	3,964.1

Table 46: Below Rail Construction Costs (nominal)

AUDm	QRN (60Mtpa)	GICP (QRN 60)		GVK (60Mtpa)	GICP (GVK 60)
Construction Spend	2,388.0	3,328.6		3,936.8	4,000.4
Passing Loops Capital Expenditure	259.5	261.0		474.0	517.1
Duplication Capital Expenditure	2,482.0	-		-	-
Total	5,129.5	3,589.6		4,410.8	4,517.5

In assessing the QRN alignment, just as for comparison 1, it was necessary to assume an asset value for the elements of the existing QRN alignment that will be used in delivering its solution. For the purpose of this assessment was assumed that $1bn of existing assets are added to the asset base of the QRN solution.

We have also assumed that the existing QRN asset is contracted for and operates at 50Mtpa for the purpose of socialising the costs of the existing asset and the associated upgrades.

12.2.1.2 Opex and maintenance costs

The following tables summarise the annual track maintenance costs associated with each of the rail alignments within this comparison.

Table 47: Below Rail Annual track maintenance costs (real – 2012 prices)

Annual costs per km AUD (real – 2012 prices)	QRN (60Mtpa)	GICP (QRN 60)		GVK (60Mtpa)	GICP (GVK 60)
0Mtpa to 10Mtpa	12,000	12,000		12,000	12,000
Greater than 10Mtpa to 30Mtpa	22,000	22,000		22,000	22,000
Greater than 30Mtpa to 50Mtpa	30,000	30,000		30,000	30,000
Greater than 50Mtpa to 100Mtpa	45,000	60,000		50,000	60,000
Greater than 100Mtpa to 400Mtpa	45,000	60,000		50,000	60,000

12.2.2 Above Rail

12.2.2.1 Capex costs

The following table summarise the rolling stock capital costs associated with each of the rail alignments within this comparison.

Table 48: Above Rail Construction Costs (real – 2012 prices)

	QRN (60Mtpa)	GICP (QRN 60)		GVK (60Mtpa)	GICP (GVK 60)
Train capacity range - Mtpa per train	3.36	8.35		6.29 – 6.34	7.22 – 7.30
No. of Loco's per train	4.4	3.3		3.3	3.3
Cost per Loco – USD element	5,100,000	3,570,000		3,570,000	3,570,000
No. of Wagon's per train	126	283.5		252	283.5
Cost per Wagon – USD element	112,200	132,600		122,400	132,600
Loco overhaul every x years	10	10		10	10
Cost per Loco overhaul – USD element	2,550,000	1,785,000		1,785,000	1,785,000
Cost per Loco overhaul – AUD element	1,275,000	892,500		892,500	892,500
Wagon overhaul every x years	15	15		15	15
Cost per Wagon overhaul – USD element	28,050	33,150		30,600	33,150
Cost per Wagon overhaul – AUD element	28,050	33,150		30,600	33,150

12.2.2.2 Opex and maintenance costs

The following tables summarise the rolling stock operating and maintenance costs associated with each of the rail alignments within this comparison.

Table 49: Above Rail operating and maintenance costs (real – 2012 prices)

Cost per tonne	QRN (60Mtpa)	GICP (QRN 60)		GVK (60Mtpa)	GICP (GVK 60)
Fuel costs range (AUD)	2.27	1.10		1.53 – 1.55	1.33 – 1.35
Maintenance costs range – USD element	0.20	0.06		0.08	0.07
Maintenance costs range – AUD element	0.89	0.56		0.67 – 0.68	0.64
Labour costs range (AUD)	0.32	0.13		0.17	0.15

12.3 Financial results

The financial results of this comparison have assessed under the following headers:

- Key outputs
- Commentary on the results

12.3.1 Key outputs

The table and charts below depict the key outputs resulting from the above inputs, presented on a cost per tonne and cost per tonne kilometre basis.

Table 50: Direct Comparison against QRN (60Mtpa) – Key outputs

Direct Comparison against QRN (60 Mtpa)	GICP (60 QRN)	QRN (60Mtpa)
Capex (2012 prices)	3,184	4,435
Alignment Length (Km)	442	381
Maximum tonnages	60	60
Below Rail (2012 prices)		
AUD per Transported Tonne - Weighted average	8.76	7.90
Above Rail (2012 prices)		
AUD per Transported Tonne - Weighted average	2.56	4.98
Total Cost (2012 prices)		
AUD per Transported Tonne - Weighted average	11.32	12.88

Note – The lower below rail cost per tonne resulting for QRN is reflective of the socialisation of costs on the existing track.

Chart 37: QRN (60Mtpa) Direct Comparison - Above and Below Rail combined cost per transported tonne

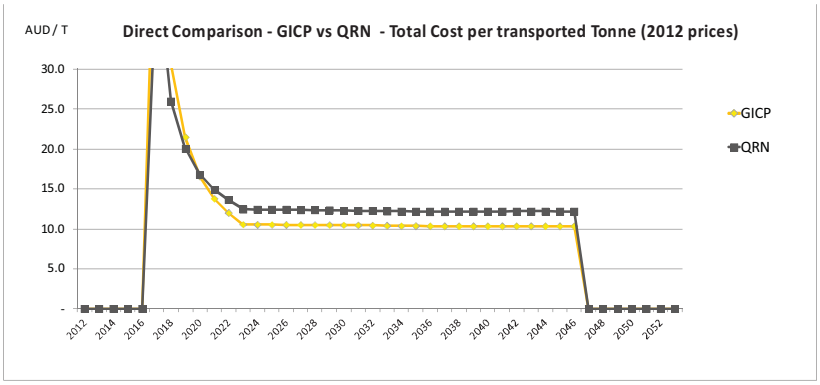
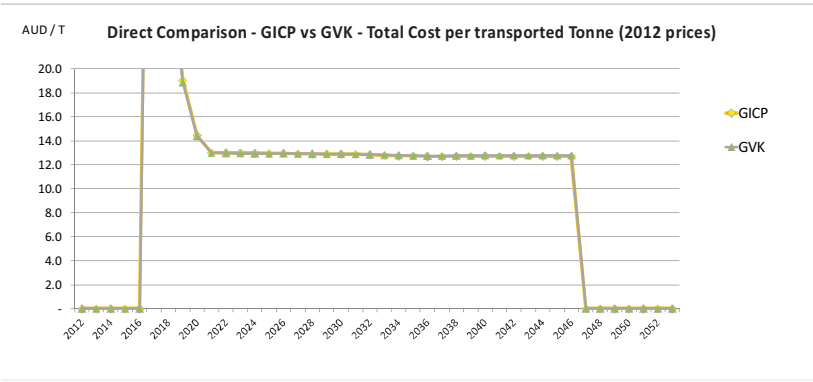


Table 51: Direct Comparison against GVK (60Mtpa) – Key outputs

Direct Comparison against GVK (60 Mtpa)	GICP (60 GVK)	GVK (60 Mtpa)
Capex (2012 prices)	3,964	3,898
Alignment Length (Km)	557	485
Maximum tonnages	60	60
Below Rail (2012 prices) AUD per Transported Tonne - Weighted average	10.48	10.29
Above Rail (2012 prices) AUD per Transported Tonne - Weighted average	3.06	3.26
Total Cost (2012 prices) AUD per Transported Tonne - Weighted average	13.54	13.55

Chart 38: GVK (60Mtpa) Direct Comparison - Above and Below Rail combined cost per transported tonne



12.3.2 Commentary on the financial results

The key messages resulting from our analysis are:

12.3.2.1 QRN

- Despite the GICP corridor being significantly longer and restricted to tonnages significantly below its optimum capacity, the GICP solution offers a lower cost per tonne than the QRN solution servicing only the 60Mtpa of Adani, at approximately AUD11.30 versus AUD12.90. This result is largely driven by the above rail solution which appears significantly more efficient for GICP. Based on the cost information provided by EIG, the GICP above rail cost per tonne, at AUD2.60, is roughly 50% of the QRN cost per tonne which is approximately AUD5.00.

- In addition, the alignment of the GICP solution passes closer to the Macmines South mine than the QRN alignment and, as demonstrated by Comparison 2, there appears to be a financial advantage to Macmines South in using the GICP alignment.

12.3.2.2 GVK

- Despite the GICP corridor being significantly longer and restricted to tonnages significantly below its optimum capacity, at approximately AUD13.50, the overall cost per tonne resulting is broadly the same for both the GICP and GVK alignments. When considered at a below and above rail level, the GVK solution appears around AUD0.20 cheaper for below rail while GICP is around AUD0.20 cheaper for above rail.

- In addition, the alignment of the GICP solution means there appears to be a financial advantage to using the GICP alignment rather than the GVK alignment for many of the Galilee mines.

12.3.2.3 GICP as a combined solution servicing QRN (60) and GVK (60) only

- By combining the tonnages of the QRN (60Mtpa) and GVK (60Mtpa), this comparison sought to identify the efficiency resulting from GICP's favourable alignment over its direct competitors. Our analysis indicates that all three of the mines (Adani's Carmichael Coal, GVK's Alpha and GVK's Kevins Corner) considered in this analysis benefit from a lower cost per tonne for their access to the port under the GICP solution. The combined cost per transported tonne for the GICP solution would be approximately AUD8.60, in the region of 50% to 60% lower than the QRN and GVK two-alignment solution.

Table 52: GICP combined solution – Key output

GICP - combined solution QRN and GVK (120)	QRN (60Mtpa)	GVK (60Mtpa)	QRN + GVK	GICP (120Mtpa)
Capex (2012 prices)	4,435	3,898	8,333	4,245
Alignment Length (Km)	381	485	866	557
Maximum tonnages	60	60	120	120
Below Rail (2012 prices) AUD per Transported Tonne - Weighted average	7.90	10.29	9.33	5.77
Above Rail (2012 prices) AUD per Transported Tonne - Weighted average	4.98	3.26	3.95	2.81
Total Cost (2012 prices) AUD per Transported Tonne - Weighted average	12.88	13.55	13.28	8.59

13. Preliminary key issues

At this stage we have sought to identify the key issues applicable to the EWLP project. At Phase 2 of the Project we will explore these key issues and the project risks in more detail.

13.1 Supply chain considerations

Table 53: Supply chain considerations

Item	Description
Port capacity insufficient	Insufficient capacity at Abbot Point Port is a significant risk for the Project which requires close attention. Not only are the Bowen Basin coal companies competing for use of the Port, the ultimate scale of the Port is unknown following the government announcements on 6 June effectively cancelling the Terminal 4 to 9 expansion. This risk can be managed by, for example: ► Proactive engagement of government to ensure an alignment in objectives. ► Developing the railway is scalable manner based upon known capacity. ► Contracting with users in advance of construction. ► Ensuring access to the QRN network from the EWLP corridor to allow access to other Ports on that network, in particular Dudgeon Point Port.
Mine investment delays	Mining companies may delay planned investments in the tenements for a number of reasons including, for example, lack of port capacity, low coal prices, financing / balance sheet constraints and lower global demand. Such delays in mine investment may impact the ability of EWLP to fully contract the rail capacity. This risk can be managed by, for example: ► Proactive engagement of miners. ► Developing the railway is scalable manner and ensuring that competition exists for the railway capacity. ► Contracting with users in advance of construction. ► Engaging miners as potential investors in the infrastructure company.

13.2 Commercial and financial considerations

Table 54: Commercial and financial considerations

Item	Description
Political support for EWLP corridor and process delays	As we have seen already on this project the government's priorities and objectives can substantially impact the timing and direction of projects with significant announcements on Abbot Point and the two rail corridors following Queensland's election of a new government. The government is currently supporting the GVK and QRN/Adani corridors and it is unknown whethere the government will move from its current position to support the GICP solution. In addition, the uncertainty surrounding the future scale of Abbot Point port may lead to further process delays as miners and EWLP lobby the government for greater certainty in this regard.
Environment approvals	Government approvals, in particularly EIS, will play a significant role in the speed at which EWLP can progress its Project. The Project is currently behind the other alternative solution that are both well advanced in their EIS approvals process (refer to section Appendix B) and it will therefore be important to actively manage the government through the EIS approvals process.
Coal price	The global thermal coal price is fundamental to the Project, if the thermal coal price falls below the threshold at which it is financially viable miners will not sign up to Take or Pay contracts and the Project will not progress in the current timescales.
Delivery risks	There are numerous delivery risks that require further exploration at Phase 2, some of the key considerations include: ► Construction delays. ► Construction overruns. ► Train and track delivery alignment. ► Integration with Port. ► Integration with QRN asset (where appropriate).
Operational risks	There are numerous operational risks that require further exploration at Phase 2, some of the key considerations include: ► Track availability. ► Train operation performance. ► Health & Safety. ► Management of train routes (to avoid bottlenecks) ► Operational costs higher than expected. ► Wagon to Port transfer risks. ► Integration issues with QRN asset impacts performance on EWLP track (where appropriate).
Financing risks	There are numerous financial risks that require further exploration at Phase 2, some of the key considerations include: ► Availability of finance - The global financial crisis significantly impacted the availability of debt and the project bond market all but disappeared. ► Scale of Project – The capacity of the financial markets to fund a project of this scale requires testing. ► Cost of finance – The cost of long term financing increase substantially following the global financial crisis.

Item	Description
	► Stranded asset risk – The risk that the asset may not be fully utilised for its economic life is something that can be considered as part of the Take or Pay contract process. ► Technology risk - The 40t axle load wagons are not a proven in the coal industry and represent a technology risk that requires mitigation. ► Foreign exchange risk – Explored further below.
Foreign exchange risk	Foreign exchange rate risk can be considered in the following key components: ► Infrastructure spend - Many of the assets associated with the railway infrastructure are likely to be supplied from outside of Australia, in particular the Locomotives (USA) and the Wagons (China). Most likely, suppliers outside of Australia will transact in US$. ► Financing – Parity of the AUD and US$ presents an opportunity to achieve lower cost of funding by raising finance in the US. However, access to this lower cost of financing exposes the Project to exchange rate risk in the event that the AUD weakens. ► Operational & maintenance costs – Costs will be transacted in AUD as well as other currencies, most likely US$ (for example where considering Rolling Stock maintenance). ► Revenue contracts – The currency used to contract with the mining companies will be a key tool for managing foreign exchange risk. The transfer and management of foreign exchange risk will present a number of challenges that require exploring in Phase 2.

13.3 Risk workshop

We recommend that a risk workshop is held during Phase 2 to explore each of these issues further, identify Project risks, their impact and an appropriate action for managing and mitigate them.

14. Next steps

The analysis in this report provides a number of positive messages about the GICP. The next phase should seek to build on these positive messages by engaging stakeholders and performing market testing of the assumptions.

We propose the following approach:

- Engage the mining community and testing of demand assumptions.
- Engage NQBP, as the Abbot Point port owner, to market test the port capacity strategy.
- Using the feedback from miners and the port, reassess the financial viability, on a cost per tonne basis, of the Project.
- Assuming the Project remains financially viable, on a cost per tonne basis, re-engage the mining community and port for support.
- Raise the profile and visibility of the Project with the state government by performing presentations and workshops on the status, miner support and benefits of the project.
- Develop the financing structure and engage the financial market.

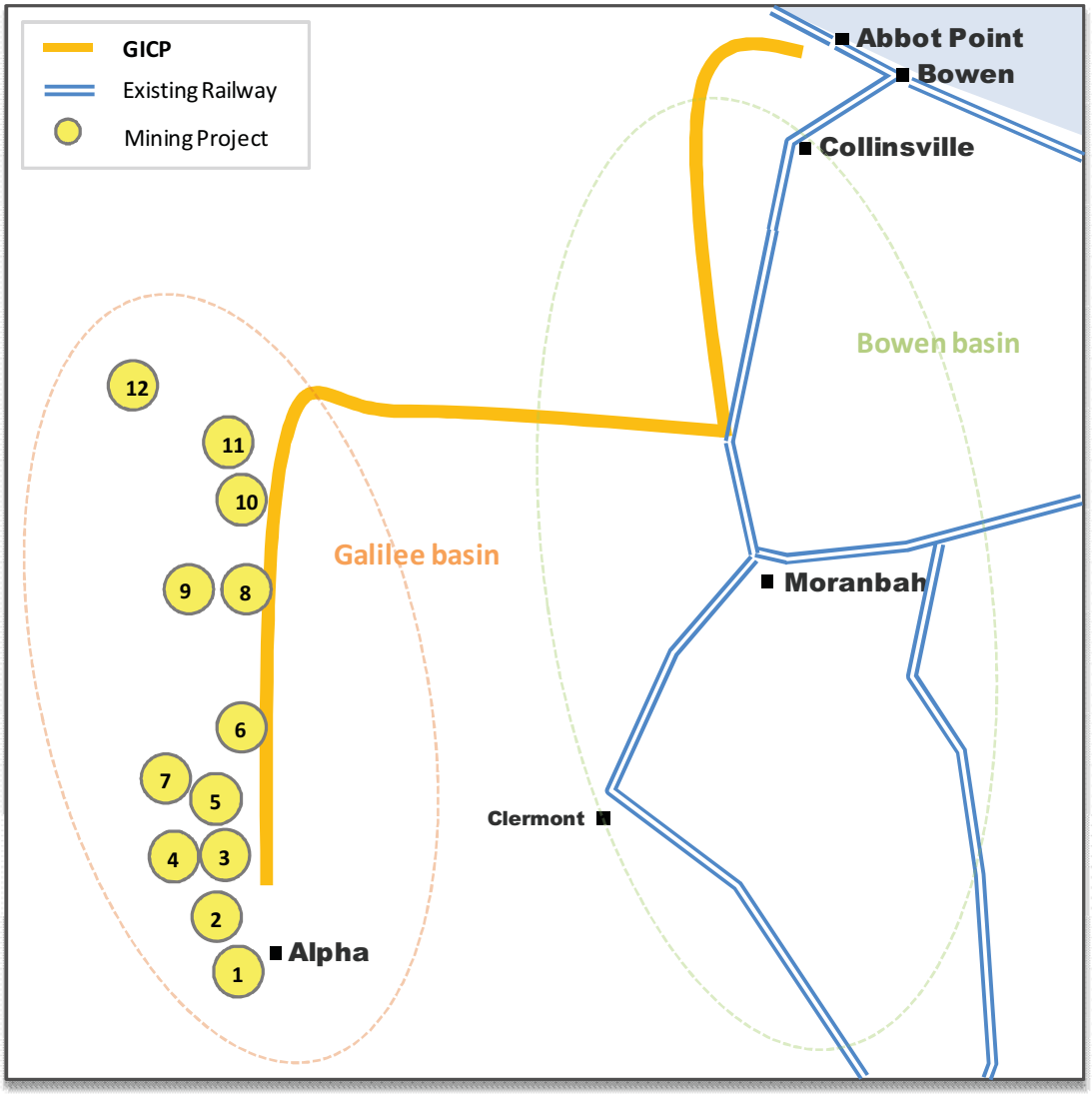
Appendix A Mine demand

Purpose

The purpose of this appendix is to list and compile publically available information about mining sites (completed and in progress) located along Galilee Infrastructure Corridor Project (GICP).

GICP Overview

The following diagram is provides a simplified summary of the corridor proposed by EWLP and the alignment of the various potential users (mines) along this route.[23]



[23] This is an Ernst & Young graphical representation of alignment for information purposes and is not to scale

The following table provides a summary of the mines currently proposed for the Galilee Basin area. Further details on each are provided below the table.

	Project Name	Proponent	Type	Range of volume of cleaned coal (Mtpa)	Volumes assumed for analysis (Mtpa)[24]	Operational commencement [25]	Reserve Mine Life
1	South Galilee Coal Project	AMCI & Bandanna Energy Ltd	open-cut & underground coal	15-20	15	2015	1 Bn Tonnes 43 years
2	China First Coal Project	Waratah	open-cut & underground coal	40	40	2014	3.7 Bn Tonnes[26] 66 years
3	Alpha Coal Project	Hancock / GVK	Open-cut coal	30	30	Q2 2015	1.82 Bn tonnes 30 years
4	Alpha West Project	Hancock / GVK	Underground coal	16-24	16	2016	1.8 Bn tonnes 30+ years
5	Kevin's Corner Project	GVK	open-cut & underground coal	30	30	Q4 2015	4.3 Bn tonnes About 30 years
6	Alpha North Coal Project	Waratah	coal	40	40	Q4 2016	3.5 Bn tonnes About 62.5 years
7	Alpha West Coal Project	Waratah	Coal	No details	-	No details	No details
8	Degulla Coal Project	Vale	coal	20-40	20	Unknown EY Estimate: 2016[27]	No details
9	Carmichael East Coal Project	Waratah	Coal	No details	-	No details	No details
10	Carmichael Coal Project	Adani	open-cut & underground coal	60 (from 2022)	60	2014[28]	7.8 Bn tonnes Over 100 years
11	China Stone Project - South	Macmines	open-cut & underground coal	30	30	2016	3.7 Bn tonnes[29] About 46 years
12	China Stone Project – North	Macmines	open-cut & underground coal	30	30	No details EY Model assumes: 2016	No details
	Total Galilee Basin			311-344	311		

[24] Assumes the lower figure within the range proposed by miners
[25] Assumes 1 January for modelling purposes where not stated otherwise.
[26] Subject to mining permit extension
[27] Bloomberg article : Australia's $32 Billion Galilee Coal Basin Needs Joint Rail, Vale Says. (http://mobile.bloomberg.com/news/2011-11-23/australia-s-32-billion-galilee-coal-basin-needs-joint-rail-vale-says)
[28] Adani press article of 2 July 2012 suggests July 2013 operational commencement. Original timing retained for purpose of financial modelling (http://in.reuters.com/article/2012/07/02/us-adani-rail-construction-idINBRE86107H20120702)
[29] Could go up to 9.7 Bn depending on permit extension (largest coal resource in the Galilee Basin)

Detailed Projects Description

Mine 1 - South Galilee Coal Mine

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	AMCI & Bandanna Energy Ltd	Deedi
Type	open-cut & underground coal	Deedi
Volume cleaned coal (mtpa)	15-20	Deedi
Completion	2015	Deedi
Reserve / Mine Life	1 Bn Tonnes *43 years*	EY Estimate *Proponents website* (*http://www.southgalilee.com.au/Default.aspx*)
Investment (Billion AUD)	1.5 (mining only)	Deedi
Volume ramp up	No details	N/A

Mine 2 - China First Coal Project

Note: This project is also known as Galilee Coal Northern Export Facility Project)
The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Waratah Coal Pty Ltd	Deedi
Type	open-cut & underground coal	Deedi
Volume cleaned coal (mtpa)	40	Deedi
Completion	2014	Deedi
Reserve / Mine Life	3.7 Bn Tonnes (1) *66 years*	Proponent website *EY Estimate*
Investment (Billion AUD)	7.63 (include rail)	Deedi
Volume ramp up	No details	N/A

(1) Subject to mining permit extension (see JORC reserves = 1.1 Bn)

Mines 3 - Alpha Coal Project

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Hancock/GVK	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Type	Open-cut coal	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Volume cleaned coal (mtpa)	30	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Completion	Q2 2015 2016	GVK Presentation by Paul Mulder MG – Coal (May 2012) Deedi
Reserve / Mine Life	1.82 Bn tonnes resources *30 years*	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Investment (Billion AUD)	7 (include rail)	Deedi
Volume ramp up	2015 to 2019	GVK Presentation by Paul Mulder MG – Coal (May 2012)

Mines 4 - Alpha West Project

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Hancock/GVK	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Type	Underground coal	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Volume cleaned coal (mtpa)	16-24	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Completion	2016	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Reserve / Mine Life	1.8 Bn tonnes resources *30+ years*	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Investment (Billion AUD)	No details	N/A
Volume ramp up	No details	N/A

Mines 5 - Kevin's Corner Project

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	GVK	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Type	open-cut & underground coal	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Volume cleaned coal (mtpa)	30	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Completion	Q4 2015	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Reserve / Mine Life	4.3 Bn tonnes resources *About 30 years*	GVK Presentation by Paul Mulder MG – Coal (May 2012)
Investment (Billion AUD)	6.6 (include rail)	Deedi
Volume ramp up	2016 to 2019	GVK Presentation by Paul Mulder MG – Coal (May 2012)

Mines 6 - Alpha North Coal Project

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Waratah	Proponent website
Type	coal	Proponent website
Volume cleaned coal (mtpa)	40	Proponent website
Completion	Q4 2016	Proponent website
Reserve / Mine Life	3.5 Bn tonnes resource *About 62.5 years*	Proponent website *EY Calculation*
Investment (Billion AUD)	No details	N/A
Volume ramp up	No details	N/A

Mines 7 - Alpha West Coal Project (Waratah)

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Waratah	Proponent website and EWLP Map
Type	coal	Proponent website and EWLP Map
Volume cleaned coal (mtpa)	No details	N/A
Completion	No details	N/A
Reserve / Mine Life	No details	N/A
Investment (Billion AUD)	No details	N/A
Volume ramp up	No details	N/A

Mines 8 - Degulla Coal Project (Vale)

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Vale	Proponent website and EWLP Map
Type	coal	Proponent website and EWLP Map
Volume cleaned coal (mtpa)	20-40	Aquilaresources.com: http://www.aquilaresources.com.au/files/International%20Longwall%2024062011.pdf
Completion	Unknown EY Guess : 2016	Bloomberg article: - http://mobile.bloomberg.com/news/2011-11-23/australia-s-32-billion-galilee-coal-basin-needs-joint-rail-vale-says
Reserve / Mine Life	No details	N/A
Investment (Billion AUD)	8	Bloomberg article: - http://mobile.bloomberg.com/news/2011-11-23/australia-s-32-billion-galilee-coal-basin-needs-joint-rail-vale-says
Volume ramp up	No details	N/A

Mines 9 - Carmichael East Coal Project (Waratah)

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Waratah	Proponent website and EWLP Map
Type	coal	Proponent website and EWLP Map
Volume cleaned coal (mtpa)	No details	N/A
Completion	No details	N/A
Reserve / Mine Life	No details	N/A
Investment (Billion AUD)	No details	N/A
Volume ramp up	No details	N/A

Mines 10 - Carmichael Coal Project (Adani)

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Adani	Deedi
Type	Open-cut and underground	Deedi
Volume cleaned coal (mtpa)	60 (from 2022)	Deedi
Completion	2014	Deedi
Reserve / Mine Life	7.8 Bn tonnes *Over 100 years*	Adani Overview for Marketing: http://www.ichca.com/about_us/Conference%20Sponsors/Adani%20overview%20for%20marketing.pdf *Mine Life: 90 years per proponent website and 150 years per IAS (p8)*
Investment (Billion AUD)	4.1 (mining only)	Deedi
Volume ramp up	Initial input of 2 Mtpa in 2014 will increase to deliver a max of 60 Mtpa from 2022	Carmichael Coal Mine and Rail Project – Initial Advice Statement – 22 October 2010

Mines 11 and 12 - China Stone Project (Macmines)

The following table summarises the findings of our research and the source of our findings.

Description	Findings	Source
Proponent	Macmines	Proponent website
Type	Open-cut and underground	Proponent website
Volume cleaned coal (mtpa)	60 30 North mine and 30 South mine	Proponent website
Completion	2016 (south mine)	Proponent website
Reserve / Mine Life	3.7 Bn tonnes (JORC resource) *About 46 years*	Proponent website
Investment (Billion AUD)	No details	N/A
Volume ramp up	No details	N/A

Appendix B Status of alternative proposals

The following table explores the progress to date and proposed timing of the alternative proposals.

Table 2: Summary of the major steps and administrative authorizations

Steps / characteristic	QRN	GVK
Initial advice statement released	5 December 2011	18 September 2008
Declared project of significance	27 January 2012	24 October 2008
Public consultation on the Draft Terms of Reference of the EIS	7 February 2009 to 9 March 2009	5 May 2012 to 4 June 2012
Terms of Reference of EIS released	Pending	1 June 2009
Public consultation on EIS	No	5 November to 20 December 2010
Coordinator-General's report on EIS released	No	29 May 2012
Federal Validation	No	Pending
Proposed Delivery	2015	2016
Bankable Feasibility Studies	Seeking agreement with miners to conduct joint Feasibility studies	Bankable Feasibility Studies in progress[30]
Approx. Corridor Investment	$2 Bn (at least) noted in IAS[31] while other information indicates $6 Bn[32]	$3 Bn[33]

The above table identifies that GVK is more advanced with its proposal than QRN. However, QRN's proposed delivery date is in 2015, one year before GVK's.

[30] GVK presentation to Macquarie – May 2012
[31] QR National IAS – December 5 2011
[32] Reuters article of 2 July 2012 http://uk.reuters.com/article/2012/07/02/uk-adani-rail-idUKBRE86104420120702?feedType=RSS&feedName=businessNews
[33] 1.5Bn included within Kevin's Corner Project investment and 1.5Bn included within Alpha Coal Project investment

Appendix C Demand Tables

GICP Option 1

Coal Output with Ramp-up

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	30	-	-	-	-	-	-	7.5	15.0	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	30	-	-	-	-	-	7.5	15.0	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	15	-	-	-	-	-	-	-	-	-	3.8	7.5	11.3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Vale 1	15	-	-	-	-	-	-	-	-	-	3.8	3.8	7.5	7.5	11.3	11.3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Adani 1 - scaled to T0	40	-	-	-	-	-	5.7	11.4	17.1	22.8	28.6	34.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	-	-	-	-	-	-	-
Adani 2 - remainder of volume	20	-	-	-	-	-	2.8	5.7	8.6	11.4	14.3	17.1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	30	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**240.0**	-	-	-	-	-	**16.1**	**39.6**	**63.2**	**86.8**	**110.4**	**122.7**	**138.8**	**150.0**	**153.8**	**161.3**	**172.5**	**180.0**	**187.5**	**202.5**	**210.0**	**217.5**	**225.0**	**232.5**	**232.5**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	-	-	-	-	-	-	-

Contracted Take or Pay Capacity

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	30	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	30	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	15	-	-	-	-	-	-	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Vale 1	15	-	-	-	-	-	-	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Adani 1 - scaled to T0	40	-	-	-	-	-	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	-	-	-	-	-	-	-
Adani 2 - remainder of volume	20	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	30	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**240.0**	-	-	-	-	-	**90.0**	**120.0**	**120.0**	**120.0**	**150.0**	**150.0**	**150.0**	**180.0**	**180.0**	**180.0**	**210.0**	**210.0**	**210.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	**240.0**	-	-	-	-	-	-	-

QRN (90Mtpa)

Coal Output with Ramp-up

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 1 - scale d to T0	40	-	-	-	-	-	5.7	11.4	17.1	22.8	28.6	34.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	-	-	-	-	-	-	-
Adani 2 - remainder of volume	20	-	-	-	-	-	2.9	5.7	8.6	11.4	14.3	17.1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	30	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**90.0**	-	-	-	-	-	**8.6**	**17.1**	**25.7**	**34.3**	**42.9**	**51.4**	**60.0**	**67.5**	**67.5**	**75.0**	**75.0**	**82.5**	**82.5**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	-	-	-	-	-	-	-

Contracted Take or Pay Capacity

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 1 - scale d to T0	40	-	-	-	-	-	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	-	-	-	-	-	-	-
Adani 2 - remainder of volume	20	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	30	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**90.0**	-	-	-	-	-	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	-	-	-	-	-	-	-

GVK (150Mtpa)

Coal Output with Ramp-up

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	30	-	-	-	-	-	-	7.5	15.0	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	30	-	-	-	-	-	7.5	15.0	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	15	-	-	-	-	-	-	-	-	-	3.8	7.5	11.3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Vale 1	15	-	-	-	-	-	-	-	-	-	3.8	3.8	7.5	7.5	11.3	11.3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Adani 1 - scale d to T0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 2 - remainder of volume	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**150.0**	-	-	-	-	-	**7.5**	**22.5**	**37.5**	**52.5**	**67.5**	**71.3**	**78.8**	**82.5**	**86.3**	**86.3**	**97.5**	**97.5**	**105.0**	**112.5**	**120.0**	**127.5**	**135.0**	**142.5**	**142.5**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	-	-	-	-	-	-	-

Contracted Take or Pay Capacity

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	30	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	30	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	15	-	-	-	-	-	-	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Vale 1	15	-	-	-	-	-	-	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	-
Adani 1 - scale d to T0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 2 - remainder of volume	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**150.0**	-	-	-	-	-	**30.0**	**60.0**	**60.0**	**60.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**120.0**	**120.0**	**120.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	**150.0**	-	-	-	-	-	-	-

GICP Option 2

Coal Output with Ramp-up

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-
Waratah - Alpha North Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	15	-	-	-	-	-	-	-	-	-	-	-	-	3.8	3.8	7.5	7.5	11.3	11.3	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-
Adani 1 - scaled to T0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 2 - remainder of volume	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	2.5	5.0	5.0	7.5	7.5	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-
Vale 2	5	-	-	-	-	-	-	-	-	-	-	-	-	1.3	1.3	2.5	2.5	3.8	3.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	-	-	-
Macmines South Tenement	30	-	-	-	-	-	-	-	-	-	7.5	7.5	15.0	15.0	22.5	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**120.0**	-	-	-	-	-	-	-	-	-	**7.5**	**7.5**	**15.0**	**20.0**	**27.5**	**32.5**	**50.0**	**55.0**	**65.0**	**77.5**	**87.5**	**95.0**	**105.0**	**112.5**	**112.5**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	-	-	-

Contracted Take or Pay Capacity

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-
Waratah - Alpha North Coal 1	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	15	-	-	-	-	-	-	-	-	-	-	-	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-
Adani 1 - scaled to T0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 2 - remainder of volume	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-
Vale 2	5	-	-	-	-	-	-	-	-	-	-	-	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	-	-	-
Macmines South Tenement	30	-	-	-	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**120.0**	-	-	-	-	-	-	-	-	-	**30.0**	**30.0**	**30.0**	**50.0**	**50.0**	**50.0**	**90.0**	**90.0**	**90.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	**120.0**	-	-	-

QRN (60Mtpa)

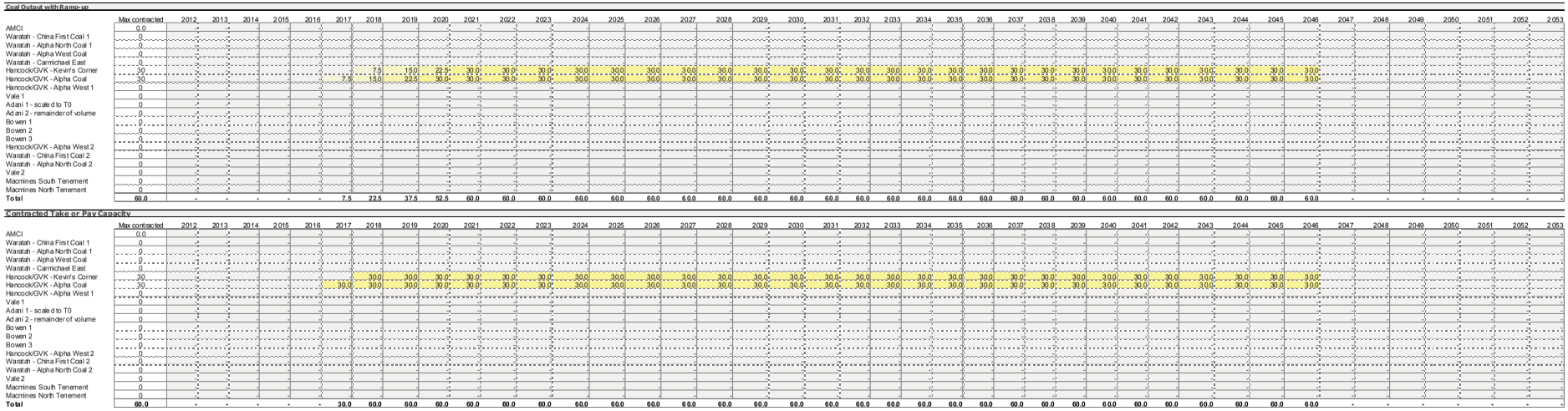
Coal Output with Ramp-up

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 1 - scale to T0	40	-	-	-	-	-	5.7	11.4	17.1	22.9	28.6	34.3	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	-	-	-	-	-	-	-
Adani 2 - remainder of volume	20	-	-	-	-	-	2.9	5.7	8.6	11.4	14.3	17.1	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**60.0**	**-**	**-**	**-**	**-**	**-**	**8.6**	**17.1**	**25.7**	**34.3**	**42.9**	**51.4**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Contracted Take or Pay Capacity

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 1 - scale to T0	40	-	-	-	-	-	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	-	-	-	-	-	-	-
Adani 2 - remainder of volume	20	-	-	-	-	-	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**60.0**	**-**	**-**	**-**	**-**	**-**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

GVK (60Mtpa)



Coal Output with Ramp-up

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	30	-	-	-	-	-	-	7.5	15.0	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	30	-	-	-	-	-	7.5	15.0	22.5	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 1 - scaled to T0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 2 - remainder of volume	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**60.0**	-	-	-	-	-	**7.5**	**22.5**	**37.5**	**52.5**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	-	-	-	-	-	-	-

Contracted Take or Pay Capacity

	Max contracted	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053
AMCI	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha West Coal	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Carmichael East	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Kevin's Corner	30	-	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha Coal	30	-	-	-	-	-	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 1 - scaled to T0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Adani 2 - remainder of volume	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bowen 3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hancock/GVK - Alpha West 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - China First Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Waratah - Alpha North Coal 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vale 2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines South Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macmines North Tenement	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	**60.0**	-	-	-	-	-	**30.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	**60.0**	-	-	-	-	-	-	-

Direct Comparison

- Comparison against QRN (60 Mtpa) - same demand scenario as QRN (60Mtpa) in Comparison 2
- Comparison against GVK (60 Mtpa) - same demand scenario as GVK (60Mtpa) in Comparison 2

Appendix D Everything Infrastructure Cost templates

Below Rail - GICP Option 1 – Zone 1

		Flat	Hilly	Rolling	Flood	Total
ZONE 1 - BELOW RAIL - Capex		**20 km**	**148 km**	**15 km**	**36 km**	**219 km**
Start of Construction	**1/01/2014**	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	**4%**					
Spend curve (Year)	**1**	**2**	**3**	**4**	**5**	**Total**
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	**Costs $**					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 1,002,065,375**					
Contractors Mark Up **+10%**	$ 100,206,538					
Total Contractor's Price	$ 1,102,271,913					
Client Costs (PM, Planning & Approvals) **+10%**	$ 110,227,191					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 32,900,000					
Project Costs (excluding contingencies)	**$ 1,245,399,104**					
Contingencies	$ 373,619,731	**(30%)**				
Total Zone 1 Construction Costs	**$ 1,619,018,835**					
Cost Base Date :	1st Jul 2012					

ERNST & YOUNG

Below Rail - GICP Option 1 – Zone 2

ZONE 2 - BELOW RAIL - Capex		Flat 128 km	Hilly 0 km	Rolling 0 km	Flood 23 km	Total Km 151 km	
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases					
Construction pricing inflation rate	4%						
Spend curve (Year)	1	2	3	4	5	Total	
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%	
Spend required in this zone							
Categories							
Construction (Third Party Costs)	Costs $						
Establishment of construction offices & environmental surveys							
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contrac				
Earthworks							
Capping Layer							
Structures							
Permanent Way							
Incidental & Environmental Works							
Fencing							
Total Construction Costs	595,043,648						
Contractors Mark Up +10%	$ 59,504,365						
Total Contractor's Price	$ 654,548,013						
Client Costs (PM, Planning & Approvals) +10%	$ 65,454,801						
Defect liability period	$ -		Not included : assumed covered by maintenance contractors				
Land Acquisition (provided by EWLP)	$ 15,100,000						
Project Costs (excluding contingencies)	**$ 735,102,814**						
Contingencies	$ 220,530,844	(30%)					
Total Zone 2 Construction Costs	**$ 955,633,659**						
Cost Base Date :	1st Jul 2012						

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Below Rail - GICP Option 1 – Zone 3

ZONE 3 - BELOW RAIL - Capex		Flat 0 km	Hilly 0 km	Rolling 16 km	Flood 12 km	Total 28 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	120,555,986					
Contractors Mark Up +10%	$ 12,055,599					
Total Contractor's Price	$ 132,611,584					
Client Costs (PM, Planning & Approvals) +10%	$ 13,261,158					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,400,000					
Project Costs (excluding contingencies)	$ 147,272,743					
Contingencies	$ 44,181,823	(30%)				
Total Zone 2 Construction Costs	$ 191,454,566					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 1 – Zone 4

ZONE 4 - BELOW RAIL - Capex		Flat 0 km	Hilly 44 km	Rolling 0 km	Flood 0 km	Total Km 44 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	**Costs $**					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 196,124,278**					
Contractors Mark Up **+10%**	$ 19,612,428					
Total Contractor's Price	$ 215,736,706					
Client Costs (PM, Planning & Approvals) **+10%**	$ 21,573,671					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 2,200,000.00					
Project Costs (excluding contingencies)	**$ 239,510,377**					
Contingencies	$ 71,853,113	**(30%)**				
Total Zone 1 Construction Costs	**$ 311,363,489**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 1 – Zone 5

		Flat	Hilly	Rolling	Flood	Total Km
ZONE 5 - BELOW RAIL - Capex		**0 km**	**0 km**	**24 km**	**10 km**	**34 km**
Start of Construction	**1/01/2014**	NB: For start of construction date later than 1st Jan 2014, suggest inflation				
Construction pricing inflation rate	**4%**	rate of 4%pa for construction pricing increases				
Spend curve (Year)	**1**	**2**	**3**	**4**	**5**	**Total**
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	**Costs $**					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 135,127,161**					
Contractors Mark Up +10%	$ 13,512,716					
Total Contractor's Price	$ 148,639,877					
Client Costs (PM, Planning & Approvals) +10%	$ 14,863,988					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,700,000					
Project Costs (excluding contingencies)	**$ 165,203,865**					
Contingencies	$ 49,561,159	**(30%)**				
Total Zone 1 Construction Costs	**$ 214,765,024**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 1 – Zone 6

ZONE 6 - BELOW RAIL - Capex		Flat 4 km	Hilly 0 km	Rolling 0 km	Flood 18 km	Total Km 22 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	**1**	**2**	**3**	**4**	**5**	**Total**
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	**Costs $**					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 119,776,147**					
Contractors Mark Up **+10%**	$ 11,977,615					
Total Contractor's Price	$ 131,753,762					
Client Costs (PM, Planning & Approvals) **+10%**	$ 13,175,376					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,100,000					
Project Costs (excluding contingencies)	**$ 146,029,138**					
Contingencies	$ 43,808,741	**(30%)**				
Total Zone 1 Construction Costs	**$ 189,837,880**					
Cost Base Date :	1st Jul 2012					

Below Rail - GICP Option 1 – Zone 7

ZONE 7 - BELOW RAIL - Capex		Flat 36 km	Hilly 0 km	Rolling 0 km	Flood 0 km	Total Km 36 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for constructic			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 135,698,470					
Contractors Mark Up +10%	$ 13,569,847					
Total Contractor's Price	$ 149,268,317					
Client Costs (PM, Planning & Approvals) +10%	$ 14,926,832					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,800,000					
Project Costs (excluding contingencies)	$ 165,995,149					
Contingencies	$ 49,798,545	(30%)				
Total Zone 1 Construction Costs	$ 215,793,693					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 1 – Zone 8

ZONE 8 - BELOW RAIL - Capex		Flat 21 km	Hilly 0 km	Rolling 0 km	Flood 2 km	Total Km 23 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2014, suggest				
Construction pricing inflation rate	4%	inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for constructi			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 79,724,674					
Contractors Mark Up +10%	$ 7,972,467					
Total Contractor's Price	$ 87,697,142					
Client Costs (PM, Planning & Approvals) +10%	$ 8,769,714					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,200,000					
Project Costs (excluding contingencies)	$ 97,666,856					
Contingencies	$ 29,300,057	(30%)				
Total Zone 1 Construction Costs	$ 126,966,913					
Cost Base Date :	1st Jul 2012					

Below Rail - GICP Option 1 – Zone 9

ZONE 9 - BELOW RAIL - Capex		Flat 20 km	Hilly 0 km	Rolling 0 km	Flood 0 km	Total Km 20 km
Start of Construction	1/01/2026	NB: For start of construction date later than 1st Jan 2014, suggest				
Construction pricing inflation rate	4%	inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construc			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 80,274,714					
Contractors Mark Up +10%	$ 8,027,471					
Total Contractor's Price	$ 88,302,185					
Client Costs (PM, Planning & Approvals) +10%	$ 8,830,218					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,000,000					
Project Costs (excluding contingencies)	$ 98,132,403					
Contingencies	$ 29,439,721	(30%)				
Total Zone 1 Construction Costs	$ 127,572,124					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 1 – Opex

ZONE 9 - BELOW RAIL - Opex						
	Throughput (Mtpa)					
Assumed Lower Limit	0	11	31	51	101	
Assumed Upper Limit	10	30	50	100	400	
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000	
	NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.					
Maintenance Cost Escalation Factor :	2.5%	Assumed annual inflation rate based on CPI (mainly labour)				
Maintenance Cost Base Date :	1st Jul 2012					

Below Rail - GICP Option 1 – Passing Loops

PASSING LOOPS - GENERAL							
				Total Construction Cost [Brownfield]			
As a rule of thumb each of train can carry	7.5 Mtpa			of Typical Passing Loop		$5,250,000 /km	
No passing loops have been included in the Total Construction Costs.		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on		
For each additional train a new passing loop will be required.		Cost Base Date :		1st Jul 2012	construction costs		

	Passing Loop Spend Factor (Equivelant kms)						
Volume (Mtpa in total system)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
0.0	5.67	11.33	0	0	0	5.67	0
7.5	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0
22.5	0	0	0	0	0	0	0
30.0	0	0	0	0	0	0	0
37.5	8.5	8.5	0	8.5	0	8.5	0
45.0	0	0	0	0	0	0	0
52.5	0	0	0	0	0	0	0
60.0	8.5	8.5	0	8.5	0	0	8.5
67.5	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0
82.5	8.5	8.5	0	0	0	0	0
90.0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0
105.0	8.5	8.5	8.5	0	8.5	0	0
112.5	0	0	0	0	0	0	0
120.0	8.5	8.5	0	0	0	0	0
127.5	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0
187.5	0	0	0	0	0	0	0
195.0	0	0	0	0	0	0	0
202.5	0	0	0	0	0	0	0
210.0	0	0	0	0	0	0	0
217.5	0	0	0	0	0	0	0
225.0	0	0	0	0	0	0	0
232.5	0	0	0	0	0	0	0
240.0	0	0	0	0	0	0	0
247.5	0	0	0	0	0	0	0
255.0	0	0	0	0	0	0	0
262.5	0	0	0	0	0	0	0
270.0	0	0	0	0	0	0	0
277.5	0	0	0	0	0	0	0
285.0	0	0	0	0	0	0	0
292.5	0	0	0	0	0	0	0
300.0	0	0	0	0	0	0	0
307.5	0	0	0	0	0	0	0
315.0	0	0	0	0	0	0	0
322.5	0	0	0	0	0	0	0
330.0	0	0	0	0	0	0	0
337.5	0	0	0	0	0	0	0
345.0	0	0	0	0	0	0	0
352.5	0	0	0	0	0	0	0

NB(1) : precise locations of passing loops not yet determined, assumed Flat terrrain ussed first.
NB(2): a 50% reduction factor has been applied to intial quantities to allow for greenfield build.

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Below Rail - GICP Option 1 – Duplication

DUPLICATION - GENERAL

					Total Construction Cost [Brownfield]		
As a rule of thumb each of train can carry	7.5 Mtpa				of Duplicated section	$5,400,000 /km	
Duplication is adopted upon the total passing loop length reaching 30% of total line length.			Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on construction costs	
			Cost Base Date :		1st Jul 2012		

	Duplication Cost Factors (Equivelant kms)						
Volume (Mtpa in total system)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
0.0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0
22.5	0	0	0	0	0	0	0
30.0	0	0	0	0	0	0	0
37.5	0	0	0	0	0	0	0
45.0	0	0	0	0	0	0	0
52.5	0	0	0	0	0	0	0
60.0	0	0	0	0	0	0	0
67.5	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0
82.5	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0
105.0	0	0	0	0	0	0	0
112.5	0	0	0	0	0	0	0
120.0	21	0	0	0	0	0	0
127.5	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0
150.0	21	42	0	0	0	0	0
157.5	21	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0
172.5	21	21	0	0	0	0	0
180.0	0	0	0	21	0	0	0
187.5	0	21	0	0	0	0	0
195.0	0	0	0	0	0	0	0
202.5	0	0	21	0	21	0	0
210.0	21	0	0	0	0	0	0
217.5	21	0	0	0	0	0	0
225.0	0	21	0	0	0	0	0
232.5	21	0	0	0	0	0	0
240.0	21	0	0	0	0	0	0
247.5	0	0	0	0	0	0	0
255.0	0	0	0	0	0	0	0
262.5	0	0	0	0	0	0	0
270.0	0	0	0	0	0	0	0
277.5	0	0	0	0	0	0	0
285.0	0	0	0	0	0	0	0
292.5	0	0	0	0	0	0	0
300.0	0	0	0	0	0	0	0
307.5	0	0	0	0	0	0	0
315.0	0	0	0	0	0	0	0
322.5	0	0	0	0	0	0	0
330.0	0	0	0	0	0	0	0
337.5	0	0	0	0	0	0	0
345.0	0	0	0	0	0	0	0
352.5	0	0	0	0	0	0	0

NB(1) : precise locations of duplicated sections not yet determined, assumed Flat terrrain ussed first.

Note: for the purpose of modelling passing loops and duplication, the system throughput was assumed as the zone 1 throughput volumes as agreed with EIG.

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Below Rail – QRN (90Mtpa) – Mainline

QRN/Adani - BELOW RAIL - Capex		Flat 75 km	Hilly 0 km	Rolling 0 km	Flood 99 km	Total 174 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2013, suggest				
Construction pricing inflation rate	4%	inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 828,092,800					
Contractors Mark Up +10%	$ 82,809,280					
Total Contractor's Price	$ 910,902,080					
Client Costs (PM, Planning & Approvals) +10%	$ 91,090,208					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 26,100,000					
Project Costs (excluding contingencies)	$ 1,028,092,287					
Contingencies	$ 308,427,686	(30%)				
Total Zone 1 Construction Costs	$ 1,336,519,974					
Cost Base Date :	1st Jul 2012					

Below Rail – QRN (90Mtpa) – Zone4

QRN ZONE 4 - BELOW RAIL - Capex		Flat 0 km	Hilly 44 km	Rolling 0 km	Flood 0 km	Total Km 44 km
Start of Construction	1/01/2023	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 167,184,080					
Contractors Mark Up +10%	$ 16,718,408					
Total Contractor's Price	$ 183,902,488					
Client Costs (PM, Planning & Approvals) +10%	$ 18,390,249					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 2,200,000					
Project Costs (excluding contingencies)	$ 204,492,736					
Contingencies	$ 61,347,821	(30%)				
Total Zone 1 Construction Costs	$ 265,840,557					
Cost Base Date :	1st Jul 2012					

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Below Rail – QRN (90Mtpa) – Opex

QRN - BELOW RAIL - Opex					
	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$45,000	$45,000
	NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.				
Maintenance Cost Escalation Factor :	2.5%	Assumed annual inflation rate based on CPI (mainly labour)			
Maintenance Cost Base Date :	1st Jul 2012				

Below Rail – QRN (90Mtpa) – Passing Loops

PASSING LOOPS - GENERAL						
				Total Construction Cost [Brownfield]		
As a rule of thumb each of train can carry	3.2 Mtpa			of Typical Passing Loop	$4,875,000	/km
No passing loops have been included in the Total Construction Costs.		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on	
For each additional train a new passing loop will be required.		Cost Base Date :		1st Jul 2012	construction costs	

	Passing Loop Cost Factors		EWLP
Volume (Mtpa in total system)	Main Line	Upgrade North/South	Zone 1
0.0	5.5	0	0
7.5	0	0	0
15.0	7	3.5	0
22.5	3.5	7	0
30.0	7	0	0
37.5	3.5	7	0
45.0	0	0	0
52.5	0	0	0
60.0	0	0	0
67.5	0	0	0
75.0	0	0	0
82.5	0	0	0
90.0	0	0	0
97.5	0	0	0
105.0	0	0	0
112.5	0	0	0
120.0	0	0	0
127.5	0	0	0
135.0	0	0	0
142.5	0	0	0
150.0	0	0	0
157.5	0	0	0
165.0	0	0	0
172.5	0	0	0
180.0	0	0	0
187.5	0	0	0
195.0	0	0	0
202.5	0	0	0
210.0	0	0	0
217.5	0	0	0
225.0	0	0	0
232.5	0	0	0
240.0	0	0	0
247.5	0	0	0
255.0	0	0	0
262.5	0	0	0
270.0	0	0	0
277.5	0	0	0
285.0	0	0	0
292.5	0	0	0
300.0	0	0	0
307.5	0	0	0
315.0	0	0	0
322.5	0	0	0
330.0	0	0	0
337.5	0	0	0
345.0	0	0	0
352.5	0	0	0

NB(1) : precise locations of passing loops not yet determined, assumed Flat terrrain ussed first.
NB(2): a 50% reduction factor has been applied to intial quantities to allow for greenfield build.

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Below Rail – QRN (90Mtpa) – Duplication

DUPLICATION - GENERAL

				Total Construction Cost [Brownfield]				
As a rule of thumb each of train can carry	3.2 Mtpa			of Duplicated section	$5,100,000 /km			
Duplication is adopted upon the total passing loop length reaching		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on			
30% of total line length.		Cost Base Date :		1st Jul 2012	construction costs			
Assumed 1 duplication link / every 2 new train sets.								

	Duplication Cost Factors		EWLP					
Volume (Mtpa in total system)	Main Line	Upgrade North/South	Zone 1					
0.0	0	0	0					
7.5	0	0	0					
15.0	0	0	0					
22.5	0	0	0					
30.0	0	0	0					
37.5	0	0	0	Total Construction Cost				
45.0	45	0	314	for building entire single line Greenfield line 219km				
52.5	0	0	0					
60.0	23	0	0					
67.5	69	0	0					
75.0	14	0	0					
82.5	0	0	0					
90.0	0	0	0					
97.5	0	0	0					
105.0	0	0	0					
112.5	0	0	0					
120.0	0	0	0					
127.5	0	0	0					
135.0	0	0	0					
142.5	0	0	0					
150.0	0	0	0					
157.5	0	0	0					
165.0	0	0	0					
172.5	0	0	0					
180.0	0	0	0					
187.5	0	0	0					
195.0	0	0	0					
202.5	0	0	0					
210.0	0	0	0					
217.5	0	0	0					
225.0	0	0	0					
232.5	0	0	0					
240.0	0	0	0					
247.5	0	0	0					
255.0	0	0	0					
262.5	0	0	0					
270.0	0	0	0					
277.5	0	0	0					
285.0	0	0	0					
292.5	0	0	0					
300.0	0	0	0					
307.5	0	0	0					
315.0	0	0	0					
322.5	0	0	0					
330.0	0	0	0					
337.5	0	0	0					
345.0	0	0	0					
352.5	0	0	0					

NB(1) : precise locations of duplicated sections not yet determined, assumed Flat terrrain ussed first.

Note: for the purpose of modelling passing loops and duplication, the system throughput was assumed as the main line throughput volumes as agreed with EIG.

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Below Rail – GVK (150Mtpa) – Mainline

GVK Main Line - BELOW RAIL - Capex		Flat 149 km	Hilly 136 km	Rolling 20 km	Flood 180 km	Total 485 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 2,251,006,719**					
Contractors Mark Up **+10%**	$ 225,100,672					
Total Contractor's Price	$ 2,476,107,390					
Client Costs (PM, Planning & Approvals) **+10%**	$ 247,610,739					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 76,100,000					
Project Costs (excluding contingencies)	**$ 2,799,818,129**					
Contingencies	$ 839,945,439	**(30%)**				
Total Zone 1 Construction Costs	**$ 3,639,763,568**					
Cost Base Date :	1st Jul 2012					

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Below Rail – GVK (150Mtpa) – Zone 7

GVK - ZONE 7 - BELOW RAIL - Capex		Flat 20 km	Hilly 0 km	Rolling 0 km	Flood 16 km	Total km 36 km
Start of Construction	1/01/2019	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construct			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 148,474,060**					
Contractors Mark Up +10%	$ 14,847,406					
Total Contractor's Price	$ 163,321,466					
Client Costs (PM, Planning & Approvals) +10%	$ 16,332,147					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,800,000					
Project Costs (excluding contingencies)	**$ 181,453,612**					
Contingencies	$ 54,436,084	**(30%)**				
Total Zone 1 Construction Costs	**$ 235,889,696**					
Cost Base Date :	1st Jul 2012					

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Below Rail – GVK (150Mtpa) – Zone 8

GVK - ZONE 8 - BELOW RAIL - Capex		Flat 21 km	Hilly 0 km	Rolling 0 km	Flood 2 km	Total Km 23 km
Start of Construction	1/01/2019	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	**Total**
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	**Costs $**					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construc			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 93,960,267**					
Contractors Mark Up **+10%**	$ 9,396,027					
Total Contractor's Price	$ 103,356,294					
Client Costs (PM, Planning & Approvals) **+10%**	$ 10,335,629					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,200,000					
Project Costs (excluding contingencies)	**$ 114,891,923**					
Contingencies	$ 34,467,577	(30%)				
Total Zone 1 Construction Costs	**$ 149,359,500**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GVK (150Mtpa) - Zone 9

GVK - ZONE 9 - BELOW RAIL - Capex		Flat 20 km	Hilly 0 km	Rolling 0 km	Flood 0 km	Total Km 20 km
Start of Construction	1/01/2026	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for const			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 78,415,674**					
Contractors Mark Up +10%	$ 7,841,567					
Total Contractor's Price	$ 86,257,241					
Client Costs (PM, Planning & Approvals) +10%	$ 8,625,724					
Defect liability period	$ -		Not included : assumed covered by maintenance contractor			
Land Acquisition (provided by EWLP)	$ 1,000,000					
Project Costs (excluding contingencies)	**$ 95,882,965**					
Contingencies	$ 28,764,890	**(30%)**				
Total Zone 1 Construction Costs	**$ 124,647,855**					
Cost Base Date :	1st Jul 2012					

Below Rail – GVK (150Mtpa) – Opex

Option 1 - GVK - BELOW RAIL - Opex					
	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000
	NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.				
Maintenance Cost Escalation Factor :	2.5%	Assumed annual inflation rate based on CPI (mainly labour)			
Maintenance Cost Base Date :	1st Jul 2012				

Below Rail – GVK (150Mtpa) – Passing Loops

PASSING LOOPS - GENERAL					
				Total Construction Cost [Brownfield]	
As a rule of thumb each of train can carry	6.0 Mtpa			of Typical Passing Loop	$5,000,000 /km
No passing loops have been included in the Total Construction Costs.		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on
For each additional train a new passing loop will be required.		Cost Base Date :		1st Jul 2012	construction costs

	Passing Loop Cost Factors			
Volume (Mtpa in total system)	Main Line	Zone 7	Zone 8	Zone 9
0.0	8.5	0	0	0
7.5	0	0	0	0
15.0	0	0	0	0
22.5	26	0	0	0
30.0	0	0	0	0
37.5	17	0	0	0
45.0	0	0	0	0
52.5	17	0	0	0
60.0	0	0	0	0
67.5	34	0	0	0
75.0	0	0	0	0
82.5	8.5	0	0	0
90.0	0	0	0	0
97.5	8.5	0	0	0
105.0	0	0	0	0
112.5	0	0	0	0
120.0	0	0	0	0
127.5	0	0	0	0
135.0	0	0	0	0
142.5	0	0	0	0
150.0	0	0	0	0
157.5	0	0	0	0
165.0	0	0	0	0
172.5	0	0	0	0
180.0	0	0	0	0
187.5	0	0	0	0
195.0	0	0	0	0
202.5	0	0	0	0
210.0	0	0	0	0
217.5	0	0	0	0
225.0	0	0	0	0
232.5	0	0	0	0
240.0	0	0	0	0
247.5	0	0	0	0
255.0	0	0	0	0
262.5	0	0	0	0
270.0	0	0	0	0
277.5	0	0	0	0
285.0	0	0	0	0
292.5	0	0	0	0
300.0	0	0	0	0
307.5	0	0	0	0
315.0	0	0	0	0
322.5	0	0	0	0
330.0	0	0	0	0
337.5	0	0	0	0
345.0	0	0	0	0
352.5	0	0	0	0

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Below Rail – GVK (150Mtpa) – Duplication

DUPLICATION - GENERAL							
				Total Construction Cost [Brownfield]			
As a rule of thumb each of train can carry	6.0 Mtpa			of Duplicated section	$5,000,000	/km	
Duplication is adopted upon the total passing loop length reaching		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on		
30% of total line length.		Cost Base Date :		1st Jul 2012	construction costs		
Assumed 1 duplication link / every 2 new train sets.							
	Duplication Cost Factor						
Volume (Mtpa in total system)	Main Line	Zone 7	Zone 8	Zone 9			
0.0	0	0	0	0			
7.5	0	0	0	0			
15.0	0	0	0	0			
22.5	0	0	0	0			
30.0	0	0	0	0			
37.5	0	0	0	0			
45.0	0	0	0	0			
52.5	0	0	0	0			
60.0	0	0	0	0			
67.5	0	0	0	0			
75.0	0	0	0	0			
82.5	0	0	0	0			
90.0	0	0	0	0			
97.5	45	0	0	0			
105.0	22	0	0	0			
112.5	43	0	0	0			
120.0	22	0	0	0			
127.5	22	0	0	0			
135.0	22	0	0	0			
142.5	22	0	0	0			
150.0	0	0	0	0			
157.5	22	0	0	0			
165.0	0	0	0	0			
172.5	0	0	0	0			
180.0	0	0	0	0			
187.5	0	0	0	0			
195.0	0	0	0	0			
202.5	0	0	0	0			
210.0	0	0	0	0			
217.5	0	0	0	0			
225.0	0	0	0	0			
232.5	0	0	0	0			
240.0	0	0	0	0			
247.5	0	0	0	0			
255.0	0	0	0	0			
262.5	0	0	0	0			
270.0	0	0	0	0			
277.5	0	0	0	0			
285.0	0	0	0	0			
292.5	0	0	0	0			
300.0	0	0	0	0			
307.5	0	0	0	0			
315.0	0	0	0	0			
322.5	0	0	0	0			
330.0	0	0	0	0			
337.5	0	0	0	0			
345.0	0	0	0	0			
352.5	0	0	0	0			

Note: for the purpose of modelling passing loops and duplication, the system throughput was assumed as the main line throughput volumes as agreed with EIG.

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Below Rail - GICP Option 2 – Zone 1

ZONE 1 - BELOW RAIL - Capex		Flat 20 km	Hilly 148 km	Rolling 15 km	Flood 36 km	Total 219 km
Start of Construction	1/01/2018	NB: For start of construction date later than 1st Jan 2013,				
Construction pricing inflation rate	4%	suggest inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 1,002,065,375					
Contractors Mark Up +10%	$ 100,206,538					
Total Contractor's Price	$ 1,102,271,913					
Client Costs (PM, Planning & Approvals) +10%	$ 110,227,191					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 32,900,000					
Project Costs (excluding contingencies)	$ 1,245,399,104					
Contingencies	$ 373,619,731	(30%)				
Total Zone 1 Construction Costs	$ 1,619,018,835					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 2

ZONE 2 - BELOW RAIL - Capex		Flat 128 km	Hilly 0 km	Rolling 0 km	Flood 23 km	Total Km 151 km
Start of Construction	1/01/2018	NB: For start of construction date later than 1st Jan 2013, suggest				
Construction pricing inflation rate	4%	inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construct			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	543,290,117					
Contractors Mark Up +10%	$ 54,329,012					
Total Contractor's Price	$ 597,619,128					
Client Costs (PM, Planning & Approvals) +10%	$ 59,761,913					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 15,100,000					
Project Costs (excluding contingencies)	$ 672,481,041					
Contingencies	$ 201,744,312	(30%)				
Total Zone 2 Construction Costs	$ 874,225,354					
Cost Base Date :	1st Jul 2012					

Below Rail - GICP Option 2 – Zone 3

ZONE 3 - BELOW RAIL - Capex		Flat 0 km	Hilly 0 km	Rolling 16 km	Flood 12 km	Total 28 km
Start of Construction	1/01/2018	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	104,171,483					
Contractors Mark Up +10%	$ 10,417,148					
Total Contractor's Price	$ 114,588,632					
Client Costs (PM, Planning & Approvals) +10%	$ 11,458,863					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,400,000					
Project Costs (excluding contingencies)	$ 127,447,495					
Contingencies	$ 38,234,248	(30%)				
Total Zone 2 Construction Costs	$ 165,681,743					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 4

ZONE 4 - BELOW RAIL - Capex		Flat 0 km	Hilly 44 km	Rolling 0 km	Flood 0 km	Total Km 44 km
Start of Construction	1/01/2022	NB: For start of construction date later than 1st Jan 2013, suggest inflation				
Construction pricing inflation rate	4%	rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for constructio			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 166,224,278					
Contractors Mark Up +10%	$ 16,622,428					
Total Contractor's Price	$ 182,846,706					
Client Costs (PM, Planning & Approvals) +10%	$ 18,284,671					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 2,200,000					
Project Costs (excluding contingencies)	$ 203,331,377					
Contingencies	$ 60,999,413	(30%)				
Total Zone 1 Construction Costs	$ 264,330,789					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 5

ZONE 5 - BELOW RAIL - Capex		Flat 0 km	Hilly 0 km	Rolling 24 km	Flood 10 km	Total Km 34 km
Start of Construction	1/01/2022	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 152,418,900					
Contractors Mark Up **+10%**	$ 15,241,890					
Total Contractor's Price	$ 167,660,790					
Client Costs (PM, Planning & Approvals) **+10%**	$ 16,766,079					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,700,000					
Project Costs (excluding contingencies)	$ 186,126,869					
Contingencies	$ 55,838,061	**(30%)**				
Total Zone 1 Construction Costs	$ 241,964,930					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 6

ZONE 6 - BELOW RAIL - Capex		Flat 4 km	Hilly 0 km	Rolling 0 km	Flood 18 km	Total Km 22 km
Start of Construction	1/01/2022	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 72,016,407**					
Contractors Mark Up **+10%**	$ 7,201,641					
Total Contractor's Price	$ 79,218,048					
Client Costs (PM, Planning & Approvals) **+10%**	$ 7,921,805					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,100,000					
Project Costs (excluding contingencies)	**$ 88,239,853**					
Contingencies	$ 26,471,956	**(30%)**				
Total Zone 1 Construction Costs	**$ 114,711,809**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 7

ZONE 7 - BELOW RAIL - Capex		Flat 20 km	Hilly 0 km	Rolling 0 km	Flood 16 km	Total Km 36 km
Start of Construction	1/01/2026	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%		0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for constructi			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 149,265,487**					
Contractors Mark Up **+10%**	$ 14,926,549					
Total Contractor's Price	$ 164,192,035					
Client Costs (PM, Planning & Approvals) **+10%**	$ 16,419,204					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,800,000					
Project Costs (excluding contingencies)	**$ 182,411,239**					
Contingencies	$ 54,723,372	**(30%)**				
Total Zone 1 Construction Costs	**$ 237,134,611**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 8

ZONE 8 - BELOW RAIL - Capex		Flat 21 km	Hilly 0 km	Rolling 0 km	Flood 2 km	Total Km 23 km
Start of Construction	1/01/2029	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%		0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for constructi			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 79,724,674**					
Contractors Mark Up **+10%**	$ 7,972,467					
Total Contractor's Price	$ 87,697,142					
Client Costs (PM, Planning & Approvals) **+10%**	$ 8,769,714					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,200,000					
Project Costs (excluding contingencies)	**$ 97,666,856**					
Contingencies	$ 29,300,057	**(30%)**				
Total Zone 1 Construction Costs	**$ 126,966,913**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GICP Option 2 – Zone 9

ZONE 9 - BELOW RAIL - Capex		Flat 20 km	Hilly 0 km	Rolling 0 km	Flood 0 km	Total Km 20 km
Start of Construction	1/01/2029	NB: For start of construction date later than 1st Jan 2013, suggest				
Construction pricing inflation rate	4%	inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construc			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 80,274,714					
Contractors Mark Up +10%	$ 8,027,471					
Total Contractor's Price	$ 88,302,185					
Client Costs (PM, Planning & Approvals) +10%	$ 8,830,218					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 1,000,000					
Project Costs (excluding contingencies)	$ 98,132,403					
Contingencies	$ 29,439,721	(30%)				
Total Zone 1 Construction Costs	$ 127,572,124					
Cost Base Date :	1st Jul 2012					

Below Rail - GICP Option 2 – Opex

GICP Option 2 - BELOW RAIL - Opex							
	Throughput (Mtpa)						
Assumed Lower Limit	0	11	31	51	101		
Assumed Upper Limit	10	30	50	100	400		
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000		
	NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.						
Maintenance Cost Escalation Factor :	2.5%	Assumed annual inflation rate based on CPI (mainly labour)					
Maintenance Cost Base Date :	1st Jul 2012						

Below Rail - GICP Option 2 – Passing Loops

PASSING LOOPS - GENERAL							
				Total Construction Cost [Brownfield]			
As a rule of thumb each of train can carry	7.5 Mtpa			of Typical Passing Loop	$5,250,000 /km		
No passing loops have been included in the Total Construction Costs.		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on		
For each additional train a new passing loop will be required.		Cost Base Date :		1st Jul 2012	construction costs		

	Passing Loop Spend Factor (Equivelant kms)						
Volume (Mtpa in total system)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
0.0	6.0	0.0	0.0	0.0	0.0	0.0	0
7.5	0.0	0.0	0.0	0.0	0.0	0.0	0
15.0	8.5	17.0	0.0	0.0	0.0	0.0	0
22.5	8.5	0.0	0.0	0.0	0.0	0.0	0
30.0	0.0	0.0	0.0	0.0	0.0	0.0	0
37.5	0.0	0.0	0.0	0.0	0.0	0.0	0
45.0	8.5	17.0	0.0	0.0	0.0	0.0	0
52.5	8.5	0.0	0.0	0.0	0.0	0.0	0
60.0	0.0	8.5	0.0	0.0	0.0	0.0	0
67.5	0.0	0.0	0.0	0.0	0.0	0.0	0
75.0	8.5	8.5	0.0	0.0	0.0	0.0	0
82.5	0.0	0.0	0.0	8.5	0.0	0.0	0
90.0	0.0	0.0	0.0	0.0	0.0	8.5	0
97.5	0.0	0.0	0.0	0.0	0.0	0.0	0
105.0	8.5	8.5	0.0	0.0	0.0	0.0	0
112.5	0.0	0.0	0.0	0.0	8.5	0.0	0
120.0	8.5	0.0	0.0	0.0	0.0	0.0	0
127.5	0.0	0.0	0.0	0.0	0.0	0.0	0
135.0	0.0	0.0	0.0	0.0	0.0	0.0	0
142.5	0.0	0.0	0.0	0.0	0.0	0.0	0
150.0	0.0	0.0	0.0	0.0	0.0	0.0	0
157.5	0.0	0.0	0.0	0.0	0.0	0.0	0
165.0	0.0	0.0	0.0	0.0	0.0	0.0	0
172.5	0.0	0.0	0.0	0.0	0.0	0.0	0
180.0	0.0	0.0	0.0	0.0	0.0	0.0	0
187.5	0.0	0.0	0.0	0.0	0.0	0.0	0
195.0	0.0	0.0	0.0	0.0	0.0	0.0	0
202.5	0.0	0.0	0.0	0.0	0.0	0.0	0
210.0	0.0	0.0	0.0	0.0	0.0	0.0	0
217.5	0.0	0.0	0.0	0.0	0.0	0.0	0
225.0	0.0	0.0	0.0	0.0	0.0	0.0	0
232.5	0.0	0.0	0.0	0.0	0.0	0.0	0
240.0	0.0	0.0	0.0	0.0	0.0	0.0	0
247.5	0.0	0.0	0.0	0.0	0.0	0.0	0
255.0	0.0	0.0	0.0	0.0	0.0	0.0	0
262.5	0.0	0.0	0.0	0.0	0.0	0.0	0
270.0	0.0	0.0	0.0	0.0	0.0	0.0	0
277.5	0.0	0.0	0.0	0.0	0.0	0.0	0
285.0	0.0	0.0	0.0	0.0	0.0	0.0	0
292.5	0.0	0.0	0.0	0.0	0.0	0.0	0
300.0	0.0	0.0	0.0	0.0	0.0	0.0	0
307.5	0.0	0.0	0.0	0.0	0.0	0.0	0
315.0	0.0	0.0	0.0	0.0	0.0	0.0	0
322.5	0.0	0.0	0.0	0.0	0.0	0.0	0
330.0	0.0	0.0	0.0	0.0	0.0	0.0	0
337.5	0.0	0.0	0.0	0.0	0.0	0.0	0
345.0	0.0	0.0	0.0	0.0	0.0	0.0	0
352.5	0.0	0.0	0.0	0.0	0.0	0.0	0

NB(1) : precise locations of passing loops not yet determined, assumed Flat terrrain ussed first.
NB(2): a 50% reduction factor has been applied to intial quantities to allow for greenfield build.

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Below Rail - GICP Option 2 – Duplication

DUPLICATION - GENERAL							
				Total Construction Cost [Brownfield]			
As a rule of thumb each of train can carry	7.5 Mtpa			of Duplicated section		$5,400,000 /km	
Duplication is adopted upon the total passing loop length reaching			Passing Loop escalation Factor :	4.0%	Assumed annual inflation rate based on		
30% of total line length.			Cost Base Date :	1st Jul 2012	construction costs		
Assumed 1 duplication link / every 2 new train sets.							
	Duplication Cost Factors (Equivelant kms)						
Volume (Mtpa in total system)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
0.0	0	0	0	0	0	0	0
7.5	0	0	0	0	0	0	0
15.0	0	0	0	0	0	0	0
22.5	0	0	0	0	0	0	0
30.0	0	0	0	0	0	0	0
37.5	0	0	0	0	0	0	0
45.0	0	0	0	0	0	0	0
52.5	0	0	0	0	0	0	0
60.0	0	0	0	0	0	0	0
67.5	0	0	0	0	0	0	0
75.0	0	0	0	0	0	0	0
82.5	0	0	0	0	0	0	0
90.0	0	0	0	0	0	0	0
97.5	0	0	0	0	0	0	0
105.0	0	0	0	0	0	0	0
112.5	0	0	0	0	0	0	0
120.0	0	0	0	0	0	0	0
127.5	0	0	0	0	0	0	0
135.0	0	0	0	0	0	0	0
142.5	0	0	0	0	0	0	0
150.0	0	0	0	0	0	0	0
157.5	0	0	0	0	0	0	0
165.0	0	0	0	0	0	0	0
172.5	0	0	0	0	0	0	0
180.0	0	0	0	0	0	0	0
187.5	0	0	0	0	0	0	0
195.0	0	0	0	0	0	0	0
202.5	0	0	0	0	0	0	0
210.0	0	0	0	0	0	0	0
217.5	0	0	0	0	0	0	0
225.0	0	0	0	0	0	0	0
232.5	0	0	0	0	0	0	0
240.0	0	0	0	0	0	0	0
247.5	0	0	0	0	0	0	0
255.0	0	0	0	0	0	0	0
262.5	0	0	0	0	0	0	0
270.0	0	0	0	0	0	0	0
277.5	0	0	0	0	0	0	0
285.0	0	0	0	0	0	0	0
292.5	0	0	0	0	0	0	0
300.0	0	0	0	0	0	0	0
307.5	0	0	0	0	0	0	0
315.0	0	0	0	0	0	0	0
322.5	0	0	0	0	0	0	0
330.0	0	0	0	0	0	0	0
337.5	0	0	0	0	0	0	0
345.0	0	0	0	0	0	0	0
352.5	0	0	0	0	0	0	0
NB(1) : precise locations of duplicated sections not yet determined, assumed Flat terrain ussed first.							

Note: for the purpose of modelling passing loops and duplication, the system throughput was assumed as the zone 1 throughput volumes as agreed with EIG.

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Below Rail - QRN (60Mtpa) – Main Line

QRN Mainline - BELOW RAIL - Capex		Flat 75 km	Hilly 0 km	Rolling 0 km	Flood 99 km	Total 174 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	Costs $					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	$ 828,092,800					
Contractors Mark Up +10%	$ 82,809,280					
Total Contractor's Price	$ 910,902,080					
Client Costs (PM, Planning & Approvals) +10%	$ 91,090,208					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 26,100,000					
Project Costs (excluding contingencies)	$ 1,028,092,287					
Contingencies	$ 308,427,686	(30%)				
Total Zone 1 Construction Costs	$ 1,336,519,974					
Cost Base Date :	1st Jul 2012					

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Below Rail - QRN (60Mtpa) – Opex

Option 2 - QRN - BELOW RAIL - Opex					
	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$45,000	$45,000
	NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.				
Maintenance Cost escalation Factor :	2.5%	Assumed annual inflation rate based on CPI (mainly labour)			
Maintenance Cost Base Date :	1st Jul 2012				

Below Rail - QRN (60Mtpa) – Passing Loops

PASSING LOOPS - GENERAL					
				Total Construction Cost [Brownfield]	
As a rule of thumb each of train can carry	3.2 Mtpa			of Typical Passing Loop	$4,875,000 /km
No passing loops have been included in the Total Construction Costs.		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on
For each additional train a new passing loop will be required.		Cost Base Date :		1st Jul 2012	construction costs
It is assumed passing loops are build every 3 years					

	Passing Loop Cost Factors		EWLP
Volume (Mtpa in total system)	Main Line	Upgrade North/South	Zone 1
0.0	7	0	0
7.5	0	0	0
15.0	7	3.5	0
22.5	3.5	7	0
30.0	3.5	3.5	0
37.5	7	3.5	0
45.0	0	0	0
52.5	0	0	0
60.0	0	0	0
67.5	0	0	0
75.0	0	0	0
82.5	0	0	0
90.0	0	0	0
97.5	0	0	0
105.0	0	0	0
112.5	0	0	0
120.0	0	0	0
127.5	0	0	0
135.0	0	0	0
142.5	0	0	0
150.0	0	0	0
157.5	0	0	0
165.0	0	0	0
172.5	0	0	0
180.0	0	0	0
187.5	0	0	0
195.0	0	0	0
202.5	0	0	0
210.0	0	0	0
217.5	0	0	0
225.0	0	0	0
232.5	0	0	0
240.0	0	0	0
247.5	0	0	0
255.0	0	0	0
262.5	0	0	0
270.0	0	0	0
277.5	0	0	0
285.0	0	0	0
292.5	0	0	0
300.0	0	0	0
307.5	0	0	0
315.0	0	0	0
322.5	0	0	0
330.0	0	0	0
337.5	0	0	0
345.0	0	0	0
352.5	0	0	0

NB(1) : precise locations of passing loops not yet determined, assumed Flat terrrain ussed first.
NB(2): a 50% reduction factor has been applied to intial quantities to allow for greenfield build.

Below Rail - QRN (60Mtpa) – Duplication

DUPLICATION - GENERAL

				Total Construction Cost [Brownfield]		
As a rule of thumb each of train can carry	3.2 Mtpa			of Duplicated section	$5,100,000	/km
Duplication is adopted upon the total passing loop length reaching		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on	
30% of total line length.		Cost Base Date :		1st Jul 2012	construction costs	
Assumed 1 duplication link / every 2 new train sets.						

	Duplication Cost Factors		EWLP	
Volume (Mtpa in total system)	Main Line	Upgrade North/South	Zone 1	
0.0	0	0	0	
7.5	0	0	0	
15.0	0	0	0	
22.5	0	0	0	
30.0	0	0	0	
37.5	0	0	0	Total Construction Cost
45.0	40	0	314	for building entire single line Greenfield line 219km
52.5	62	0	0	
60.0	0	0	0	
67.5	0	0	0	
75.0	0	0	0	
82.5	0	0	0	
90.0	0	0	0	
97.5	0	0	0	
105.0	0	0	0	
112.5	0	0	0	
120.0	0	0	0	
127.5	0	0	0	
135.0	0	0	0	
142.5	0	0	0	
150.0	0	0	0	
157.5	0	0	0	
165.0	0	0	0	
172.5	0	0	0	
180.0	0	0	0	
187.5	0	0	0	
195.0	0	0	0	
202.5	0	0	0	
210.0	0	0	0	
217.5	0	0	0	
225.0	0	0	0	
232.5	0	0	0	
240.0	0	0	0	
247.5	0	0	0	
255.0	0	0	0	
262.5	0	0	0	
270.0	0	0	0	
277.5	0	0	0	
285.0	0	0	0	
292.5	0	0	0	
300.0	0	0	0	
307.5	0	0	0	
315.0	0	0	0	
322.5	0	0	0	
330.0	0	0	0	
337.5	0	0	0	
345.0	0	0	0	
352.5	0	0	0	

NB(1) : precise locations of duplicated sections not yet determined, assumed Flat terrrain ussed first.

Note: for the purpose of modelling passing loops and duplication, the system throughput was assumed as the main line throughput volumes as agreed with EIG.

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Below Rail - GVK (60Mtpa) – Mainline

GVK Mainline - BELOW RAIL - Capex		Flat 149 km	Hilly 136 km	Rolling 20 km	Flood 180 km	Total 485 km
Start of Construction	1/01/2014	NB: For start of construction date later than 1st Jan 2013,				
Construction pricing inflation rate	4%	suggest inflation rate of 4%pa for construction pricing increases				
Spend curve (Year)	1	2	3	4	5	**Total**
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%
Spend required in this zone						
Categories						
Construction (Third Party Costs)	**Costs $**					
Establishment of construction offices, camps & environmental surveys						
Contractor's Indirect Costs (non-recurring & recurring costs)			NB: Includes allowance to fix price and time for construction contract			
Earthworks						
Capping Layer						
Structures						
Permanent Way						
Incidental & Environmental Works						
Fencing						
Total Construction Costs	**$ 2,251,006,719**					
Contractors Mark Up **+10%**	$ 225,100,672					
Total Contractor's Price	$ 2,476,107,390					
Client Costs (PM, Planning & Approvals) **+10%**	$ 247,610,739					
Defect liability period	$ -		Not included : assumed covered by maintenance contractors			
Land Acquisition (provided by EWLP)	$ 76,100,000					
Project Costs (excluding contingencies)	**$ 2,799,818,129**					
Contingencies	$ 839,945,439	**(30%)**				
Total Zone 1 Construction Costs	**$ 3,639,763,568**					
Cost Base Date :	1st Jul 2012					

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Below Rail - GVK (60Mtpa) – Opex

Option 2 - GVK/Hancock - BELOW RAIL - Opex					
	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000
	NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.				
Maintenance Cost escalation Factor :	2.5%	Assumed annual inflation rate based on CPI (mainly labour)			
Maintenance Cost Base Date :	1st Jul 2012				

Below Rail - GVK (60Mtpa) – Passing Loops

PASSING LOOPS - GENERAL						
				Total Construction Cost [Brownfield]		
As a rule of thumb each of train can carry	6.0 Mtpa			of Typical Passing Loop	$5,000,000	/km
No passing loops have been included in the Total Construction Costs.		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on	
For each additional train a new passing loop will be required.		Cost Base Date :		1st Jul 2012	construction costs	
	Passing Loop Cost Factors					
Volume (Mtpa in total system)	Main Line	Zone 7	Zone 8	Zone 9		
0.0	11.3	0	0	0		
7.5	0	0	0	0		
15.0	0	0	0	0		
22.5	25.5	0	0	0		
30.0	0	0	0	0		
37.5	17	0	0	0		
45.0	0	0	0	0		
52.5	17	0	0	0		
60.0	8.5	0	0	0		
67.5	0	0	0	0		
75.0	0	0	0	0		
82.5	0	0	0	0		
90.0	0	0	0	0		
97.5	0	0	0	0		
105.0	0	0	0	0		
112.5	0	0	0	0		
120.0	0	0	0	0		
127.5	0	0	0	0		
135.0	0	0	0	0		
142.5	0	0	0	0		
150.0	0	0	0	0		
157.5	0	0	0	0		
165.0	0	0	0	0		
172.5	0	0	0	0		
180.0	0	0	0	0		
187.5	0	0	0	0		
195.0	0	0	0	0		
202.5	0	0	0	0		
210.0	0	0	0	0		
217.5	0	0	0	0		
225.0	0	0	0	0		
232.5	0	0	0	0		
240.0	0	0	0	0		
247.5	0	0	0	0		
255.0	0	0	0	0		
262.5	0	0	0	0		
270.0	0	0	0	0		
277.5	0	0	0	0		
285.0	0	0	0	0		
292.5	0	0	0	0		
300.0	0	0	0	0		
307.5	0	0	0	0		
315.0	0	0	0	0		
322.5	0	0	0	0		
330.0	0	0	0	0		
337.5	0	0	0	0		
345.0	0	0	0	0		
352.5	0	0	0	0		
NB(1) : precise locations of passing loops not yet determined, assumed Flat terrrain ussed first.						
NB(2): a 50% reduction factor has been applied to intial quantities to allow for greenfield build.						

Below Rail - GVK (60Mtpa) – Duplication

				Total Construction Cost [Brownfield]	
As a rule of thumb each of train can carry	6.0 Mtpa			of Duplicated section	$5,000,000 /km
Duplication is adopted upon the total passing loop length reaching		Passing Loop escalation Factor :		4.0%	Assumed annual inflation rate based on
30% of total line length.		Cost Base Date :		1st Jul 2012	construction costs
Assumed 1 duplication link / every 2 new train sets.					

	Duplication Cost Factor			
Volume (Mtpa in total system)	Main Line	Zone 7	Zone 8	Zone 9
0.0	0	0	0	0
7.5	0	0	0	0
15.0	0	0	0	0
22.5	0	0	0	0
30.0	0	0	0	0
37.5	0	0	0	0
45.0	0	0	0	0
52.5	0	0	0	0
60.0	0	0	0	0
67.5	0	0	0	0
75.0	0	0	0	0
82.5	0	0	0	0
90.0	0	0	0	0
97.5	0	0	0	0
105.0	0	0	0	0
112.5	0	0	0	0
120.0	0	0	0	0
127.5	0	0	0	0
135.0	0	0	0	0
142.5	0	0	0	0
150.0	0	0	0	0
157.5	0	0	0	0
165.0	0	0	0	0
172.5	0	0	0	0
180.0	0	0	0	0
187.5	0	0	0	0
195.0	0	0	0	0
202.5	0	0	0	0
210.0	0	0	0	0
217.5	0	0	0	0
225.0	0	0	0	0
232.5	0	0	0	0
240.0	0	0	0	0
247.5	0	0	0	0
255.0	0	0	0	0
262.5	0	0	0	0
270.0	0	0	0	0
277.5	0	0	0	0
285.0	0	0	0	0
292.5	0	0	0	0
300.0	0	0	0	0
307.5	0	0	0	0
315.0	0	0	0	0
322.5	0	0	0	0
330.0	0	0	0	0
337.5	0	0	0	0
345.0	0	0	0	0
352.5	0	0	0	0

NB(1) : precise locations of duplicated sections not yet determined, assumed Flat terrrain ussed first.

Note: for the purpose of modelling passing loops and duplication, the system throughput was assumed as the main line throughput volumes as agreed with EIG.

Above Rail – GICP – 40 tonnes axle load

EWLP	**EWLP Above Rail Model 40TAL V2.0**																			
Galilee Infrastructure Corridor Project (GICP)																				
Above Rail Costings																				
Output template - for use in EY financial model																				
Mine					1	2	3	4	5	6	7	8	9	10	11	12	13	14	19	20
Mine Name					AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Waratah - Carmichael East	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - remainder of Adani coal	Bowen 1	Bowen 2	Bowen 3	Macmines South Tenement	Macmines North Tenement
Route to					Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point
	Inflation rate (%)		**Inflation Base Date**	**Units**																
Rolling Stock CAPEX			1/07/2012																	
Route distance - return				km	1,276.00	1,188.00	1,080.00	1,100.00	-	1,126.00	1,148.00	1,162.00	1,014.00	880.00	880.00	490.00	490.00	490.00	846.00	970.00
Train capacity				Mtpa per train	6.82	7.10	7.63	7.51		7.30	7.22	7.18	7.79	8.35	8.35	11.41	11.41	11.41	8.66	8.19
Locos (including Spares)																				
Number of Locos per train				No.	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30
Cost per Loco	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57	3.57
Wagons (including Spares)																				
Number of Wagons per train				No.	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50	283.50
Cost per Wagon	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Locos overhauls																				
Every x years				Years	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Cost per Loco per overhaul - US$ element	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79	1.79
Cost per Loco per overhaul - A$ element	3.15%	50% - ABS 6427 (3 yea	1/07/2012	A$	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Wagons overhauls																				
Every x years					15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Cost per Wagon per overhaul - US$ element	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Cost per Wagon per overhaul - A$ element	3.15%	50% - ABS 6427 (3 yea	1/07/2012	A$	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Rolling Stock OPEX																				
Fuel																				
Cost per tonne - US$ element			1/07/2012	US$																
Cost per tonne - A$ element	2.70%	ABS 6401 (3 year avg	1/07/2012	A$	1.49	1.39	1.26	1.29	-	1.33	1.35	1.36	1.21	1.10	1.10	0.67	0.67	0.67	1.03	1.14
Maintenance																				
Cost per tonne - US$ element	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	0.08	0.08	0.07	0.07	-	0.07	0.07	0.07	0.07	0.06	0.06	0.05	0.05	0.05	0.06	0.07
Cost per tonne - A$ element	3.15%	50% - ABS 6427 (3 yea	1/07/2012	A$	0.68	0.66	0.61	0.62	-	0.64	0.64	0.65	0.60	0.56	0.56	0.41	0.41	0.41	0.54	0.57
Labour																				
Cost per tonne - US$ element			1/07/2012	US$																
Cost per tonne - A$ element	3.68%	ABS 6345 (3 year avg	1/07/2012	A$	0.16	0.15	0.14	0.14	-	0.15	0.15	0.15	0.14	0.13	0.13	0.09	0.09	0.09	0.12	0.13

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Above Rail – QRN

EWLP	QRN Above Rail Model V1.0																							
Galilee Infrastructure Corridor Project (GICP)																								
Above Rail Costings																								
Output template - for use in EY financial model																								
Mine					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Mine Name					AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Waratah - Carmichael East	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - remainder of Adani coal	Bowen 1	Bowen 2	Bowen 3	Spare 1	Spare 2	Spare 3	Spare 4	Macmines South Tenement	Macmines North Tenement
Route to					Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point
	Inflation rate (%)		Inflation Base Date	Units																				
Rolling Stock CAPEX			1/07/2012																					
Route distance - return				km	-	-	-	-	-	-	-	-	-	806.00	806.00	-	-	-	-	-	-	-	944.00	-
Train capacity				Mtpa per train										3.36	3.36								3.07	
Locos (including Spares)																								
Number of Locos per train				No.										4.40	4.40								4.40	
Cost per Loco	0.40%	ABS 6457 (2 year avg	1/07/2012	US$										5.10	5.10								5.10	
Wagons (including Spares)																								
Number of Wagons per train				No.										126.00	126.00								126.00	
Cost per Wagon	0.40%	ABS 6457 (2 year avg	1/07/2012	US$										0.11	0.11								0.11	
Locos overhauls																								
Every x years				Years										10.00	10.00								10.00	
Cost per Loco per overhaul - US$ element	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	-	-	-	-	-	-	-	-	-	2.55	2.55	-	-	-	-	-	-	-	2.55	-
Cost per Loco per overhaul - A$ element	3.15%	50% - ABS 6427 (3 yea	1/07/2012	A$	-	-	-	-	-	-	-	-	-	1.28	1.28	-	-	-	-	-	-	-	1.28	-
Wagons overhauls																								
Every x years														15.00	15.00								15.00	
Cost per Wagon per overhaul - US$ element	0.40%	ABS 6457 (2 year avg	1/07/2012	US$	-	-	-	-	-	-	-	-	-	0.03	0.03	-	-	-	-	-	-	-	0.03	-
Cost per Wagon per overhaul - A$ element	3.15%	50% - ABS 6427 (3 yea	1/07/2012	A$	-	-	-	-	-	-	-	-	-	0.03	0.03	-	-	-	-	-	-	-	0.03	-
Rolling Stock OPEX																								
Fuel																								
Cost per tonne - US$ element			1/07/2012	US$																				
Cost per tonne - A$ element	2.70%	ABS 6401 (3 year avg	1/07/2012	A$										2.27	2.27								2.60	
Maintenance																								
Cost per tonne - US$ element	0.40%	ABS 6457 (2 year avg	1/07/2012	US$										0.20	0.20								0.22	
Cost per tonne - A$ element	3.15%	50% - ABS 6427 (3 yea	1/07/2012	A$										0.89	0.89								0.97	
Labour																								
Cost per tonne - US$ element			1/07/2012	US$																				
Cost per tonne - A$ element	3.68%	ABS 6345 (3 year avg	1/07/2012	A$										0.32	0.32								0.35	

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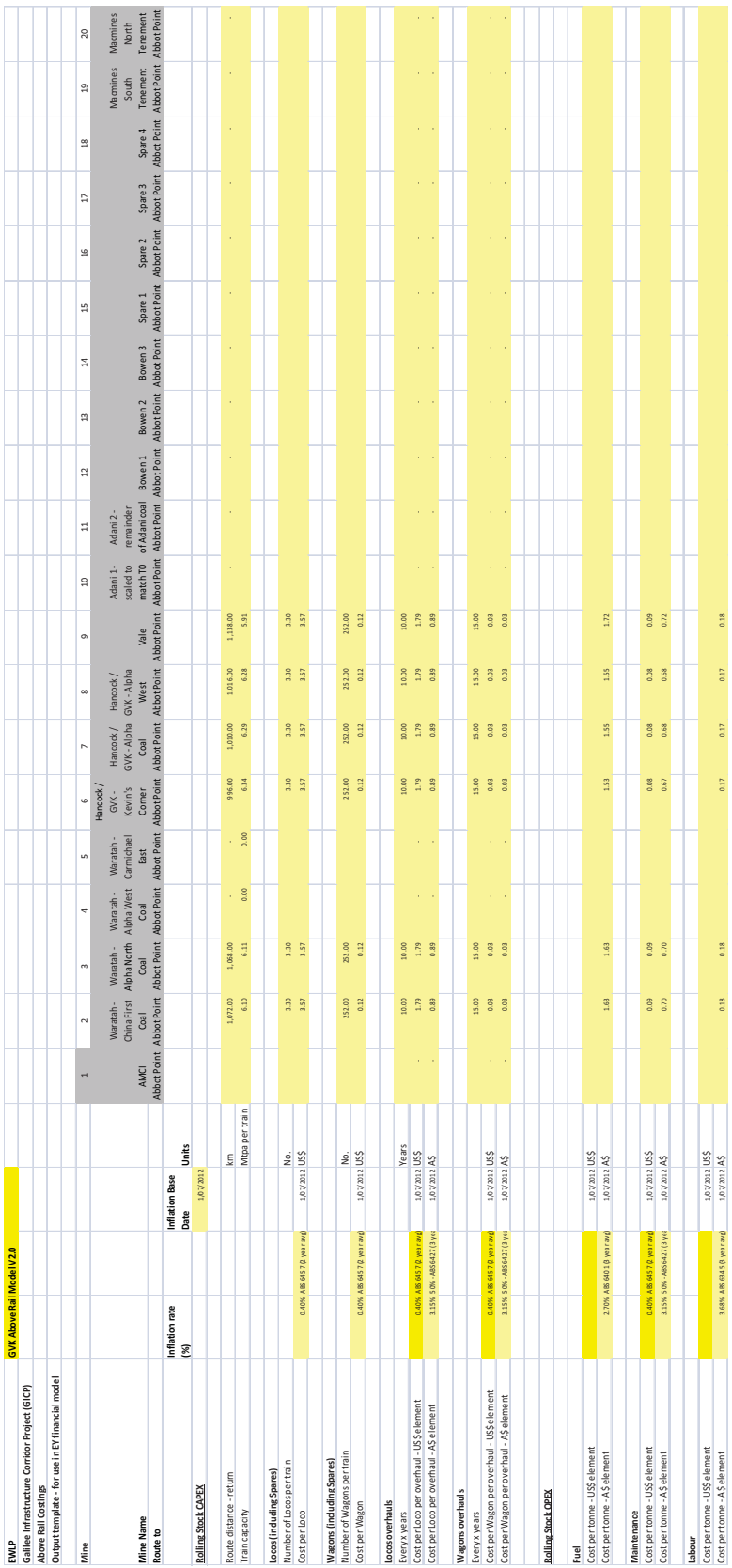
Above Rail – GVK



EWLP	GVK Above Rail Model V2.0																					
Galilee Infrastructure Corridor Project (GICP)																						
Above Rail Costing																						
Output template - for use in EY financial model																						
Mine		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
		AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Waratah - Carmichael East	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match TO of Adani coal	Adani 2 - remainder of Adani coal	Bowen 1	Bowen 2	Bowen 3	Spare 1	Spare 2	Spare 3	Spare 4	Macmines South Tenement	Macmines North Tenement	
Mine Name		Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	Abbot Point	
Route to																						
	Inflation rate (%)	Inflation Base Date	Units																			
Rolling Stock CAPEX		1.0/7/2012																				
Route distance - return			km		1,072.00	1,068.00	-	-	996.00	1,010.00	1,016.00	1,138.00	-	-	-	-	-	-	-	-	-	
Train capacity			Mtpa per train		6.10	6.11	0.00	0.00	6.34	6.29	6.28	5.91										
Locos (including Spares)																						
Number of Locos per train			No.		3.30	3.30			3.30	3.30	3.30	3.30										
Cost per loco	0.40%	A$6 665 7	0 year avg		3.57	3.57			3.57	3.57	3.57	3.57										
Wagons (including Spares)																						
Number of Wagons per train			No.		252.00	252.00			252.00	252.00	252.00	252.00										
Cost per Wagon	0.40%	A$6 665 7	0 year avg	10/7/2012	US$	0.12	0.12			0.12	0.12	0.12	0.12										
Locos overhauls																						
Every x years			Years		10.00	10.00			10.00	10.00	10.00	10.00										
Cost per Loco per overhaul - US$ element	0.40%	A$6 665 7	0 year avg	10/7/2012	US$	1.79	1.79	-	-	1.79	1.79	1.79	1.79	-	-	-	-	-	-	-	-	-
Cost per Loco per overhaul - A$ element	3.15%	50% - A$5 642 7	3 year avg	10/7/2012	A$	0.89	0.89	-	-	0.89	0.89	0.89	0.89	-	-	-	-	-	-	-	-	-
Wagons overhauls																						
Every x years					15.00	15.00			15.00	15.00	15.00	15.00										
Cost per Wagon per overhaul - US$ element	0.40%	A$6 665 7	0 year avg	10/7/2012	US$	0.03	0.03	-	-	0.03	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-
Cost per Wagon per overhaul - A$ element	3.15%	50% - A$5 642 7	3 year avg	10/7/2012	A$	0.03	0.03	-	-	0.03	0.03	0.03	0.03	-	-	-	-	-	-	-	-	-
Rolling Stock OPEX																						
Fuel																						
Cost per tonne - US$ element				10/7/2012	US$																	
Cost per tonne - A$ element	2.70%	A$6 640 1	0 year avg	10/7/2012	A$	1.63	1.63			1.53	1.55	1.55	1.55	1.72								
Maintenance																						
Cost per tonne - US$ element	0.40%	A$6 665 7	0 year avg	10/7/2012	US$	0.09	0.09			0.08	0.08	0.08	0.08	0.09								
Cost per tonne - A$ element	3.15%	50% - A$5 642 7	3 year avg	10/7/2012	A$	0.70	0.70			0.67	0.68	0.68	0.68	0.72								
Labour																						
Cost per tonne - US$ element				10/7/2012	US$																	
Cost per tonne - A$ element	3.68%	A$6 014 5	0 year avg	10/7/2012	A$	0.18	0.18			0.17	0.17	0.17	0.17	0.18								

Appendix E Reconciliation with EIG Costs

GICP Option 1

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
Zone1 - Abbot to North of Moranbah	219.0	1,619	1,557	1,751.1	2,017.8
Zone2 - North of Moranbah to North Galilee	151.0	956	919	1,033.6	1,191.0
Zone3 - North Galilee to Macmines South	28.0	191	184	207.1	238.6
Zone4 - Macmines South to Adani Carmichael	44.0	311	300	336.8	388.1
Zone5 - Adani Carmichael to Waratah Carmichael	34.0	215	207	232.3	267.7
Zone6 - Waratah Carmichael to Vale Degulla	22.0	190	183	205.3	236.6
Zone7 - Vale Degulla to Waratah Alpha West	35.5	216	208	233.4	268.9
Zone8 - Waratah Alpha West to GVK Kevin's Corner	23.0	127	122	137.3	158.2
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal	20.0	128	128	220.9	230.9
Spare Segment 1	-	-	-	-	-
Spare Segment 2	-	-	-	-	-
Spare Segment 3	-	-	-	-	-
Spare Segment 4	-	-	-	-	-
Spare Segment 5	-	-	-	-	-
Sub-Total	**576.5**	**3,952.4**	**3,807.0**	**4,357.9**	**4,997.8**
Passing Loops Capital Expenditure					
Zone1 - Abbot to North of Moranbah			252.9	315.7	331.0
Zone2 - North of Moranbah to North Galilee			282.6	350.5	367.5
Zone3 - North Galilee to Macmines South			44.6	61.1	64.0
Zone4 - Macmines South to Adani Carmichael			89.3	104.4	109.5
Zone5 - Adani Carmichael to Waratah Carmichael			44.6	61.1	64.0
Zone6 - Waratah Carmichael to Vale Degulla			74.4	87.0	91.2
Zone7 - Vale Degulla to Waratah Alpha West			44.6	52.2	54.7
Sub-Total			**833.0**	**1,031.9**	**1,082.1**
Duplication Capital Expenditure					
Zone1 - Abbot to North of Moranbah			680.4	1,142.5	1,198.1
Zone2 - North of Moranbah to North Galilee			453.6	741.9	778.0
Zone3 - North Galilee to Macmines South			113.4	220.9	231.6
Zone4 - Macmines South to Adani Carmichael			113.4	196.4	205.9
Zone5 - Adani Carmichael to Waratah Carmichael			113.4	220.9	231.6
Zone6 - Waratah Carmichael to Vale Degulla			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**1,474.2**	**2,522.5**	**2,645.2**
Total			**6,114.2**	**7,912.3**	**8,725.1**
Existing assets included in above figures			-	-	-

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QRN (90Mtpa)

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
QRN Mainline	174.0	1,337	1,286	1,445.6	1,665.7
ARN Zone 4	44.0	266	266	409.2	427.7
Existing QRN asset	207.0	-	806	942.4	984.8
Spare Segment 1	-	-	-	-	-
Spare Segment 2	-	-	-	-	-
Spare Segment 3	-	-	-	-	-
Spare Segment 4	-	-	-	-	-
Spare Segment 5	-	-	-	-	-
Spare Segment 6	-	-	-	-	-
Spare Segment 7	-	-	-	-	-
Spare Segment 8	-	-	-	-	-
Spare Segment 9	-	-	-	-	-
Spare Segment 10	-	-	-	-	-
Spare Segment 11	-	-	-	-	-
Sub-Total	**425.0**	**1,602.4**	**2,357.1**	**2,797.3**	**3,078.3**
Passing Loops Capital Expenditure					
QRN Mainline			129.2	151.1	158.5
ARN Zone 4			-	-	-
Existing QRN asset			85.3	99.8	104.7
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Spare Segment 4			-	-	-
Sub-Total			**214.5**	**250.9**	**263.1**
Duplication Capital Expenditure					
QRN Mainline			770.1	1,057.4	1,108.8
ARN Zone 4			-	-	-
Existing QRN asset			1,601.4	1,873.4	1,964.5
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Spare Segment 4			-	-	-
Sub-Total			**2,371.5**	**2,930.8**	**3,073.3**
Total			**4,943.1**	**5,979.0**	**6,414.7**
Existing assets included in above figures			805.6	942.4	984.8

GVK (150Mtpa)

ERNST & YOUNG

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
Main Line GVK - Hancock	485.0	3,640	3,501	3,936.8	4,536.3
Zone7 - Vale Degulla to Waratah Alpha West	36.0	236	231	310.4	340.6
Zone8 - Waratah Alpha West to GVK Kevin's Corner	23.0	149	146	196.5	215.6
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal	20.0	125	125	215.8	225.6
Spare Segment 1	-	-	-	-	-
Spare Segment 2	-	-	-	-	-
Spare Segment 3	-	-	-	-	-
Spare Segment 4	-	-	-	-	-
Spare Segment 5	-	-	-	-	-
Spare Segment 6	-	-	-	-	-
Spare Segment 7	-	-	-	-	-
Spare Segment 8	-	-	-	-	-
Spare Segment 9	-	-	-	-	-
Spare Segment 10	-	-	-	-	-
Sub-Total	**564.0**	**4,149.7**	**4,003.9**	**4,659.6**	**5,318.1**
Passing Loops Capital Expenditure					
Main Line GVK - Hancock			597.5	773.0	810.6
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Zone8 - Waratah Alpha West to GVK Kevin's Corner			-	-	-
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal			-	-	-
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Sub-Total			**597.5**	**773.0**	**810.6**
Duplication Capital Expenditure					
Main Line GVK - Hancock			990.0	1,785.7	1,872.6
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Zone8 - Waratah Alpha West to GVK Kevin's Corner			-	-	-
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal			-	-	-
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Sub-Total			**990.0**	**1,785.7**	**1,872.6**
Total			**5,591.4**	**7,218.3**	**8,001.3**
Existing assets included in above figures			-	-	-

GICP Option 2

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
Zone1 - Abbot to North of Moranbah	219.0	1,619	1,557	2,048.6	2,360.6
Zone2 - North of Moranbah to North Galilee	151.0	874	841	1,106.2	1,274.6
Zone3 - North Galilee to Macmines South	28.0	166	159	209.6	241.6
Zone4 - Macmines South to Adani Carmichael	44.0	264	259	391.3	429.3
Zone5 - Adani Carmichael to Waratah Carmichael	34.0	242	237	358.2	393.0
Zone6 - Waratah Carmichael to Vale Degulla	22.0	115	113	169.8	186.3
Zone7 - Vale Degulla to Waratah Alpha West	36.0	237	237	410.6	429.2
Zone8 - Waratah Alpha West to GVK Kevin's Corner	23.0	127	127	247.3	258.5
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal	20.0	128	128	248.5	259.7
Spare Segment 1	-	-	-	-	-
Spare Segment 2	-	-	-	-	-
Spare Segment 3	-	-	-	-	-
Spare Segment 4	-	-	-	-	-
Spare Segment 5	-	-	-	-	-
Sub-Total	**577.0**	**3,771.6**	**3,658.6**	**5,190.1**	**5,832.7**
Passing Loops Capital Expenditure					
Zone1 - Abbot to North of Moranbah			343.9	562.4	589.7
Zone2 - North of Moranbah to North Galilee			312.4	501.0	525.4
Zone3 - North Galilee to Macmines South			-	-	-
Zone4 - Macmines South to Adani Carmichael			44.6	77.3	81.0
Zone5 - Adani Carmichael to Waratah Carmichael			44.6	86.9	91.2
Zone6 - Waratah Carmichael to Vale Degulla			44.6	77.3	81.0
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**790.1**	**1,304.9**	**1,368.3**
Duplication Capital Expenditure					
Zone1 - Abbot to North of Moranbah			-	-	-
Zone2 - North of Moranbah to North Galilee			-	-	-
Zone3 - North Galilee to Macmines South			-	-	-
Zone4 - Macmines South to Adani Carmichael			-	-	-
Zone5 - Adani Carmichael to Waratah Carmichael			-	-	-
Zone6 - Waratah Carmichael to Vale Degulla			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**-**	**-**	**-**
Total			**4,448.7**	**6,494.9**	**7,201.0**
Existing assets included in above figures			-	-	-

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QRN (60Mtpa)

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
QRN Mainline	174.0	1,337	1,286	1,445.6	1,665.7
ARN Zone 4	-	-	-	-	-
Existing QRN asset	207.0	-	806	942.4	984.8
Spare Segment 1	-	-	-	-	-
Spare Segment 2	-	-	-	-	-
Spare Segment 3	-	-	-	-	-
Spare Segment 4	-	-	-	-	-
Spare Segment 5	-	-	-	-	-
Spare Segment 6	-	-	-	-	-
Spare Segment 7	-	-	-	-	-
Spare Segment 8	-	-	-	-	-
Spare Segment 9	-	-	-	-	-
Spare Segment 10	-	-	-	-	-
Spare Segment 11	-	-	-	-	-
Sub-Total	**381.0**	**1,336.5**	**2,091.3**	**2,388.0**	**2,650.6**
Passing Loops Capital Expenditure					
QRN Mainline			136.5	159.7	167.5
ARN Zone 4			-	-	-
Existing QRN asset			85.3	99.8	104.7
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Spare Segment 4			-	-	-
Sub-Total			**221.8**	**259.5**	**272.1**
Duplication Capital Expenditure					
QRN Mainline			520.2	608.6	638.2
ARN Zone 4			-	-	-
Existing QRN asset			1,601.4	1,873.4	1,964.5
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Spare Segment 4			-	-	-
Sub-Total			**2,121.6**	**2,482.0**	**2,602.7**
Total			**4,434.7**	**5,129.5**	**5,525.3**
Existing assets included in above figures			805.6	942.4	984.8

GVK (60Mtpa)

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Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
Main Line GVK - Hancock	485.0	3,640	3,501	3,936.8	4,536.3
Zone7 - Vale Degulla to Waratah Alpha West	-	-	-	-	-
Zone8 - Waratah Alpha West to GVK Kevin's Corner	-	-	-	-	-
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal	-	-	-	-	-
Spare Segment 1	-	-	-	-	-
Spare Segment 2	-	-	-	-	-
Spare Segment 3	-	-	-	-	-
Spare Segment 4	-	-	-	-	-
Spare Segment 5	-	-	-	-	-
Spare Segment 6	-	-	-	-	-
Spare Segment 7	-	-	-	-	-
Spare Segment 8	-	-	-	-	-
Spare Segment 9	-	-	-	-	-
Spare Segment 10	-	-	-	-	-
Sub-Total	**485.0**	**3,639.8**	**3,501.4**	**3,936.8**	**4,536.3**
Passing Loops Capital Expenditure					
Main Line GVK - Hancock			396.7	474.0	497.0
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Zone8 - Waratah Alpha West to GVK Kevin's Corner			-	-	-
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal			-	-	-
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Sub-Total			**396.7**	**474.0**	**497.0**
Duplication Capital Expenditure					
Main Line GVK - Hancock			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Zone8 - Waratah Alpha West to GVK Kevin's Corner			-	-	-
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal			-	-	-
Spare Segment 1			-	-	-
Spare Segment 2			-	-	-
Spare Segment 3			-	-	-
Sub-Total			**-**	**-**	**-**
Total			**3,898.1**	**4,410.8**	**5,033.4**
Existing assets included in above figures			-	-	-

GICP - Direct Comparison against QRN (60 Mtpa)

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
Zone1 - Abbot to North of Moranbah	219.0	1,619	1,557	1,751.1	2,017.8
Zone2 - North of Moranbah to North Galilee	151.0	956	919	1,033.6	1,191.0
Zone3 - North Galilee to Macmines South	28.0	191	184	207.1	238.6
Zone4 - Macmines South to Adani Carmichael	44.0	311	300	336.8	388.1
Zone5 - Adani Carmichael to Waratah Carmichael		-	-	-	-
Zone6 - Waratah Carmichael to Vale Degulla		-	-	-	-
Zone7 - Vale Degulla to Waratah Alpha West		-	-	-	-
Zone8 - Waratah Alpha West to GVK Kevin's Corner		-	-	-	-
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal		-	-	-	-
Spare Segment 1		-	-	-	-
Spare Segment 2		-	-	-	-
Spare Segment 3		-	-	-	-
Spare Segment 4		-	-	-	-
Spare Segment 5		-	-	-	-
Sub-Total	**442.0**	**3,077.5**	**2,960.5**	**3,328.6**	**3,835.5**
Passing Loops Capital Expenditure					
Zone1 - Abbot to North of Moranbah			74.4	87.0	91.2
Zone2 - North of Moranbah to North Galilee			104.1	121.8	127.7
Zone3 - North Galilee to Macmines South			-	-	-
Zone4 - Macmines South to Adani Carmichael			44.6	52.2	54.7
Zone5 - Adani Carmichael to Waratah Carmichael			-	-	-
Zone6 - Waratah Carmichael to Vale Degulla			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**223.1**	**261.0**	**273.7**
Duplication Capital Expenditure					
Zone1 - Abbot to North of Moranbah			-	-	-
Zone2 - North of Moranbah to North Galilee			-	-	-
Zone3 - North Galilee to Macmines South			-	-	-
Zone4 - Macmines South to Adani Carmichael			-	-	-
Zone5 - Adani Carmichael to Waratah Carmichael			-	-	-
Zone6 - Waratah Carmichael to Vale Degulla			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**-**	**-**	**-**
Total			**3,183.6**	**3,589.6**	**4,109.2**
Existing assets included in above figures			-	-	-

QRN - Direct Comparison against QRN (60 Mtpa)

- Same costs as QRN in Comparison 2

GICP - Direct Comparison against GVK (60 Mtpa)

Construction Spend	Kilometrage	EI Cost (A$m)	Real Cost (A$m)	Nominal Cost (A$m)	Nominal Cost (A$m) including capitalised interest
Zone1 - Abbot to North of Moranbah	219.0	1,619	1,557	1,751.1	2,017.8
Zone2 - North of Moranbah to North Galilee	151.0	874	841	945.6	1,089.6
Zone3 - North Galilee to Macmines South	28.0	166	159	179.2	206.5
Zone4 - Macmines South to Adani Carmichael	44.0	264	259	297.3	326.2
Zone5 - Adani Carmichael to Waratah Carmichael	34.0	242	237	272.2	298.6
Zone6 - Waratah Carmichael to Vale Degulla	22.0	115	113	129.0	141.6
Zone7 - Vale Degulla to Waratah Alpha West	36.0	237	237	277.4	289.9
Zone8 - Waratah Alpha West to GVK Kevin's Corner	23.0	127	127	148.5	155.2
Zone9 - GVK Kevin's Corner to Waratah China 1st Coal		-	-	-	-
Spare Segment 1		-	-	-	-
Spare Segment 2		-	-	-	-
Spare Segment 3		-	-	-	-
Spare Segment 4		-	-	-	-
Spare Segment 5		-	-	-	-
Sub-Total	**557.0**	**3,644.0**	**3,531.0**	**4,000.4**	**4,525.4**
Passing Loops Capital Expenditure					
Zone1 - Abbot to North of Moranbah			210.0	249.8	262.0
Zone2 - North of Moranbah to North Galilee			223.1	267.3	280.3
Zone3 - North Galilee to Macmines South			-	-	-
Zone4 - Macmines South to Adani Carmichael			-	-	-
Zone5 - Adani Carmichael to Waratah Carmichael			-	-	-
Zone6 - Waratah Carmichael to Vale Degulla			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**433.1**	**517.1**	**542.3**
Duplication Capital Expenditure					
Zone1 - Abbot to North of Moranbah			-	-	-
Zone2 - North of Moranbah to North Galilee			-	-	-
Zone3 - North Galilee to Macmines South			-	-	-
Zone4 - Macmines South to Adani Carmichael			-	-	-
Zone5 - Adani Carmichael to Waratah Carmichael			-	-	-
Zone6 - Waratah Carmichael to Vale Degulla			-	-	-
Zone7 - Vale Degulla to Waratah Alpha West			-	-	-
Sub-Total			**-**	**-**	**-**
Total			**3,964.1**	**4,517.5**	**5,067.7**
Existing assets included in above figures			-	-	-

GVK - Direct Comparison against GVK (60 Mtpa)

- Same costs as GVK in Comparison 2

Appendix F Maps of alignments

GICP Option 1

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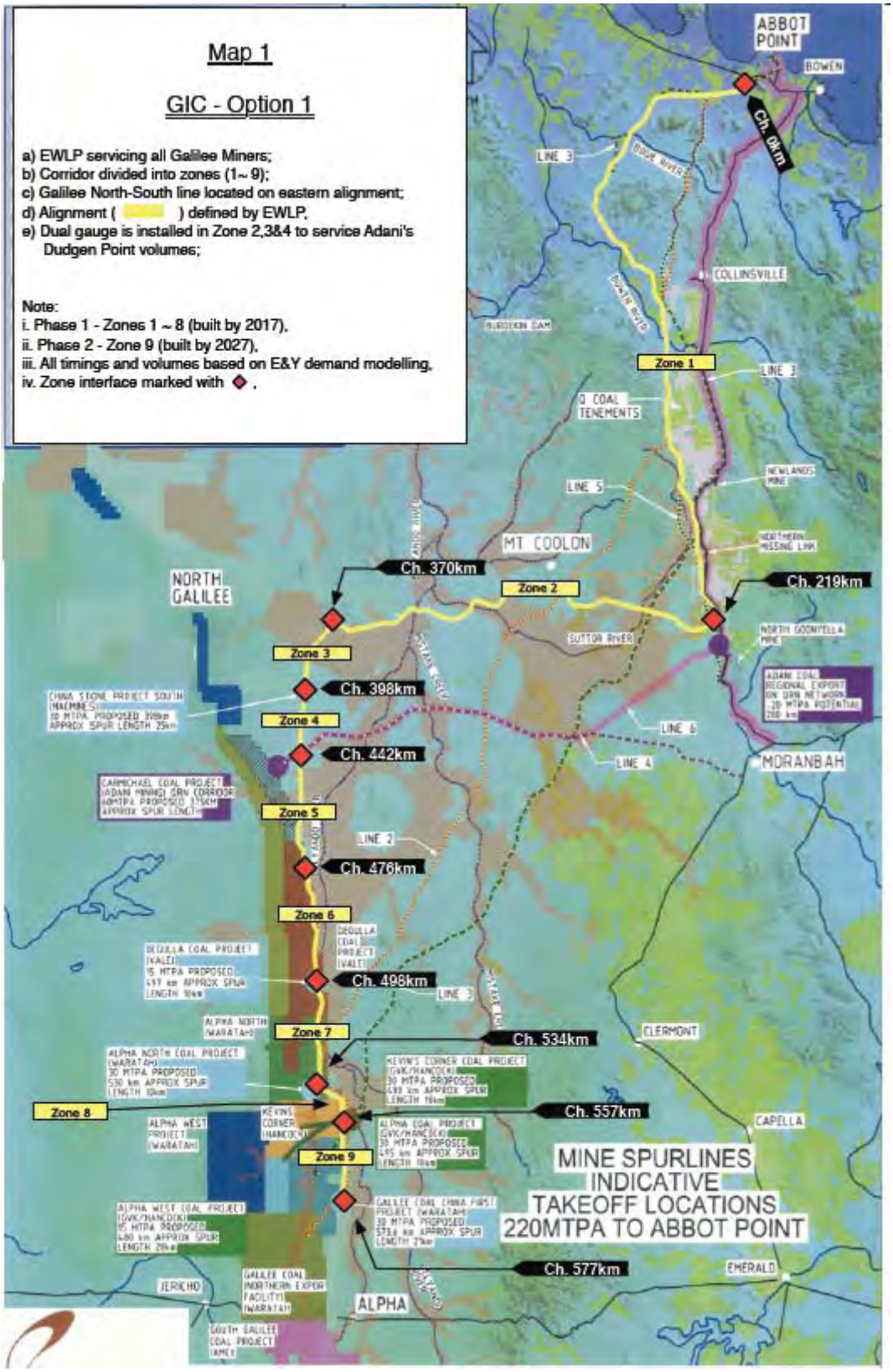
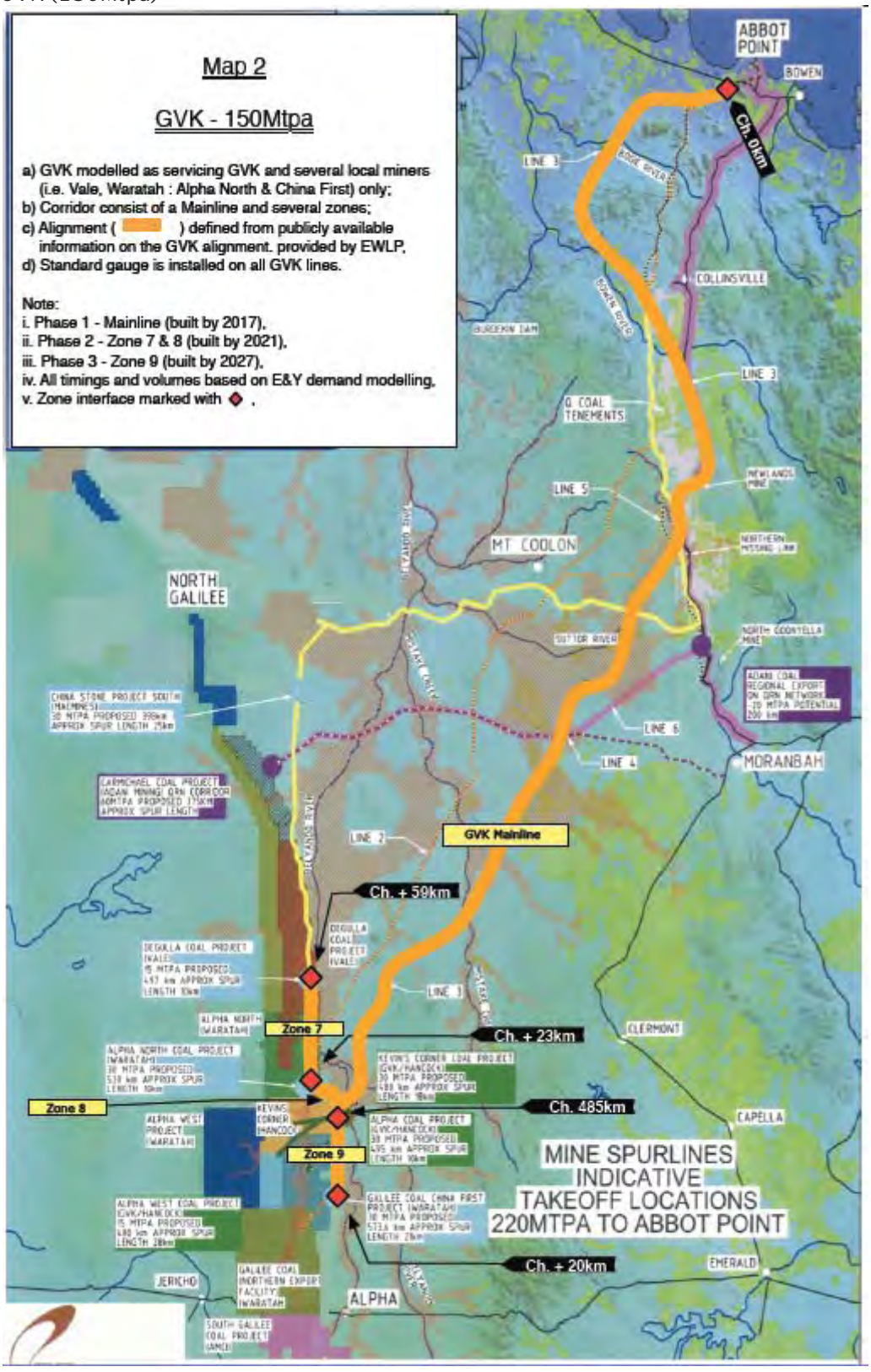

Map 1
GIC - Option 1
a) EWLP servicing all Galilee Miners;
b) Corridor divided into zones (1~ 9);
c) Galilee North-South line located on eastern alignment;
d) Alignment ( ) defined by EWLP.
e) Dual gauge is installed in Zone 2,3&4 to service Adani's Dudgen Point volumes;
Note:
i. Phase 1 - Zones 1 ~ 8 (built by 2017).
ii. Phase 2 - Zone 9 (built by 2027).
iii. All timings and volumes based on E&Y demand modelling.
iv. Zone interface marked with ◆ .
ABBOT POINT
BOWEN
Ch. 0km
LINE 3
COLLINSVILLE
Zone 1
LINE 3
0 COAL TENEMENTS
LINE 5
NEWLANDS MINE
MT COOLON
Ch. 370km
Ch. 219km
Zone 2
NORTH GALILEE
Zone 3
SUTTON River
NORTH GOONYELLA MINE
Ch. 398km
Zone 4
LINE 6
Ch. 442km
LINE 4
MORANBAH
Zone 5
LINE 2
Ch. 476km
Zone 6
Ch. 498km
LINE 3
Zone 7
Ch. 534km
CLERMONT
Zone 8
Ch. 557km
CAPELLA
Zone 9
MINE SPURLINES
INDICATIVE
TAKEOFF LOCATIONS
220MTPA TO ABBOT POINT
Ch. 577km
EMERALD
JERICHO
ALPHA

GVK (150Mtpa)


Map 2
GVK - 150Mtpa
a) GVK modelled as servicing GVK and several local miners (i.e. Vale, Waratah : Alpha North & China First) only;
b) Corridor consist of a Mainline and several zones;
c) Alignment ( ) defined from publicly available information on the GVK alignment. provided by EWLP,
d) Standard gauge is installed on all GVK lines.
Note:
i. Phase 1 - Mainline (built by 2017),
ii. Phase 2 - Zone 7 & 8 (built by 2021),
iii. Phase 3 - Zone 9 (built by 2027),
iv. All timings and volumes based on E&Y demand modelling,
v. Zone interface marked with .
ABBOT POINT
BOWEN
Ch. 0km
COLLINSVILLE
MT COOLON
NORTH GALILEE
MORANBAH
GVK Mainline
Ch. + 59km
Zone 7
Ch. + 23km
Zone 8
Ch. 485km
Zone 9
CLERMONT
CAPELLA
EMERALD
ALPHA
JERICHO
Ch. + 20km
MINE SPURLINES
INDICATIVE
TAKEOFF LOCATIONS
220MTPA TO ABBOT POINT

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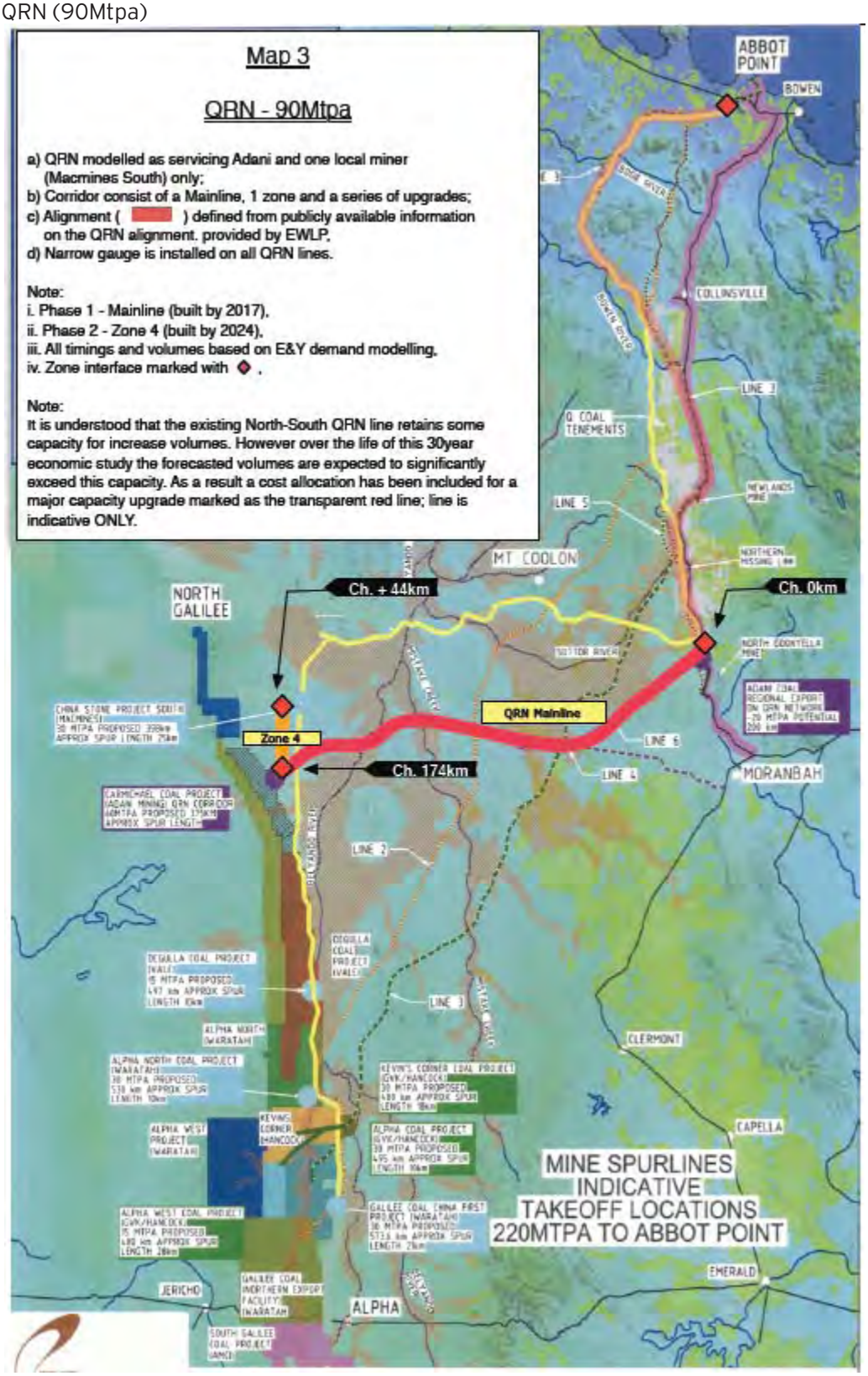
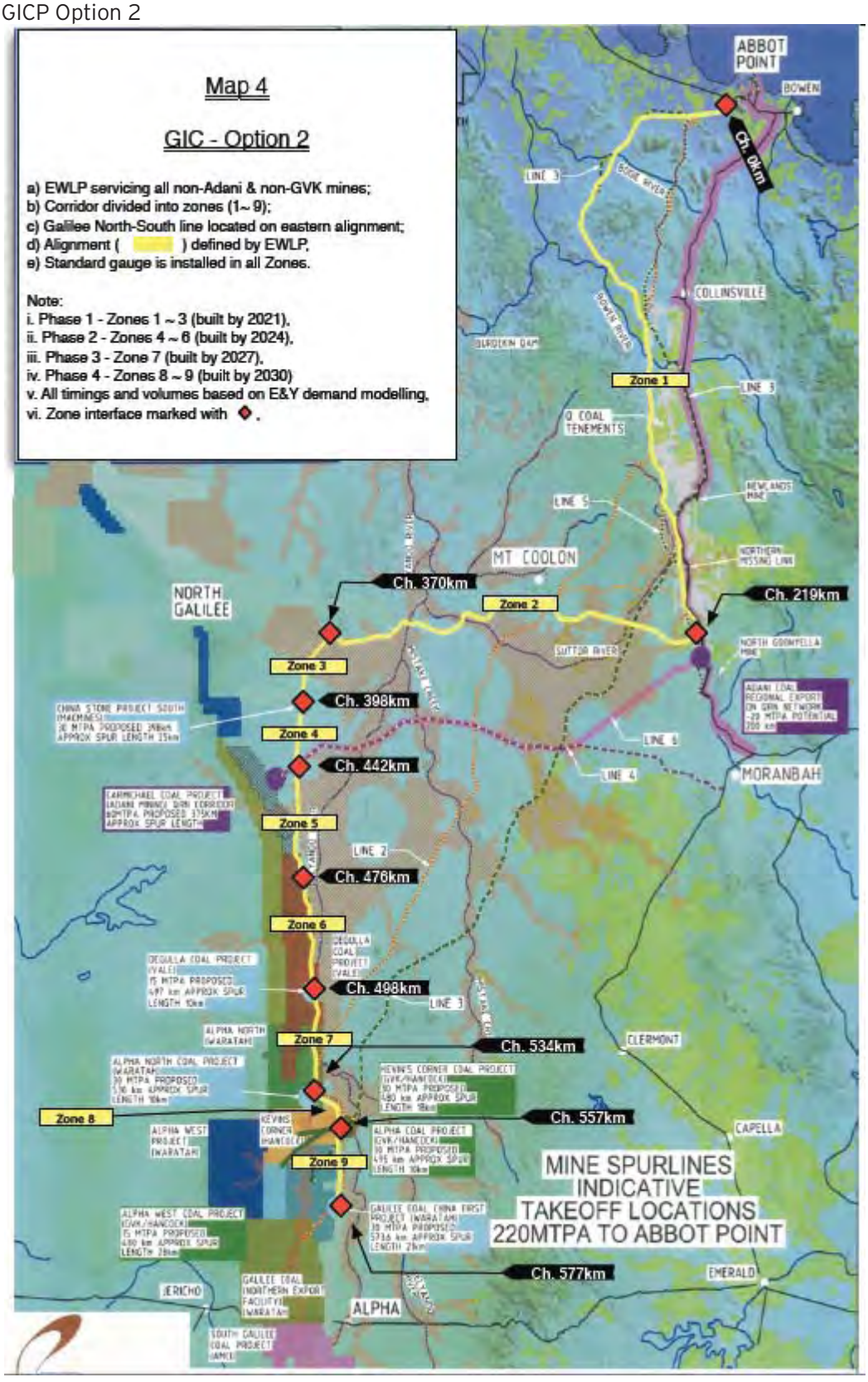
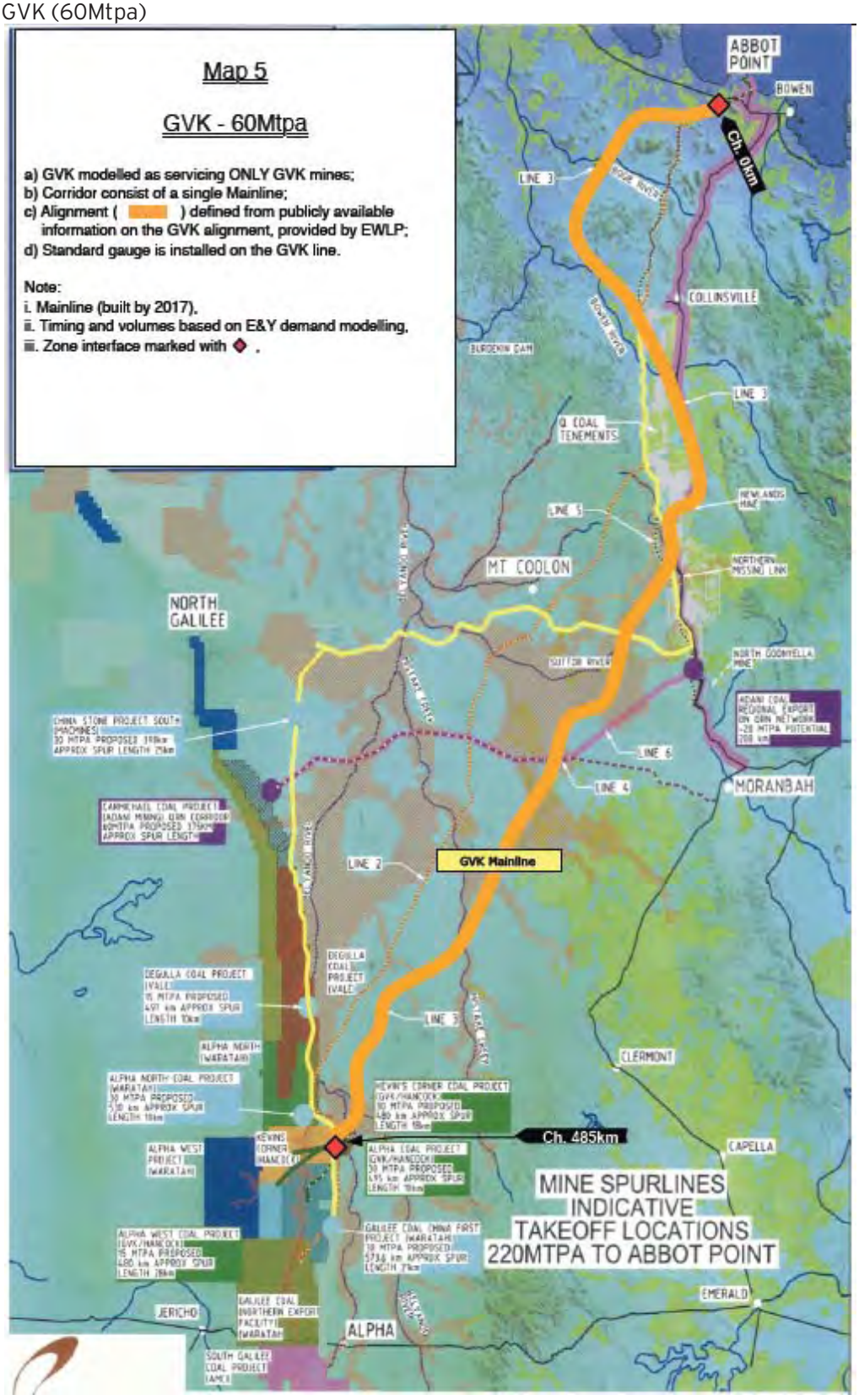
QRN (90Mtpa)



GICP Option 2

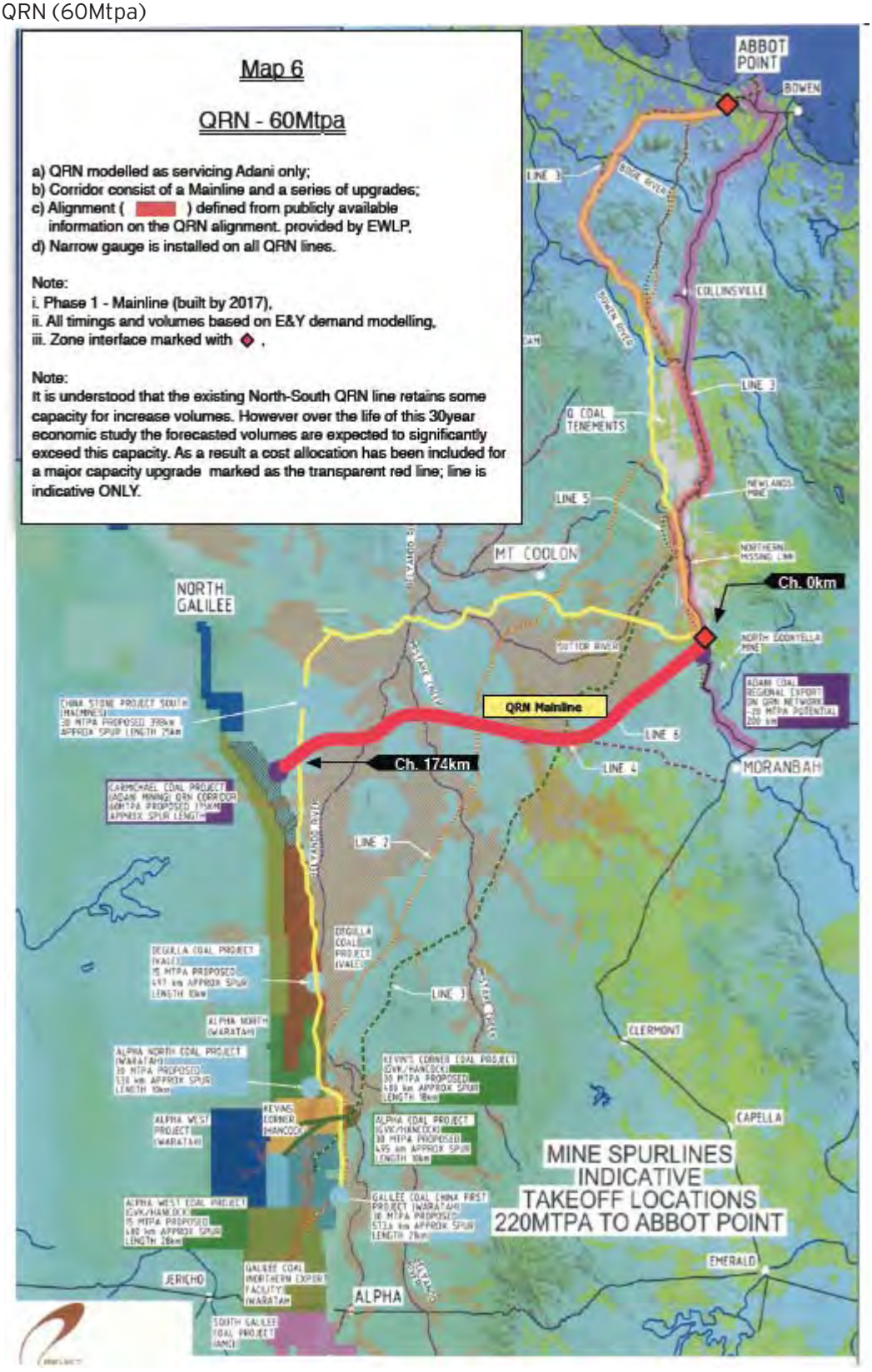


GVK (60Mtpa)


Map 5
GVK - 60Mtpa
a) GVK modelled as servicing ONLY GVK mines;
b) Corridor consist of a single Mainline;
c) Alignment ( ) defined from publicly available information on the GVK alignment, provided by EWLP;
d) Standard gauge is installed on the GVK line.
Note:
i. Mainline (built by 2017).
ii. Timing and volumes based on E&Y demand modelling.
iii. Zone interface marked with ◆ .
ABBOT POINT
BOWEN
Ch. 0km
LINE 3
COLLINSVILLE
BURDEKIN DAM
LINE 1
Q COAL TENEMENTS
LINE 5
MT COOLON
NORTH GALILEE
LINE 6
LINE 4
MORANBAH
GVK Mainline
LINE 2
LINE 3
CLERMONT
Ch. 485km
CAPELLA
MINE SPURLINES
INDICATIVE
TAKEOFF LOCATIONS
220MTPA TO ABBOT POINT
EMERALD
JERICHO
ALPHA

ERNST & YOUNG

QRN (60Mtpa)



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Appendix G Key Outputs

Comparison 1

Comparison 1	QRN (90Mtpa)	GVK (150Mtpa)	QRN + GVK	GICP Option 1	Cheapest Option
Real Cost (A$m)	4,943	5,591	10,535	6,114	
Alignment Length (Km)	425	564	989	577	
Maximum tonnages	90	150	240	240	
AUD per Transported NTK - Below Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	0.0170	0.0096	0.0119	0.0066	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	0.0196	0.0128	0.0150	0.0086	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	0.0186	/	0.0186	0.0066	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	0.0235	/	0.0235	0.0088	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	/	0.0097	0.0097	0.0067	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	/	0.0164	0.0164	0.0105	GICP Option 1
AUD per Transported NTK - Above Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	0.0145	0.0066	0.0091	0.0056	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	0.0150	0.0068	0.0094	0.0059	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	0.0131	/	0.0131	0.0057	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	0.0287	/	0.0287	0.0118	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	/	0.0067	0.0067	0.0053	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	/	0.0070	0.0070	0.0058	GICP Option 1
AUD Cost per Transported Tonne - Below Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	5.94	4.79	5.25	3.20	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	6.73	6.36	6.51	4.11	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	4.10	/	4.10	1.82	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	7.88	/	7.88	3.87	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	/	4.93	4.93	3.57	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	/	8.91	8.91	5.86	GICP Option 1
AUD Cost per Transported Tonne - Above Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	5.07	3.30	4.01	2.73	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	5.14	3.36	4.08	2.83	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	4.97	/	4.97	2.46	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	5.59	/	5.59	2.63	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	/	3.24	3.24	2.76	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	/	3.66	3.66	3.24	GICP Option 1
AUD Cost per Transported Tonne - Total (Real)					
Full Galilee - Full capacity steady state for all routes combined	11.01	8.10	9.27	5.93	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	11.87	9.72	10.58	6.95	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	9.07	/	9.07	4.28	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	13.47	/	13.47	6.50	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	/	8.17	8.17	6.33	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	/	12.57	12.57	9.10	GICP Option 1

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Comparison 2

Comparison 2	GICP Option 2	QRN (60Mtpa)	GVK (60Mtpa)	GICP2 + QRN + GVK	GICP Option 1	Cheapest Option
Real Cost (A$m)	4,449	4,435	3,898	12,781	6,114	
Alignment Length (Km)	577	381	485	1,443	577	
Maximum tonnages	120	60	60	240	240	
AUD per Transported NTK - Below Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	0.0111	0.0234	0.0198	0.0161	0.0066	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	0.0145	0.0253	0.0212	0.0187	0.0086	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	0.0184	0.0243	/	0.0184	0.0066	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	0.0184	0.0299	/	0.0299	0.0088	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	0.0123	/	0.0204	0.0123	0.0067	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	0.0149	/	0.0220	0.0220	0.0105	GICP Option 1
AUD per Transported NTK - Above Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	0.0055	0.0155	0.0065	0.0077	0.0056	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	0.0057	0.0160	0.0067	0.0080	0.0059	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	0.0061	0.0131	/	0.0061	0.0057	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	0.0061	0.0287	/	0.0287	0.0118	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	0.0053	/	0.0067	0.0053	0.0053	GICP2 + QRN + GVK
South Galilee - Maximum route charge (weighted average over life)	0.0063	/	0.0067	0.0067	0.0058	GICP Option 1
AUD Cost per Transported Tonne - Below Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	5.60	7.31	9.61	7.19	3.20	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	7.18	7.90	10.29	8.25	4.11	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	7.31	5.20	/	5.20	1.82	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	7.31	9.25	/	9.25	3.87	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	6.58	/	9.89	6.58	3.57	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	7.72	/	10.68	10.68	5.86	GICP Option 1
AUD Cost per Transported Tonne - Above Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	2.57	4.83	3.14	3.34	2.73	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	2.80	4.98	3.26	3.52	2.83	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	2.44	4.97	/	2.44	2.46	GICP2 + QRN + GVK
North Galilee - Maximum route charge (weighted average over life)	2.44	5.00	/	5.00	2.63	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	2.76	/	3.24	2.76	2.76	GICP2 + QRN + GVK
South Galilee - Maximum route charge (weighted average over life)	3.17	/	3.27	3.27	3.24	GICP Option 1
AUD Cost per Transported Tonne - Total (Real)						
Full Galilee - Full capacity steady state for all routes combined	8.17	12.14	12.75	10.54	5.93	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	9.98	12.88	13.55	11.77	6.95	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	9.75	10.17	/	7.64	4.28	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	9.75	14.25	/	14.25	6.50	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	9.34	/	13.13	9.34	6.33	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	10.89	/	13.94	13.94	9.10	GICP Option 1

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Direct Comparison GICP vs QRN (60 Mtpa)

Direct Comparison against QRN (60 Mtpa)	GICP (60 QRN)	QRN (60Mtpa)	Cheapest Option
Real Cost (A$m)	3,184	4,435	
Alignment Length (Km)	442	381	
Maximum tonnages	60	60	
AUD per Transported NTK - Below Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	0.0214	0.0234	GICP (60 QRN)
Full Galilee - Weighted average of all routes combined over life	0.0237	0.0253	GICP (60 QRN)
North Galilee - Minimum route charge (weighted average over life)	0.0193	0.0243	GICP (60 QRN)
North Galilee - Maximum route charge (weighted average over life)	0.0249	0.0299	GICP (60 QRN)
South Galilee - Minimum route charge (weighted average over life)	/	/	QRN (60Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	/	QRN (60Mtpa)
AUD per Transported NTK - Above Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	0.0066	0.0155	GICP (60 QRN)
Full Galilee - Weighted average of all routes combined over life	0.0069	0.0160	GICP (60 QRN)
North Galilee - Minimum route charge (weighted average over life)	0.0057	0.0131	GICP (60 QRN)
North Galilee - Maximum route charge (weighted average over life)	0.0118	0.0287	GICP (60 QRN)
South Galilee - Minimum route charge (weighted average over life)	/	/	QRN (60Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	/	QRN (60Mtpa)
AUD Cost per Transported Tonne - Below Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	7.89	7.31	QRN (60Mtpa)
Full Galilee - Weighted average of all routes combined over life	8.76	7.90	QRN (60Mtpa)
North Galilee - Minimum route charge (weighted average over life)	4.31	5.20	GICP (60 QRN)
North Galilee - Maximum route charge (weighted average over life)	10.99	9.25	QRN (60Mtpa)
South Galilee - Minimum route charge (weighted average over life)	/	/	QRN (60Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	/	QRN (60Mtpa)
AUD Cost per Transported Tonne - Above Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	2.45	4.83	GICP (60 QRN)
Full Galilee - Weighted average of all routes combined over life	2.56	4.98	GICP (60 QRN)
North Galilee - Minimum route charge (weighted average over life)	2.52	4.97	GICP (60 QRN)
North Galilee - Maximum route charge (weighted average over life)	2.63	5.00	GICP (60 QRN)
South Galilee - Minimum route charge (weighted average over life)	/	/	QRN (60Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	/	QRN (60Mtpa)
AUD Cost per Transported Tonne - Total (Real)			
Full Galilee - Full capacity steady state for all routes combined	10.33	12.14	GICP (60 QRN)
Full Galilee - Weighted average of all routes combined over life	11.32	12.88	GICP (60 QRN)
North Galilee - Minimum route charge (weighted average over life)	6.83	10.17	GICP (60 QRN)
North Galilee - Maximum route charge (weighted average over life)	13.62	14.25	GICP (60 QRN)
South Galilee - Minimum route charge (weighted average over life)	/	/	QRN (60Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	/	QRN (60Mtpa)

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Direct Comparison GICP vs GVK (60 Mtpa)

Direct Comparison against GVK (60 Mtpa)	GICP (60 GVK)	GVK (60 Mtpa)	Cheapest Option
Real Cost (A$m)	3,964	3,898	
Alignment Length (Km)	557	485	
Maximum tonnages	60	60	
AUD per Transported NTK - Below Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	0.0176	0.0198	GICP (60 GVK)
Full Galilee - Weighted average of all routes combined over life	0.0188	0.0212	GICP (60 GVK)
North Galilee - Minimum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
North Galilee - Maximum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
South Galilee - Minimum route charge (weighted average over life)	0.0181	0.0204	GICP (60 GVK)
South Galilee - Maximum route charge (weighted average over life)	0.0195	0.0220	GICP (60 GVK)
AUD per Transported NTK - Above Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	0.0052	0.0065	GICP (60 GVK)
Full Galilee - Weighted average of all routes combined over life	0.0055	0.0067	GICP (60 GVK)
North Galilee - Minimum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
North Galilee - Maximum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
South Galilee - Minimum route charge (weighted average over life)	0.0055	0.0067	GICP (60 GVK)
South Galilee - Maximum route charge (weighted average over life)	0.0055	0.0067	GICP (60 GVK)
AUD Cost per Transported Tonne - Below Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	9.78	9.61	GVK (60 Mtpa)
Full Galilee - Weighted average of all routes combined over life	10.48	10.29	GVK (60 Mtpa)
North Galilee - Minimum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
North Galilee - Maximum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
South Galilee - Minimum route charge (weighted average over life)	10.08	9.89	GVK (60 Mtpa)
South Galilee - Maximum route charge (weighted average over life)	10.87	10.68	GVK (60 Mtpa)
AUD Cost per Transported Tonne - Above Rail (Real)			
Full Galilee - Full capacity steady state for all routes combined	2.92	3.14	GICP (60 GVK)
Full Galilee - Weighted average of all routes combined over life	3.06	3.26	GICP (60 GVK)
North Galilee - Minimum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
North Galilee - Maximum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
South Galilee - Minimum route charge (weighted average over life)	3.04	3.24	GICP (60 GVK)
South Galilee - Maximum route charge (weighted average over life)	3.07	3.27	GICP (60 GVK)
AUD Cost per Transported Tonne - Total (Real)			
Full Galilee - Full capacity steady state for all routes combined	12.70	12.75	GICP (60 GVK)
Full Galilee - Weighted average of all routes combined over life	13.54	13.55	GICP (60 GVK)
North Galilee - Minimum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
North Galilee - Maximum route charge (weighted average over life)	/	/	GVK (60 Mtpa)
South Galilee - Minimum route charge (weighted average over life)	13.12	13.13	GICP (60 GVK)
South Galilee - Maximum route charge (weighted average over life)	13.95	13.94	GVK (60 Mtpa)

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Direct Comparison - combined solution servicing QRN and GVK (120Mtpa)

GICP - combined solution servicing QRN and GVK (120)	QRN (60Mtpa)	GVK (60Mtpa)	QRN + GVK	GICP (120Mtpa)	Cheapest Option
Real Cost (A$m)	4,435	3,898	8,333	4,245	
Alignment Length (Km)	381	485	866	557	
Maximum tonnages	60	60	120	120	
AUD per Transported NTK - Below Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	0.0234	0.0198	0.0209	0.0114	GICP (120Mtpa)
Full Galilee - Weighted average of all routes combined over life	0.0253	0.0212	0.0225	0.0124	GICP (120Mtpa)
North Galilee - Minimum route charge (weighted average over life)	0.0243	/	0.0243	0.0102	GICP (120Mtpa)
North Galilee - Maximum route charge (weighted average over life)	0.0299	/	0.0299	0.0115	GICP (120Mtpa)
South Galilee - Minimum route charge (weighted average over life)	/	0.0204	0.0204	0.0127	GICP (120Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	0.0220	0.0220	0.0137	GICP (120Mtpa)
AUD per Transported NTK - Above Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	0.0155	0.0065	0.0093	0.0058	GICP (120Mtpa)
Full Galilee - Weighted average of all routes combined over life	0.0160	0.0067	0.0096	0.0061	GICP (120Mtpa)
North Galilee - Minimum route charge (weighted average over life)	0.0131	/	0.0131	0.0057	GICP (120Mtpa)
North Galilee - Maximum route charge (weighted average over life)	0.0287	/	0.0287	0.0118	GICP (120Mtpa)
South Galilee - Minimum route charge (weighted average over life)	/	0.0067	0.0067	0.0055	GICP (120Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	0.0067	0.0067	0.0055	GICP (120Mtpa)
AUD Cost per Transported Tonne - Below Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	7.31	9.61	8.69	5.29	GICP (120Mtpa)
Full Galilee - Weighted average of all routes combined over life	7.90	10.29	9.33	5.77	GICP (120Mtpa)
North Galilee - Minimum route charge (weighted average over life)	5.20	/	5.20	2.28	GICP (120Mtpa)
North Galilee - Maximum route charge (weighted average over life)	9.25	/	9.25	5.06	GICP (120Mtpa)
South Galilee - Minimum route charge (weighted average over life)	/	9.89	9.89	7.07	GICP (120Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	10.68	10.68	7.63	GICP (120Mtpa)
AUD Cost per Transported Tonne - Above Rail (Real)					
Full Galilee - Full capacity steady state for all routes combined	4.83	3.14	3.82	2.68	GICP (120Mtpa)
Full Galilee - Weighted average of all routes combined over life	4.98	3.26	3.95	2.81	GICP (120Mtpa)
North Galilee - Minimum route charge (weighted average over life)	4.97	/	4.97	2.52	GICP (120Mtpa)
North Galilee - Maximum route charge (weighted average over life)	5.00	/	5.00	2.63	GICP (120Mtpa)
South Galilee - Minimum route charge (weighted average over life)	/	3.24	3.24	3.04	GICP (120Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	3.27	3.27	3.07	GICP (120Mtpa)
AUD Cost per Transported Tonne - Total (Real)					
Full Galilee - Full capacity steady state for all routes combined	12.14	12.75	12.50	7.98	GICP (120Mtpa)
Full Galilee - Weighted average of all routes combined over life	12.88	13.55	13.28	8.59	GICP (120Mtpa)
North Galilee - Minimum route charge (weighted average over life)	10.17	/	10.17	4.80	GICP (120Mtpa)
North Galilee - Maximum route charge (weighted average over life)	14.25	/	14.25	7.69	GICP (120Mtpa)
South Galilee - Minimum route charge (weighted average over life)	/	13.13	13.13	10.11	GICP (120Mtpa)
South Galilee - Maximum route charge (weighted average over life)	/	13.94	13.94	10.70	GICP (120Mtpa)

GICP Option 1 – Sensitivity on Port Capacity

GICP Option 1 Sensitivity on Port Scenario	Best	Worst	Probable
Real Cost (A$m)	6,454	4,626	6,114
Alignment Length (Km)	577	557	577
Maximum tonnages	311	150	240
AUD per Transported NTK - Below Rail (Real)			0.000
Full Galilee - Full capacity steady state for all routes combined	0.0057	0.0095	0.0066
Full Galilee - Weighted average of all routes combined over life	0.0069	0.0107	0.0086
North Galilee - Minimum route charge (weighted average over life)	0.0054	0.0095	0.0066
North Galilee - Maximum route charge (weighted average over life)	0.0072	0.0097	0.0088
South Galilee - Minimum route charge (weighted average over life)	0.0059	0.0097	0.0067
South Galilee - Maximum route charge (weighted average over life)	0.0084	0.0130	0.0105
AUD per Transported NTK - Above Rail (Real)			0.000
Full Galilee - Full capacity steady state for all routes combined	0.0057	0.0057	0.0056
Full Galilee - Weighted average of all routes combined over life	0.0059	0.0060	0.0059
North Galilee - Minimum route charge (weighted average over life)	0.0057	0.0057	0.0057
North Galilee - Maximum route charge (weighted average over life)	0.0118	0.0118	0.0118
South Galilee - Minimum route charge (weighted average over life)	0.0053	0.0055	0.0053
South Galilee - Maximum route charge (weighted average over life)	0.0133	0.0058	0.0058
AUD Cost per Transported Tonne - Below Rail (Real)			0.000
Full Galilee - Full capacity steady state for all routes combined	2.75	4.51	3.20
Full Galilee - Weighted average of all routes combined over life	3.36	5.11	4.11
North Galilee - Minimum route charge (weighted average over life)	1.53	2.12	1.82
North Galilee - Maximum route charge (weighted average over life)	3.19	4.27	3.87
South Galilee - Minimum route charge (weighted average over life)	2.92	4.85	3.57
South Galilee - Maximum route charge (weighted average over life)	4.69	7.22	5.86
AUD Cost per Transported Tonne - Above Rail (Real)			0.000
Full Galilee - Full capacity steady state for all routes combined	2.76	2.73	2.73
Full Galilee - Weighted average of all routes combined over life	2.88	2.85	2.83
North Galilee - Minimum route charge (weighted average over life)	2.45	2.52	2.46
North Galilee - Maximum route charge (weighted average over life)	2.63	2.63	2.63
South Galilee - Minimum route charge (weighted average over life)	2.76	2.76	2.76
South Galilee - Maximum route charge (weighted average over life)	3.44	3.23	3.24
AUD Cost per Transported Tonne - Total (Real)			
Full Galilee - Full capacity steady state for all routes combined	5.51	7.24	5.93
Full Galilee - Weighted average of all routes combined over life	6.24	7.96	6.95
North Galilee - Minimum route charge (weighted average over life)	3.98	4.65	4.28
North Galilee - Maximum route charge (weighted average over life)	5.82	6.89	6.50
South Galilee - Minimum route charge (weighted average over life)	5.67	7.61	6.3287
South Galilee - Maximum route charge (weighted average over life)	8.13	10.45	9.0988

GICP Option 1 – Sensitivity on WACC (Regulated)

Comparison 1 with Regulated WACC	QRN (90) Reg	GVK (150) Reg	QRN + GVK Reg	GICP Option 1 Reg
Real Cost (A$m)	4,943	5,591	10,535	6,114
Alignment Length (Km)	425	564	989	577
Maximum tonnages	90	150	240	240
AUD per Transported NTK - Below Rail (Real)				
Full Galilee - Full capacity steady state for all routes combined	0.0124	0.0071	0.0088	0.0049
Full Galilee - Weighted average of all routes combined over life	0.0144	0.0095	0.0110	0.0064
North Galilee - Minimum route charge (weighted average over life)	0.0135	/	0.0135	0.0050
North Galilee - Maximum route charge (weighted average over life)	0.0173	/	0.0173	0.0066
South Galilee - Minimum route charge (weighted average over life)	/	0.0072	0.0072	0.0050
South Galilee - Maximum route charge (weighted average over life)	/	0.0121	0.0121	0.0079
AUD Cost per Transported Tonne - Below Rail (Real)				
Full Galilee - Full capacity steady state for all routes combined	4.35	3.56	3.88	2.40
Full Galilee - Weighted average of all routes combined over life	4.92	4.73	4.81	3.08
North Galilee - Minimum route charge (weighted average over life)	3.01	/	3.01	1.38
North Galilee - Maximum route charge (weighted average over life)	5.76	/	5.76	2.92
South Galilee - Minimum route charge (weighted average over life)	/	3.66	3.66	2.67
South Galilee - Maximum route charge (weighted average over life)	/	6.56	6.56	4.39

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GICP Option 2 – Port Access Sensitivity

Port Access Sensitivity	GICP (120Mtpa)	QRN (60Mtpa)	GVK (60Mtpa)	GICP + QRN + GVK	GICP Option 1	Cheapest Option
Real Cost (A$m)	4,449	4,435	3,898	12,781	6,114	
Alignment Length (Km)	577	381	485	1,443	577	
Maximum tonnages	120	60	60	240	240	
AUD per Transported NTK - Below Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	0.0108	0.0234	0.0199	0.0155	0.0066	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	0.0120	0.0253	0.0210	0.0168	0.0086	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	0.0111	0.0243	/	0.0111	0.0066	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	0.0111	0.0299	/	0.0299	0.0088	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	0.0116	/	0.0210	0.0116	0.0067	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	0.0132	/	0.0210	0.0210	0.0105	GICP Option 1
AUD per Transported NTK - Above Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	0.0054	0.0155	0.0065	0.0074	0.0056	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	0.0056	0.0160	0.0067	0.0077	0.0059	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	0.0061	0.0131	/	0.0061	0.0057	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	0.0061	0.0287	/	0.0287	0.0118	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	0.0052	/	0.0067	0.0052	0.0053	GICP + QRN + GVK
South Galilee - Maximum route charge (weighted average over life)	0.0063	/	0.0067	0.0067	0.0058	GICP Option 1
AUD Cost per Transported Tonne - Below Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	5.47	7.31	9.65	7.01	3.20	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	6.08	7.90	10.16	7.59	4.11	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	4.430	5.20	/	4.43	1.82	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	4.430	9.25	/	9.25	3.87	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	5.766	/	10.16	5.77	3.57	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	7.623	/	10.16	10.16	5.86	GICP Option 1
AUD Cost per Transported Tonne - Above Rail (Real)						
Full Galilee - Full capacity steady state for all routes combined	2.70	4.83	3.14	3.34	2.73	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	2.83	4.98	3.25	3.47	2.83	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	2.445	4.97	/	2.45	2.46	GICP + QRN + GVK
North Galilee - Maximum route charge (weighted average over life)	2.445	5.00	/	5.00	2.63	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	2.749	/	3.24	2.75	2.76	GICP + QRN + GVK
South Galilee - Maximum route charge (weighted average over life)	3.146	/	3.27	3.27	3.24	GICP Option 1
AUD Cost per Transported Tonne - Total (Real)						
Full Galilee - Full capacity steady state for all routes combined	8.17	12.14	12.79	10.35	5.93	GICP Option 1
Full Galilee - Weighted average of all routes combined over life	8.90	12.88	13.42	11.06	6.95	GICP Option 1
North Galilee - Minimum route charge (weighted average over life)	6.875	10.17	/	6.88	4.28	GICP Option 1
North Galilee - Maximum route charge (weighted average over life)	6.875	14.25	/	14.25	6.50	GICP Option 1
South Galilee - Minimum route charge (weighted average over life)	8.515	/	13.40	8.52	6.33	GICP Option 1
South Galilee - Maximum route charge (weighted average over life)	10.768	/	13.43	13.43	9.10	GICP Option 1

Appendix H Everything Infrastructure Report

Attached is the 125 page "Above and below rail comparative cost estimates" report of July 2012. In total, the report is 125 pages in length (including the front page and appendices).

EVERYTHING INFRASTRUCTURE

East West Line Parks Limited

Galilee Infrastructure Corridor Project

Above and below rail comparative cost estimates

July 2012

Final version

Table of Contents

EXECUTIVE SUMMARY

1. East West Line Parks Ltd ("EWLP") are proposing to develop an open access, multi user, multipurpose infrastructure corridor from the Port of Abbot Point to the coal mining region of the Galilee Basin. The EWLP corridor is referred to as the Galilee Infrastructure Corridor ("GICP").

2. EWLP has engaged Everything Infrastructure (EI) and Ernst & Young (EY) as Economic Infrastructure Consultants of the Project to jointly study the relative economic freight efficiency of the various Galilee basin rail proposals in the public arena.

3. This report is to be read in conjunction with the EY report "Galilee Infrastructure Corridor Project Pre-feasibility Financial and Commercial Report".

4. EI and EY compared the GICP against other Galilee Basin rail lines. The analysis was shaped by the Government's announcements on 6 June 2012 in relation to its support for two rail corridors, namely the QRN "East-West" corridor and the GVK "North-South" corridor.

5. EI's particular part of the study was to assess the above and below rail comparative cost estimates for input into the economic modelling by EY.

6. The cost assessments for both above and below rail comparable costs have been prepared as a desktop study. Key assumptions have been based on preliminary alignment and earthworks volume information provided by EWLP, information available from the public domain and the above and below rail experience of the EI team.

7. The above and below rail cost assessments are only to be used as inputs into the economic modelling of the proposed GICP corridor and this report should be read in conjunction with the report prepared by EY.

Cost estimate structure

8. The above and below rail comparative costs estimates have been prepared on a elemental basis to enable modelling on a whole system and mine by mine basis. The estimates included:

   i. Below rail capital cost estimates estimated on a per kilometre basis and including assessments of:

      A. direct costs (including, but not limited to, earthworks, capping layer, structures and permanent way);

      B. indirect costs (including, but not limited to, camps, recurring overheads, design and contractor's mark-up);

      C. land acquisition costs;

      D. client project management costs; and

      E. project contingency.

   ii. Above rail operating and maintenance cost estimates developed on a per tonnage and on a mine by mine basis and including assessments of:

      A. rolling stock costs;

      B. lifecycle maintenance costs for locomotives and wagons; and

      C. rail service operating costs including labour and fuel consumption.

Comparative options

9. The major options being assessed for the above and below rail comparative estimates, as shown in Figure 1, were based on 240Mtpa being carried on either:

   i. A single corridor only (referred to as "***GICP–240Mtpa–Option 1***");

ii. Two other corridors (referred to as "***GVK–150Mtpa***" and "***QRN-90Mtpa****"*); or

iii. All three corridors (referred to as "***GICP–120Mtpa–Option 2***" and "***GVK-60Mtpa"*** and ***"QRN-60Mtpa****"*).

10. The comparisons in the economic modelling, using *GICP–240Mtpa–Option 1* as the base case, are:

i. Comparison 1 – *GICP–240Mtpa–Option 1*, servicing all Galilee mines, **versus** *GVK–150Mtpa*, servicing Galilee South mines **and** *QRN-90Mtpa*, servicing Galilee North mines; and

ii. Comparison 2 – *GICP–240Mtpa–Option 1* " **versus** *GVK-60Mtpa*, servicing only GVK mines, **and** *QRN-60Mtpa*, servicing only Adani mines, **and** *GICP–120Mtpa–Option 2*, servicing all the remaining Galilee mines".

Comparative differences

11. There major differences between the cost estimates for the GICP, GVK and QRN corridors were driven by differences in:

i. alignment;

ii. capacity;

iii. access;

iv. below rail cost elements; and

v. operating efficiency.

12. The proposed GICP alignment:

i. minimises exposure to major flood plain areas, resulting in:

A. lower earthworks costs from better earthworks balance of cut and fill materials during construction compared to other corridors. The other corridors, with long sections through flood plain areas, require the importing of large quantities of fill material over long distances;

B. a lower cost of embankment construction due to lower provision for bridge structures and drainage;

C. greater certainty of construction delivery during the wet seasons; and

D. greater certainty of uninterrupted operating service due to flooding events.

ii. provides environmental and community benefits by:

A. avoiding the Collinsville area and the need for noise mitigation treatments; and

B. minimising the impact on agricultural areas resulting in lower land acquisition costs.

13. The proposed GICP has a greater capacity than other corridors as it:

i. is designed to carry 40TAL wagons;

ii. requires fewer trains to carry equivalent loads;

iii. defers capital expenditure for capacity enhancements; and

iv. is capable of connecting to the existing narrow gauge network, if a dual gauge section is included.

14. In terms of accessibility for mines, the proposed GICP provides greater access to the entire Galilee Basin than other corridors as it:

i. does not rely on train paths along existing rail networks; and

ii. subject to a change to existing port constraints, provides access to the entire basin at the same time.

15. Whilst the proposed GICP is longer than other corridors, it has:

i. a lower below rail cost/ tonne capital cost due to its ability to carry higher loads from all parts of the Galilee Basin; and

ii. similar below rail maintenance costs on a per tonne km basis.

16. The proposed GICP has operating efficiency benefits due to:

i. requiring fewer trains as each can carry greater loads when compared to trains on other corridors; and

ii. a lower fuel cost/ tonne operating cost as a result of greater payload trains and minimum ruling grades.

Further assessment

17. It is anticipated that further scope definition, including design of specific items such as the standard profile, the vertical and horizontal rail alignment, the sizing of structures and drainage through floodplains, coal wagon technical performance specifications and detailed train system operational modelling would increase the level of project definition and improve the accuracy of the cost estimates for both above and below rail components.

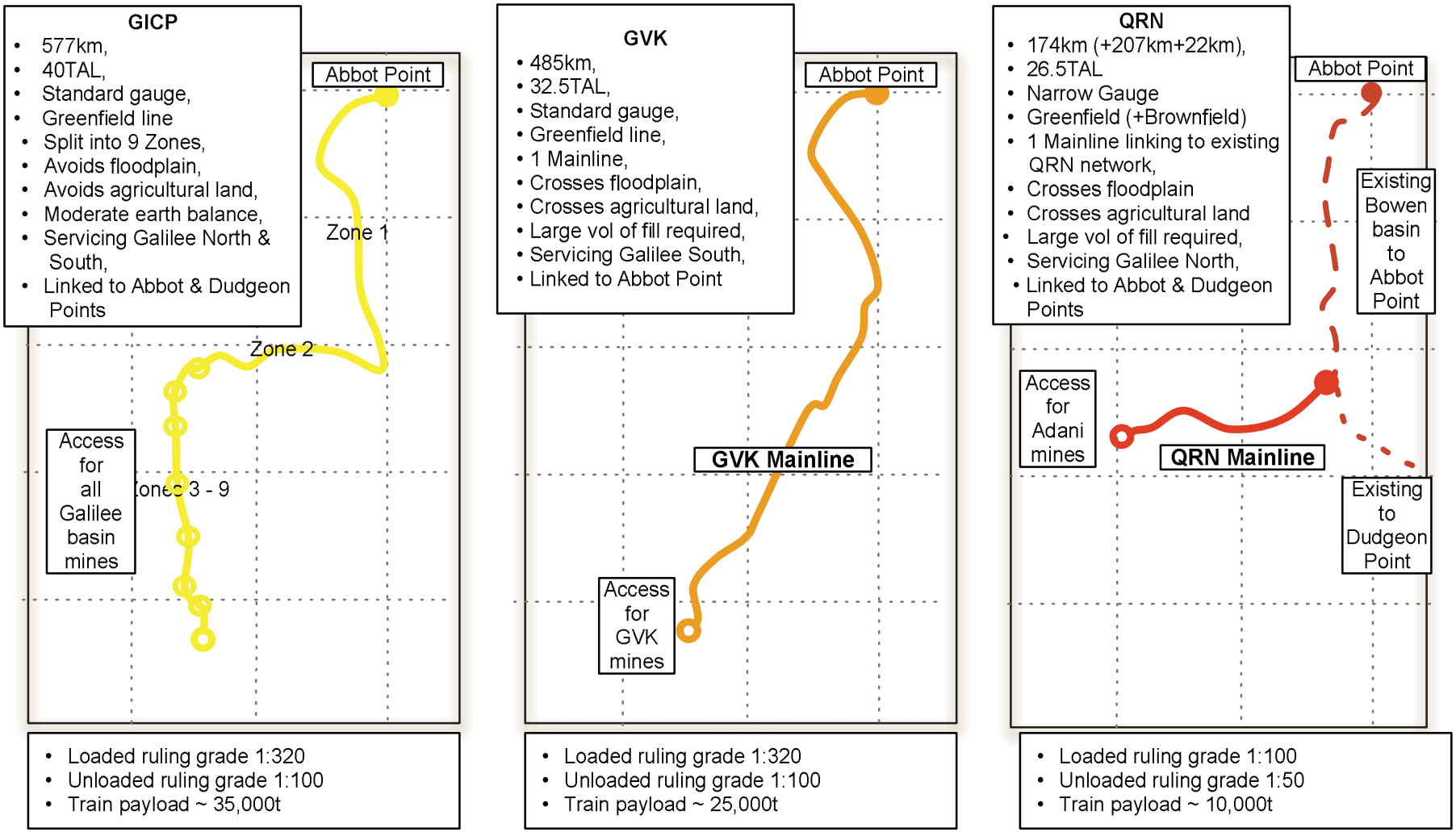


Figure 1 – Physical comparisons of proposed GICP corridor against assumed proposed GVK and QRN corridors

1. INTRODUCTION

East West Line Parks Ltd (EWLP) proposes to develop an open access, multi user, multipurpose infrastructure corridor from the Port of Abbot Point to the coal mining regions of the Bowen and Galilee Basins. EWLP's Galilee Infrastructure Corridor (GICP) is approximately 600km in length and serves proposed mines in both the Galilee North and Galilee South regions.

EWLP is seeking to demonstrate the economic advantages of the proposed GICP over the other currently proposed rail corridors from the Galilee. The direction of this study was shaped by the Government's announcements on 6 June 2012 in relation to its preliminary support for two rail corridors, namely the QRN East-West corridor and the GVK 'North-South' corridor. The QRN proposed line seeks to utilise the existing narrow gauge network currently connecting the Bowen basin to both Dudgeon Point and Abbot Point and includes a greenfields section extending from near Moranbah to the Galilee North region. The GVK proposed line is a fully greenfields, standard gauge rail line extending approximately 500km directly from Abbot Point to the Galilee South area.

There were a number of other corridors that were not included in our comparative assessment. These included the corridors proposed by Adani directly and the corridor proposed by Warratah. According to the Government announcement, Adani is currently developing the QRN alignment with QRN, therefore Adani's own corridor was not considered further within this assessment. The Adani and QRN corridors are, in any event, on a similar east-west alignment. For Waratah's proposed corridor, it was considered to be similar in alignment and length to the corridor proposed by GVK, however the Waratah corridor was purportedly based on a 25 tonne axle load which was lower than the axle loading for GVK, so the Warratah corridor was not assessed as part of this comparative assessment.

Everything Infrastructure (EI) has assessed the GICP's above and below rail comparative costs for various demand levels and compared costs to the proposed competing GVK and QRN corridors. EI's analysis was used as inputs into the economic modelling being undertaken by Ernst and Young (EY), who have prepared an economic analysis of the GICP for various demand scenarios.

EI's comparative cost estimate report includes:

- a brief background description of the various proposed rail projects giving context to the comparative cost assessment;
- a list of key assumptions underpinning the EIG analysis undertaken for the above and below rail cost estimates;
- a review of the below rail cost estimate outputs;
- a comparison of below cost estimate with those estimated for the other Galilee rail corridors;
- a comment on methods for achieving improved capital cost efficiency;
- a review of the above rail equipment capital costs;
- a determination on the most efficient GICP railway system;
- a summary of EI's findings highlighting the major differences between GICP and the other projects.

A road map outlining the key features of this report is shown in Figure 1.

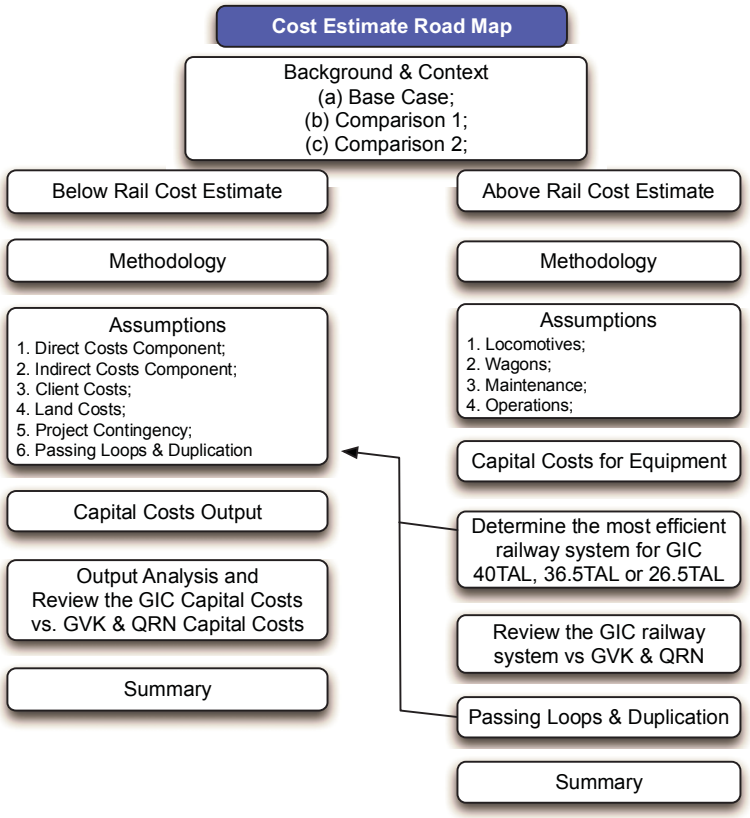


Figure 2: Road map for the GICP Comparative Cost Estimate

2. BACKGROUND AND CONTEXT

Prior to March 2012, EWLP, as the proponent of the GICP project, together with their technical advisors, undertook preliminary analysis to select a preferred alignment for a rail corridor extending from Abbot Point to both Galilee north and Galilee south regions.

The preferred concept for the GICP, as indicated in EWLP's Initial Advice Statement dated March 2012, has the following characteristics:

- the GICP connects Galilee mines, in both north and south regions, to Abbot Point with a dedicated, multi-user, heavy haul freight line;
- the selected GICP alignment seeks to minimise the length of line traversing flood prone areas and minimise the impact on valuable cropping land; and
- the GICP concept potentially captures significant economies of scale by enabling larger volumes of freight to be carried on a dedicated 40 tonne axle load track.

The aim of EWLP's economic study is to quantify and demonstrate the differentiating characteristics of the GICP from other lines proposed to connect the Galilee Basin to Abbot Point.

The two other rail corridor concepts being compared are the proposed GVK line connecting Abbot Point directly with GVK mines in the Galilee south area and the proposed QRN line extending the existing Goonyella network currently servicing the Bowen Basin to the Adani mines in the Galilee north area. The proposed GICP corridor and the assumed GVK and QRN corridors are depicted in diagrams included in Appendix 1 of this report.

A number of different demand scenarios have been prepared to enable the economic comparison of the GICP against GVK and QRN proposals on a mine by mine basis. For further details on the specific demand scenarios and the various constraints on Abbot Point capacity, refer to the aforementioned associated report prepared by EY.

In terms of the below and above rail comparative cost assessment, there are two major comparisons being considered against a base case, those are;

- Base case - "GICP, servicing all the Galilee mines at up to 240Mtpa" referred to as "***GICP–240Mtpa–Option 1***"
- Comparison 1 – "*GICP–240Mtpa–Option 1*" ***versus*** "GVK servicing the Galilee South mines at up to 150Mtpa" referred to as "***GVK–150Mtpa***" ***and*** "QRN servicing the Galilee North mines at up to 90Mtpa" referred to as "***QRN-90Mtpa****"*.
- Comparison 2 – "*GICP–240Mtpa–Option 1*" **versus** "GVK servicing only GVK mines at up to 60Mtpa" referred to as "***GVK-60Mtpa***" ***and*** "QRN servicing only Adani mines at up to 60Mtpa" referred to as "***QRN-60Mtpa****" **and*** "GICP, servicing all the remaining Galilee mines at up to 120Mtpa" referred to as "*GICP–240Mtpa–Option 2*"

3. BELOW RAIL COMPARATIVE COST ASSESSMENT

3.1. METHODOLOGY

EI has adopted a building blocks approach for the development of the below rail comparative cost assessments to enable comparative economic value to be assessed for a range of demand scenarios. The building blocks included assessment of:

- Total below rail construction costs based on a single track configuration for each of the GICP, GVK and QRN rail alignments;
- Greenfield and brownfield construction costs for the addition of passing loops to increase capacity along each line as demand increases; and
- Duplication costs for sections of each line to enhance track capacity.

The total below rail costs were prepared based on physical zones with each of the zones in the Galilee Basin servicing different mines. This zonal approach added to the complexity of preparing comparable cost estimates, however, it provided the flexibility to be able to model different economic outcomes for a range of demand scenarios. Diagrams showing the various alignments and staging of the below rail works have been included in Appendix 1 as:

- Part A – *GICP–240Mtpa–Option 1;*
- Part B – *GVK–150Mtpa* and *QRN-90Mtpa; and*
- Part C – *GICP–120Mtpa–Option 2*, *GVK-60Mtpa* and *QRN-60Mtpa.*

A standard structure for the below rail cost estimates was adopted to enable benchmark comparisons of costs and prices against known market prices for similar work. The total cost structure included:

- Direct costs (including earthworks, capping layer, structures, permanent way, incidental and environmental works and fencing);
- Indirect costs (including mobilisation and demobilisation, camps, recurring overheads, design and design verification, environmental monitoring, site investigations, contractors risk and opportunities, contractor's allowance to fix price and time over the contract period);
- Contractor's mark-up (including offsite overhead recovery and profit);
- Client costs (including development costs and project management during construction);
- Land costs (including allowance for acquisition and land adjustment works); and
- Project contingencies (allowing for the uncertainty at the early stage of project definition).

For this pre-feasibility phase, the direct costs were determined for four different terrain types, broadly defined as:

- Flat - generally flat, small cuts, minimum formation depths, good ground conditions;
- Hilly – major hills requiring larger excavations and deeper gullies to fill, significant earthworks volumes;
- Rolling – low hills and valleys with an opportunity for balanced cut to fill earthworks operation; and
- Flood – generally flat, minimal cuts, poor ground conditions, wider embankments, flatter batters.

The assumed extent of each terrain type for each corridor has been summarised in tables included in Appendix 2.

The direct costs for the typical terrain types were compared for each of the GICP, GVK and QRN lines on a $ per km basis.

3.2. SOURCE OF INFORMATION USED IN THE BELOW RAIL COST ASSESSMENTS

The main sources of the information used in the below rail comparative cost assessments were:

- EWLP technical advisors providing details of the comparable corridors for the proposed GICP, and assumed GVK and QRN lines (these have been represented in Appendix 1 of this report);
- Preliminary cut and fill volumes for single track sections of the GICP, GVK and QRN lines as provided by EWLP's technical advisors (summary of earthworks volumes have been included in Appendix 3), and
- Publicly available information relating to technical aspects of the proposed GVK and QRN lines.

3.3. KEY ASSUMPTIONS

3.3.1. Direct Cost Component Assumptions

General

i. Direct cost estimates are based on greenfield construction of single track profiles for each of the preferred GICP, GVK and QRN corridors;

ii. Capacity enhancements, including passing loops and sections of duplicated track, have been estimated on a generic basis for each corridor and include an uplift factor for brownfield construction where applicable;

iii. Below rail cost estimates for each corridor exclude:

A. rail infrastructure at Abbot Point port area;

B. spur line connections from the mainline to each mine; and

C. any upgrades to existing QRN networks;

iv. The assumed lengths of track along each corridor have been defined by EWLP and are based on previous corridor studies undertaken by EWLP for the GICP and on public information for GVK and QRN.

v. The extent of different terrain types along each corridor for GICP, GVK and QRN was based on an assessment of each alignment as depicted on aerial photography. A summary of the assumed terrain types is shown in Tables 1 ~ 6 in Appendix 2;

vi. Indirect costs, contractor's contingency, land acquisition, client and project contingency costs are not included in direct costs and have been estimated separately;

vii. All direct costs are estimated in $2012;

viii. The timing of construction has been based on an opening of rail service for each of the GICP, GVK and QRN at the start of 2017.

ix. For sections of track being staged in accordance with the assumed demand profiles, the inflation factor used has been based on current market estimates for rail construction cost escalation of 4% p.a.

x. Assumed construction methodologies used to build up the rates has been included in Appendix 6 of this report.

Earthworks

i. The estimate for major earthworks items has been based on maximising the use of scrapers and includes the following main earthworks construction activities - “common cut to fill”, “export to waste” and “borrow to fill”;

ii. It is assumed that an earthworks contractor will try to balance earthworks volumes over an economical operating distance for their earthmoving equipment. Taking this into consideration, we have assumed 5 km sections for the earthworks. The “common cut to fill” earthworks activities would be performed by scraper operation moving material from cuts to fills within each 5km section. The “export to waste” and “borrow to fill” operations are also to be undertaken by scrapers using local waste and borrow sites;

iii. Where net “export to waste” and net imports of “borrow to fill” volumes for 5 km sections are contiguous, volumes of “export to waste” materials have been adjusted to avoid double counting of materials “exported to waste” and “borrowed to fill”;

iv. Clearing & grubbing has assumed to be over a 15m width (formation + 1.5m either side);

v. Stripping and stockpiling of subsoil has been assumed for a topsoil layer 150mm thick;

vi. Assumed that scrapers would be used on terrain defined as “flat” for cut and fill operations and occasional excavation and trucking required on parts of the terrain defined as “hilly”;

vii. There has been no allowance for rock in the general cut and fill rates, however separate rock allowances have been applied to each section;

viii. There has been no allowance for treatment for Acid Sulphate soils;

ix. Other than the long distance importing of material for the GVK and QRN embankments in the flood prone areas, all earthworks rates have been based on short-haul (less than 3000m) earthworks;

x. Assumed Borrow Pits adjacent to alignment when imported fill required;

xi. For excess cut volumes from each section assumed on-site disposal within 5km;

xii. Allowed 3 x 3m rock mattresses for headwalls;

xiii. An access road, 5m wide with 200mm thick crushed rock, is assumed to be installed within the rail corridor;

Capping layer

i. Capping layer includes capping and structural layers;

ii. Capping layer assumed to be 200mm thick by 7m wide with materials imported from unidentified quarries within 20km;

iii. Structural layer materials assumed to be processed on site from locally available materials;

Structures/Drainage

i. The structures/ drainage section of the below rail cost estimates includes bridges, culverts, level and grade separated crossings;

ii. Structures includes bridges of various assumed lengths ranging from 12m to 300m;

iii. The length of bridges assumed for each line has been estimated using selected alignments shown on high level topographic material, supplemented by Google Earth;

iv. Drainage includes either 1,2 or 3 box culverts, battery culverts or standard pipe culverts;

v. The extent of drainage is based on ARTC standard drawings and depends on the type of terrain for particular sections of the track;

vi. Extensive earthworks upstream of culverts has not been considered;

vii. Allowance has been made for small pipe culverts every 200m;

viii. Supply and installation of fibre optic cable along each of the lines has not been included;

ix. The level crossings required are either active or passive;

x. The extent of crossings has been estimated from a high level map of the rural roads in the area;

xi. For active level crossings, allowed 100m approach road works, gates + warning signalling;

xii. For passive level crossings, allowed 60m approach road works;

xiii. For grade separation of major intersections, allowance include 400m approaches, approximately 80,000 m3 fill with a bridge 50m x 11.5m;

xiv. For grade separation, minor roads assumed with 300m approaches, approximately 80,000m3 fill with a bridge 50m x 9m;

Permanent Way

i. Permanent way costs includes the supply and installation of rail, sleeper and ballast materials;

ii. The amount of ballast required depends on the standards chosen for each of the lines. For the purposes of the comparable below rail cost estimate, an amount of 1625m3/km has been used for both the standard gauge and narrow gauge tracks. Once track standards, such as ARTC (QR have no standard gauge standards), are finalised for the standard gauge lines, consideration should be given to adjusting the amount of ballast up to 2600m3/km. For narrow gauge track, QR standards currently use additional ballast, in excess of the standard profile, on shoulders and between tracks resulting in an amount of 2290m3/km. The refinement of ballast quantities should be considered after further definition of the intended track standards for both single and double standard gauge tracks;

iii. Rail supply costs have been based on budget information provided by existing rail suppliers. Assumed that 68kg rail used for standard gauge rail for both GICP 40TAL and GVK 32.5 TAL;

iv. Sleeper supply costs are based on information provided by existing sleeper manufacturers both within Australia and overseas;

v. Installation costs are based on similar installations in the Queensland network for 26.5 TAL narrow gauge rail track and similar heavy haul installations in Western Australia for 32.5 TAL standard gauge. There are no directly comparable installation costs available for 40 TAL in Australia. The assumed installation rates are:

   A. $190,000/km for 26.5 TAL

   B. $220,000/km for 32.5 TAL

   C. $260,000/km for 40TAL

Incidentals and Environmental Monitoring

i. For silt fencing, an allowance has been made to install them for both sides of formation. Rate for silt fencing includes maintaining fences;

ii. Sedimentation Basins have been allowed with basins 20m x 20m and low level overflows. Rates include maintenance for 6 months each basin. No allowance has been made to demolish basins;

iii. No allocation for power has been included

Fencing

i. Rural fencing has been allowed for on both sides of the track.

3.3.2. Indirect Cost components

The following indirect assumptions are based on standard cost estimates used within the construction industry. These include:

i. Estimates for recurring and non-recurring overheads and mobilisation and demobilisation of camp facilities;

ii. Overheads breakdown, as a percentage of direct costs, based on typical major projects included:

A.	Staff and salaries	14%
B.	Accommodation and Vehicles	2%
C.	Wet Weather	2% (GICP) to 4% (GVK & QRN)
D.	Site Services	1.5%
E.	Plant/Equipment and Small Tools	1.5%
F.	Safety and Testing	1.5%
G.	Training	0.5%
H.	LSL, Insurances, Legal	1.0%
I.	TOTAL	24% (GICP) to 26% (GVK & GRN)

iii. The allowance for overheads differed for the GICP, compared to the other two projects, as the GVK and QRN alignments are likely to result in higher exposure to potential wet weather delays as a larger proportion of their alignments traversed floodplain areas; and

iv. An allowance was made to mobilise and demobilise for four 200-bed construction camps and it was assumed that the camps would be required for the full 3-year period. The costing for provision of the construction camps includes operation and maintenance of the camps.

3.3.3. Client Cost Component

i. An allowance of 10% on total contractor prices has been included to cover project management, development and procurement costs.

3.3.4. Land Cost Component

i. A nominal per km rate has been allowed for dealing with land acquisition / lease / use related issues based on estimates of land costs provided by EWLP;

ii. Three rates were applied - $150K/km for agricultural or land close to populated areas, $100K/km for non – agricultural land extending west of Moranbah and $50K/km for land extending north south adjacent Galilee mine tenements;

iii. GICP land costs were assumed to be Zone 1 ($150K/km), Zone 2 ($100K/km) and Zones 3 to 9 ($50K/km), GVK land costs were assumed to be $150K/km for their mainline and QRN land costs were assumed to be $150K/km for their mainline.

3.3.5. Project Contingency Component

i. A project contingency amount of 30% has been included in the Total Project Costs.

3.3.6. Passing Loops and Duplication Component

i. Cost estimates for passing loops have been calculated based on the length of trains, the timing of construction (i.e. greenfield versus brownfield construction) and the type of materials required;

ii. In general, passing loops have been estimated to include earthworks (approximately 50% of single track volumes), material supply (track, ballast & turnouts), the installation of materials and an allocation for interlocking, points machines, huts, power supply etc;

iii. The length of the passing loop is based on the length on the train (I.e. for GICP – Option 1 & 2 = 3 loco and 270 wagons), a theoretical stopping distance (1/2 the length of the train when using Electronic Pneumatic Controlled Breaking and an allocation for float (length of train x 10%). The length of train is estimated to be approximately 5300m, the stopping distance 2700m and float of 530m. A total length of each passing loop for GICP Option 1&2 is approximately 8.5km;

iv. For passing loops built after the first train movement, a brownfield construction factor, of 1.5, has been applied to the earthworks and installation costs. This factor is allocated on the basis that construction will be inhibited due to the regular movement of trains through the working areas and therefore construction will require more time and restricted construction practices.

v. In addition to the costs discussed above, for both greenfield and brownfield estimates, an indirect factor has been included to achieve a Total Construction Cost (incl. mark-up, contingency, etc);

vi. It is assumed that a 3rd party operates the full fleet of trains required to serve all mines. The total number of trains required could therefore be estimated using the total network demand divided by the annual capacity of a typical train (on a mine by mine allocation). On this basis, passing loop numbers were determined on the principle that one additional passing loop for every one new train joining the network. In the case of GICP – Option 1&2, a single train set can haul approximately 7.5Mtpa. Therefore for every increment of 7.5Mtpa, a new train and subsequent passing loop will be required.

vii. It has been assumed that the passing loops are theoretically placed evenly along the entire alignment and that headway between trains will determines the limiting number of passing loops that can be installed. To increase the throughput beyond this point requires duplication of various sections between the passing loops. A standard duplication length has been assumed based on the theoretical spacing between passing loops.

viii. A summary of the assumed below rail capacity curves are shown for each of the corridors in Appendix 5.

3.3.7. Below Rail Maintenance Costs

i. Estimates for below rail maintenance costs have been based on publicly available historical data for rail maintenance costs;

ii. Minimal maintenance effort is assumed to be required during the initial years of the operating term with increasing maintenance effort required as the load ramps up;

iii. Maintenance costs are assumed to reach a level approximately equivalent to full replacement of rail along each entire corridor after each 7 to 10 years.

3.4. OUTPUT ANALYSIS

3.4.1. Below Rail comparative cost estimated amounts

A summary of the assessed comparable costs for each of the corridors by their relevant regional zone has been included in Appendix 9. The amounts shown in Appendix 9 have been used an inputs into the economic model prepared by Ernst & Young.

3.4.2. Comparable Direct Costs on per Kilometre Basis

The direct costs, on a per kilometre basis, are shown for each of the terrain types for *GICP–240Mtpa–Option 1* in Table 1. The assessment indicated that:

- The direct costs for *GICP–240Mtpa–Option 1* ranged from 2.3 $M/km for the flat area in the Galilee south area to 3.3 $M/km for the flood areas where a dual gauge track is proposed;
- Overall, on an average weighted by distance, the direct costs for *GICP–240Mtpa–Option 1*, was 2.77 $M/km.

Table 1: GICP–240Mtpa–Option 1 Direct costs ($M/km)

GICP - Option 1	**Flat**	**Hilly**	**Rolling**	**Flood**	**Weighted Average (by distance)**
Zone 1	2.5	3.1	2.6	3.0	3.01
Zone 2	2.5			3.3	2.59
Zone 3			2.7	3.3	2.99
Zone 4		2.6			2.62
Zone 5			2.7	2.9	2.76
Zone 6	2.4			2.9	2.81
Zone 7	2.4			2.9	2.61
Zone 8	2.4			2.9	2.40
Zone 9	2.3				2.31
Overall average					**2.77**

For *GVK-150Mtpa*, the direct costs on per kilometre rates are as shown in Table 2. The assessment indicated that:

- The direct costs for *GVK-150Mtpa* ranged from 2.3 $M/km for the flat area in the Galilee south area to 3.5 $M/km for the flood areas; and
- Overall, on an average weighted by distance, the direct costs for *GVK-150Mtpa*, was 2.93 $M/km.

Table 2: GVK-150Mtpa Direct costs ($M/km)

GVK-150Mtpa	Flat	Hilly	Rolling	Flood	Weighted Average (by distance)
Mainline	2.4	3.1	2.6	3.5	3.00
Zone 7	2.3			3.5	2.80
Zone 8	2.3			3.5	2.37
Zone 9	2.3				2.25
Overall average					**2.93**

For *QRN-90Mtpa*, the direct costs on per kilometre rates are as shown in Table 3. The assessment indicated that:

- The direct costs for *QRN-90Mtpa* ranged from 2.4 $M/km for the flat area in the mainline between the existing network and the Galilee basin to 3.5 $M/km for the flood areas; and
- Overall, on an average weighted by distance, the direct costs for *QRN-90Mtpa*, was 2.92 $M/km.

Table 3 - QRN-90Mtpa Direct costs ($M/km)

QRN-90Mtpa	Flat	Hilly	Rolling	Flood	Weighted Average (by distance)
Mainline	2.4			3.5	3.00
Zone 4		2.6			2.58
Overall average					**2.92**

The direct costs, on a per kilometre basis, are shown for each of the terrain types for *GICP–120Mtpa–Option 2* in Table 4. The assessment indicated that:

- The direct costs for *GICP–120Mtpa–Option 2* ranged from 2.3 $M/km for the flats area to 3.1 $M/km for the hilly areas, predominantly in Zone 1;
- A large component of the direct costs relate to earthworks costs (a summary of the direct costs rates per kilometre for earthworks has been included in Appendix 4 of this report);
- Overall, on an average weighted by distance, the direct costs for *GICP–120Mtpa–Option 2*, was 2.70 $M/km.

Table 4 - GICP–120Mtpa–Option 2 Direct costs ($M/km)

GICP–120Mtpa–Option 2	Flat	Hilly	Rolling	Flood	Average
Zone 1	2.5	3.1	2.6	3.0	3.01
Zone 2	2.3			2.8	2.38
Zone 3			2.4	2.9	2.58
Zone 4		2.6			2.62
Zone 5			2.7	2.9	2.76
Zone 6	2.4			2.9	2.81
Zone 7	2.4			2.9	2.61
Zone 8	2.4			2.9	2.40
Zone 9	2.3				2.31
Overall average					**2.70**

For *GVK-60Mtpa*, the direct costs on per kilometre rates are as shown in Table 5. The assessment indicated that:

- The direct costs for *GVK-60Mtpa* ranged from 2.4 $M/km for the flat terrain to 3.5 $M/km for the flood areas; and
- Overall, on a weighted average by distance, the direct costs for *GVK-60Mtpa*, was 3.00 $M/km.

Table 5 - GVK-60Mtpa Direct costs ($M/km)

GVK-60Mtpa	**Flat**	**Hilly**	**Rolling**	**Flood**	**Average**
Mainline	2.4	3.1	2.6	3.5	**3.00**

For *QRN-60Mtpa*, the direct costs on per kilometre rates are as shown in Table 6. The assessment indicated that:

- the direct costs for *QRN-60Mtpa* ranged from 2.4 $M/km for the flat area in the mainline between the existing network and the Galilee Basis to 3.5 $M/km for the flood areas; and
- overall, on an average weighted by distance, the direct costs for *QRN-60Mtpa*, was 3.00 $M/km.

Table 6 - QRN-60Mtpa Direct Costs ($M/km)

QRN-60Mtpa	**Flat**	**Hilly**	**Rolling**	**Flood**	**Average**
Mainline	2.4			3.5	**3.00**

3.4.3. Below Rail Comparative Cost Summary

The following observations are noted:

- *GICP–120Mtpa–Option 2*, with a single standard gauge track over the entire 577km, from this early stage assessment appears more economical to construct on a per kilometre basis than all other options.
- By avoiding the majority of the flood plain area, *GICP–240Mtpa–Option 1* and *GICP–120Mtpa–Option 2* have an overall cost advantage over the GVK and QRN alignments due mainly to:
  - The GICP alignment having a better cut to fill earthworks balance compared to the GVK and QRN flood prone alignments; and
  - Reduced exposure to delays due to flooding during construction.
- The GICP earthworks and flood exposure cost advantages more than offsets the higher 40TAL standard gauge permanent way costs for the GICP track compared to the GVK (32.5TAL) and QRN (26.5TAL) tracks.

Other comments:

- Further refinement of the alignment and the profile design has the opportunity to optimize earthworks cost for the below rail portion of the GICP. Examples can be seen at Ch.110km, Ch.150km and Ch.220km where large cuts may be able to be avoided with further design modelling.
- Passing loops and duplication costs have been included on an average km basis without specific locations being set for each passing loop. There is potential for more balanced earthworks if passing loop locations are taken in consideration in further designs. Considering the above comment in relation to balancing of earth works, there is potential for developing additional cuts were fills are required, coordinating the location with that of near-term passing loop requirements would also avoid double handling of materials etc. Example of such areas includes Ch.425km, Ch.240km etc.

4. ABOVE RAIL COMPARATIVE COST ASSESSMENT

4.1. METHODOLOGY

The above rail methodology for the GICP is based around the assessment of existing information provided by EWLP and it's consultants. This is also developed with publicly available information and industry knowledge. Generally, the above rail analysis was based on a report provided by Calibre Global ("**Calibre**") on train simulations along the EWLP Alignment (HA200VA1). This report formed the basis of the above rail assumptions going forward.

Using the Calibre report, EI developed a series of further assumptions to assess the various railway systems (i.e. 40TAL, 32.5TAL and 26.5TAL). Upon determining that the 40TAL system has the greatest efficiency a comparison was undertaken with the preferred GICP railway systems against the GVK and QRN rail corridors.

The key assumptions associated with the above rail analysis are included in section 4.2.

4.2. KEY ASSUMPTIONS

The key assumptions that have been made for the train simulation modelling fall under several major categories, those being:

1. Rolling Stock;
2. Locomotives;
3. Wagons;
4. Maintenance; and
5. Operations.

A description of each is following.

4.2.1. Rolling Stock Component

The above rail comparison has been developed around train simulations run by Calibre Global ("**Calibre**") at the request of EWLP. The train simulations were performed to define the optimal train for each of the rail configurations for the mines in the Galilee Basin. The main driver of long-term operational cost is the cost of fuel, which is generally the largest portion of the whole-of-life cost for a train. Therefore the optimal train was determined purely based around the fuel consumed per tonne of coal.

The Calibre train simulations are only indicative of the fuel consumption and are based on a crude methodology of energy conversion into fuel consumption. A more accurate methodology would be to use a train simulation package that uses notch-by-notch fuel consumption approach to determine the fuel used on a round trip. There are many locomotive fuel saving systems (such as Trip Optimiser, Leader, Consist Manager, Automatic Engine Start Stop etc) that can be purchased to minimise the overall fuel consumption. The efficiencies that potentially could be achieved by using these systems have not been modelled in this analysis.

The train simulation was run on the proponents mainlines only, with interpolation used to determine the times and fuel consumption. By extrapolating these results it was possible to determine the time and fuel consumption for trains servicing specific mines. This interpolation and extrapolation is appropriate and reasonably accurate for prefeasibility assessments. To confirm and further develop operating cost certainty individual simulations should be run for each mine, and its associated spur line, to accurately determine the trip / cycle time and fuel consumption.

Below is a list of the key rolling stock and operational assumptions that have been used to develop the operating cost model for the GICP, GVK and QRN options:

Note: many of these assumptions are based on Calibre simulation outputs

i. Time for loaded trip;

ii. Time for empty trip;

iii. Distance for the return trip;

iv. Fuel consumed on loaded trip based on a conversion of energy into fuel consumption;

v. Fuel consumed on empty trip based on a conversion of energy into fuel consumption;

vi. Fuel consumed during loading and unloading based on notch operation for 10 hours;

vii. Lidded wagon fuel saving;

viii. Lidded wagon payload saving (no loss of coal on journey from the mine to the port);

ix. Type and number of locomotives including capital spares and fleet spares;

x. Type and number of wagons including capital spares and fleet spares;

xi. Tare weight of the wagon;

xii. Average payload per wagon;

xiii. Train payload;

xiv. Loading and unloading time;

xv. Operational days per year;

xvi. Inefficiency factor of the operations on the network;

xvii. Locomotive crew changes;

xviii. Provisioning time of the locomotive.

Using the parameters listed above, EI developed a preliminary and simplified Train System Model that estimates key outputs for this economic study based on information provided in the Calibre train simulation model. This Train System Model provided data on rail configurations for each of the mines identified (by E&Y) as potential throughput producing mines. Individual mine characteristics, such as distance from mine to port, spur line length and anticipated throughput were used in this model. The Train System model included the following variables:

i. Annual train capacity measured in Mtpa (million tonnes per annum);

ii. Annual fuel cost measured in $/T (dollars per tonne);

iii. Capital cost per train including fleet spares in 2012 dollars;

iv. Overhaul cost per locomotive and per wagon in 2012 dollars;

v. Capital spares cost per locomotive and per wagon in 2012 dollars;

vi. Maintenance cost (locomotives, wagons, facility charge) in $/T; and

vii. Labour cost (train crew and network controllers) in $/T.

The detailed variables used for the various demand scenarios are shown in Appendix 7B.

4.2.2. Locomotive Component

The Calibre train simulation report used the GE ES44ACi Locomotive as the representative locomotive that would perform the train haulage task on greater than a 32.5TAL line within the Galilee Basin. This doesn't restrict the operator or miner from procuring other equivalent locomotives. Many manufacturers have similar locomotives with subtle differences.

Details of the train characteristics assumed for the simulations are shown below.

1. 32.5TAL or greater (i.e. 40TAL) train simulation (GICP & GVK line):
    i. ES44ACi – GE Evolution Series Locomotive:
    ii. Standard Gauge;
    iii. 32.5 tonne axle load (196T);
    iv. 4400 HP Emission standard compliant locomotives;
    v. Modified to meet noise standards in Queensland;
    vi. Includes in-cab signalling system;
    vii. Two driver crews;
    viii. Major overhaul on the locomotive will occur at 10 and 20 years;
    ix. Capital spares will be purchased with the locomotive; and
    x. Spare locomotives will be purchase for maintenance scheduling.
2. 26.5TAL train simulation (QRN line):
    i. GT42CU AC – Downer EDI Locomotive
    ii. Narrow Gauge;
    iii. 20 tonne axle load (120T);
    iv. 3300 GHP;
    v. Meets noise standards;
    vi. Includes in-cab signalling system;
    vii. Two driver crews;
    viii. Major overhaul on the locomotive will occur at 10 and 20 years;
    ix. Capital spares will be purchased with the locomotive;
    x. Spare wagons will be purchased for maintenance scheduling.

4.2.3. Wagon Component

With the aim of achieving valuable economies of scale, EWLP propose using a 40TAL wagon. This theoretical wagon will be based on the characteristics of wagons existing today.

A 26.5 tonne axle load wagon exists in Queensland today and several wagon configurations are in operation that were manufactured by QRN, Bradken and Chinese manufacturers. These are typically manufactured from chromium steel and do not include a lidded design.

A 32.5 tonne axle load wagon exists in USA today and is manufactured by FreightCar America. It has been manufactured from aluminium to reduce the tare weight of the wagon. There are many in operation today but none include a lidded design, other than Australian wheat wagons which have an automatic lid system.

By using the design characteristics of these wagons and extrapolating the optimal tare to payload ratio of lighter wagons that exist today, a tare weight of the theoretical 40TAL wagon can be determined. On this basis, and assuming a lidded design, a tare weight of 26tonne has been adopted for this analysis. We note that, changes in tare weight, as result of further design and manufacture of a 40TAL wagon would impact the preliminary modelling undertaken for this assessment and that further detail modelling be undertaken at a later stage to test the following assumptions. The assumptions for the wagon characteristics include:

1. 40 tonne axle load – 160 tonne gross
    i. 26 tonne tare weight
    ii. 2 tonne short loading
    iii. Payload per wagon is 132T
    iv. Lidded wagon (no loss of coal between mine and port)
    v. 19.3m length
    vi. Major overhaul on the wagon will occur at 15 years
    vii. Capital spares will be purchased with the wagons
2. 32.5 tonne axle load – 130 tonne gross
    i. 20.5 tonne tare weight
    ii. 2 tonne short loading
    iii. Payload per wagon is 107.5T for GICP and 105.5T for other proponents
    iv. Lidded wagon for GICP and unlidded wagon for other proponents (unlidded wagon losses 2T of coal per journey from mine to port)
    v. 17.3m length
    vi. Major overhaul on the wagon will occur at 15 years
    vii. Capital spares will be purchased with the wagon
3. 26.5 tonne axle load – 106 tonne gross
    i. 19.4 tonne tare weight
    ii. 2 tonne short loading
    iii. Payload per wagon is 84.6T for GICP and 82.6T for other proponents
    iv. Lidded wagon for GICP and unlidded wagon for other proponents (unlidded wagon losses 2T of coal per journey from mine to port)
    v. 17.3m length
    vi. Major overhaul on the wagon will occur at 15 years
    vii. Spares will be purchased with the wagon

4.2.4. Maintenance Component

Key elements of the operational cost of the rolling stock are the maintenance of the locomotive and wagons. It is assumed that a 3rd party will provide the maintenance for the rolling stock at a facility owned by the 3rd party provider. The maintenance cost allows for the labour and material costs for all the scheduled services, unscheduled services, wheel turning and component change out on the locomotives and wagons. An additional cost has been included into the model

to cover a charge for the maintenance facility that would include the building, track infrastructure to the site, utilities on the site and site management.

1. Locomotive Maintenance
    i. Schedule services (engine oil, air filters, fuel filters, oil filters, O-rings, fire extinguishers, brake blocks, flange lubricators, compressor oil, gear case oil, air compressor gaskets, dampers etc.);
    ii. Unscheduled services (component failures, collision repairs);
    iii. Wheel turning; and
    iv. Component change out (engine, alternator, traction motors, compressors, couplers, draft gear etc.).
2. Wagon Maintenance
    i. Schedule services (door inspections, brakes);
    ii. Unscheduled services (component failures, collision repairs);
    iii. Wheel turning; and
    iv. Component change out (brake valves, couplers, draft gear etc.).

4.2.5. Operations Component

Loading and unloading times become less significant as the travel times increase. For the Galilee mines, the mines to port distances travelled are large (approximately 500kms each way) for most mines. The assumption is that it takes approximately 1 minute to load each wagon and 1 min to unload each wagon. Therefore a 300 wagon train will take 5 hours to load and 5 hours to unload the entire train.

The provisioning of the trains is expected to occur at the mine site. An allowance of 2 hours per train has been made for fuel the locomotives and conducting the pre departure inspection of the train.

The operations of the railway are critical to overall efficiency. It has been assumed that the train will operate 320 days per year which allows for 45 days down time as listed below:

- 20 days – track/mine/port maintenance shutdowns;
- 15 days – unplanned network delays; and
- 10 days – rolling stock reliability issues that cause delays on the network.

Note: Maintenance of the rolling stock will be managed by the fact that there is 10% spare capacity for the locomotives in the fleet and 5% spare capacity for the wagons in the fleet. There is an allowance for capital spare parts to the value of 2% of the price of the locomotives and the wagons.

Another 8% allowance has been made when calculating the million tonnes per annum per train for the delays for the trains when they sit in passing loops, additional delays at the unloader and mines for loading.

4.2.6. Above Rail Capital & Operational Price Component

Prices for the rolling stock and prices for operations are based on 2012 market prices. Quotations have not been obtained specifically for the purpose of this assessment. The price list is developed from knowledge for contract prices for the listed rolling stock and associated operations for other clients in 2012, see appendix 8.

4.3. COMPARISON OF ALTERNATIVE RAILWAY SYSTEMS FOR GICP (40TAL VS. 32.5TAL VS. 26.5TAL)

In addition to providing inputs into the economic modelling, EIG was asked by EWLP to undertake a high level assessment of the efficiency of different axle loadings for the proposed GICP system using the same Train System Model developed for comparing the GICP with GVK and QRN operating systems.

The Train System model is based on the results for Calibre's train simulations. The Train System Model compared the three alternative GICP railway systems by calculating the annual haulage cost comparison, based on:

- The payload per train per year, and;
- The annual haulage cost;
- Fuel cost per year on a mine by mine basis;
- Rolling stock capital cost (locomotives, wagons, capital spares, overhauls); and
- Rolling stock operational cost (fuel, maintenance, labour).

The following assumed train configurations were used in the assessment of GICP 40TAL vs GICP 32.5TAL vs GICP 26.5TAL.

Infrastructure	Train Configuration	Locomotives	Wagon Tare Mass	Train Payload
40TAL	3 Locos * 270 Wagons	ES44ACi	26T	35,640(*)
32.5TAL	3 Locos * 300 Wagons	ES44Aci	20.7T	32,190(**)
26.5TAL	4 Locos * 300 Wagons	GT42CU AC	19.4T	25,380(***)

Note: (*) :(160 -26 – 2) * 270 = 35,640, (**) : (130 -20.7 – 2) * 300 = 32,190, (***) : (106 -19.4 – 2) * 300 = 25,380

The Train System Model also included assumptions for capital costs (rolling stock, etc.) and operating costs (fuel, maintenance, labour, etc.).

Overall, the results, as shown in Appendix 7(A), indicated that there were potential advantages of the 40TAL over other TAL alternatives and, for the purposes of further modelling of the GICP systems and for input into the economic modelling, 40TAL has been used to represent the GICP railway system.

4.4. ABOVE RAIL COMPARABLE COST ASSESSMENT

The above rail cost assessment, as used in the economic modelling, was based on estimated operating and performance data for GICP(40TAL), GVK(32.5TAL) and QRN(26.5TAL).

The Calibre train simulation determined the most optimal train for each railway system. EIG notes that these simulations included a 9% lidded wagon fuel saving on all loaded and empty runs for GICP only. The addition of the lidded design not only incurred a fuel saving, but also limited the loss of coal during the loaded trip supported the assumed payload loss reduced to only 2T to account for loading inaccuracies.

The following assumed train configurations were used in the assessment of GICP 40TAL vs GVK 32.5TAL vs QRN 26.5TAL.

Infrastructure	Train Configuration	Locomotives	Wagon Tare Mass	Train Payload
GICP 40TAL	3 Locos * 270 Wagons	ES44ACi	26T	35,640(*)
GVK 32.5TAL	3 Locos * 240 Wagons	ES44Aci	20.7T	25,320(**)
QRN 26.5TAL	4 Locos * 120 Wagons	GT42CU AC	19.4T	9,912(***)

Note: (*) :(160 -26 – 2) * 270 = 35,640, (**) : (130 -20.7 – 2 - 2) * 240 = 25,320, , (***) : (106 -19.4 – 2 - 2) * 120 = 9,912

The number of operational days for GICP is 320 days as defined in Section 4.2.5. However for the GVK and the QRN Corridors the operational days has been reduced by 10 days per year as the alignments for both of these railway systems are across flood plains and therefore will suffer operational delays due to heavy rainfalls periodically.

Based on the results for the Calibre train simulations, the Train System Model developed by EIG was used to prepare inputs for the economic modelling. Outputs from the Train System Model are included in Appendix 7B.

In all cases:

- The key outputs are expressed as:
  - (a) the payload per train per year, and;
  - (b) the fuel cost per year on a mine by mine basis .
- Payload and fuel cost differences are due to the varying distances from the mines to the port;
- The model includes spur lines;
- Rolling Stock Capital Cost (locomotives, wagons, capital spares, overhauls) are included; and
- Rolling Stock Operational Cost (fuel, maintenance, labour) is included.

4.4.1. GICP – Option 1 (40TAL)

The outputs from the simulation of a 3 locomotive by 270 wagons train are summarised in the table below. The length of the train is approximately 5.3kms.

Assumptions - Simulation Outputs

Train Configuration - 3 Locomotives * 270 Wagons
Loading Time - 4.5 Hours
Unloading Time - 4.5 Hours
Operational Days per Year - 320 (20 - Track/Mine/Port Maint, 15 - network inefficiencies, 10 - rollingstock reli

	Hours	Distance	Fuel	Fuel Savings	Energy (GJ)
Loading/Unloading			2932.5		
Empty Trip	7.75	573	17383	0.09	345.74
Loaded Trip	11.3	573	23846	0.09	447.17

Mine Name (Abbr)	Mine Name	Mainline (kms)	Spurline (Kms)	Trip Distance	Loaded Trip	Unloaded Trip	Transit Time	Provisioning	Marshalling / Crew	Fuel / Trip
AMCI	AMCI	573	65	1276	12.48	8.45	20.93	2	5	44147
Waratah CFC	Waratah - China First Coal	573	21	1188	11.61	7.85	19.47	2	5	41266
Waratah ANC	Waratah - Alpha North Coal	530	10	1080	10.48	7.01	17.50	2	4.5	37381
Waratah AWC	Waratah - Alpha West Coal	523	27	1100	10.73	7.29	18.02	2	4.5	38411
HanGVK KC	Hancock/GVK - Kevin's Corner	548	15	1126	11.02	7.48	18.50	2	5	39354
HanGVK AC	Hancock/GVK - Alpha Coal	553	21	1148	11.24	7.61	18.85	2	5	40048
HanGVK AW	Hancock/GVK - Alpha West	553	28	1162	11.36	7.71	19.07	2	5	40492
Vale	Vale	497	10	1014	9.97	6.84	16.81	2	4.5	36043
Adani 1	Adani 1 (T0)	430	10	880	9.03	6.12	15.15	2	4	32755
Adani 2	Adani 2 (Balance)	430	10	880	9.03	6.12	15.15	2	4	32755
Bowen 1	Bowen 1	235	10	490	5	3.57	8.57	2	2.5	19821
Mac Sth	Macmines South	398	25	846	8.36	5.72	14.08	2	4	30660

The key outputs, as listed in the table below, include (a) the payload per train / year, and (b) fuel cost / year for each of the mines.

	AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - rest of Adani	Bowen 1	Mac mines South
Payload / train / year (Mtpa)	6.82	7.10	7.63	7.51	7.30	7.22	7.18	7.79	8.35	8.35	11.41	8.66
Fuel $ / mine / train ($m)	10.14	9.87	9.60	9.71	9.67	9.74	9.79	9.45	9.21	9.21	7.62	8.94

4.4.2. QRN – 90Mtpa (26.5TAL)

The outputs from the simulation of a 4 locomotive by 120 wagons train are summarised in the table below. The length of the train is approximately 2.3kms.

Assumptions - Simulation Outputs

Train Configuration - 4 Locomotives * 120 Wagons
Operational Days per Year - 310 (20 - Track/Mine/Port Maint, 15 - network inefficiencies, 10 - rollingstock reli
Loading Time - 2 Hours
Unloading Time - 2 Hours

				Lidded Wagons	
	Hours	Distance	Fuel	Fuel Savings	Energy (GJ)
Loading/Unloading			2932.5		
Empty Trip	4.95	403	7395.4	0	188.189
Loaded Trip	6.2	403	8452.4	0	222.784

Mine Name (Abbr)	Mine Name	Mainline (kms)	Spurline (Kms)	Trip Distance	Loaded Trip	Unloaded Trip	Transit Time	Provisioning	Marshalling / Crew	Fuel / Trip
Adani 1	Adani 1 (T0)	403	0	806	6.20	4.95	11.15	2	3	18780
Adani 2	Adani 2 (Balance)	403	0	806	6.20	4.95	11.15	2	3	18780
Mac Sth	Macmines South	403	69	944	7.26	5.80	13.06	2	3	21494

The key outputs, as listed in the table below, include (a) the payload per train / year, and (b) fuel cost / year for each of the mines.

	AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - rest of Adani	Bowen 1	Mac mines South
Payload / train / year (Mtpa)									3.36	3.36		3.07
Fuel $ / mine / train ($m)									7.64	7.64		7.99

4.4.3. GVK – 150Mtpa (32.5TAL)

The outputs from the simulation of a 3 locomotive by 300 wagons train are summarised in the table below. The length of the train is approximately 5.3kms.

Assumptions - Simulation Outputs

Train Configuration - 3 Locomotives * 240 Wagons
Operational Days per Year - 310 (20 - Track/Mine/Port Maint, 15 - network inefficiencies, 10 - rollingstock reli
Loading Time - 3.5 Hours
Unloading Time - 3.5 Hours

				Lidded Wagons	
	Hours	Distance	Fuel	Fuel Savings	Energy (GJ)
Loading/Unloading			2737		
Empty Trip	6.15	507	13766	0	188.189
Loaded Trip	8.45	507	16297	0	222.784

Mine Name (Abbr)	Mine Name	Mainline (kms)	Spurline (Kms)	Trip Distance	Loaded Trip	Unloaded Trip	Transit Time	Provisioning	Marshalling / Crew	Fuel / Trip
Waratah CFC	Waratah - China First Coal	495	41	1072	8.92	6.49	15.41	2	4	34462
Waratah ANC	Waratah - Alpha North Coal	495	39	1068	8.88	6.47	15.35	2	4	34346
HanGVK KC	Hancock/GVK - Kevin's Corner	480	18	996	8.28	6.03	14.31	2	4	32209
HanGVK AC	Hancock/GVK - Alpha Coal	495	10	1010	8.41	6.12	14.54	2	4	32667
HanGVK AW	Hancock/GVK - Alpha West	480	28	1016	8.44	6.14	14.59	2	4	32771
Vale	Vale	495	74	1138	9.45	6.88	16.33	2	4	36372

The key outputs, as listed in the table below, include (a) the payload per train / year, and (b) fuel cost / year for each of the mines.

	AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - rest of Adani	Bowen 1	Mac mines South
Payload / train / year (Mtpa)		6.10	6.11	6.34	6.29	6.28	5.91	6.10				
Fuel $ / mine / train ($m)		9.96	9.95	9.68	9.74	9.75	10.19	9.96				

4.5. PASSING LOOPS

The passing loop calculation for each of the lines is an input into the below rail infrastructure model so as to determine when the passing loops are added to the rail system and when the rail system requires the line to be duplicated to carry additional tonnage.

4.5.1. GICP Passing Loops

In terms of the GICP network, and based on a 35 hour cycle time, upon expanding to 20 trains (approx. 140 to 150Mtpa) the headway time between trains in both directions is reduced to 1.75 hours. Passing loop length is based on the length on the train (I.e. for GICP 3 loco and 270 wagons), a theoretical stopping distance (1/2 the length of the train when using Electronic Pneumatic Controlled Breaking and an allocation for float (length of train x 10%). Summing up, the length of train is estimated to be approximately 5300m, the stopping distance 2700m and float of 530m. A total length of each passing loop for GICP is approximately 8.5km.

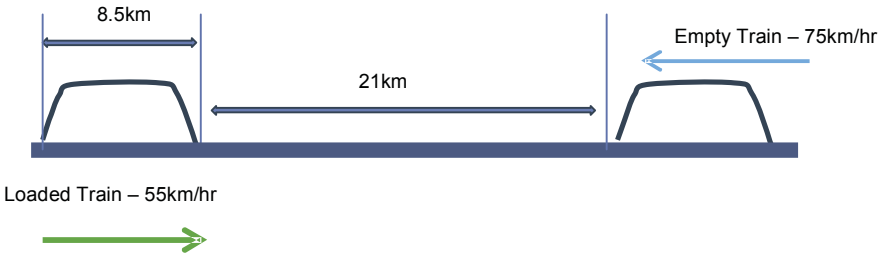
The passing loop calculation is thus:

1. Headway (at 20 trains) = 1.75 hours;
2. Passing loop length = 8.5km;
3. Total length of passing loops (at 20 trains) is 20 * 8.5kms = 170 kms;
4. GICP single line is 577km – 170km = 407 km;
5. Distance between adjacent passing loops is 407/20 = approx. 21 kms;
6. Loaded train typical average speed is 55km/hr;
7. Empty train typical loaded speed is 75km/hr;
8. Time for loaded train to travel 29.5km (21 + 8.5) at 55 km/hr is = 33 mins.
9. Time for empty train to travel 29.5km (21 + 8.5) at 75 km/hr is = 24 mins.

Note(1): an allowance needs to be made for accelerating the train from the passing loop and braking into the next passing loop. An allowance of 50% of the travel time for the braking and acceleration of the train will be included.

10. Time for empty train to accelerate, travel 29.5km (21 + 8.5) and brake at 75 km/hr is = 24 mins * 150% = 36mins.

Therefore the spare time after both trains have moved between adjacent passing loops is 105 mins – 33 mins – 36 mins = 36 mins. The spare time percentage of the headway time is 36/105 = 34%.



A new passing loop is added for every additional train on the network until the network reaches a point that the headway is reduced 1.75 hours.

Note(2): At 140Mtpa to 150Mtpa the GICP will require duplication of the line between adjacent passing loops for each additional train added to the railway system.

4.5.2. QRN Passing Loops

In terms of the QRN network (for both the QRN – 90Mtpa & 60Mtpa), the associated QRN train and based on a 20 hour cycle time, upon expanding to 14 trains (43 Mtpa) the headway time between trains in both directions is reduced to 1.45 hours. Passing loop length is based on the length on the train (I.e. for QRN 4 loco and 120 wagons), a theoretical stopping distance (1/2 the length of the train when using Electronic Pneumatic Controlled Breaking and an allocation for float

(length of train x 10%). Summing up, the length of train is estimated to be approximately 2200m, the stopping distance 1100m and float of 220m. A total length of each passing loop for QRN is approximately 3.5km.

The passing loop calculation is thus:

1. Headway (at 20 trains) = 1.45 hours;
2. Passing loop length = 3.5km
3. Total length of passing loops (at 14 trains) is 14 * 3.5kms = 49 kms;
4. QRN single line is (174km East/West + 205km North/South) is 380km – 49km = 331 kms
5. Distance between adjacent passing loops is 331/14 = 23.5 kms;
6. Loaded train typical average speed is 55km/hr;
7. Empty train typical loaded speed is 75km/hr;
8. Time for loaded train to travel 27km (23.5 + 3.5) at 55 km/hr is = 29mins;
9. Time for empty train to travel 27km (23.5 + 3.5) at 75 km/hr is = 22mins.

Note(1): an allowance needs to be made for accelerating the train from the passing loop and braking into the next passing loop. An allowance of 50% of the travel time for the braking and acceleration of the train will be included.

10. Time for empty train to accelerate, travel 27km (23.5 + 3.5) and brake at 75 km/hr is = 22 mins * 150% = 33mins.

Therefore the spare time after both trains have moved between adjacent passing loops is 87 mins – 29 mins – 33 mins = 25 mins. The spare time percentage of the headway time is 25/87 = approx. 30%.

A new passing loop is added for every additional train on the network until the network reaches a point that the headway is reduced 1.45 hours.

Note(2): At 45Mtpa the QRN Corridor will require duplication of the line between adjacent passing loops for each additional train added to the railway system.

NOTE(3): The 205km North/South portion of the QRN line is using the existing QRN line that links Moranbah with Abbot Point. For the purpose of evaluating cost estimates for the below rail capital cost, it is assumed that passing loops are split evenly between the East/West and North/South portions. At the 45Mtpa trigger point, a major investment is required to enhance the capacity of the North/South portion. This could be by the construction of a brownfield line within the existing corridor or by the construction of a greenfield line along another alignment. The greenfield alignment option was used in the analysis as the cost for zone 1 had already been assessed.

4.5.3. GVK Passing Loops

In terms of the GVK network (for both the GVK – 150Mtpa & 60Mtpa), the associated GVK train and based on a 28 hour cycle time, upon expanding to 16 trains (90 Mtpa) the headway time between trains in both directions is reduced to 1.75

hours. Passing loop length is based on the length on the train (I.e. for GVK 3 loco and 240 wagons), a theoretical stopping distance (1/2 the length of the train when using Electronic Pneumatic Controlled Breaking and an allocation for float (length of train x 10%). Summing up, the length of train is estimated to be approximately 5300m, the stopping distance 2700m and float of 530m. A total length of each passing loop for GVK is approximately 8.5km.

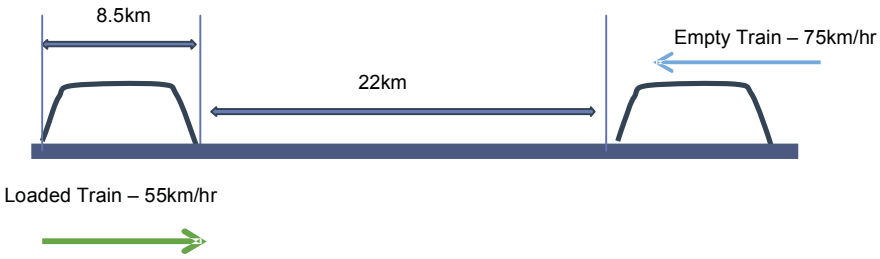
The passing loop calculation is thus:

1. Headway (at 16 trains) = 1.75 hours;
2. Passing loop length = 8.5km;
3. Total length of passing loops (at 16 trains) is 16 * 8.5kms = 136 kms;
4. GICP single line is 485km – 136km = 349 km;
5. Distance between adjacent passing loops is 349/16 = approx. 22 kms;
6. Loaded train typical average speed is 55km/hr;
7. Empty train typical loaded speed is 75km/hr;
8. Time for loaded train to travel 30.5km (22 + 8.5) at 55 km/hr is = 33 mins.
9. Time for empty train to travel 30.5km (22 + 8.5) at 75 km/hr is = 24 mins.

Note(1): an allowance needs to be made for accelerating the train from the passing loop and braking into the next passing loop. An allowance of 50% of the travel time for the braking and acceleration of the train will be included.

10. Time for empty train to accelerate, travel 30.5km (22 + 8.5) and brake at 75 km/hr is = 24 mins * 150% = 36mins.

Therefore the spare time after both trains have moved between adjacent passing loops is 105 mins – 33 mins – 36 mins = 36 mins. The spare time percentage of the headway time is 36/105 = approx. 34%.



A new passing loop is added for every additional train on the network until the network reaches a point that the headway is reduced 1.75 hours.

Note(2): At 90Mtpa the GVK Corridor will require duplication of the line between adjacent passing loops for each additional train added to the railway system.

5. PRELIMINARY OBSERVATIONS

5.1. BELOW RAIL COMPARATIVE COST OBSERVATIONS

The following observations were noted from the below rail capital cost assessment:

- The GICP corridor alignment, in *GICP–240Mtpa–Option 1* and *GICP–120Mtpa–Option 2,* has a cost advantage over the alignments assumed for the GVK and QRN corridors as the GICP alignment has:
  - A better cut to fill balance of earthworks across the entire length of the GICP line, resulting in a reduced need to import large quantities of fill material;
  - Less corridor in heavily flood affected areas, resulting in reduced allowances for bridges and culverts;
  - Lower impact on agricultural land, resulting in lower land acquisition costs; and
  - Greater certainty of delivery as the GICP corridor would have a lower exposure to potential delays due to flooding during construction.
- The GICP track, assumed in *GICP–240Mtpa–Option 1* and *GICP–120Mtpa–Option 2,* has a cost disadvantage over the track assumed for the GVK and QRN corridors as the GICP track is:
  - Longer as it services the entire Galilee Basin whereas the assumed GVK and QRN corridors only partially service the mines in the Galilee Basin;
  - Heavier as the 40TAL standard gauge in *GICP–120Mtpa–Option 2* (and partial dual gauge in *GICP–240Mtpa–Option 1)*, is expected to be more costly than the GVK, using 32.5TAL standard gauge and the QRN 26.5TAL narrow gauge line. The quantum of the track cost differences is difficult to assess, as there are no directly comparable 40TAL lines.

5.2. BELOW RAIL MAINTENANCE COMPARATIVE COST OBSERVATIONS

The following observations were noted from the below rail maintenance cost assessment:

- The assumed GICP track, at 40TAL, with the anticipated loads, is expected to require higher maintenance effort than other existing rail networks in Australia. It has been assumed that the maintenance costs for the assumed GICP track will be higher on a per kilometre basis than the assumed GVK 32.5TAL and QRN26.5TAL.

5.3. ABOVE RAIL MAINTENANCE COMPARATIVE COST OBSERVATIONS

The following observations were noted from the above rail maintenance cost assessment:

- The GICP above rail operations are likely to have an operating cost advantage over the assumed GVK and QRN operations due to:
  - Requiring fewer trains, with each GICP train carrying a greater load (assumed GICP - 35,000 tonnes per train, GVK - 25,000 tonnes and QRN - 10,000 tonnes); and
  - A lower average fuel consumption/tonne carried, including potential efficiencies gained from using wagons with lids.

6. FURTHER ASSESSMENT

It is anticipated that further definition would increase the level of project definition and improve the accuracy of the cost estimates for both above and below rail components, including, but not limited to:

- Optimisation of a standard heavy haul 40TAL standard gauge profile;
- Balancing of the vertical alignment and the ruling grade constraints to minimise earthworks material haulage and project costs;
- Selection of horizontal rail alignment to minimise costs and to satisfy mine owners;
- Minimising size of structures and drainage through floodplain areas;
- Improving feasibility of new 40TAL coal wagon technical performance specifications; and
- Modelling detailed train system operations.

EVERYTHING INFRASTRUCTURE

East West Line Parks Limited

Galilee Infrastructure Corridor Project

Above and below rail comparative cost estimates

Appendices – Part A

July 2012

Appendix 1 Alignments & Staging Diagrams

The following scope diagrams are based on information supplied by EWLP with the GIC alignment split into a series of zones. Each zone is identified with a zone marker and labelled as "Zone #". The red diamonds indicate the zone interface with other zones and/or interface with a mine spur line.

The scope diagrams have been shown in parts to reflect the comparisons being undertaken in the economic modelling:

- Part A – Base case below rail staging for **GIC Option 1** (operating at 240Mtpa) (**Map 1**)
- Part B - Comparison 1, Base case versus **GVK** operating at **150**Mtpa (**Map 2**) and **QRN** operating at **90**Mtpa (**Map 3**)
- Part C – Comparison 2 Base case versus **GIC Option 2** (operating at 120Mtpa) (**Map 4**) and **GVK only** operating at **60**Mtpa (**Map 5**) and **QRN** only operating at **60**Mtpa (**Map 6**)

Appendix 1 – Part A

Map 1 : GIC - Option 1

GIC Zone 1 alignment:

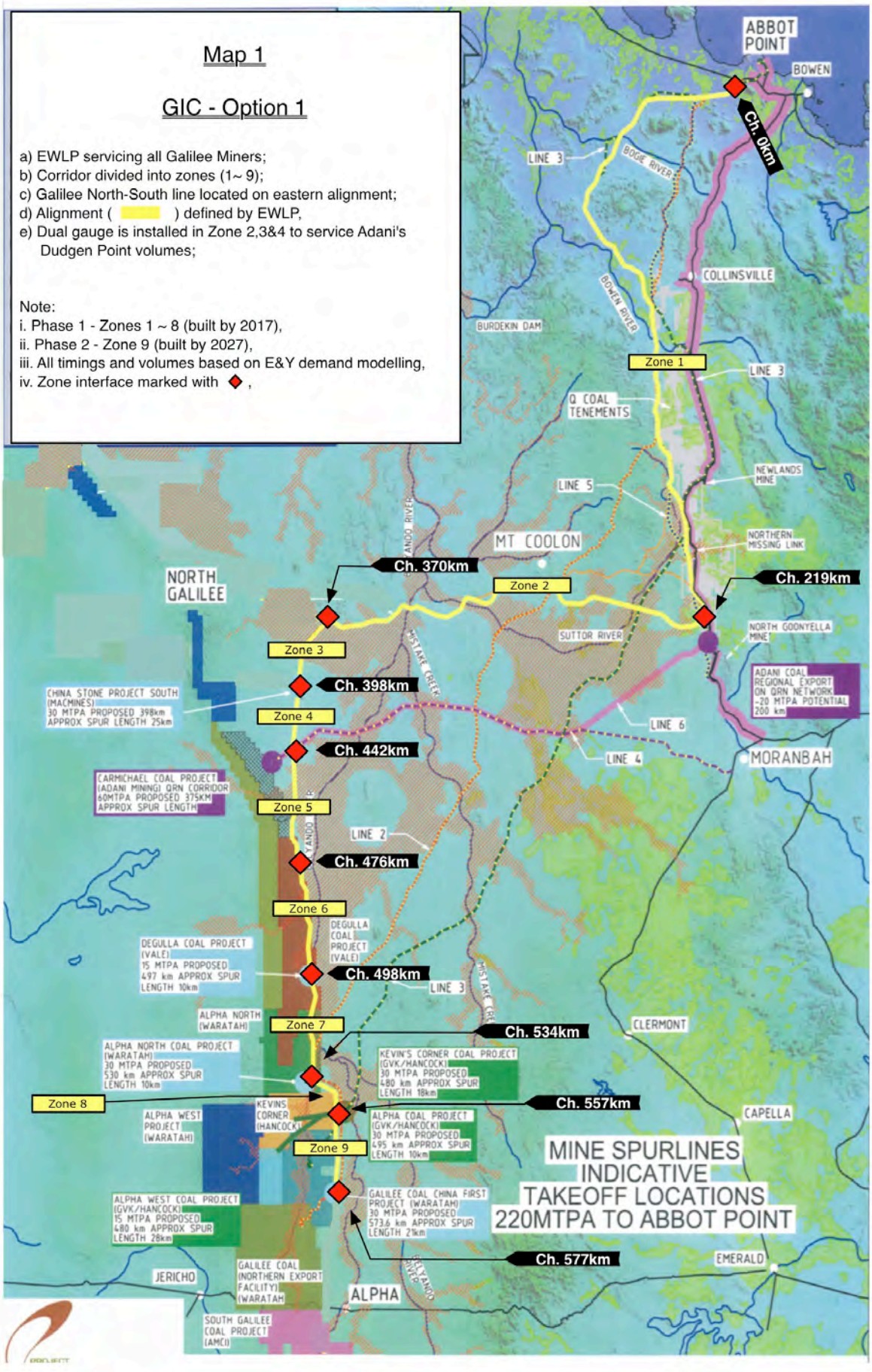
- Commences at chainage 00, located about 25 km from Abbot Point port;
- Heads west/south west 55km from Abbot Point and avoids several of the large hills associated with the Clarke Range, sticking mainly to the flat/hilly areas and heading towards the Bowie River; and
- At this point the lines heads in a southerly direction, adjacent to the Bowie River for 50km before turning due south moving through the low hills of the Leichardt range and then south towards North Goonyella.

GIC Zone 2 alignment

- Continues due west, crossing small sections of flood prone areas;
- Traverses along the edge of the large flood plains associated with Suttor River; and
- Crossing the Suttor river at Ch.315km mark, the line moves slightly south into a west south western direction for another 60km, passing north of the Nairana National Park.

GIC Zone 3 to 9 alignment

- Turning due south and running along the eastern alignment of several coal tenements (notably Adani Carmichael and Vale Degulla Coal Projects) sticking to high ground where possible adjacent to low areas;
- Note: Initially the alignment, for Zones 3 ~ 7, were located along the western perimeters of the Adani Carmichael Coal Project, the Waratah Carmichael East Project, the Vale Degulla Coal Project and through the Waratah Alpha North Coal Project tenements. On the 18th of June the alignment of these zones were adjusted to the Eastern perimeters of these tenements; and
- Continuing south into the Barcaldine Regional Council areas, the line passes adjacent to Hancock/GVK Kevin's Corner staying out of the flood areas and adjacent to Clermont Alpha Road towards Alpha.


Map 1
GIC - Option 1
a) EWLP servicing all Galilee Miners;
b) Corridor divided into zones (1~ 9);
c) Galilee North-South line located on eastern alignment;
d) Alignment ( ) defined by EWLP,
e) Dual gauge is installed in Zone 2,3&4 to service Adani's Dudgen Point volumes;
Note:
i. Phase 1 - Zones 1 ~ 8 (built by 2017),
ii. Phase 2 - Zone 9 (built by 2027),
iii. All timings and volumes based on E&Y demand modelling,
iv. Zone interface marked with ,
ABBOT POINT
BOWEN
Ch. 0km
LINE 3
BOGIE RIVER
COLLINSVILLE
BOWEN RIVER
BURDEKIN DAM
Zone 1
LINE 3
Q COAL TENEMENTS
NEWLANDS MINE
LINE 5
MT COOLON
NORTHERN MISSING LINK
Ch. 370km
Ch. 219km
NORTH GALILEE
Zone 2
SUTTOR RIVER
NORTH GOONYELLA MINE
Zone 3
Ch. 398km
CHINA STONE PROJECT SOUTH (MACMINES) 30 MTPA PROPOSED 398km APPROX SPUR LENGTH 25km
ADANI COAL REGIONAL EXPORT ON QRN NETWORK ~20 MTPA POTENTIAL 200 km
Zone 4
LINE 6
Ch. 442km
LINE 4
MORANBAH
CARMICHAEL COAL PROJECT (ADANI MINING) QRN CORRIDOR 60MTPA PROPOSED 375KM APPROX SPUR LENGTH
Zone 5
LINE 2
Ch. 476km
Zone 6
DEGULLA COAL PROJECT (VALE)
DEGULLA COAL PROJECT (VALE) 15 MTPA PROPOSED 497 km APPROX SPUR LENGTH 10km
Ch. 498km
LINE 3
ALPHA NORTH (WARATAH)
Zone 7
Ch. 534km
CLERMONT
ALPHA NORTH COAL PROJECT (WARATAH) 30 MTPA PROPOSED 530 km APPROX SPUR LENGTH 10km
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 480 km APPROX SPUR LENGTH 18km
Zone 8
Ch. 557km
KEVINS CORNER (HANCOCK)
ALPHA WEST PROJECT (WARATAH)
ALPHA COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 495 km APPROX SPUR LENGTH 10km
CAPELLA
Zone 9
MINE SPURLINES INDICATIVE TAKEOFF LOCATIONS 220MTPA TO ABBOT POINT
ALPHA WEST COAL PROJECT (GVK/HANCOCK) 15 MTPA PROPOSED 480 km APPROX SPUR LENGTH 28km
GALILEE COAL CHINA FIRST PROJECT (WARATAH) 30 MTPA PROPOSED 573.6 km APPROX SPUR LENGTH 21km
Ch. 577km
EMERALD
JERICHO
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH
ALPHA
SOUTH GALILEE COAL PROJECT (AMCI)

Appendix 1 – Part B

Map 2 : GVK – 150Mtpa

GVK mainline alignment.

- Commences at chainage 00km, located at Abbot Point port;
- Heads directly west/south west 55km rom Abbot Point and avoids several of the large hills associated with the Clarke Range, sticking mainly to the flat/hilly areas and heading towards the Bowie River;
- At this point the lines heads in a southerly direction, adjacent to the Bowie River for 60km before turning due south and joining the Collinsville Newlands Branch corridor; and
- Leaving the corridor before striking Newlands, the GVK line heads in a south-westerly direction for the remainder of the line. This remaining portion of the line (250km) crosses large sections of flood prone areas in both the Whitsundays and Isaac Regional Council areas.

GVK Zones 7 to 9

- For the purposes of the direct comparison with the GIC, it was assumed that GVK would connect to other the South Galilee local miners in a similar alignment to that used for the GIC alignment. These lines have been identified on this map as Zone 7, 8 & 9.

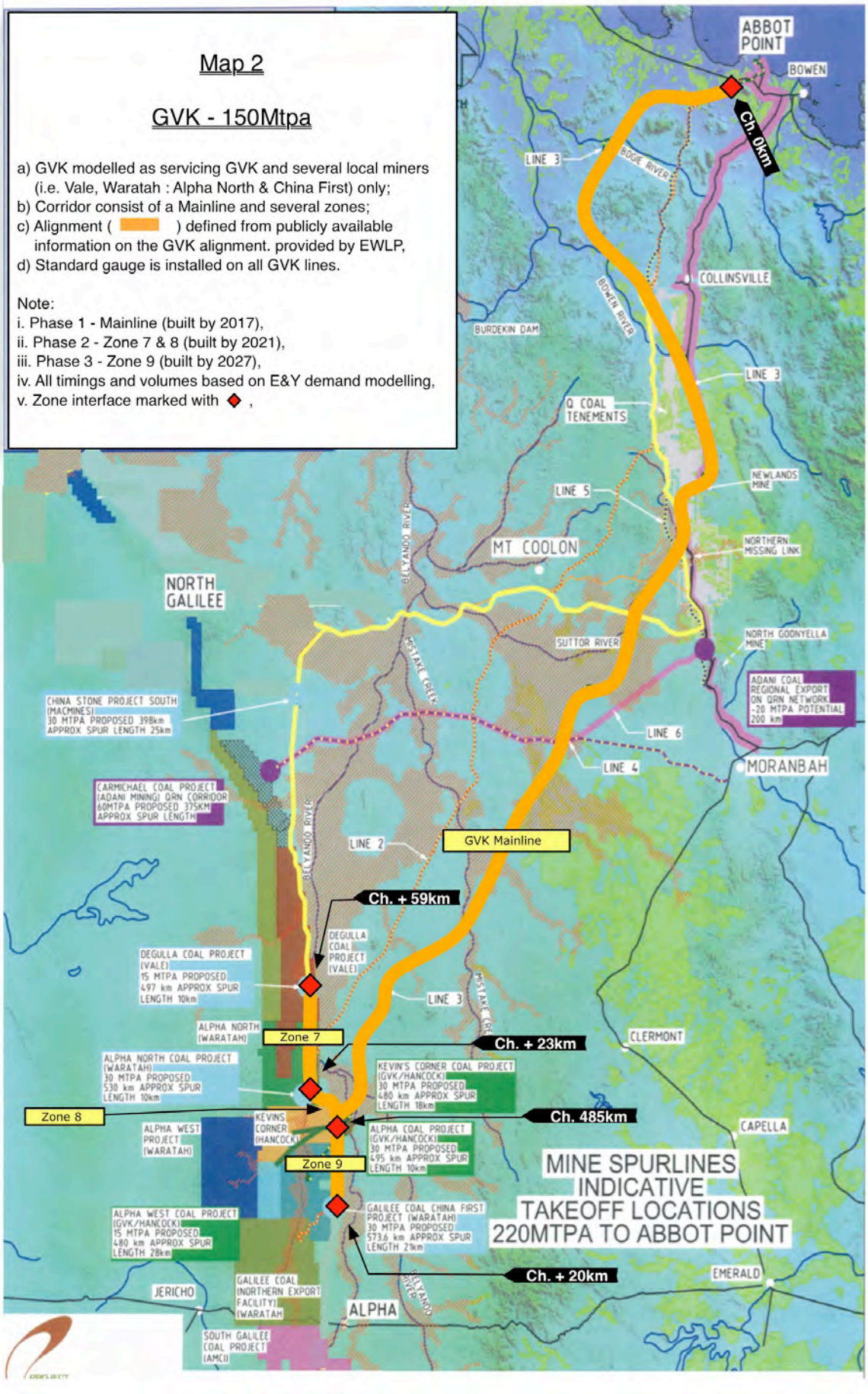
Map 3 : QRN – 90Mtpa

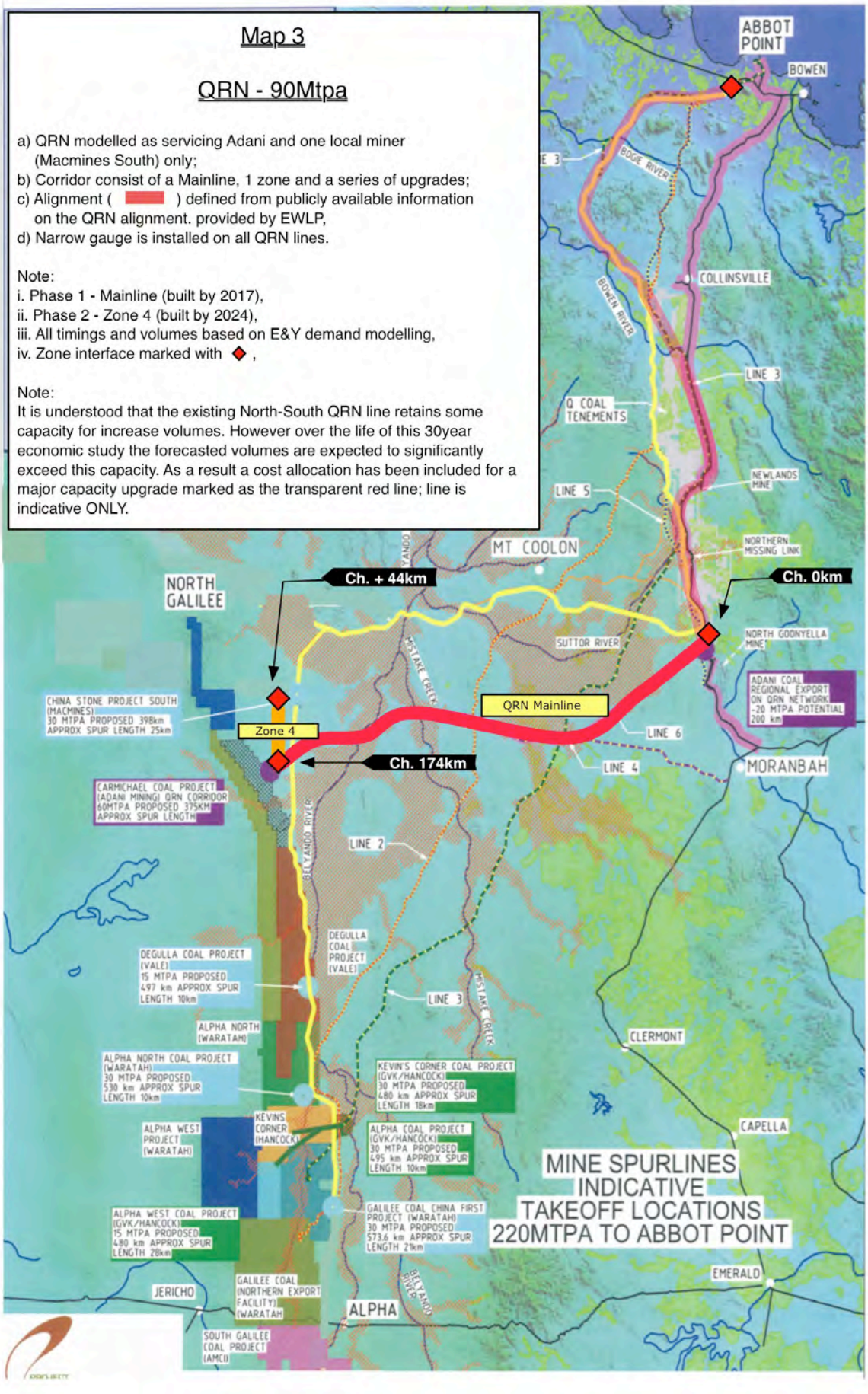
QRN mainline alignment

- Commences at chainage 00km, located at a junction into the existing QRN network at North Goonyella (about 9km south of the GIC Zone 1 / 2 interface) or roughly 40km north of Moranbah;
- Hravels from this junction 55km, crossing floodplain areas, in a south-westerly direction, at which point the line heads west for another 65km;
- At just south of the Nairana National Park the line turns further south for another 64km and arrives at the Adani Carmichael Coal Project. Overall the 174km line crosses almost 100km of flood exposed areas within the Isaac Regional Council catchment; and
- The transparent red line is an indicative line highlighting the capacity constraint and additional work required by QRN to service the full Adani and Macmines South throughput. QRN has stated, (in the Central Queensland Integrated Rail Project – Terms of Reference – EIS, page 8) that upgrades will be required at the Leichardt Range, Collinsville, Briaba, and and Aberdeen in order to accommodate the increased throughput. It is believed that considering the costs associated with this work, there is room for QRN to consider alternate corridors for the North-South Goonyella to Abbott Point corridors.

QRN Zone 4

- It was assumed that QRN would also carry freight from local North Galilee miners. A cost was apportioned to achieve an apples-for-apples comparison with the GIC (serving all miners) options. On this basis we adopted the GIC alignment costs to reach the node point associated with Macmines South.


Map 2
GVK - 150Mtpa
a) GVK modelled as servicing GVK and several local miners (i.e. Vale, Waratah : Alpha North & China First) only;
b) Corridor consist of a Mainline and several zones;
c) Alignment ( ) defined from publicly available information on the GVK alignment. provided by EWLP,
d) Standard gauge is installed on all GVK lines.
Note:
i. Phase 1 - Mainline (built by 2017),
ii. Phase 2 - Zone 7 & 8 (built by 2021),
iii. Phase 3 - Zone 9 (built by 2027),
iv. All timings and volumes based on E&Y demand modelling,
v. Zone interface marked with ,
ABBOT POINT
BOWEN
Ch. 0km
LINE 3
BOGIE RIVER
COLLINSVILLE
BOWEN RIVER
BURDEKIN DAM
LINE 3
Q COAL TENEMENTS
NEWLANDS MINE
LINE 5
MT COOLON
NORTHERN MISSING LINK
NORTH GALILEE
BELYANDO RIVER
SUTTOR RIVER
NORTH GOONYELLA MINE
MISTAKE CREEK
ADANI COAL REGIONAL EXPORT ON QRN NETWORK -20 MTPA POTENTIAL 200 km
CHINA STONE PROJECT SOUTH (MACMINES) 30 MTPA PROPOSED 398km APPROX SPUR LENGTH 25km
LINE 6
LINE 4
MORANBAH
CARMICHAEL COAL PROJECT (ADANI MINING) QRN CORRIDOR 60MTPA PROPOSED 375KM APPROX SPUR LENGTH
LINE 2
GVK Mainline
Ch. + 59km
DEGULLA COAL PROJECT (VALE)
DEGULLA COAL PROJECT (VALE) 15 MTPA PROPOSED 497 km APPROX SPUR LENGTH 10km
LINE 3
ALPHA NORTH (WARATAH)
Zone 7
Ch. + 23km
CLERMONT
ALPHA NORTH COAL PROJECT (WARATAH) 30 MTPA PROPOSED 530 km APPROX SPUR LENGTH 10km
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 480 km APPROX SPUR LENGTH 18km
Zone 8
Ch. 485km
KEVINS CORNER (HANCOCK)
ALPHA WEST PROJECT (WARATAH)
ALPHA COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 495 km APPROX SPUR LENGTH 10km
CAPELLA
Zone 9
MINE SPURLINES INDICATIVE TAKEOFF LOCATIONS 220MTPA TO ABBOT POINT
ALPHA WEST COAL PROJECT (GVK/HANCOCK) 15 MTPA PROPOSED 480 km APPROX SPUR LENGTH 28km
GALILEE COAL CHINA FIRST PROJECT (WARATAH) 30 MTPA PROPOSED 573.6 km APPROX SPUR LENGTH 21km
Ch. + 20km
EMERALD
JERICHO
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH)
ALPHA
SOUTH GALILEE COAL PROJECT (AMCI)


Map 3
QRN - 90Mtpa
a) QRN modelled as servicing Adani and one local miner (Macmines South) only;
b) Corridor consist of a Mainline, 1 zone and a series of upgrades;
c) Alignment ( ) defined from publicly available information on the QRN alignment. provided by EWLP,
d) Narrow gauge is installed on all QRN lines.
Note:
i. Phase 1 - Mainline (built by 2017),
ii. Phase 2 - Zone 4 (built by 2024),
iii. All timings and volumes based on E&Y demand modelling,
iv. Zone interface marked with ,
Note:
It is understood that the existing North-South QRN line retains some capacity for increase volumes. However over the life of this 30year economic study the forecasted volumes are expected to significantly exceed this capacity. As a result a cost allocation has been included for a major capacity upgrade marked as the transparent red line; line is indicative ONLY.
ABBOT POINT
BOWEN
BOGIE RIVER
COLLINSVILLE
BOWEN RIVER
LINE 3
Q COAL TENEMENTS
NEWLANDS MINE
LINE 5
NORTHERN MISSING LINK
MT COOLON
Ch. + 44km
Ch. 0km
NORTH GALILEE
SUTTOR RIVER
NORTH GOONYELLA MINE
ADANI COAL REGIONAL EXPORT ON QRN NETWORK -20 MTPA POTENTIAL 200 km
CHINA STONE PROJECT SOUTH (MACMINES) 30 MTPA PROPOSED 398km APPROX SPUR LENGTH 25km
Zone 4
QRN Mainline
LINE 6
Ch. 174km
LINE 4
MORANBAH
CARMICHAEL COAL PROJECT (ADANI MINING) QRN CORRIDOR 60MTPA PROPOSED 375KM APPROX SPUR LENGTH
BELYANDO RIVER
LINE 2
DEGULLA COAL PROJECT (VALE)
DEGULLA COAL PROJECT (VALE) 15 MTPA PROPOSED 497 km APPROX SPUR LENGTH 10km
LINE 3
MISTAKE CREEK
ALPHA NORTH (WARATAH)
CLERMONT
ALPHA NORTH COAL PROJECT (WARATAH) 30 MTPA PROPOSED 530 km APPROX SPUR LENGTH 10km
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 480 km APPROX SPUR LENGTH 18km
ALPHA WEST PROJECT (WARATAH)
KEVINS CORNER (HANCOCK)
ALPHA COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 495 km APPROX SPUR LENGTH 10km
CAPELLA
MINE SPURLINES INDICATIVE TAKEOFF LOCATIONS 220MTPA TO ABBOT POINT
ALPHA WEST COAL PROJECT (GVK/HANCOCK) 15 MTPA PROPOSED 480 km APPROX SPUR LENGTH 28km
GALILEE COAL CHINA FIRST PROJECT (WARATAH) 30 MTPA PROPOSED 573.6 km APPROX SPUR LENGTH 21km
EMERALD
JERICHO
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH)
ALPHA
BELYANDO RIVER
SOUTH GALILEE COAL PROJECT (AMCI)

Appendix 1 – Part C

Map 4 – GIC - Option 2

GIC Zone 1 alignment:

- Along the same alignment as GIC – Option 1

GIC Zone 2 alignment

- Along the same alignment as GIC – Option 1

GIC Zone 3 to 9 alignment

- Along the same alignment as GIC – Option 1

Note: the phasing of the works commences at a later date than GIC – Option 1 and is delivered over a longer period of time to match with volumes coming available from Galilee south mines.

Map 5 – GVK – 60Mtpa

GVK mainline alignment.

- Along the same alignment as GVK – 150Mtpa

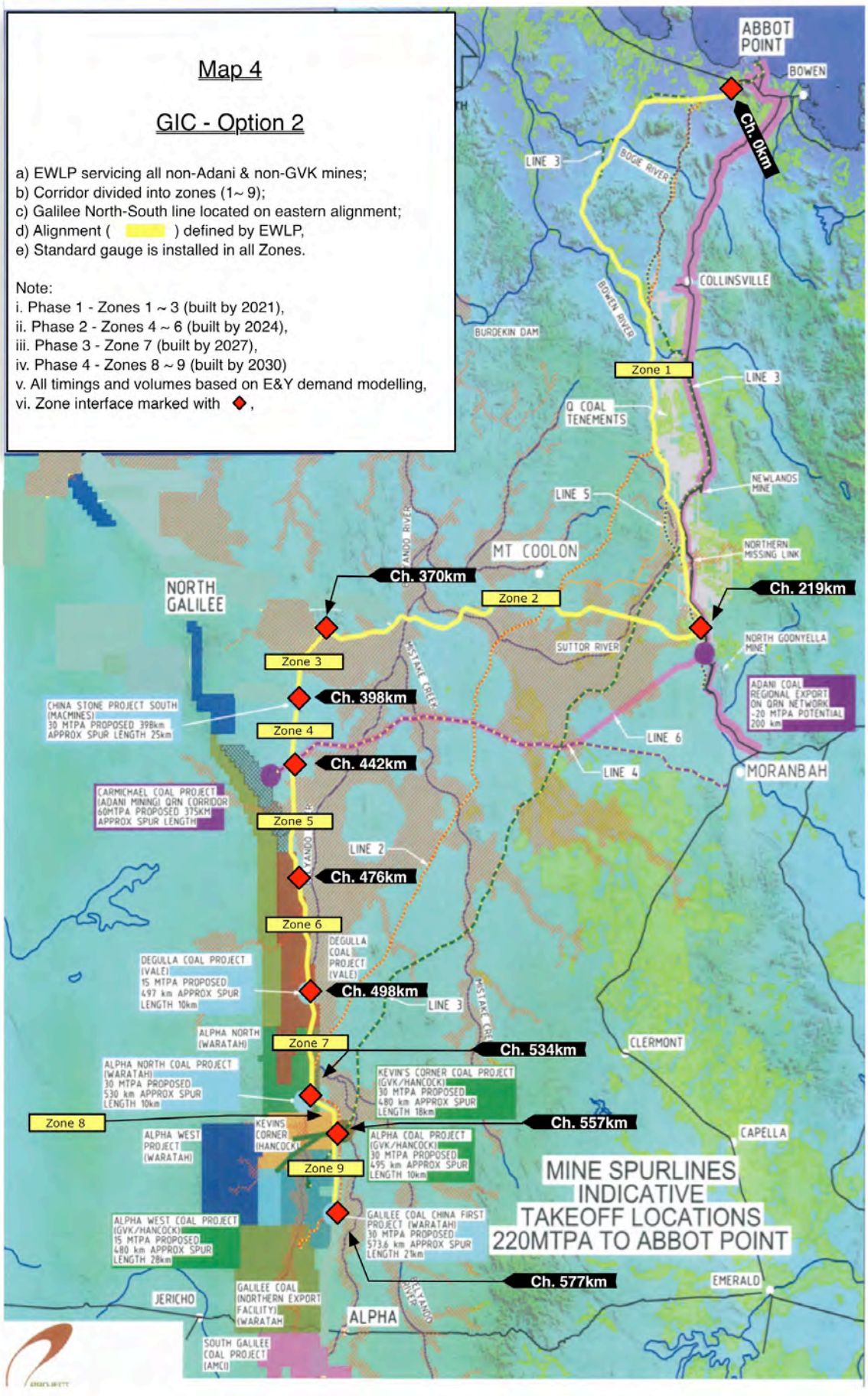
Note: In this comparison, GVK is servicing GVK mines only. As a result not additional zones are required.

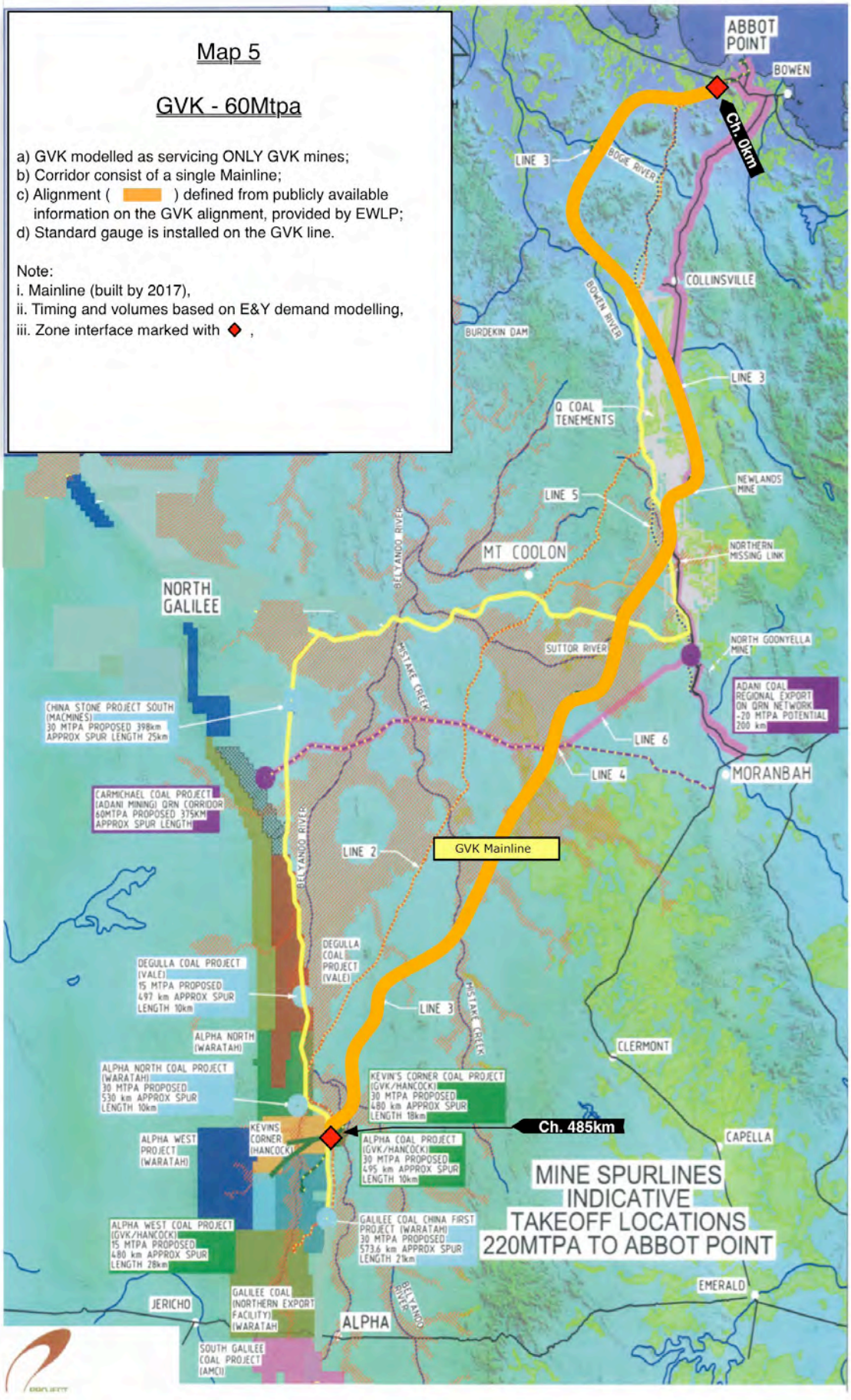
Map 6 : QRN – 60Mtpa

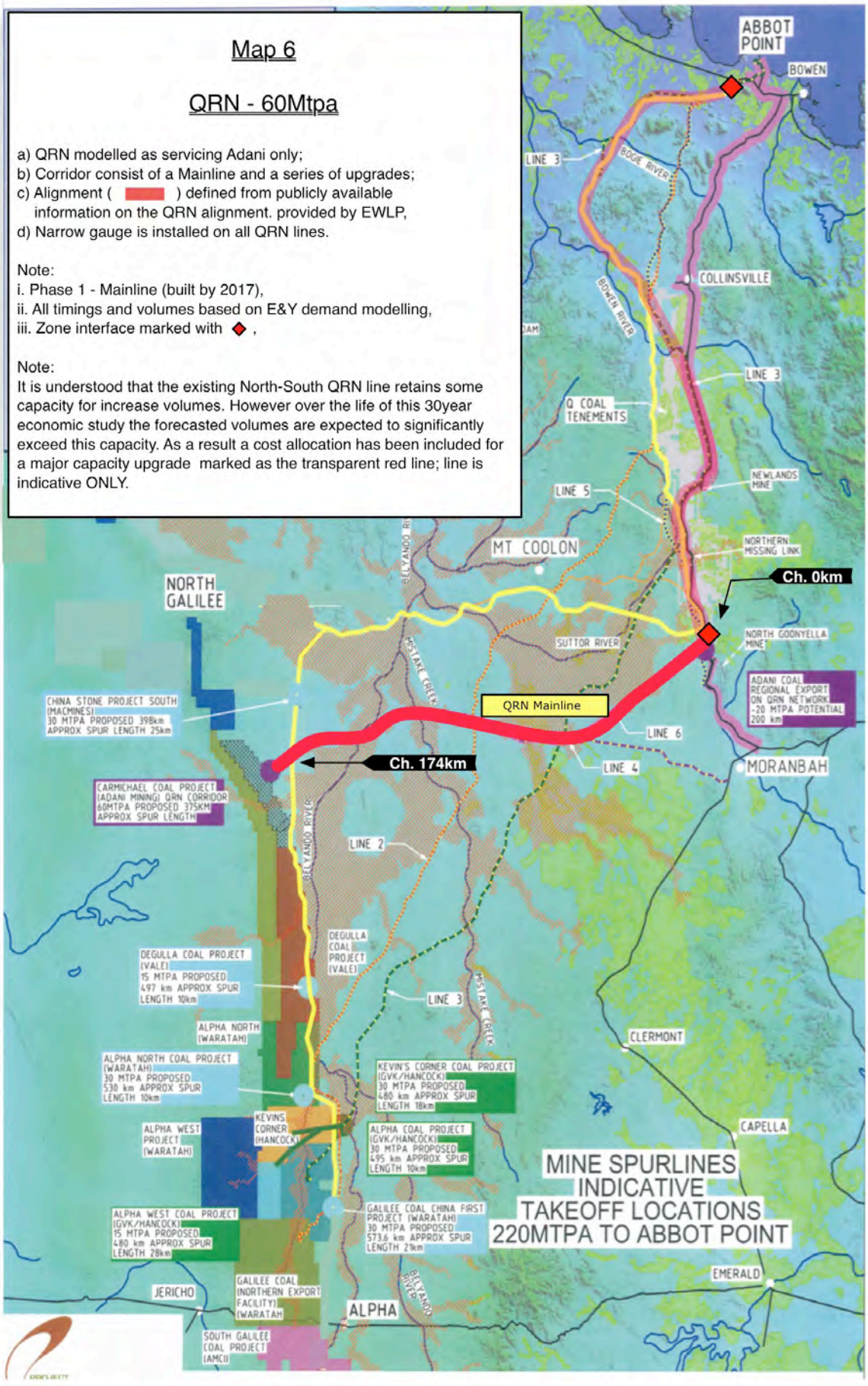
QRN mainline alignment

- Along the same alignment as QRN – 60Mtpa

Note: In this comparison, QRN is servicing the Adani Carmichael Coal Project only. As a result not additional zones are required.


Map 4
GIC - Option 2
a) EWLP servicing all non-Adani & non-GVK mines;
b) Corridor divided into zones (1~ 9);
c) Galilee North-South line located on eastern alignment;
d) Alignment ( ) defined by EWLP,
e) Standard gauge is installed in all Zones.
Note:
i. Phase 1 - Zones 1 ~ 3 (built by 2021),
ii. Phase 2 - Zones 4 ~ 6 (built by 2024),
iii. Phase 3 - Zone 7 (built by 2027),
iv. Phase 4 - Zones 8 ~ 9 (built by 2030)
v. All timings and volumes based on E&Y demand modelling,
vi. Zone interface marked with ◆,
ABBOT POINT
BOWEN
Ch. 0km
LINE 3
BOGIE RIVER
COLLINSVILLE
BOWEN RIVER
BURDEKIN DAM
Zone 1
LINE 3
Q COAL TENEMENTS
NEWLANDS MINE
LINE 5
MT COOLON
NORTHERN MISSING LINK
Ch. 370km
Ch. 219km
NORTH GALILEE
Zone 2
SUTTOR RIVER
NORTH GOONYELLA MINE
Zone 3
Ch. 398km
CHINA STONE PROJECT SOUTH (MACMINES) 30 MTPA PROPOSED 398km APPROX SPUR LENGTH 25km
ADANI COAL REGIONAL EXPORT ON QRN NETWORK ~20 MTPA POTENTIAL 200 km
Zone 4
Ch. 442km
LINE 6
LINE 4
MORANBAH
CARMICHAEL COAL PROJECT (ADANI MININGI QRN CORRIDOR 60MTPA PROPOSED 375KM APPROX SPUR LENGTH
Zone 5
LINE 2
Ch. 476km
Zone 6
DEGULLA COAL PROJECT (VALE) 15 MTPA PROPOSED 497 km APPROX SPUR LENGTH 10km
DEGULLA COAL PROJECT (VALE)
Ch. 498km
LINE 3
ALPHA NORTH (WARATAH)
Zone 7
Ch. 534km
CLERMONT
ALPHA NORTH COAL PROJECT (WARATAH) 30 MTPA PROPOSED 530 km APPROX SPUR LENGTH 10km
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 480 km APPROX SPUR LENGTH 18km
Zone 8
Ch. 557km
KEVINS CORNER (HANCOCK)
ALPHA WEST PROJECT (WARATAH)
ALPHA COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 495 km APPROX SPUR LENGTH 10km
CAPELLA
Zone 9
MINE SPURLINES INDICATIVE TAKEOFF LOCATIONS 220MTPA TO ABBOT POINT
ALPHA WEST COAL PROJECT (GVK/HANCOCK) 15 MTPA PROPOSED 480 km APPROX SPUR LENGTH 28km
GALILEE COAL CHINA FIRST PROJECT (WARATAH) 30 MTPA PROPOSED 573.6 km APPROX SPUR LENGTH 21km
Ch. 577km
EMERALD
JERICHO
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH
ALPHA
SOUTH GALILEE COAL PROJECT (AMCI)


Map 5
GVK - 60Mtpa
a) GVK modelled as servicing ONLY GVK mines;
b) Corridor consist of a single Mainline;
c) Alignment ( ) defined from publicly available information on the GVK alignment, provided by EWLP;
d) Standard gauge is installed on the GVK line.
Note:
i. Mainline (built by 2017),
ii. Timing and volumes based on E&Y demand modelling,
iii. Zone interface marked with ◆ ,
ABBOT POINT
BOWEN
Ch. 0km
LINE 3
BOGIE RIVER
COLLINSVILLE
BOWEN RIVER
BURDEKIN DAM
LINE 3
Q COAL TENEMENTS
NEWLANDS MINE
LINE 5
BELYANDO RIVER
MT COOLON
NORTHERN MISSING LINK
NORTH GALILEE
SUTTOR RIVER
NORTH GOONYELLA MINE
WESTAIR CREEK
ADANI COAL REGIONAL EXPORT ON QRN NETWORK -20 MTPA POTENTIAL 200 km
CHINA STONE PROJECT SOUTH (MACMINES) 30 MTPA PROPOSED 398km APPROX SPUR LENGTH 25km
LINE 6
LINE 4
MORANBAH
CARMICHAEL COAL PROJECT (ADANI MINING) QRN CORRIDOR 60MTPA PROPOSED 375KM APPROX SPUR LENGTH
BELYANDO RIVER
LINE 2
GVK Mainline
DEGULLA COAL PROJECT (VALE)
DEGULLA COAL PROJECT (VALE) 15 MTPA PROPOSED 497 km APPROX SPUR LENGTH 10km
LINE 3
WESTAIR CREEK
ALPHA NORTH (WARATAH)
CLERMONT
ALPHA NORTH COAL PROJECT (WARATAH) 30 MTPA PROPOSED 530 km APPROX SPUR LENGTH 10km
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 480 km APPROX SPUR LENGTH 18km
Ch. 485km
KEVINS CORNER (HANCOCK)
ALPHA WEST PROJECT (WARATAH)
ALPHA COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 495 km APPROX SPUR LENGTH 10km
CAPELLA
MINE SPURLINES INDICATIVE TAKEOFF LOCATIONS 220MTPA TO ABBOT POINT
ALPHA WEST COAL PROJECT (GVK/HANCOCK) 15 MTPA PROPOSED 480 km APPROX SPUR LENGTH 28km
GALILEE COAL CHINA FIRST PROJECT (WARATAH) 30 MTPA PROPOSED 573.6 km APPROX SPUR LENGTH 21km
EMERALD
JERICHO
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH)
BELYANDO RIVER
ALPHA
SOUTH GALILEE COAL PROJECT (AMCI)


Map 6
QRN - 60Mtpa
a) QRN modelled as servicing Adani only;
b) Corridor consist of a Mainline and a series of upgrades;
c) Alignment ( ) defined from publicly available information on the QRN alignment. provided by EWLP,
d) Narrow gauge is installed on all QRN lines.
Note:
i. Phase 1 - Mainline (built by 2017),
ii. All timings and volumes based on E&Y demand modelling,
iii. Zone interface marked with ,
Note:
It is understood that the existing North-South QRN line retains some capacity for increase volumes. However over the life of this 30year economic study the forecasted volumes are expected to significantly exceed this capacity. As a result a cost allocation has been included for a major capacity upgrade marked as the transparent red line; line is indicative ONLY.
ABBOT POINT
BOWEN
LINE 3
BOGIE RIVER
COLLINSVILLE
BOWEN RIVER
LINE 3
Q COAL TENEMENTS
NEWLANDS MINE
LINE 5
MT COOLON
NORTHERN MISSING LINK
Ch. 0km
NORTH GALILEE
NORTH GOONYELLA MINE
SUTTOR RIVER
MISTAKE CREEK
ADANI COAL REGIONAL EXPORT ON QRN NETWORK -20 MTPA POTENTIAL 200 km
CHINA STONE PROJECT SOUTH (MACMINES) 30 MTPA PROPOSED 398km APPROX SPUR LENGTH 25km
QRN Mainline
LINE 6
LINE 4
Ch. 174km
MORANBAH
CARMICHAEL COAL PROJECT (ADANI MINING) QRN CORRIDOR 60MTPA PROPOSED 375KM APPROX SPUR LENGTH
BELYANDO RIVER
LINE 2
DEGULLA COAL PROJECT (VALE)
DEGULLA COAL PROJECT (VALE) 15 MTPA PROPOSED 497 km APPROX SPUR LENGTH 10km
LINE 3
MISTAKE CREEK
ALPHA NORTH (WARATAH)
CLERMONT
ALPHA NORTH COAL PROJECT (WARATAH) 30 MTPA PROPOSED 530 km APPROX SPUR LENGTH 10km
KEVIN'S CORNER COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 480 km APPROX SPUR LENGTH 18km
ALPHA WEST PROJECT (WARATAH)
KEVINS CORNER (HANCOCK)
ALPHA COAL PROJECT (GVK/HANCOCK) 30 MTPA PROPOSED 495 km APPROX SPUR LENGTH 10km
CAPELLA
MINE SPURLINES INDICATIVE TAKEOFF LOCATIONS 220MTPA TO ABBOT POINT
ALPHA WEST COAL PROJECT (GVK/HANCOCK) 15 MTPA PROPOSED 480 km APPROX SPUR LENGTH 28km
GALILEE COAL CHINA FIRST PROJECT (WARATAH) 30 MTPA PROPOSED 573.6 km APPROX SPUR LENGTH 21km
EMERALD
JERICHO
GALILEE COAL (NORTHERN EXPORT FACILITY) (WARATAH)
ALPHA
BELYANDO RIVER
SOUTH GALILEE COAL PROJECT (AMCI)

Appendix 2 Terrain type distances

Terrain Type Distances

The following tables outline the manner in which each zone is defined by terrain category.

Note: All amounts shown in km

Table 1: GIC – Option 1 (Standard Gauge**)

Note**: To service Adani Carmichael Coal Project and offer narrow gauge lines to allow for throughput to Dudgeon point, GIC – Option 1 includes a dual gauge segment, that being a segment installed with standard and narrow gauge track (areas of zones 2 & 3) with the remaining alignment being stalled as standard gauge.

GIC	Flat	Hilly	Rolling	Flood	Total
Zone 1	20	148	15	36	219
Zone 2	128			23	151
Zone 3			16	12	28
Zone 4		44			44
Zone 5			24	10	34
Zone 6	4			18	22
Zone 7	20			16	36
Zone 8	21			2	23
Zone 9	20				20
Totals	213	192	55	117	**577**

Table 2: GVK – 150Mpta (Standard Gauge)

Note: To service local mines to the north and south of GVK's Kevin's Corner Coal Project GVK has additional zones included.

GVK	Flat	Hilly	Rolling	Flood	Total
Mainline	149	136	20	180	485
Zone 7	20			16	36
Zone 8	21			2	23
Zone 9	20				20
Totals	210	136	20	198	**564**

Table 3: QRN – 90Mpta (Narrow Gauge)

Note: To service Macmines South to the north of Adani Carmichael Coal Project an additional zone is included.

QRN	Flat	Hilly	Rolling	Flood	Total
Mainline	75			99	174
Zone 4		44			44
Totals	75	44		99	**218**

Table 4: GIC – Option 2 (Standard Gauge)

Note: All amounts shown in km

GIC – Option 2	Flat	Hilly	Rolling	Flood	Total
Zone 1	20	148	15	36	219
Zone 2	128			23	151
Zone 3			16	12	28
Zone 4		44			44
Zone 5			24	10	34
Zone 6	4			18	22
Zone 7	20			16	36
Zone 8	21			2	23
Zone 9	20				20
Totals	213	192	55	117	**577**

Table 5: GVK – 60Mpta (Standard Gauge)

Note: Only GVK's Kevin's Corner Coal Project and surrounding GVK mines are being serviced, therefore no additional zones included.

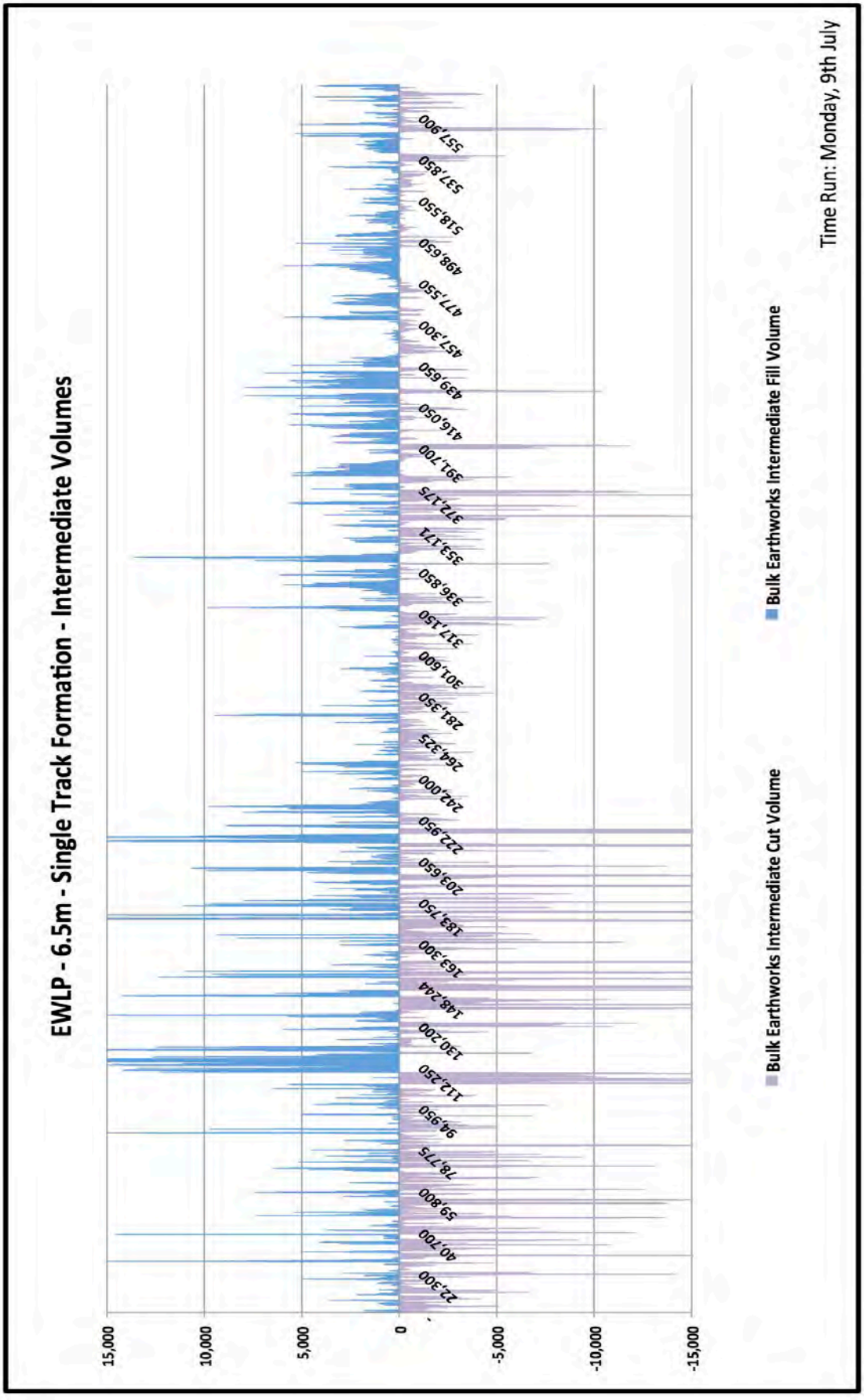
GVK	Flat	Hilly	Rolling	Flood	Total
Mainline	149	136	20	180	485

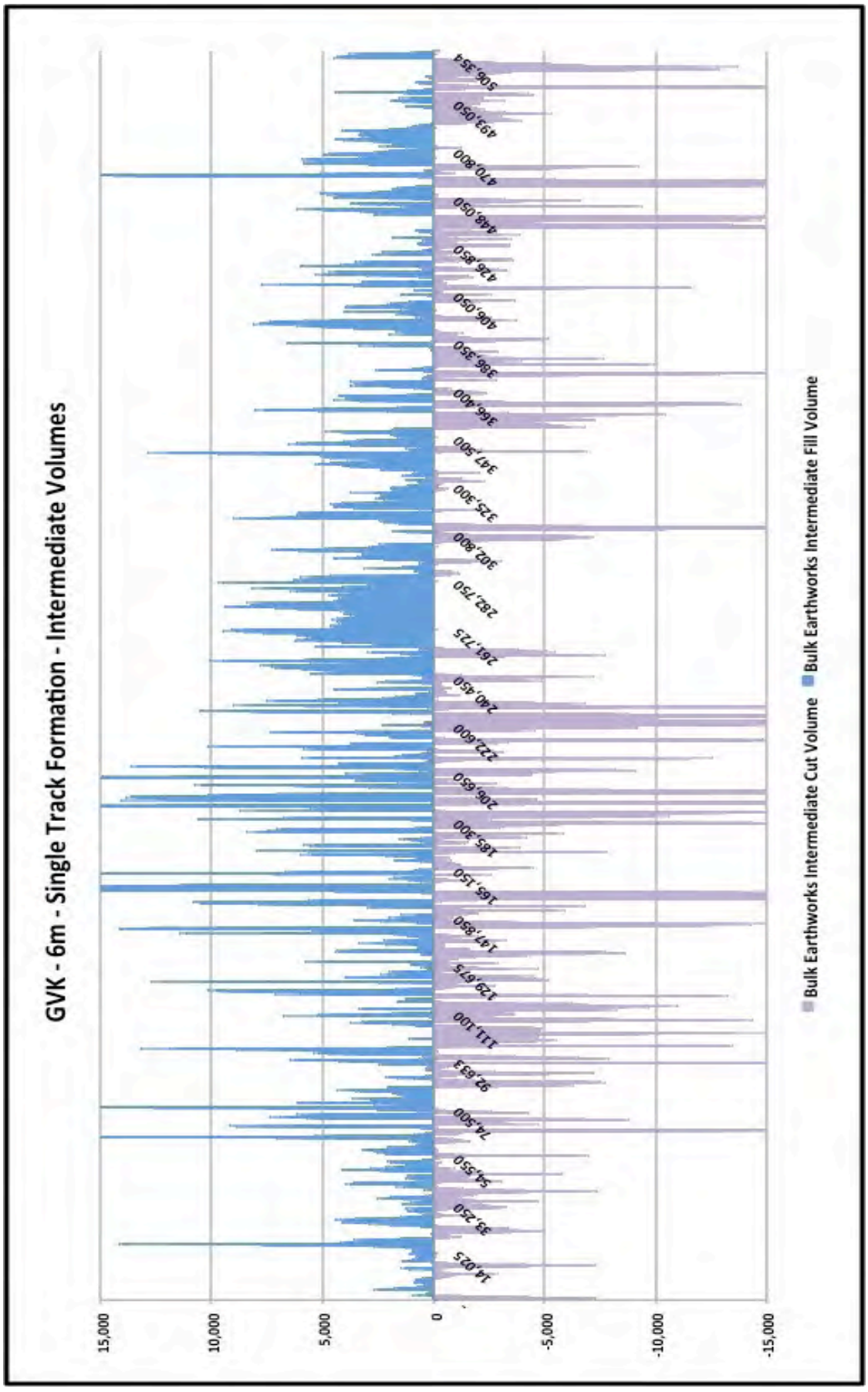
Table 6: QRN – 60Mpta (Narrow Gauge)

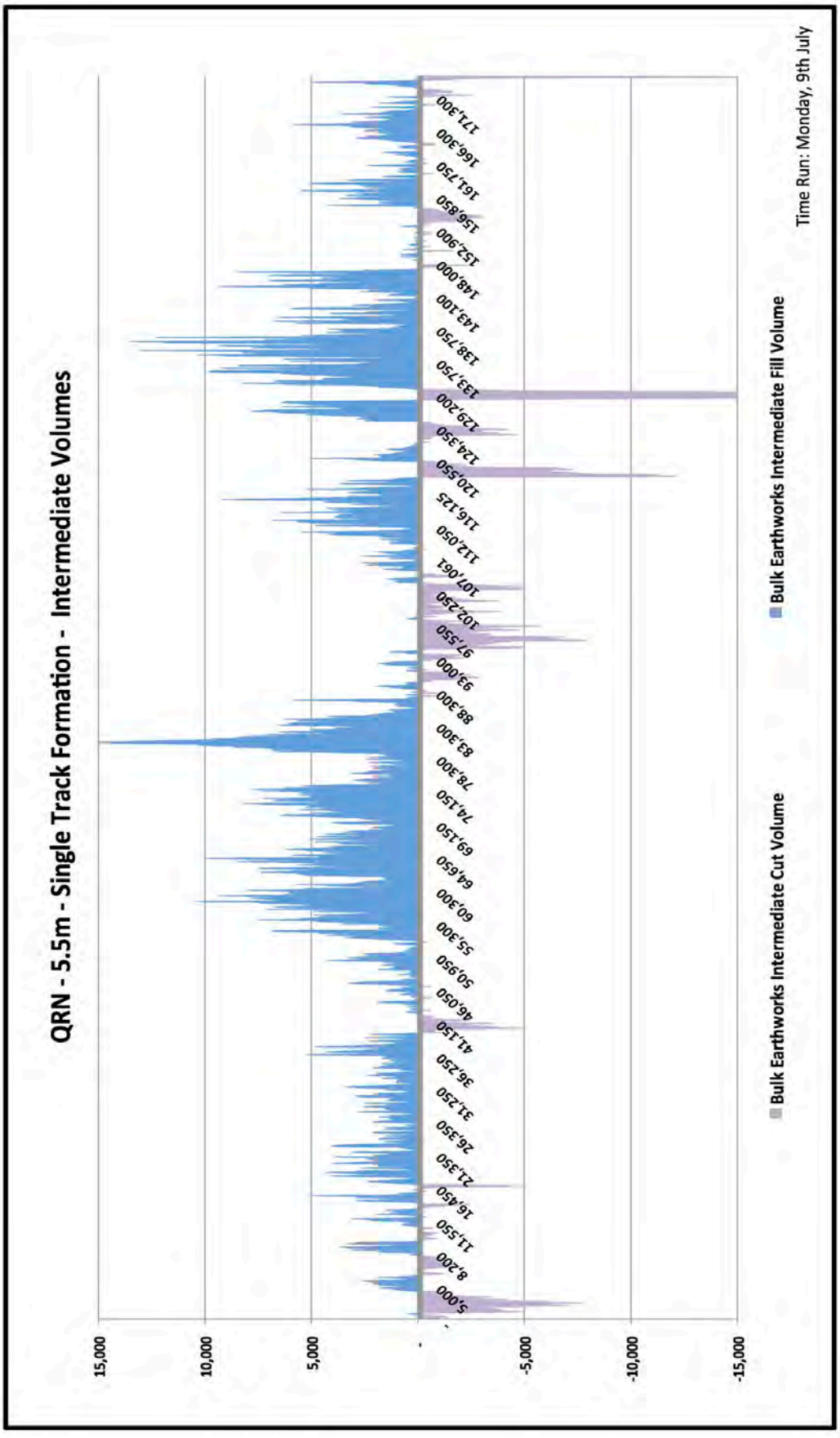
Note: Only Adani's Carmichael Coal Project is being serviced, therefore no additional zones included.

QRN	Flat	Hilly	Rolling	Flood	Total
Mainline	75			99	174

Appendix 3 Indicative Earthworks Volumes


EWLP - 6.5m - Single Track Formation - Intermediate Volumes
Time Run: Monday, 9th July
Bulk Earthworks Intermediate Fill Volume
Bulk Earthworks Intermediate Cut Volume
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
557,900
537,850
518,550
498,650
477,550
457,300
439,650
416,050
391,700
372,175
353,171
336,850
317,150
301,600
281,350
264,325
242,000
222,950
203,650
183,750
163,300
148,224
130,200
112,250
94,950
78,775
59,800
40,700
22,300


GVK - 6m - Single Track Formation - Intermediate Volumes
15,000
10,000
5,000
0
-5,000
-10,000
-15,000
506,354
493,050
470,800
446,050
426,850
406,050
386,350
366,400
347,500
325,500
302,800
282,750
261,725
240,450
222,600
206,650
185,300
165,150
147,850
129,675
111,100
92,633
74,500
54,550
33,250
14,025
Bulk Earthworks Intermediate Cut Volume
Bulk Earthworks Intermediate Fill Volume


QRN - 5.5m - Single Track Formation - Intermediate Volumes
Time Run: Monday, 9th July
Bulk Earthworks Intermediate Fill Volume
Bulk Earthworks Intermediate Cut Volume
15,000
10,000
5,000
-
-5,000
-10,000
-15,000
171,300
166,300
161,750
156,850
152,900
148,000
143,100
138,750
133,750
129,200
124,350
120,550
116,125
112,050
107,061
102,250
97,550
93,000
88,300
83,300
78,300
74,150
69,150
64,650
60,300
55,300
50,950
46,050
41,150
36,250
31,250
26,350
21,350
16,450
11,550
8,200
5,000

EVERYTHING INFRASTRUCTURE

East West Line Parks Limited

Galilee Infrastructure Corridor Project

Above and below rail comparative cost estimates

Appendices – Part B

July 2012

Appendix 4 Direct cost rates - Earthworks by Terrain Types

Earthworks Cost by Terrain Type

The following tables outline the earthworks cost/ terrain category.

Note: All amounts shown in km

Table 1: GIC – Option 1 (Standard Gauge**)

Note**: To service Adani Carmichael Coal Project and offer narrow gauge lines to allow for throughput to Dudgeon point, GIC – Option 1 includes a dual gauge segment, that being a segment installed with standard and narrow gauge track (areas of zones 2 & 3) with the remaining alignment being stalled as standard gauge.

GIC	Flat	Hilly	Rolling	Flood	Total
Zone 1	0.5	1.4	0.9	1.3	1.25
Zone 2	0.5			1.4	0.67
Zone 3			0.9	1.4	1.08
Zone 4		0.9			0.95
Zone 5			1.0	1.2	1.03
Zone 6	0.5			1.2	1.07
Zone 7	0.7			1.2	0.90
Zone 8	0.5			0.8	0.55
Zone 9	0.6				0.61
Totals					**0.98**

Table 2: GVK – 150Mpta (Standard Gauge)

Note: To service local mines to the north and south of GVK's Kevin's Corner Coal Project GVK has additional zones included.

GVK	Flat	Hilly	Rolling	Flood	Total
Mainline	0.6	1.5	0.9	1.9	1.34
Zone 7	0.7			1.2	0.90
Zone 8	0.5			0.8	0.55
Zone 9	0.6				0.61
Totals					**1.25**

Table 3: QRN – 90Mpta (Narrow Gauge)

Note: To service Macmines South to the north of Adani Carmichael Coal Project an additional zone is included.

QRN	Flat	Hilly	Rolling	Flood	Total
Mainline	0.7			1.9	1.4
Zone 4		0.9			0.9
Totals					**1.29**

Table 4: GIC – Option 2 (Standard Gauge)

Note: All amounts shown in km

GIC – Option 2	Flat	Hilly	Rolling	Flood	Total
Zone 1	0.5	1.4	0.9	1.3	1.25
Zone 2	0.5			1.4	0.67
Zone 3			0.9	1.4	1.08
Zone 4		0.9			0.95
Zone 5			1.0	1.2	1.03
Zone 6	0.5			1.2	1.07
Zone 7	0.7			1.2	0.90
Zone 8	0.5			0.8	0.55
Zone 9	0.6				0.61
Totals					**0.98**

Table 5: GVK – 60Mpta (Standard Gauge)

Note: Only GVK's Kevin's Corner Coal Project and surrounding GVK mines are being serviced, therefore no additional zones included.

GVK	Flat	Hilly	Rolling	Flood	Total
Mainline	0.6	1.5	0.9	1.9	1.34

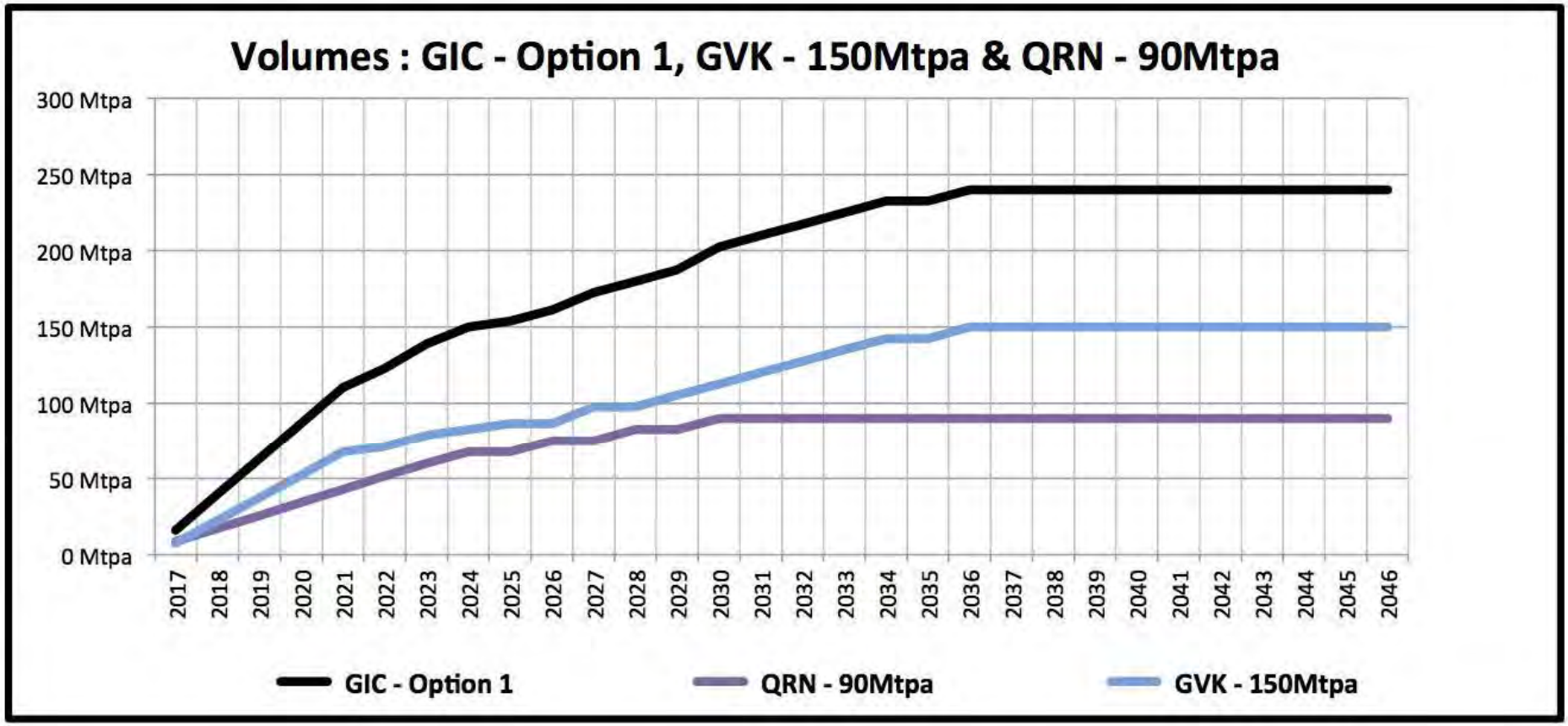
Table 6: QRN – 60Mpta (Narrow Gauge)

Note: Only Adani's Carmichael Coal Project is being serviced, therefore no additional zones included.

QRN	Flat	Hilly	Rolling	Flood	Total
Mainline	0.7			1.9	1.38

Appendix 5 Below rail capacity growth

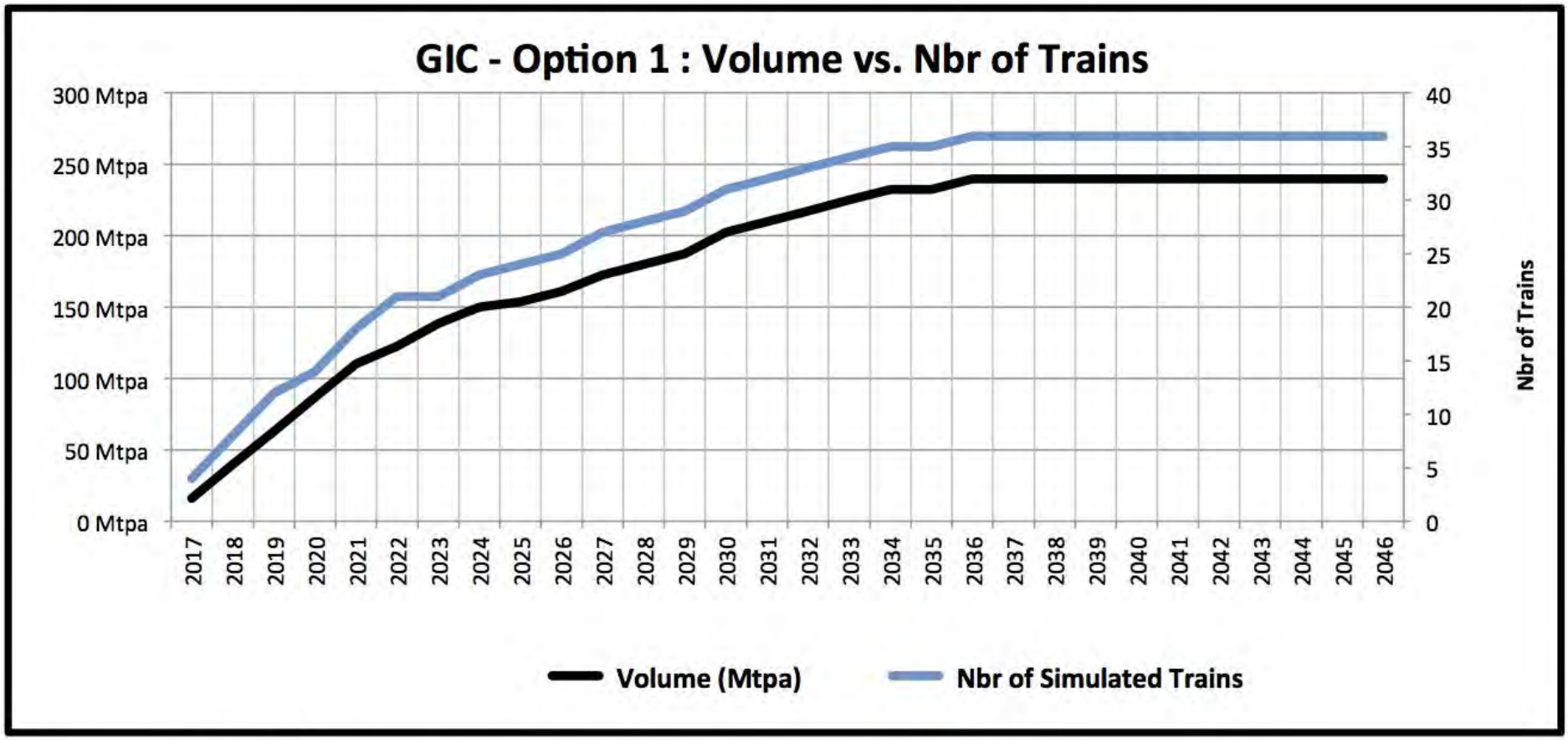
Graph A



Observations:

1. By 2030, QRN line is anticipated to carry 90Mtpa.
2. By 2036, GVK line is anticipated to carry 150Mtpa.
3. By 2036, GIC - Option 1 is anticipated to carry 240Mtpa.

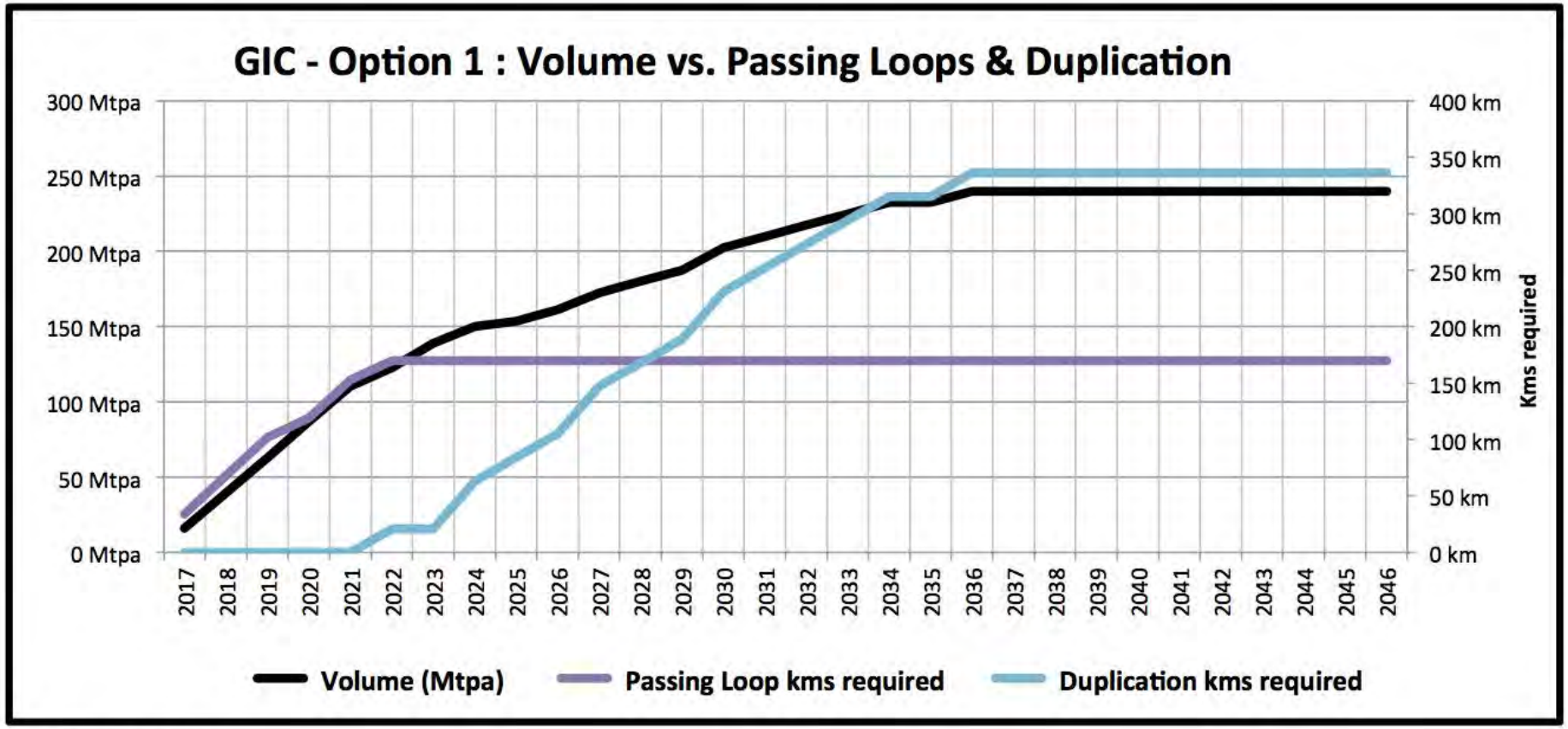
Graph B



Observations:

1. As volume increases the number of trains increases.
2. At 240Mtpa, 36 trains for will be required for GIC - Option 1.

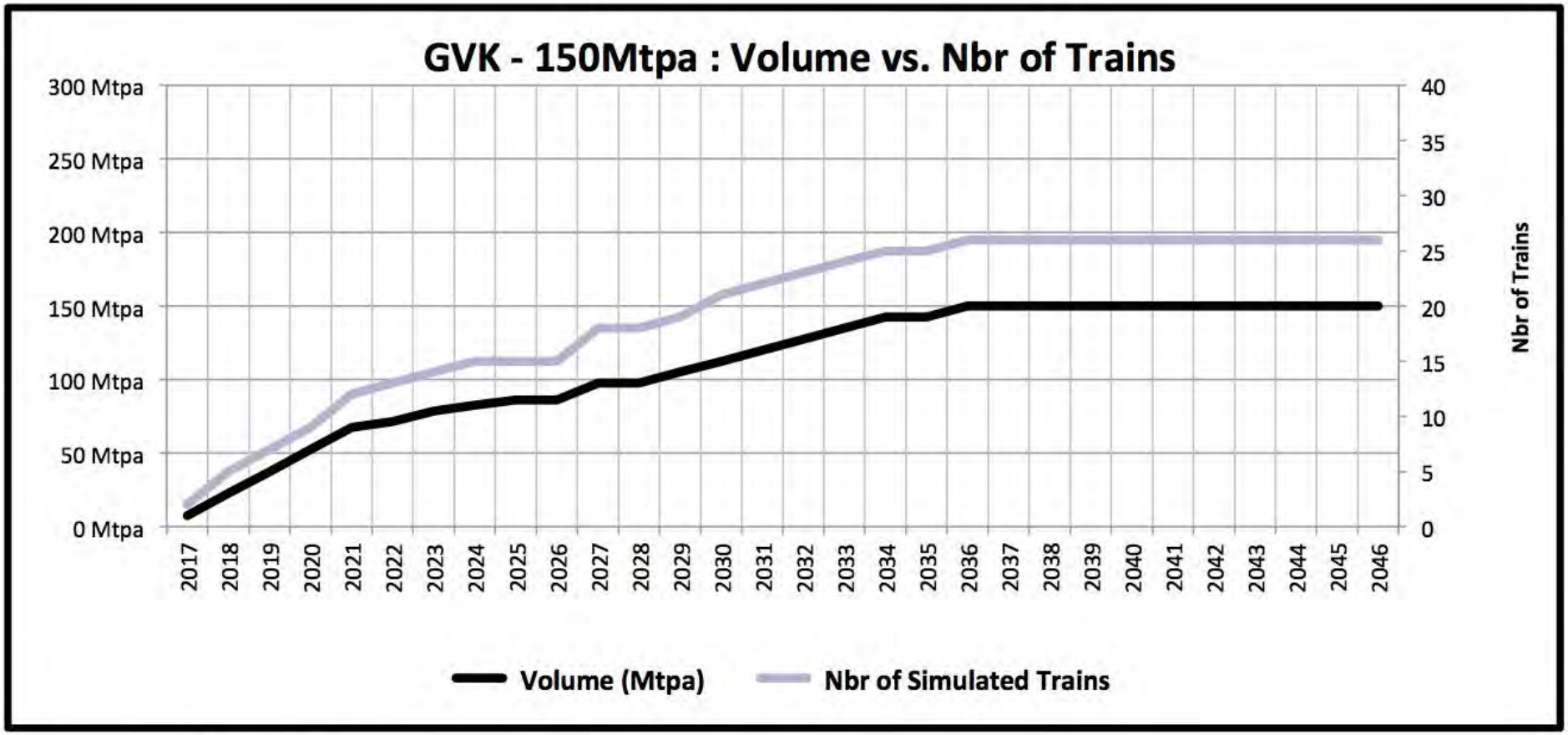
Graph C



Observations:

1. Up to 125Mtpa, passing loops are added as more trains are used to carry capacity.
2. By 2022, the number of trains required to carry the tonnage exceeds the number of passing loops that can be added. After that time, duplication of track between passing loops is required to increase capacity.
3. By 2036 at 240Mtpa, 87% of the track will need to be duplicated (incl. passing loops).

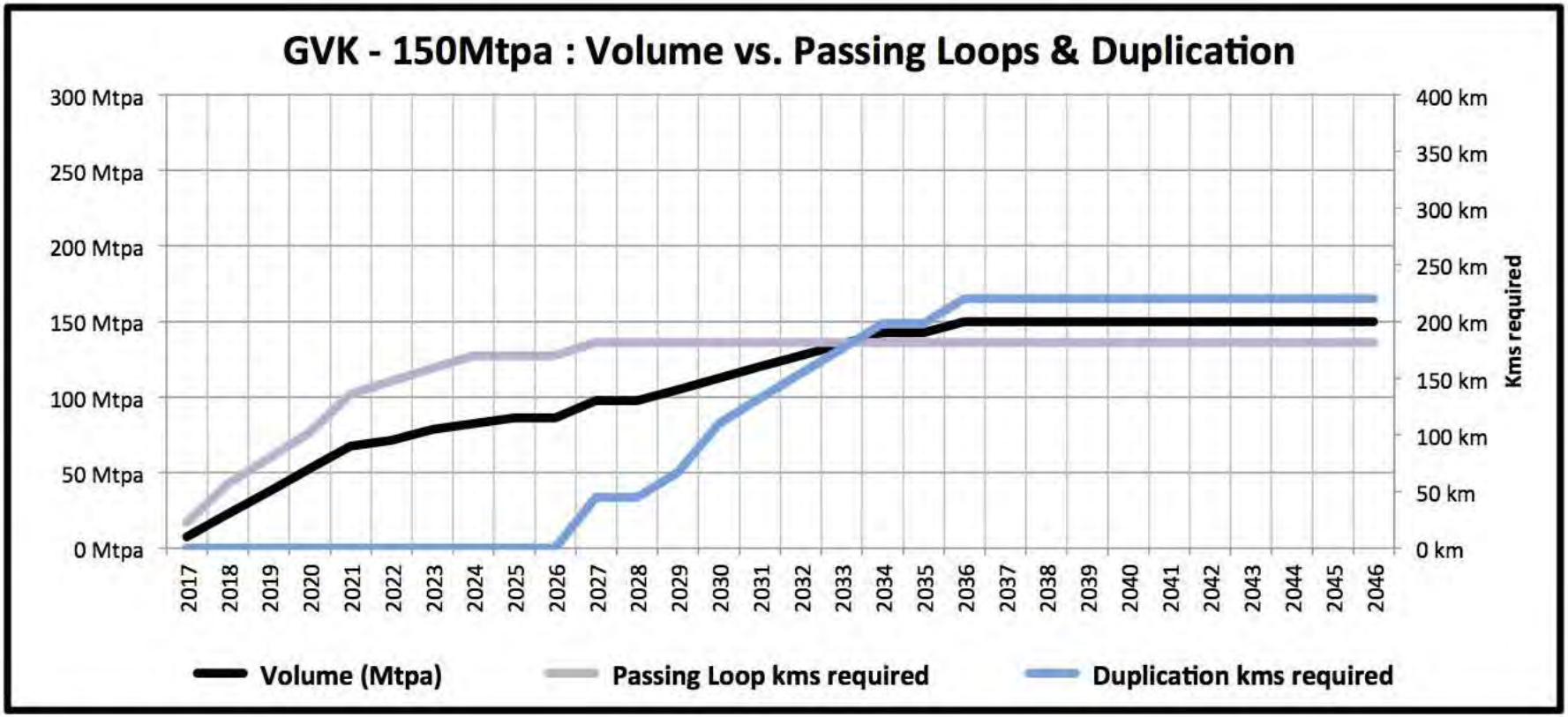
Graph D



Observations:

1. As volume increases the number of trains increases.
2. At 150Mtpa, 26 trains for will be required for GVK - 150Mtpa.

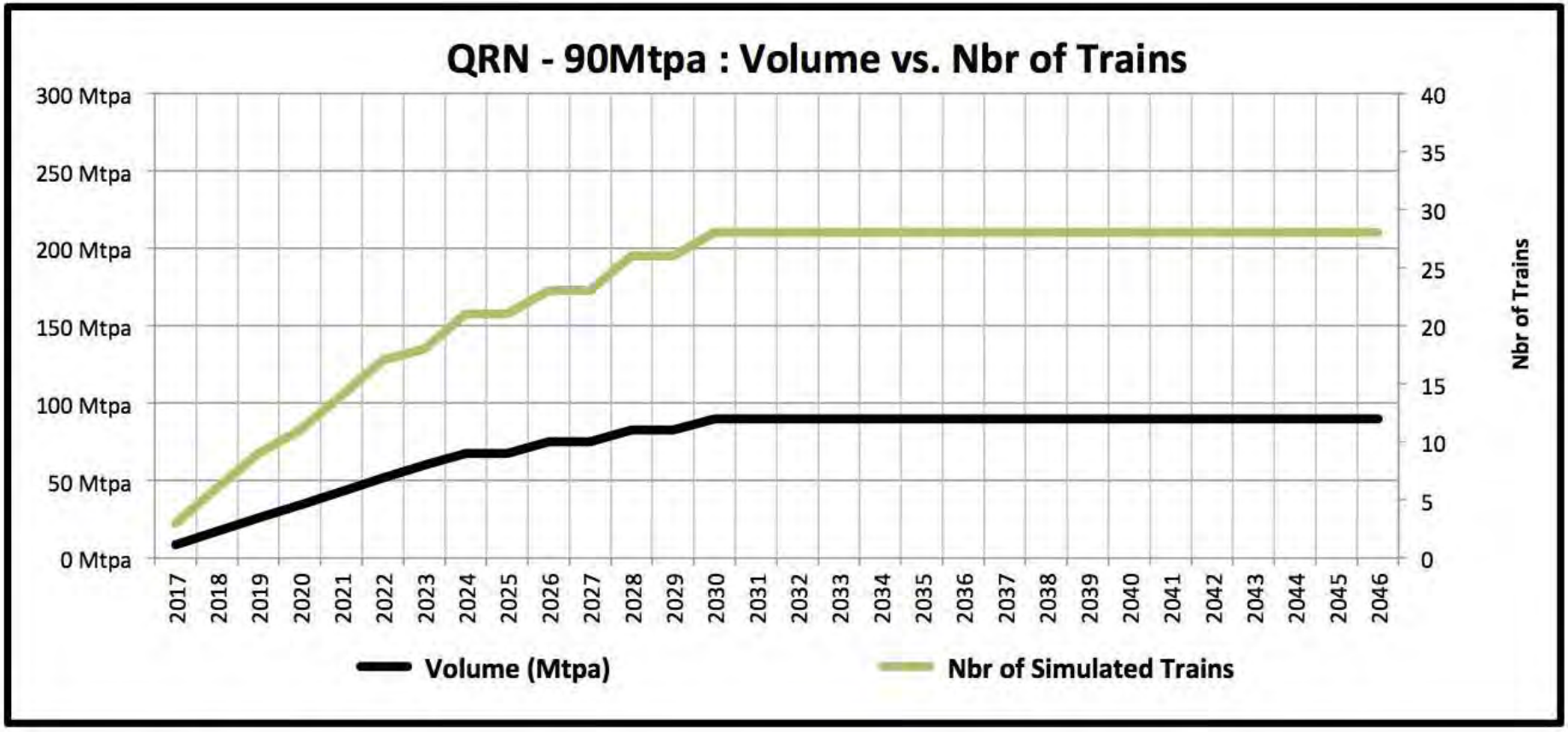
Graph E



Observations:

1. Up to 90Mtpa, passing loops are added as more trains are used to carry capacity.
2. By 2026, the number of trains required to carry the tonnage exceeds the number of passing loops that can be added. After that time, duplication of track between passing loops is required to increase capacity.
3. By 2036 at 150Mtpa, 63% of the track will need to be duplicated (incl. passing loops).

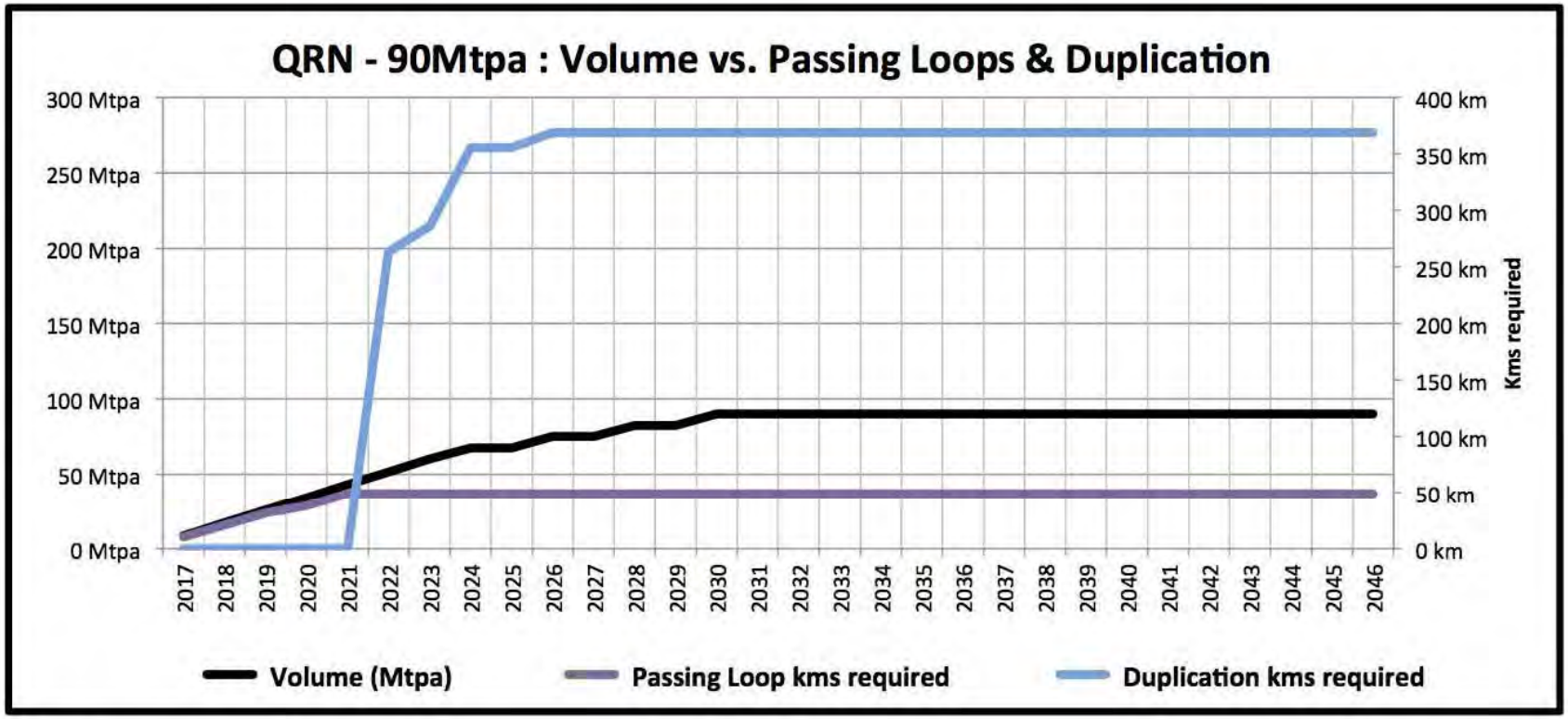
Graph F



Observations:

1. As volume increases the number of trains increases.
2. At 90Mtpa, 28 trains for will be required for QRN - 90Mtpa.

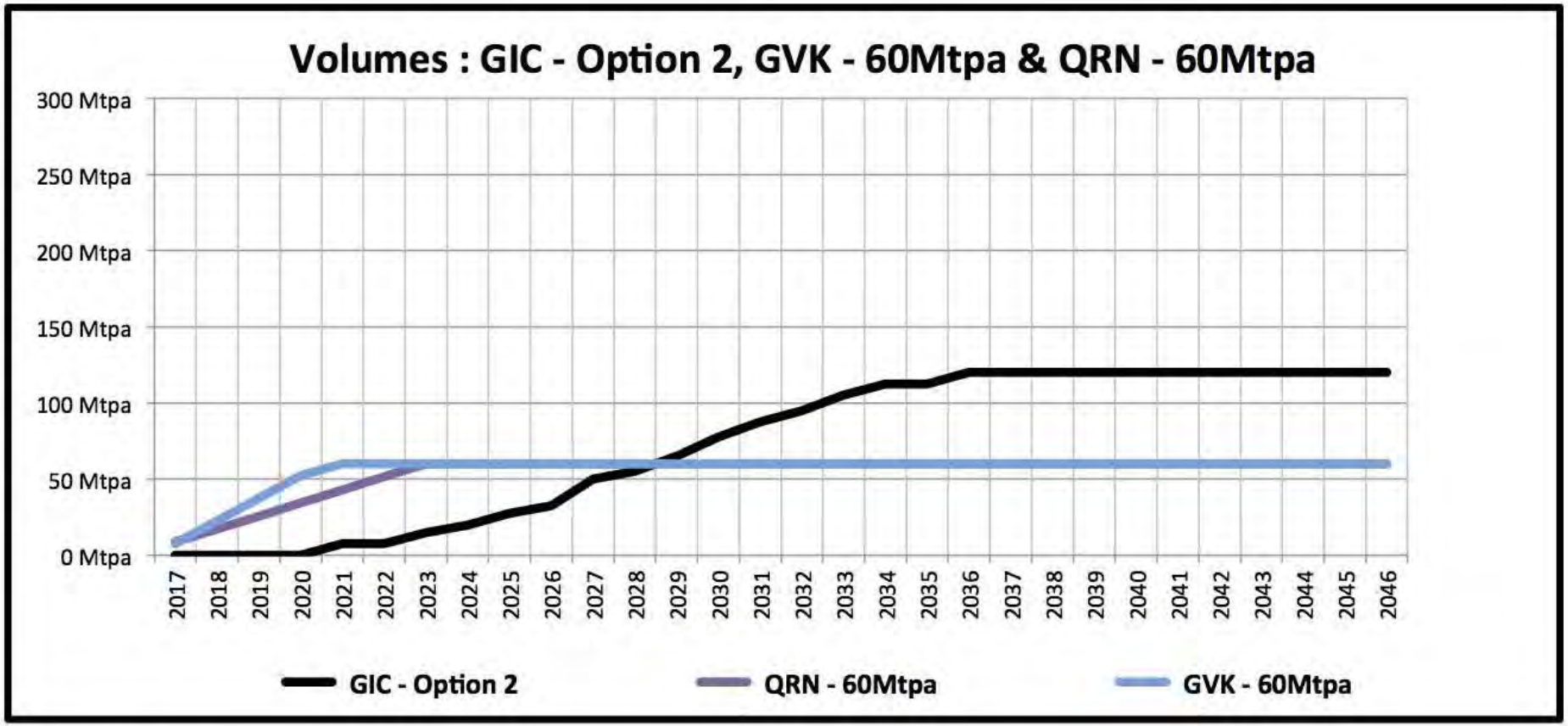
Graph G



Observations:

1. Up to 45Mtpa, passing loops are added as more trains are used to carry capacity.
2. By 2022, the number of trains required to carry the tonnage exceeds the number of passing loops that can be added. After that time, duplication of track between passing loops is required to increase capacity.
3. By 2030 at 90Mtpa, 100% of the track will need to be duplicated (incl. passing loops).
4. The large jump in duplication (2021) is modeled on the necessity for major increase in capicity of the North/South QRN line between Goonyella and Abbot Point, simulated by the need for a greenfield single track along this alignment.

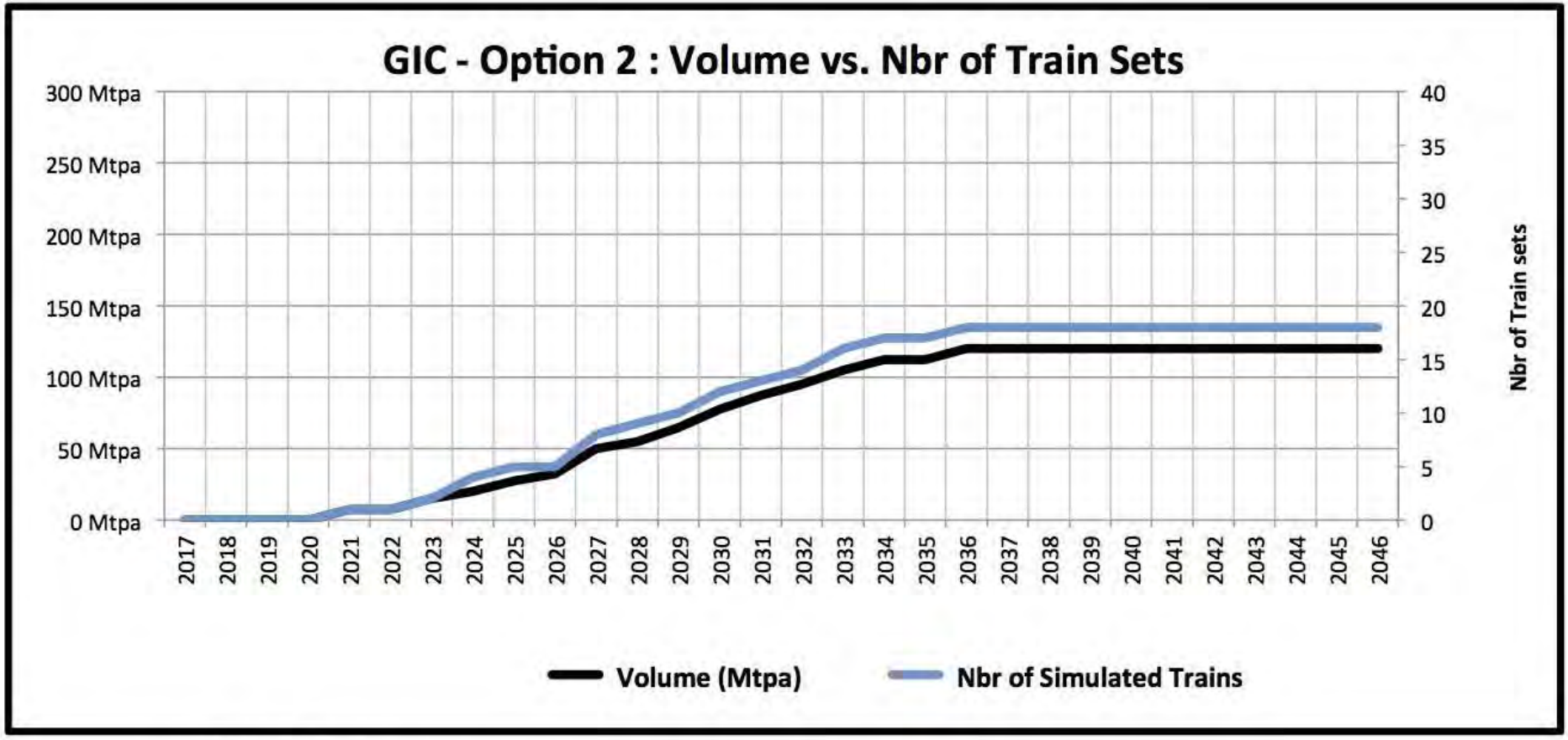
Graph H



Observations:

1. By 2021, GVK line is anticipated to carry 60Mtpa.
2. By 2036, GVK line is anticipated to carry 60Mtpa.
3. By 2036, GIC - Option 2 is anticipated to carry 120Mtpa.

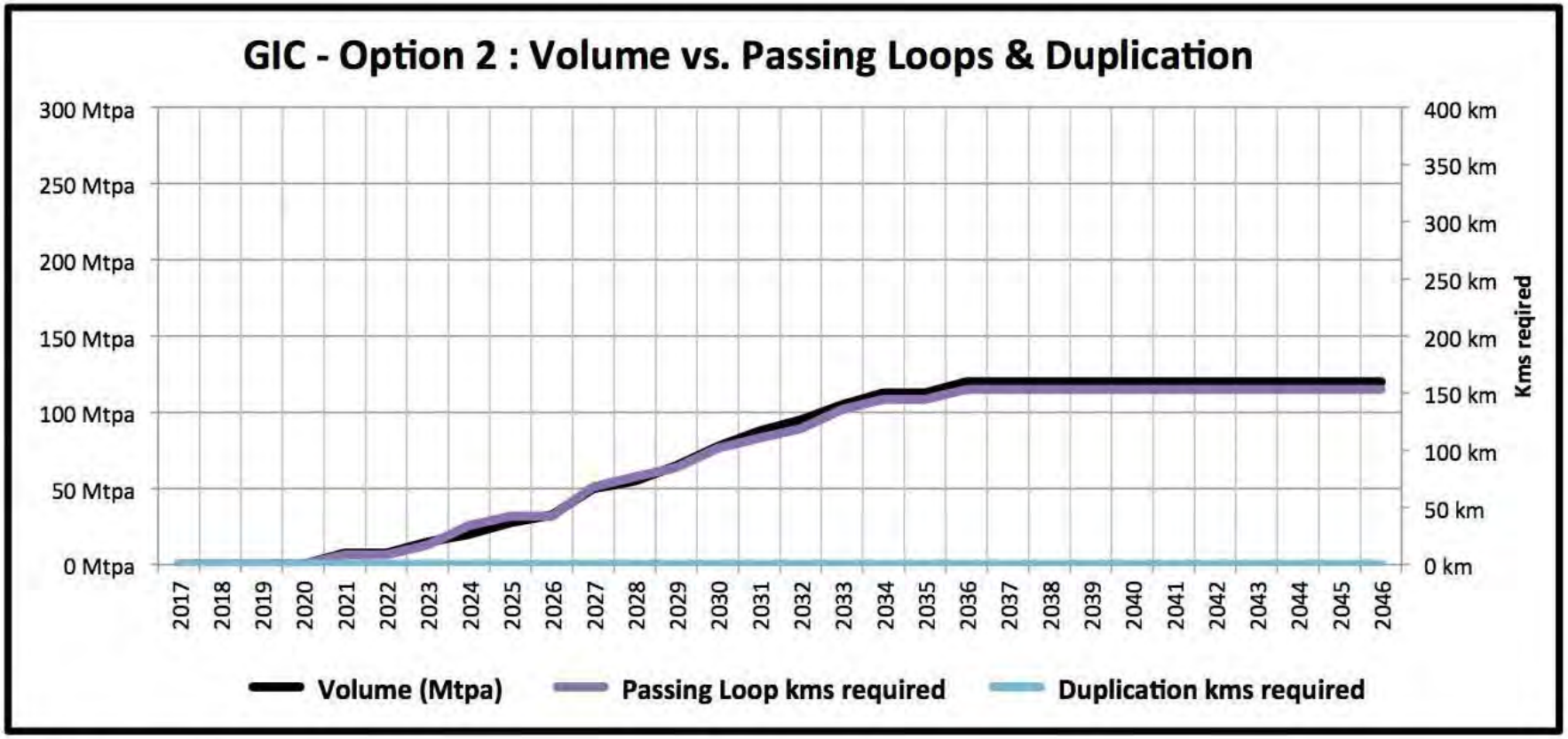
Graph I



Observations:

1. As volume increases the number of trains increases.
2. At 120Mtpa, 18 trains for will be required for GIC - Option 2.

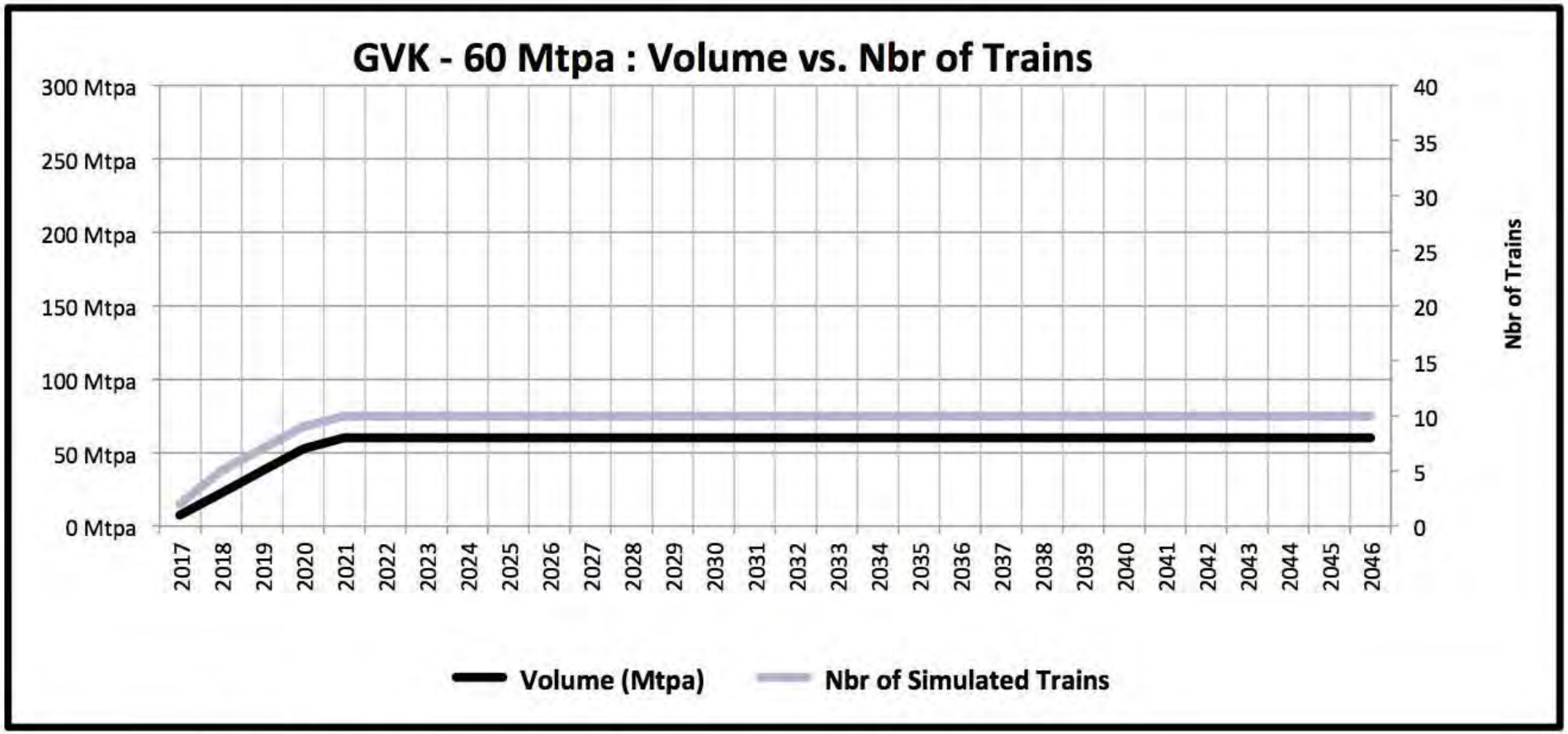
Graph J



Observations:

1. Passing loops are added as more trains are used to carry capacity and are able to accommodate the forcasted capacity for GIC - Option 2.
2. No additional duplication is required.
3. By 2036 at 120Mtpa, 26% of the track will need to be duplicated (with passing loops).

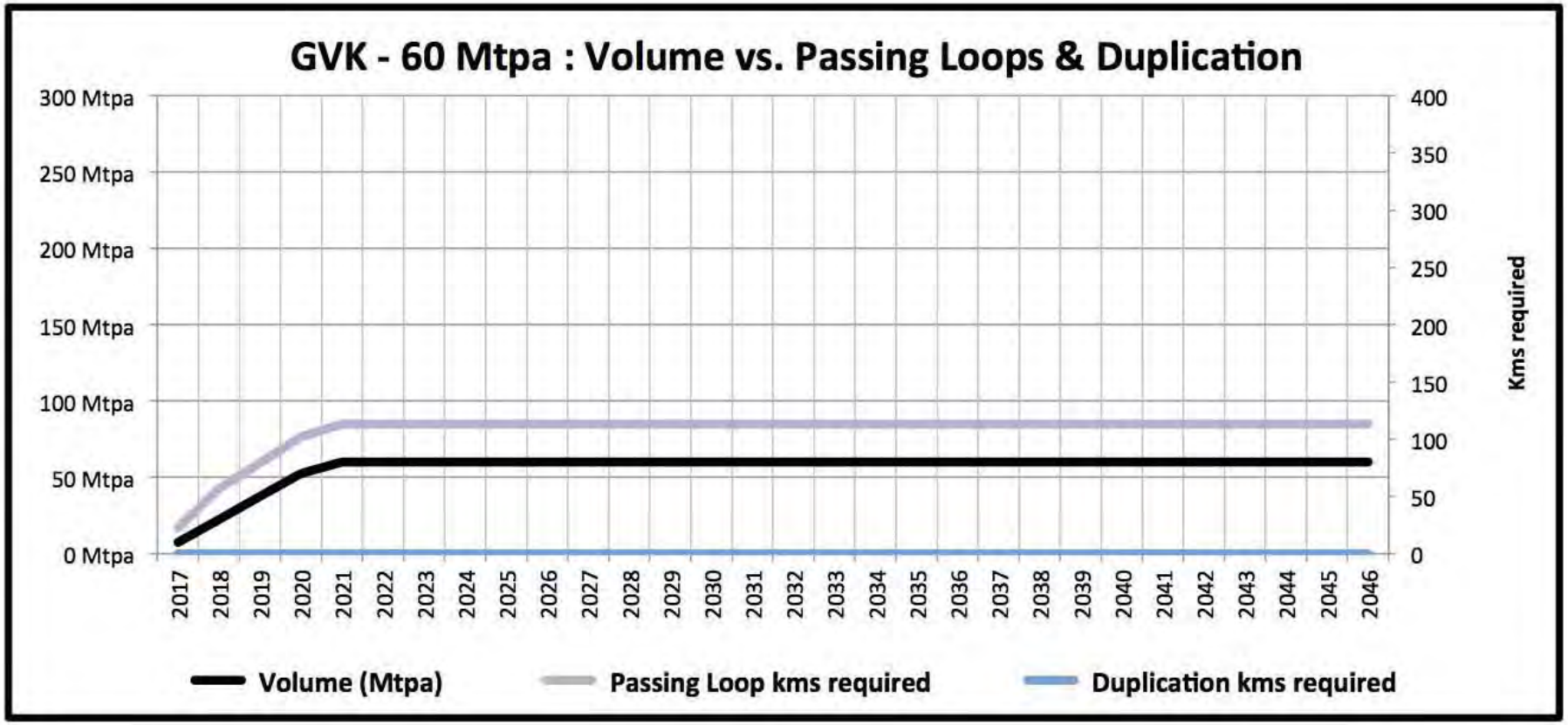
Graph K



Observations:

1. As volume increases the number of trains increases.
2. At 60Mtpa, 10 trains for will be required for GVK - 60Mtpa.

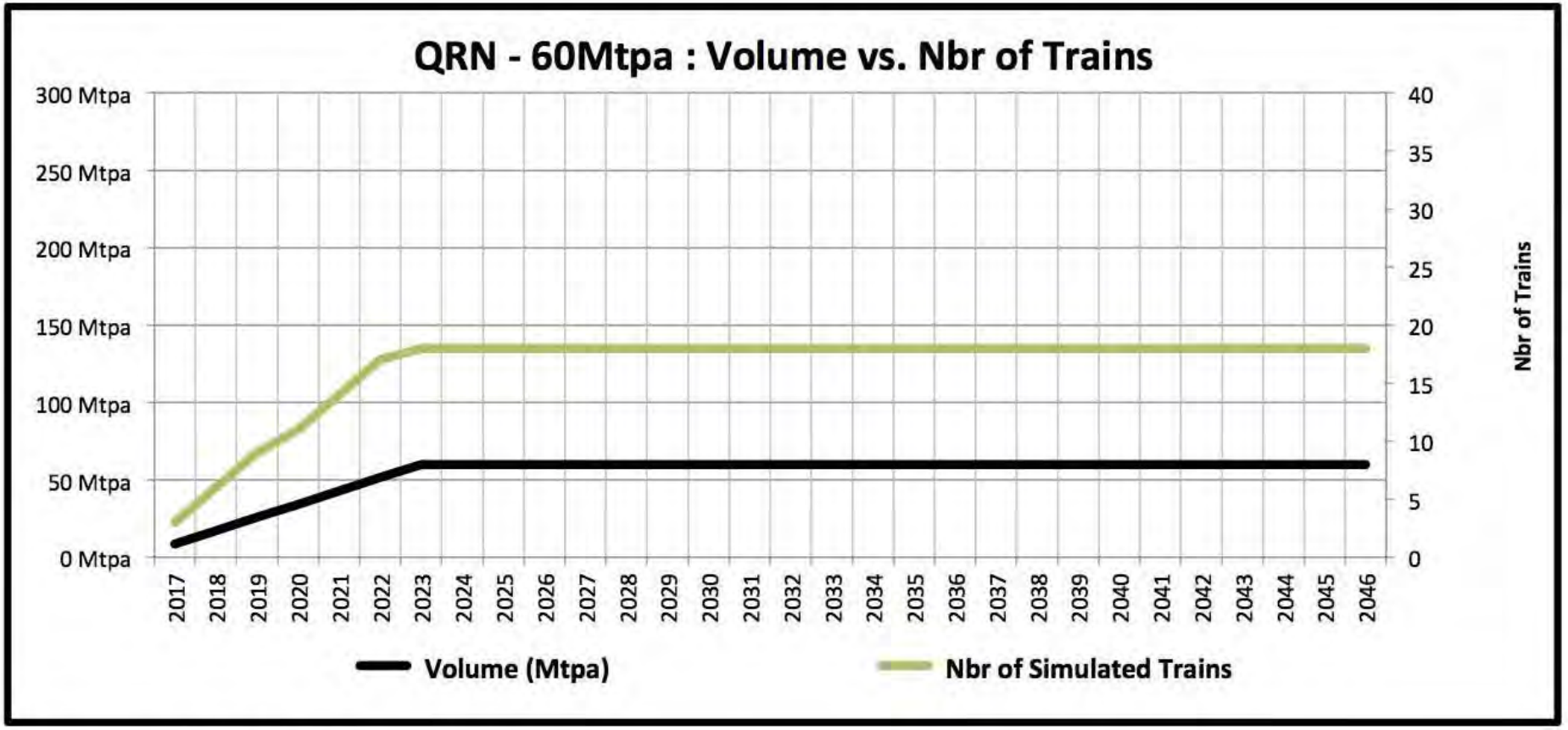
Graph L



Observations:

1. Passing loops are added as more trains are used to carry capacity and are able to accommodate the forcasted capacity for GVK - 60Mtpa.
2. No additional duplication is required.
3. By 2021 at 60Mtpa, 17% of the track will need to be duplicated (with passing loops).

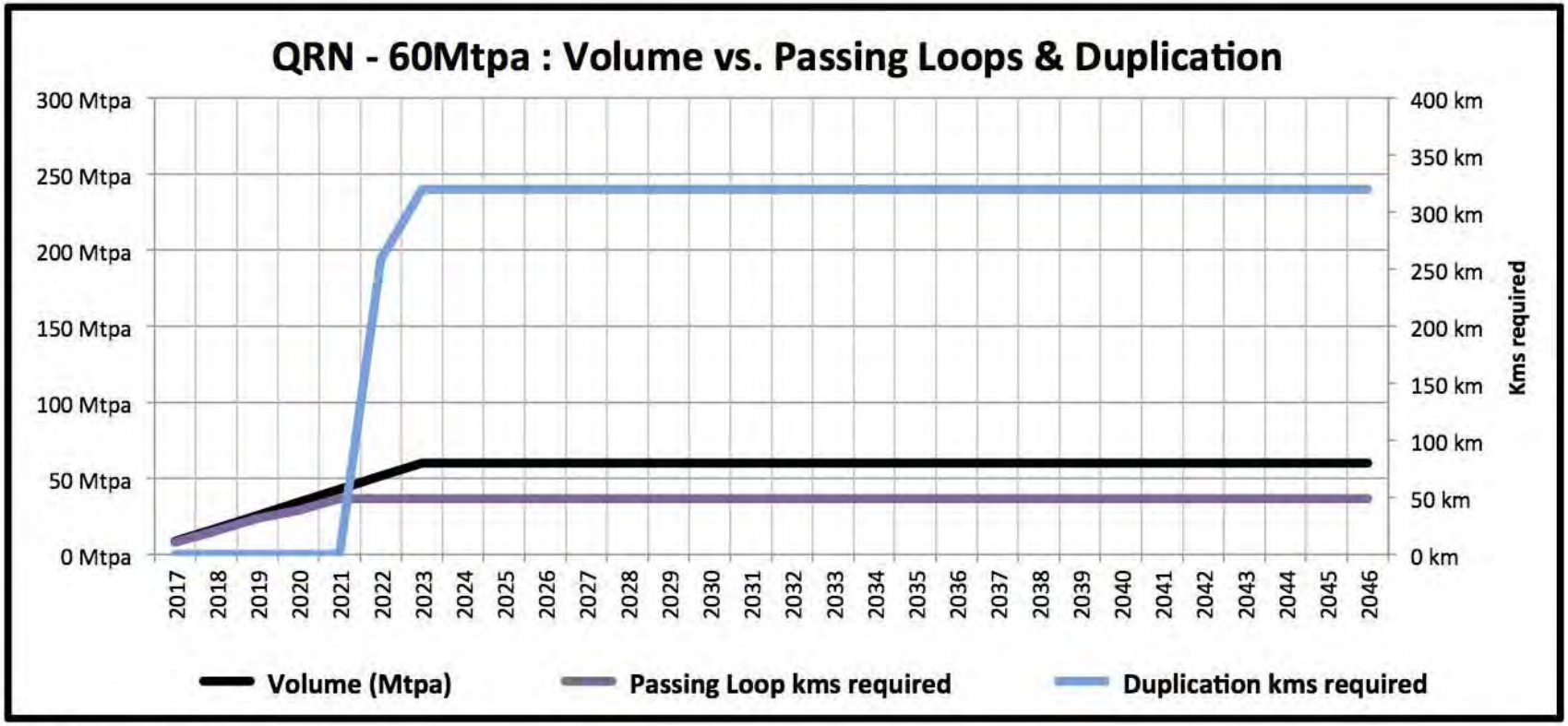
Graph M



Observations:

1. As volume increases the number of trains increases.
2. At 60Mtpa, 18 trains for will be required for QRN - 60Mtpa.

Graph N



Observations:

1. Up to 43Mtpa, passing loops are added as more trains are used to carry capacity.
2. By 2022, the number of trains required to carry the tonnage exceeds the number of passing loops that can be added. After that time, duplication of track between passing loops is required to increase capacity.
3. By 2030 at 60Mtpa, 88% of the track will need to be duplicated (incl. passing loops).
4. The large jump in duplication (2021) is modeled on the necessity for major increase in capicity of the North/South QRN line between Goonyella and Abbot Point, simulated by the need for a greenfield single track along this alignment.

EVERYTHING INFRASTRUCTURE

East West Line Parks Limited

Galilee Infrastructure Corridor Project

Above and below rail comparative cost estimates

Appendices – Part C

July 2012

Appendix 6 Below Rail Rates Tables

Galilee Basin Rail Corridor Construction Rates

PERMANENT WAY

	Supply 40 TAL track materials			Rate	Labour	Plant	Material	Sub Con	Total	Comment
T1		m	10,000							Assume sleepers are mfrd in Grafton and
	Supply 68Kg Rail	m	10,000	330	3,300,000				3,300,000	trucked/railed to Bowen $120 plus $65
	Supply Sleepers	Each	15,000	185		2,775,000			2,775,000	
	Supply Ballast	m3	13,100	40		524,000			524,000	
	TOTAL ITEM T1	wk	10,000	$659.90	3,300,000	3,299,000	0	0	6,599,000	
T2	Turnouts 1:12	Each	100							
		Each	100	187,000		18,700,000			18,700,000	
	TOTAL ITEM T2	wk	100	$187,000.00	0	18,700,000	0	0	18,700,000	
T3	Turnout 1:20	Each	100							
		Each	100	319,000		31,900,000			31,900,000	
	TOTAL ITEM T3	wk	100	$319,000.00	0	31,900,000	0	0	31,900,000	

	Supply 40 TAL DUAL GAUGE track materials			Rate	Labour	Plant	Material	Sub Con	Total	Comment
T4		m	10,000							
	Supply 68Kg Rail	m	10,000	495	4,950,000				4,950,000	Rail cost 40 TAL plus 50%
	Supply Sleepers	Each	15,000	190		2,850,000			2,850,000	Assumes sleeper mfrd in Grafton and
	Supply Ballast	m3	13,100	40		524,000			524,000	trucked/railed to Bowen. $125 plus $65
	TOTAL ITEM T1	wk	10,000	$832.40	4,950,000	3,374,000	0	0	8,324,000	
T5	Turnouts 1:12	Each	100							
		Each	100	543,000		54,300,000			54,300,000	Cost from IRAS study. Assumes supply and transport to yard
	TOTAL ITEM T2	wk	100	$543,000.00	0	54,300,000	0	0	54,300,000	
T6	Turnout 1:20	Each	100							
		Each	100	733,000		73,300,000			73,300,000	Cost from IRAS study. Assumes supply and transport to yard
	TOTAL ITEM T3	wk	100	$733,000.00	0	73,300,000	0	0	73,300,000	

	Supply 32 TAL track materials			Rate	Labour	Plant	Material	Sub Con	Total	Comment
T7		m	10,000							
	Supply 68Kg Rail	m	10,000	330	3,300,000				3,300,000	Same as 40 TAL
	Supply Sleepers	Each	15,000	175		2,625,000			2,625,000	Assumes sleepers mfrd in Grafton and
	Supply Ballast	m3	13,100	40		524,000			524,000	trucked/railed to Bowen. $110 plus $65
	TOTAL ITEM T1	wk	10,000	$644.90	3,300,000	3,149,000	0	0	6,449,000	
T8	Turnouts 1:12	Each	100							
		Each	100	154,880		15,488,000			15,488,000	
	TOTAL ITEM T2	wk	100	$154,880.00	0	15,488,000	0	0	15,488,000	
T9	Turnout 1:18.5	Each	100							
		Each	100	206,800		20,680,000			20,680,000	
	TOTAL ITEM T3	wk	100	$206,800.00	0	20,680,000	0	0	20,680,000	

	Supply 26.5 TAL track materials			Rate	Labour	Plant	Material	Sub Con	Total	Comment
T7		m	10,000							This is the ARTC rate for 60kg rail. At Bowen
	Supply 60Kg Rail	m	10,000	266	2,660,000				2,660,000	costs might be higher. We have quote for
	Supply Sleepers	Each	40	175		7,000			7,000	$960/tonne FOB China port in 25m lengths.
	Supply Ballast	m3	0	0		0			0	Assumes sleepers are mfrd at Grafton and
	TOTAL ITEM T1	wk	10,000	$266.70	2,660,000	7,000	0	0	2,667,000	trucked/railed to Bowen . Same cost as 32 TAL sleepers
T8	Turnouts 1:12	Each	100							Leave ballast qty as is for SG but may
	As per Price RS	Each	100	141,000		14,100,000			14,100,000	increase with better info.
	TOTAL ITEM T2	wk	100	$141,000.00	0	14,100,000	0	0	14,100,000	
T9	Turnout 1:18.5	Each	100							
	As per Price RS	Each	100	188,000		18,800,000			18,800,000	
	TOTAL ITEM T3	wk	100	$188,000.00	0	18,800,000	0	0	18,800,000	

	Installation of Track Items			Rate	Labour	Plant	Material	Sub Con	Total	Comment
T10	Costs based on Industry Knowledge;									
	1. Average cost of FMG track (439 kms) in WA is $672,000 ($472,000 materials + $200,000 installation) per km (2006)									
	2. Average cost of BHP track (286 kms) in WA is $673000 ($473,000 materials + $200,000 installation) per km. per km (2006)									
	3. Average cost of track materials & installation in CQCA region over 6 projects is $957,000 per km.									
	4. Average cost of track materials & installation in SBR over 4 sections (estimate) is $972,000 per km									
	5. New dual gauge track installation is $260,000 per km.									
	Therefore for EWLP it is proposed to use the following:									
	Installation of 30TAL to be	m	10,000	190,000						
	Installation of 40TAL to be	m	10,000	220,000						
	Installation of DUAL GAUGE of 40TAL to be	m	10,000	260,000						
T11	Installation of turnouts 1:12	Each	100							
	As per Price RS	Each	100	137,000		13,700,000			13,700,000	
	TOTAL ITEM T2	wk	100	$137,000.00	0	13,700,000	0	0	13,700,000	
T12	Installation of turnout 1:18.5	Each	100							
	As per Price RS	Each	100	151,000		15,100,000			15,100,000	
	TOTAL ITEM T3	wk	100	$151,000.00	0	15,100,000	0	0	15,100,000	

Galilee Basin Rail Corridor Construction Rates

ENVIRONMENTAL

	Silt Fencing			Rate		Labour	Plant	Material	Sub Con	Total
B2		m	1,000							
	Supply Silt Fence	m	2,000	4				8,000		8,000
	Supply Star Pickets	No	667	9				6,000		6,000
	Install at 200m/day									
	Exc/Loader	hr	80	135			10,800			10,800
	Lab x 2	hr	53	55		2,933				2,933
	Maintenance included elsewhere	m	0	5			0			0
	Hay Bales at Creek edge allow 1/1000	m	60	50					3,000	3,000
	TOTAL ITEM B2	M	1,000	$30.73	0	2,933	10,800	14,000	3,000	30,733

	Environmental Maintenace			Rate		Labour	Plant	Material	Sub Con	Total
B2		wk	156							
	Allow following Crew following rains nd Maintain									
	Lab x 2 50% time	hr	7,800	60		468,000				468,000
	Vehicle	hr	78	150			11,700			11,700
	Backhoe 20%	hr	1,560	90			140,400			140,400
	Truck 20%	hr	1,560	100			156,000			156,000
	Replacement Silt Fence 20% replacemen	m	80,000	3				240,000		240,000
	Pickets	each	0	8				0		0
	TOTAL ITEM B2	wk	156	$6,513.46	0	468,000	308,100	240,000	0	1,016,100

	Sedimentation Basins			Rate		Labour	Plant	Material	Sub Con	Total
B8		Each	100							
	Total Capacity/Basin = 600m3	m3	60,000							
	Area = 20m x 20m	m2	40,000							
	Clear	m2	40,000	2			80,000			80,000
	Strip and Replace Topsoil 200mm	m3	12,000	8			96,000			96,000
	Construct Basin									
	Dozer @ 40m3/hr	hr	1,500	140			210,000			210,000
	Excavator	hr	1,500	140			210,000			210,000
	Water Cart	hr	1,500	95			142,500			142,500
	Roller	hr	1,500	100			150,000			150,000
	Trim Batters	m2	40,000	2			60,000			60,000
	Floatage	no	100	700			70,000			70,000
	Overflow	m2	2,400	100			240,000			240,000
	Low Level Flow	no	0	3,500			0			0
	Turf/Veg	m2	40,000	5					200,000	200,000
	Maintain for 6mths -Included elsewhere	Mth	0	900			0			0
	TOTAL ITEM B.8	Each	100	$14,585		0	1,258,500	0	200,000	1,458,500

Galilee Basin Rail Corridor Construction Rates

FENCING

	Rural Wire Fencing			Rate		Labour	Plant	Material	Sub Con	Total
4.1		m	1,000							
	5 Strand fence with Conc Posts	m	1,000	16					16,000	16,000
	TOTAL ITEM 4.1	m	1,000	16		0	0	0	16,000	16,000

	Rural Gates - 5m			Rate		Labour	Plant	Material	Sub Con	Total
4.2		Each	100							
	Supply and install Rural Gates	Each	100	650					65,000	65,000
	TOTAL ITEM 4.2	Each	100	650		0	0	0	65,000	65,000

	Cattle Grid			Rate		Labour	Plant	Material	Sub Con	Total
4.4		Each	100							
	Supply Cattle Grid	Each	100	3,000					300,000	300,000
	Install									
	Float	N	50	600			30,000			30,000
	Exc	Hr	500	145			72,500			72,500
	Lab x 2	Hr	1,000	60		60,000				60,000
	Truck from Yard	Hr	500	100			50,000			50,000
	TOTAL ITEM 4.4	Each	100	5,125		60,000	152,500	0	300,000	512,500

Galilee Basin Rail Corridor Construction Rates

EARTHWORKS

	Clearing and Grubbing-Minimal			Rate		Labour	Plant	Material	Sub Con	Total
E1		m2	10000							
	Overall Area	m2	10,000							
	Clear of trees @= 10000m2/day	m2	10,000							
	Excavator	hr	0	145			0			0
	Dozer	hr	10	180			1,800			1,800
	Lab	hr	20	60		1,200				1,200
	S/Plant	d	2	600			1,333			1,333
	Mulcher	hr	3	300			1,000			1,000
	Excavator	hr	3	145			483			483
	Truck to Stockpile	hr	3	100			333			333
	TOTAL ITEM 5.1	m2	10000	0.62		1,200	4,950	0	0	6,150

	Clearing and Grubbing-Medium			Rate		Labour	Plant	Material	Sub Con	Total
5.1		m2	10000							
	Overall Area	m2	10,000							
	Clear of trees @= 6000m2/day	m2	6,000							
	Excavator	hr	17	145			2,417			2,417
	Dozer	hr	17	220			3,667			3,667
	Lab	hr	50	60		3,000				3,000
	S/Plant	d	4	600			2,222			2,222
	Mulcher	hr	8	300			2,500			2,500
	Excavator	hr	8	145			1,208			1,208
	Truck to Stockpile	hr	8	100			833			833
	TOTAL ITEM 5.1	m2	10000	1.58		3,000	12,847	0	0	15,847

	Clearing and Grubbing-Heavy			Rate		Labour	Plant	Material	Sub Con	Total
5.1		m2	10000							
	Overall Area	m2	10,000							
	Clear of trees @= 4000m2/day	m2	4,000							
	Excavator	hr	25	145			3,625			3,625
	Dozer	hr	25	220			5,500			5,500
	Lab	hr	75	60		4,500				4,500
	S/Plant	d	6	600			3,333			3,333
	Mulcher	hr	17	300			5,000			5,000
	Excavator	hr	17	145			2,417			2,417
	Truck to Stockpile	hr	17	100			1,667			1,667
	TOTAL ITEM 5.1	m2	10000	2.60		4,500	21,542	0	0	26,042

	Removal and Stockpiling of topsoil			Rate		Labour	Plant	Material	Sub Con	Total
E2		m3	10,000							
	Allow 200mm Topsoil ave.	m3	10,000							
	Allow 100% Exc+Trucks									
	Excavate by Truck and Cart to Stockpile	m3	10,000							
	Dozer push up	hr	250	150			37,500			37,500
	Excavator @ 40m3/hr	hr	250	145			36,250			36,250
	Moxies x 10min Hauls	hr	500	145			72,500			72,500
	Lab	hr	125	60		7,500				7,500
	TOTAL ITEM 5.2	m3	10,000	15		7,500	146,250	0	0	153,750
		m2		2.31						

	Unsuitable Material -Cut			Rate		Labour	Plant	Material	Sub Con	Total
E3		m3	10,000							
	Assume 500mm Removal in Cuts									
	Allow exc and dispose,import and fill	m3	10000							
	Allow to Dispose within 5klm - no tip fees									
	D9 Dozer Rip and push up to stockpile	hr	125	300			37,500			37,500
	Excavator PC300 @ 80m3/hr	hr	125	145			18,125			18,125
	Truck x 4	hr	500	130			65,000			65,000
	Allow to Control fill on site									
	D6 Dozer push up to stockpile	hr	125	145			18,125			18,125
	Supply and place									
	Supply Fill - From within site. Raise Haul and Dump	m3	10000	10				100,000		100,000
	Production	m3/hr								
	Place and compact @ 50m3/hr									
	Spotter	hr	200	60		12,000				12,000
	Roller	hr	200	110			22,000			22,000
	W/Cart	hr	200	95			19,000			19,000
	Dozer	hr	200	145			29,000			29,000
	Testing @ 1/300m3	No		110					0	0
	TOTAL ITEM R44P4	M3	10,000	32		12,000	208,750	100,000	0	320,750
		m2		16.04						

Galilee Basin Rail Corridor Construction Rates

ACCESS ROAD

	Access Road			Rate	Labour	Plant	Material	Sub Con	Total
G1		M	10000						
	Assume 5m wide x 200mm Thick Road Base								
	Cut/Fil and trim Base								
	Allow 300m/day								
	Dozer +GPS	hr	300	220		66,000			66,000
	Roller	hr	300	100		30,000			30,000
	W/Cart x 2 No	hr	300	95		28,500			28,500
	Lab	hr	300	60	18,000				18,000
	Supply Road base	m3	11000						
	Supply from Quarry	T	26400	24				633,600	633,600
	Place,Compact and Trim	m3	10000						
	Place and compact								
	Grader + GPS @ 40m3/hr	hr	250	165		41,250			41,250
	W/Cart	hr	250	95		23,750			23,750
	Roller	hr	250	100		25,000			25,000
	Lab	hr	250	60	15,000				15,000
	Trim @ 150m2/hr	m2	50000						
	Grader +GPS	hr	333	165		55,000			55,000
	W/Cart	hr	333	95		31,667			31,667
	Roller	hr	333	100		33,333			33,333
	Lab	hr	333	60	20,000				20,000
	Culvert Crossing- allow one every 200m	each	50	2000				100,000	100,000
	Testing 1/500m2	No	0	135				0	0
	Total -Access Road	**m**	**10000**	**$112.11**	**53,000**	**334,500**	**0**	**733,600**	**1,121,100**

	MAINTAIN ACCESS ROAD			Rate	Labour	Plant	Material	Sub Con	Total
G1		wk	156						
	Assume 5m wide x 200mm Thick Road Base	week	156						
	For project 200Klm a full time crew would be required								
	Allow 1000m/day								
	Grader + x 2	hr	12480	135		1,684,800			1,684,800
	Roller 20%	hr	2496	100		249,600			249,600
	W/Cart x 1No	hr	6240	95		592,800			592,800
	Supply Road base to touch up								
	Supply from Quarry	T	16380	24				393,120	393,120
	Total -Access Road	**KLm**	**200**	**#######**	**0**	**2,527,200**	**0**	**393,120**	**2,920,320**

Galilee Basin Rail Corridor Construction Rates

STRUCTURAL & CAPPING LAYER

	Structural Layer			Rate	Labour	Plant	Material	Sub Con	Total
G1		m3	10000						
	Allowance of Structural Materials								
	Structural won from site	m3	10000						
	Raise								
	Onsite Material								
	Blast	m3	10,000						
	Quotes not yet obtained -allow 2.5m to 4m bench rate (HEX)-PLUG	T	22000	7				154,000	154,000
	Powder factor 0.55g/cc: MIC <50kg>25Kg								
	Rip and Push @ 200m3/hr								
	D10	hr	50	400			20,000		20,000
	Process	m3	10000						
	Allow to crush and Screen -Plug	T	24000	4				96,000	96,000
	Dispose of Waste	m3	1000	25			25,000		25,000
	Load and Haul	m3	10000						
	Assume 5Klm Hauls	m3	12505.5						
	Excavator PC300 @ 70m3/hr	hr	179	145		25,904			25,904
	Trucks x 5No	hr	715	130		92,898			92,898
	Place,Compact and Trim	m3	10000						
	Place and compact								
	Grader + GPS @ 70m3/hr	hr	143	165		23,571			23,571
	W/Cart x 2 No	hr	286	95		27,143			27,143
	Roller	hr	143	100		14,286			14,286
	Lab	hr	143	60	8,571				8,571
	Trim @ 150m2/hr	m2	33333						
	Grader +GPS	hr	222	165		36,667			36,667
	W/Cart x 2 No	hr	444	95		42,222			42,222
	Roller	hr	222	100		22,222			22,222
	Lab	hr	222	60	13,333				13,333
	Testing 1/500m2	No	0	135				0	0
	Total -F1 -Structural	**m3**	**10000**	**$60.18**	**21,905**	**284,913**	**45,000**	**250,000**	**601,818**

	Capping Layer			Rate	Labour	Plant	Material	Sub Con	Total
G2		m3	10000						
	Assume from Quarry 20KLm Hauls								
	Allowance of Structural Materials								
	Import Structural	t	22500	28			630,000		630,000
	Load and Haul included in supply	m3	10000						
	Place,Compact and Trim	m3	10000						
	Place and compact								
	Grader + GPS @ 60m3/hr	hr	167	165		27,500			27,500
	W/Cart x 2 No	hr	333	95		31,667			31,667
	Roller	hr	167	100		16,667			16,667
	Lab	hr	167	55	9,167				9,167
	Trim @ 150m2/hr	m2	33333						
	Grader +GPS	hr	222	165		36,667			36,667
	W/Cart x 2 No	hr	444	95		42,222			42,222
	Roller	hr	222	100		22,222			22,222
	Lab	hr	222	55	12,222				12,222
	Testing 1/500m2	No	0	135				0	0
	Total F2 - Capping	**m3**	**10000**	**$82.83**	**21,389**	**176,944**	**630,000**	**0**	**828,333**

Galilee Basin Rail Corridor Construction Rates

BRIDGEWORKS

	Bridge Type 1 -12m Long			Rate	Labour	Plant	Material	Sub Con	Total
S1	**Allow 1 Span x 12m**	**m**	**12**						
	Spans	**No**	**1**						
	Width incl Parapet	**m**	**4.9**						
	Bridge Area	**m2**	**58.8**						
	Bridge Type: Super Tee -Type 1								
	Access Road	m2	60	150				9,000	9,000
	Platform	m2	100	400				40,000	40,000
	Est Pile Rig	Item	1	30000				30,000	30,000
	Rig Moves	No	1	5000				5,000	5,000
	Pile Cast Insitu 700 Dia -allow 15m	m	60	800				48,000	48,000
	Abutments and Curtain Wall	m3	23	1400	9,837	6,558	16,395		32,791
	Pile Caps	m3	0	1200	0	0	0		0
	Piers	m3	0	1400	0	0	0		0
	Headstocks	m3		1600	0	0	0		0
	Bearing pads	No	4	4500	5,400	3,600	9,000		18,000
	Super Tees 12m x 1200 2.4T/m	T	57.6	900	15,552	10,368	25,920		51,840
	Est Crane	Item	1	20000				20,000	20,000
	Install Beams	Each	2	7000	4,200	2,800	7,000		14,000
	Perm Formwork	m2	19	180	1,037	691	1,728		3,456
	Diaphrams	m3	1.2	2000	720	480	1,200		2,400
	Approach slab	m²	0	200	0	0	0		0
	Topping slab approx 200mm thick to top of PSC girders	m²	59	300	5,292	3,528	8,820		17,640
	Expansion Joint	m	10	600	1,764	1,176	2,940		5,880
	Parapet	m	24	300	2,160	1,440	3,600		7,200
	700mm Walkway	m2	8	800	2,016	1,344	3,360		6,720
	Handrail	m	24	150	1,080	720	1,800		3,600
	Membrane	m²	59	40	706	470	1,176		2,352
	TOTAL ITEM S1	**Each**	**1**	**317879**	**49,764**	**33,176**	**82,939**	**68,000**	**317,879**

	Bridge Type 1 -15m Long			Rate	Labour	Plant	Material	Sub Con	Total
S2	**Allow 1 Span x 15m**	**m**	**15**						
	Spans	**No**	**1**						
	Width incl Parapet	**m**	**4.9**						
	Bridge Area	**m2**	**73.5**						
	Bridge Type: Super Tee -Type 1								
	Access Road	m2	75	150				11,250	11,250
	Platform	m2	100	400				40,000	40,000
	Est Pile Rig	Item	1	30000				30,000	30,000
	Rig Moves	No	1	5000				5,000	5,000
	Pile Cast Insitu 700 Dia -allow 15m	m	60	800				48,000	48,000
	Abutments and Curtain Wall	m3	23	1400	9,837	6,558	16,395		32,791
	Pile Caps	m3	0	1200	0	0	0		0
	Piers	m3	0	1400	0	0	0		0
	Headstocks	m3		1600	0	0	0		0
	Bearing pads	No	4	4500	5,400	3,600	9,000		18,000
	Est Crane	Item	1	20000				20,000	20,000
	Super Tees 15m x 1200 2.4T/m	T	72	900	19,440	12,960	32,400		64,800
	Install Beams	Each	2	7000	4,200	2,800	7,000		14,000
	Perm Formwork	m2	24	180	1,296	864	2,160		4,320
	Diaphrams	m3	1.2	2000	720	480	1,200		2,400
	Approach slab	m²	0	200	0	0	0		0
	Topping slab approx 200mm thick to top of PSC girders	m²	74	300	6,615	4,410	11,025		22,050
	Expansion Joint	m	10	600	1,764	1,176	2,940		5,880
	Parapet	m	30	300	2,700	1,800	4,500		9,000
	700mm Walkway	m2	11	800	2,520	1,680	4,200		8,400
	Handrail	m	30	150	1,350	900	2,250		4,500
	Membrane	m²	74	40	882	588	1,470		2,940
	TOTAL ITEM S2	**Each**	**1**	**343331**	**56,724**	**37,816**	**94,540**	**68,000**	**343,331**

Galilee Basin Rail Corridor Construction Rates

CULVERTS

	Culvert - C1			Rate	Labour	Plant	Material	Sub Con	Total
C1	1x3000x3000x5m	Item	1						
	1/3.0m x 3.0m RC BC	m	5						
	Excavation	m3	54	60	1,620	1,620			3,240
	Foundation 800mm Road Base	m2	25	80	400	600	1,000		2,000
	Base Slab 300mm	m2	18	330	1,188	1,782	2,970		5,940
	Supply Units	m	5.3	3,000			15,750		15,750
	Supply Links	m	0	350			0		0
	Install Units	m	5	700	1,838	1,838			3,675
	Backfill	m3	60	60	720	1,080	1,800		3,600
	Headwalls -Cast Insitu	No	2						
	Exc,FRP	m3	18	1,600				28,800	28,800
	Handrail	m	8	200				1,600	1,600
	TOTAL ITEM C1	Item	1	64,605	5,766	6,920	21,520	30,400	64,605

	Culvert - C2			Rate	Labour	Plant	Material	Sub Con	Total
C2	2x3000x3000x5m	Item	1						
	2/3.0m x 3.0m RC BC	m	5						
	Excavation	m3	81	60	2,430	2,430			4,860
	Foundation 800mm Road Base	m2	40	80	640	960	1,600		3,200
	Base Slab 300mm	m2	37	330	2,442	3,663	6,105		12,210
	Supply Units	m	10.5	3,000			31,500		31,500
	Supply Links	m	0	350			0		0
	Install Units	m	21	700	7,350	7,350			14,700
	Backfill	m3	60	60	720	1,080	1,800		3,600
	Headwalls -Cast Insitu	No	2						
	Exc,FRP	m3	24	2,000				48,000	48,000
	Handrail	m	16	200				3,200	3,200
	TOTAL ITEM C2	Item	1	121,270	13,582	15,483	41,005	51,200	121,270

	Culvert - C3			Rate	Labour	Plant	Material	Sub Con	Total
C3	3x3000x3000x5m	Item	1						
	3/3.0m x 3.0m RC BC	m	5						
	Excavation	m3	117	60	3,510	3,510			7,020
	Foundation 800mm Road Base	m2	65	80	1,040	1,560	2,600		5,200
	Base Slab 300mm	m2	58	330	3,795	5,693	9,488		18,975
	Supply Units	m	15.8	3,000			47,250		47,250
	Supply Links	m	0	350			0		0
	Install Units	m	47	700	16,538	16,538			33,075
	Backfill	m3	60	60	720	1,080	1,800		3,600
	Headwalls -Cast Insitu	No	2						
	Exc,FRP	m3	38	2,000				76,000	76,000
	Handrail	m	22	200				4,400	4,400
	TOTAL ITEM C3	Item	1	195,520	25,603	28,380	61,138	80,400	195,520

	Culvert - C4			Rate	Labour	Plant	Material	Sub Con	Total
C4	3x3000x3000x9m	Item	1						
	3/3.0m x 3.0m RC BC	m	9						
	Excavation	m3	211	60	6,318	6,318			12,636
	Foundation 800mm Road Base	m2	117	80	1,872	2,808	4,680		9,360
	Base Slab 300mm	m2	104	330	6,831	10,247	17,078		34,155
	Supply Units	m	28.4	3,000			85,050		85,050
	Supply Links	m	0	350			0		0
	Install Units	m	85	700	29,768	29,768			59,535
	Backfill	m3	108	60	1,296	1,944	3,240		6,480
	Headwalls -Cast Insitu	No	2						
	Exc,FRP	m3	38	2,000				76,000	76,000
	Handrail	m	22	200				4,400	4,400
	TOTAL ITEM C4	Item	1	287,616	46,085	51,084	110,048	80,400	287,616

Galilee Basin Rail Corridor Construction Rates

INCIDENTAL RATES

	Road Re Alignment			Rate		Labour	Plant	Material	Sub Con	Total
I1		m	500							
	Clear	m2	10000	2					20,000	20,000
	Strip Topsoil	m3	1500	20					30,000	30,000
	Foundation Treatment	m2	10000	5					50,000	50,000
	Cut/Fill from Rail Formation allow 1m above Natural Surface	m3	10000	16					160,000	160,000
	Roadworks 9m wide including shoulders	m2	4500	160					720,000	720,000
	Transverse Drainage -allow 1 crossing/100m	m	5	20000					100,000	100,000
	Signage	No	10	400					4,000	4,000
	Topsoil and Hydroseed Batters	m2	3000	10					30,000	30,000
	No alowance for Lighting									
	No allowance for kerbing or Longitudinal Drainage									
	TOTAL ITEM I1	m	500	2228		0	0	0	0	1,114,000

	Protection of Pipelines			Rate		Labour	Plant	Material	Sub Con	Total
I2		m	500							
	Excavation	m3	32.5	50					1,625	1,625
	PotHoling and Monitoring	Item	1	5000					5,000	5,000
	200mm Protection slab allow 20m long	m2	20	300					6,000	6,000
	Establish Pile Rig	Item	1	30000					30,000	30,000
	750mm Piles x 8m deep	m	32	1500					48,000	48,000
	Top of Piles	No	4	600					2,400	2,400
	Loose Sand	m3	9.6	50					480	480
	Blinding	m2	30.25	55					1,664	1,664
	1.0m Concrete Slab	m2	26.01	1500					39,015	39,015
	Backfill	m3	48	20					960	960
	Pipeline Super visor	hr	40	150					6,000	6,000
	Approvals	Item	1	100000					100,000	100,000
	No alowance for Lighting									
	No allowance for kerbing or Longitudinal Drainage									
	TOTAL ITEM I2	Each	1	241144		0	0	0	0	241,144

	Noise Attenuation			Rate		Labour	Plant	Material	Sub Con	Total
I3		each	100							
	Glasng of standard House	Item	100	18000					1,800,000	1,800,000
	A/Condition	Item	100	4000					400,000	400,000
	TOTAL ITEM I3	each	100	22000		0	0	0	0	2,200,000

	Rehabiliation -Low			Rate		Labour	Plant	Material	Sub Con	Total
I4		m	1000							
	Trim Batters to grade	m2	6000	1					6,000	6,000
	Topsoil Batters -site won material- allow 3m batters x 2 sides	m2	6000	4					24,000	24,000
	Hydroseed	m2	6000	1					6,000	6,000
	Maintain	m2	6000	1					6,000	6,000
	TOTAL ITEM I4	Klm	1	42000		0	0	0	0	42,000

	Rehabiliation - Medium			Rate		Labour	Plant	Material	Sub Con	Total
I5		m	1000							
	Trim Batters to grade	m2	6000	1					6,000	6,000
	Topsoil Batters -site won material- allow 3m batters x 2 sides	m2	6000	4					24,000	24,000
	Hydroseed	m2	6000	1					6,000	6,000
	Minor Planting - Viro	each	30000	3					90,000	90,000
	Maintain	m2	6000	1					6,000	6,000
	TOTAL ITEM I5	Klm	1	132000		0	0	0	0	132,000

Galilee Basin Rail Corridor Construction Rates

CONSTRUCTION CAMP

	Main Office Set Up and Demoblisation			Rate		Labour	Plant	Material	Sub Con	Total
IC1		Item	1							
	Establishment									
	Allow area 100m x 70m for Accomodation									
	Allow are 60m x 50m Storage									
	Clear	m2	10000	2					20,000	20,000
	Strip Topsoil	m3	1500	20					30,000	30,000
	Two Coat Seal Pavement	m2	5000	60					300,000	300,000
	Gravel Pavement	m2	3000	40					120,000	120,000
	Fencing	m	500	52					26,000	26,000
	Gates	No	3	750					2,250	2,250
	Shaker Grids	No	2	5000					10,000	10,000
	Sed Basin	No	1	15000					15,000	15,000
	Transport Sheds to Site	Item	1	80000					80,000	80,000
	Erect Sheds	Item	1	60000					60,000	60,000
	Office Fitout	Item	1	30000					30,000	30,000
	Power Connections and setup in offices	Item	1	30000					30,000	30,000
	Standby Geny	Item	1	200000					200,000	200,000
	Power to Site -Plug	Item	1	250000					250,000	250,000
	Telecommunications to Site -Plug	Item	1	150000					150,000	150,000
	Water Tanks	No	3	6000					18,000	18,000
	Sewer and water setup	Item	1	15000					15,000	15,000
	Telecommunications	Item	1	10000					10,000	10,000
	Radio and Satelite Communications setup for Office and Vehicles	Item	1	35000					35,000	35,000
	Office IT and Seciurity	Item	1	25000					25,000	25,000
	Walkways	m2	300	60					18,000	18,000
	Pergolas	m2	1200	150					180,000	180,000
	Set up Work shop	Item	1	20000					20,000	20,000
	Set up and Licience for Fuel Farm	Item	1	20000					20,000	20,000
	Plant Establishment									
	Dozers	No	10	9000					90,000	90,000
	Excavators	No	20	1500					30,000	30,000
	Backhoes and Loaders	No	30	1000					30,000	30,000
	Scrapers	No	8	12000					96,000	96,000
	Rollers and Compactors	No	6	3500					21,000	21,000
	Off Highway Trucks	No	10	2000					20,000	20,000
	Graders	No	10	1500					15,000	15,000
	Batch Plants and Pugmills	No	3	10000					30,000	30,000
	Misc	No	20	1200					24,000	24,000
	On site Moves	No	1000	700					700,000	700,000
	Disestablishment									
	Load out Buildings	Item	1	50000					50,000	50,000
	Disconnection of Services	Item	1	25000					25,000	25,000
	Remove Workshop and fuel farm	Item	1	15000					15,000	15,000
	Remove fencing	m	500	12					6,000	6,000
	Remove Hardstand	m3	2400	10					24,000	24,000
	Retopsoil and Hydroseed and Water	m2	8000	10					80,000	80,000
	TOTAL ITEM IC1	**m**	**1**	**2920250**		**0**	**0**	**0**	**0**	**2,920,250**

	Satelite Office Set Up and Demoblisation			Rate		Labour	Plant	Material	Sub Con	Total
IC2		Each	1							
	Establishment									
	Allow area 60m x 50m for Accomodation and Storage									
	Clear	m2	3000	2					6,000	6,000
	Strip Topsoil	m3	450	20					9,000	9,000
	Gravel Pavement	m2	3000	45					135,000	135,000
	Fencing	m	300	52					15,600	15,600
	Gates	No	2	750					1,500	1,500
	Shaker Grids	No	1	5000					5,000	5,000
	Sed Basin	No	1	10000					10,000	10,000
	Erect Sheds	Item	1	20000					20,000	20,000
	Office Fitout	Item	1	8000					8,000	8,000
	Power Connections -Geny	Item	1	60000					60,000	60,000
	Sewer and water- Portable	Item	1	15000					15,000	15,000
	Telecommunications	Item	1	10000					10,000	10,000
	Radio and Satelite Communications setup for Office	Item	1	10000					10,000	10,000
	Office IT and Seciurity	Item	1	8000					8,000	8,000
	Walkways	m2	100	60					6,000	6,000
	Disestablishment									
	Load out Buildings	Item	1	20000					20,000	20,000
	Disconnection of Services	Item	1	15000					15,000	15,000
	Remove fencing and Gates	m	300	20					6,000	6,000
	Remove Hardstand	m3	3000	10					30,000	30,000
	Retopsoil and Hydroseed and Water	m2	3000	10					30,000	30,000
	TOTAL ITEM IC2	**Each**	**1**	**420100**		**0**	**0**	**0**	**0**	**420,100**

Appendix 7 (A) GIC Rail Systems Analysis

GIC - 40TAL

The outputs from the simulation of a 3 locomotive by 270 wagons train are summarised in the table below. The length of the train is approximately 5.3kms.

Assumptions - Simulation Outputs

Train Configuration - 3 Locomotives * 270 Wagons
Operational Days per Year - 320 (20 - Track/Mine/Port Maint, 15 - network inefficiencies, 10 - rollingstock reli
Loading Time - 4.5 Hours
Unloading Time - 4.5 Hours

	Hours	Distance	Fuel	Fuel Savings	Energy (GJ)
Loading/Unloading			2932.5		
Empty Trip	7.75	573	17383	0.09	345.74
Loaded Trip	11.3	573	23846	0.09	447.17

Mine Name (Abbr)	Mine Name	Mainline (kms)	Spurline (Kms)	Trip Distance	Loaded Trip	Unloaded Trip	Transit Time	Provisioning	Marshalling / Crew	Fuel / Trip
AMCI	AMCI	573	65	1276	12.48	8.45	20.93	2	5	44147
Waratah CFC	Waratah - China First Coal	573	21	1188	11.61	7.85	19.47	2	5	41266
Waratah ANC	Waratah - Alpha North Coal	530	10	1080	10.48	7.01	17.50	2	4.5	37381
Waratah AWC	Waratah - Alpha West Coal	523	27	1100	10.73	7.29	18.02	2	4.5	38411
HanGVK KC	Hancock/GVK - Kevin's Corner	548	15	1126	11.02	7.48	18.50	2	5	39354
HanGVK AC	Hancock/GVK - Alpha Coal	553	21	1148	11.24	7.61	18.85	2	5	40048
HanGVK AW	Hancock/GVK - Alpha West	553	28	1162	11.36	7.71	19.07	2	5	40492
Vale	Vale	497	10	1014	9.97	6.84	16.81	2	4.5	36043
Adani 1	Adani 1 (T0)	430	10	880	9.03	6.12	15.15	2	4	32755
Adani 2	Adani 2 (Balance)	430	10	880	9.03	6.12	15.15	2	4	32755
Bowen 1	Bowen 1	235	10	490	5	3.57	8.57	2	2.5	19821
Mac Sth	Macmines South	398	25	846	8.36	5.72	14.08	2	4	30660

The key outputs, as listed in the table below, include (a) the payload per train / year, and (b) fuel cost / year for each of the mines.

	AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - rest of Adani	Bowen 1	Mac mines South
Payload / train / year (Mtpa)	6.82	7.10	7.63	7.51	7.30	7.22	7.18	7.79	8.35	8.35	11.41	8.66
Fuel $ / mine / train ($m)	10.14	9.87	9.60	9.71	9.67	9.74	9.79	9.45	9.21	9.21	7.62	8.94

GIC - 32.5TAL

The outputs from the simulation of a 3 locomotive by 300 wagons train are summarised in the table below. The length of the train is approximately 5.0 kms.

Assumptions - Simulation Outputs

Train Configuration - 3 Locomotives * 300 Wagons
Operational Days per Year - 320 (20 - Track/Mine/Port Maint, 15 - network inefficiencies, 10 - rollingstock reli
Loading Time - 5 Hours
Unloading Time - 5 Hours

	Hours	Distance	Fuel	Fuel Savings	Energy (GJ)
Loading/Unloading			2932.5		
Empty Trip	7.5	573	16905	0.09	345.74
Loaded Trip	10.75	573	22454	0.09	447.17

Mine Name (Abbr)	Mine Name	Mainline (kms)	Spurline (Kms)	Trip Distance	Loaded Trip	Unloaded Trip	Transit Time	Provisioning	Marshalling / Crew	Fuel / Trip
AMCI	AMCI	573	65	1276	11.87	8.17	20.04	2	5	42253
Waratah CFC	Waratah - China First Coal	573	21	1188	11.04	7.59	18.64	2	5	39503
Waratah ANC	Waratah - Alpha North Coal	530	10	1080	9.97	6.78	16.75	2	4.5	35780
Waratah AWC	Waratah - Alpha West Coal	523	27	1100	10.20	7.05	17.25	2	4.5	36785
HanGVK KC	Hancock/GVK - Kevin's Corner	548	15	1126	10.48	7.23	17.71	2	5	37684
HanGVK AC	Hancock/GVK - Alpha Coal	553	21	1148	10.69	7.36	18.05	2	5	38346
HanGVK AW	Hancock/GVK - Alpha West	553	28	1162	10.80	7.46	18.26	2	5	38769
Vale	Vale	497	10	1014	9.49	6.62	16.11	2	4.5	34541
Adani 1	Adani 1 (T0)	430	10	880	8.61	5.93	14.53	2	4	31450
Adani 2	Adani 2 (Balance)	430	10	880	8.61	5.93	14.53	2	4	31450
Bowen 1	Bowen 1	235	10	490	5	3.57	8.57	2	2.5	19759
Mac Sth	Macmines South	398	25	846	7.96	5.54	13.50	2	4	29424

The key outputs, as listed in the table below, include (a) the payload per train / year, and (b) fuel cost / year for each of the mines.

	AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - rest of Adani	Bowen 1	Mac mines South
Payload / train / year (Mtpa)	6.14	6.38	6.84	6.74	6.55	6.49	6.45	6.97	7.45	7.45	9.86	9.86
Fuel $ / mine / train ($m)	9.67	9.40	9.12	9.24	9.20	9.23	9.32	8.98	8.74	8.74	7.26	7.26

GIC - 26.5TAL

The outputs from the simulation of a 4 locomotive by 300 wagons train are summarised in the table below. The length of the train is approximately 5.0 kms.

Assumptions - Simulation Outputs

Train Configuration - 4 Locomotives (GT42) * 300 Wagons
Operational Days per Year - 320 (20 - Track/Mine/Port Maint, 15 - network inefficiencies, 10 - rollingstock reli
Loading Time - 5 Hours
Unloading Time - 5 Hours

	Hours	Distance	Fuel	Fuel Savings	Energy (GJ)
Loading/Unloading			3910		
Empty Trip	7.80	573	15934	0.09	345.74
Loaded Trip	10.6	573	19993	0.09	447.17

Mine Name (Abbr)	Mine Name	Mainline (kms)	Spurline (Kms)	Trip Distance	Loaded Trip	Unloaded Trip	Transit Time	Provisioning	Marshalling / Crew	Fuel / Trip
AMCI	AMCI	573	65	1276	11.70	8.50	20.21	2	5	39806
Waratah CFC	Waratah - China First Coal	573	21	1188	10.89	7.91	18.79	2	5	37296
Waratah ANC	Waratah - Alpha North Coal	530	10	1080	9.83	7.06	16.89	2	4.5	33900
Waratah AWC	Waratah - Alpha West Coal	523	27	1100	10.06	7.33	17.40	2	4.5	34814
HanGVK KC	Hancock/GVK - Kevin's Corner	548	15	1126	10.33	7.52	17.86	2	5	35634
HanGVK AC	Hancock/GVK - Alpha Coal	553	21	1148	10.53	7.66	18.20	2	5	36238
HanGVK AW	Hancock/GVK - Alpha West	553	28	1162	10.65	7.77	18.42	2	5	36625
Vale	Vale	497	10	1014	9.35	6.88	16.24	2	4.5	32762
Adani 1	Adani 1 (T0)	430	10	880	8.49	6.16	14.65	2	4	29931
Adani 2	Adani 2 (Balance)	430	10	880	8.49	6.16	14.65	2	4	29931
Bowen 1	Bowen 1	235	10	490	5	3.57	8.57	2	2.5	19128
Mac Sth	Macmines South	398	25	846	7.85	5.75	13.61	2	4	28087

The key outputs, as listed in the table below, include (a) the payload per train / year, and (b) fuel cost / year for each of the mines.

	AMCI	Waratah - China First Coal	Waratah - Alpha North Coal	Waratah - Alpha West Coal	Hancock / GVK - Kevin's Corner	Hancock / GVK - Alpha Coal	Hancock / GVK - Alpha West	Vale	Adani 1 - scaled to match T0	Adani 2 - rest of Adani	Bowen 1	Mac mines South
Payload / train / year (Mtpa)	4.82	5.01	5.37	5.29	5.14	5.09	5.06	5.48	5.85	5.85	7.77	6.05
Fuel $ / mine / train ($m)	9.07	8.83	8.61	8.71	8.66	8.72	8.76	8.49	8.28	8.28	7.03	8.03

Appendix 7 (B) Above Rail Train Models

TRAIN SYSTEM MODEL

	Value	Unit
MINE	**Mac Nth**	
HAULAGE REQUIREMENT		
Payload per Year	**8.19**	MT
TRAIN CONFIGURATION		
Track Axle Load	40	T
Locomotive Mass	196	T
Wagon Tare Mass	26	T
Locomotives per Train	3	Locos
Wagons per Train	270	Wagons
Payload per Wagon	132	T
Payload per Train	35640	T
CYCLE TIME		
Loading per Wagon	1	min
Unloading per Wagon	1	min
Loading Time	4.50	Hrs
Unloading Time	4.50	Hrs
Provisioning	2.00	Hrs
Marshalling	4.00	Hrs
Loaded Trip	9.41	Hrs
Unloaded Trip	6.34	Hrs
Days per Trips	1.28	Trips
Operational Days	320	Days
Trips per Year	250	Trips
Trip Distance	970	Kms
PAYLOAD		
Payload per Year	8.90	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.920	Trains
Locomotives	2.76	Locos
Wagons	248.42	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.28	Qty
Spare Wagons	12.42	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	33943	L
Fuel per Year	7800042	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	9.3601	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.13	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	4	Locos
Wagon Fleet	261	Wagons
Capital Spares (Locos/Wagons)	1.0	$m
Rollingstock Initial Capex	47.9	$m
Locomotive Overhaul Capex	21.0	$m
Wagon Overhaul Capex	17.0	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	242	Kms (k)
Energy per Trip	655	GJ
Annual Power	15152	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	4.3	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.533	$m / Yr
Maintenance Cost AUD	4.373	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.007	$ / Tkm
Life Cycle Cost	416	$m

TRAIN SYSTEM MODEL

	Value	Unit
MINE	HanGVK KC	
HAULAGE REQUIREMENT		
Payload per Year	7.30	MT
TRAIN CONFIGURATION		
Track Axle Load	40	T
Locomotive Mass	196	T
Wagon Tare Mass	26	T
Locomotives per Train	3	Locos
Wagons per Train	270	Wagons
Payload per Wagon	132	T
Payload per Train	35640	T
CYCLE TIME		
Loading per Wagon	1	min
Unloading per Wagon	1	min
Loading Time	4.50	Hrs
Unloading Time	4.50	Hrs
Provisioning	2.00	Hrs
Marshalling	5.00	Hrs
Loaded Trip	11.02	Hrs
Unloaded Trip	7.48	Hrs
Days per Trips	1.44	Trips
Operational Days	320	Days
Trips per Year	223	Trips
Trip Distance	1126	Kms
PAYLOAD		
Payload per Year	7.93	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.920	Trains
Locomotives	2.76	Locos
Wagons	248.40	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.28	Qty
Spare Wagons	12.42	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	39354	L
Fuel per Year	8060622	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	9.6727	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.13	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	4	Locos
Wagon Fleet	261	Wagons
Capital Spares (Locos/Wagons)	1.0	$m
Rollingstock Initial Capex	47.9	$m
Locomotive Overhaul Capex	21.0	$m
Wagon Overhaul Capex	17.0	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	251	Kms (k)
Energy per Trip	770	GJ
Annual Power	15865	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	4.3	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.533	$m / Yr
Maintenance Cost AUD	4.373	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.008	$ / Tkm
Life Cycle Cost	425	$m

TRAIN SYSTEM MODEL

	Value	Unit
MINE	HanGVK KC	
HAULAGE REQUIREMENT		
Payload per Year	6.55	MT
TRAIN CONFIGURATION		
Track Axle Load	32.5	T
Locomotive Mass	196	T
Wagon Tare Mass	20.7	T
Locomotives per Train	3	Locos
Wagons per Train	300	Wagons
Payload per Wagon	107.3	T
Payload per Train	32190	T
CYCLE TIME		
Loading per Wagon	1	min
Unloading per Wagon	1	min
Loading Time	5.00	Hrs
Unloading Time	5.00	Hrs
Provisioning	2.00	Hrs
Marshalling	5.00	Hrs
Loaded Trip	10.48	Hrs
Unloaded Trip	7.23	Hrs
Days per Trips	1.45	Trips
Operational Days	320	Days
Trips per Year	221	Trips
Trip Distance	1126	Kms
PAYLOAD		
Payload per Year	7.12	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.920	Trains
Locomotives	2.76	Locos
Wagons	275.89	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.28	Qty
Spare Wagons	13.79	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	37684	L
Fuel per Year	7667815	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	9.2014	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.13	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	4	Locos
Wagon Fleet	290	Wagons
Capital Spares (Locos/Wagons)	1.0	$m
Rollingstock Initial Capex	51.7	$m
Locomotive Overhaul Capex	21.0	$m
Wagon Overhaul Capex	18.8	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	249	Kms (k)
Energy per Trip	769	GJ
Annual Power	15760	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	4.7	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.533	$m / Yr
Maintenance Cost AUD	4.731	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.009	$ / Tkm
Life Cycle Cost	417	$m

TRAIN SYSTEM MODEL

	Value	Unit
MINE	HanGVK KC	
HAULAGE REQUIREMENT		
Payload per Year	5.14	MT
TRAIN CONFIGURATION		
Track Axle Load	26.5	T
Locomotive Mass	132	T
Wagon Tare Mass	19.4	T
Locomotives per Train	4	Locos
Wagons per Train	300	Wagons
Payload per Wagon	84.6	T
Payload per Train	25380	T
CYCLE TIME		
Loading per Wagon	1	min
Unloading per Wagon	1	min
Loading Time	5.00	Hrs
Unloading Time	5.00	Hrs
Provisioning	2.00	Hrs
Marshalling	5.00	Hrs
Loaded Trip	10.33	Hrs
Unloaded Trip	7.52	Hrs
Days per Trips	1.45	Trips
Operational Days	320	Days
Trips per Year	220	Trips
Trip Distance	1126	Kms
PAYLOAD		
Payload per Year	5.59	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.919	Trains
Locomotives	3.68	Locos
Wagons	275.76	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.37	Qty
Spare Wagons	13.79	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	35634	L
Fuel per Year	7216627	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	8.6600	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.13	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	5	Locos
Wagon Fleet	290	Wagons
Capital Spares (Locos/Wagons)	1.1	$m
Rollingstock Initial Capex	55.1	$m
Locomotive Overhaul Capex	26.3	$m
Wagon Overhaul Capex	18.8	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	248	Kms (k)
Energy per Trip	769	GJ
Annual Power	11773	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	5.1	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.667	$m / Yr
Maintenance Cost AUD	5.014	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.011	$ / Tkm
Life Cycle Cost	414	$m

TRAIN SYSTEM MODEL

	Value	Unit
MINE	HanGVK KC	
HAULAGE REQUIREMENT		
Payload per Year	7.30	MT
TRAIN CONFIGURATION		
Track Axle Load	40	T
Locomotive Mass	196	T
Wagon Tare Mass	26	T
Locomotives per Train	3	Locos
Wagons per Train	270	Wagons
Payload per Wagon	132	T
Payload per Train	35640	T
CYCLE TIME		
Loading per Wagon	1	min
Unloading per Wagon	1	min
Loading Time	4.50	Hrs
Unloading Time	4.50	Hrs
Provisioning	2.00	Hrs
Marshalling	5.00	Hrs
Loaded Trip	11.02	Hrs
Unloaded Trip	7.48	Hrs
Days per Trips	1.44	Trips
Operational Days	320	Days
Trips per Year	223	Trips
Trip Distance	1126	Kms
PAYLOAD		
Payload per Year	7.93	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.920	Trains
Locomotives	2.76	Locos
Wagons	248.40	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.28	Qty
Spare Wagons	12.42	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	39354	L
Fuel per Year	8060622	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	9.6727	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.13	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	4	Locos
Wagon Fleet	261	Wagons
Capital Spares (Locos/Wagons)	1.0	$m
Rollingstock Initial Capex	47.9	$m
Locomotive Overhaul Capex	21.0	$m
Wagon Overhaul Capex	17.0	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	251	Kms (k)
Energy per Trip	770	GJ
Annual Power	15865	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	4.3	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.533	$m / Yr
Maintenance Cost AUD	4.373	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.008	$ / Tkm
Life Cycle Cost	425	$m

TRAIN SYSTEM MODEL

	Value	Unit
MINE	Adani 1	
HAULAGE REQUIREMENT		
Payload per Year	3.36	MT
TRAIN CONFIGURATION		
Track Axle Load	26.5	T
Locomotive Mass	196	T
Wagon Tare Mass	19.4	T
Locomotives per Train	4	Locos
Wagons per Train	120	Wagons
Payload per Wagon	82.6	T
Payload per Train	9912	T
CYCLE TIME		
Loading per Wagon	1	min
Unloading per Wagon	1	min
Loading Time	2.00	Hrs
Unloading Time	2.00	Hrs
Provisioning	2.00	Hrs
Marshalling	3.00	Hrs
Loaded Trip	6.20	Hrs
Unloaded Trip	4.95	Hrs
Days per Trips	0.84	Trips
Operational Days	310	Days
Trips per Year	369	Trips
Trip Distance	806	Kms
PAYLOAD		
Payload per Year	3.66	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.918	Trains
Locomotives	3.67	Locos
Wagons	110.17	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.37	Qty
Spare Wagons	5.51	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	18780	L
Fuel per Year	6366203	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	7.6394	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.12	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	5	Locos
Wagon Fleet	116	Wagons
Capital Spares (Locos/Wagons)	0.6	$m
Rollingstock Initial Capex	31.4	$m
Locomotive Overhaul Capex	26.3	$m
Wagon Overhaul Capex	6.9	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	298	Kms (k)
Energy per Trip	411	GJ
Annual Power	10538	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	3.0	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.667	$m / Yr
Maintenance Cost AUD	2.858	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.012	$ / Tkm
Life Cycle Cost	347	$m

TRAIN SYSTEM MODEL

	Value	Unit
MINE	HanGVK KC	
HAULAGE REQUIREMENT		
Payload per Year	6.34	MT
TRAIN CONFIGURATION		
Track Axle Load	32.5	T
Locomotive Mass	196	T
Wagon Tare Mass	20.5	T
Locomotives per Train	3	Locos
Wagons per Train	240	Wagons
Payload per Wagon	105.5	T
Payload per Train	25320	T
CYCLE TIME		
Loading per Wagon	0.875	min
Unloading per Wagon	0.875	min
Loading Time	3.50	Hrs
Unloading Time	3.50	Hrs
Provisioning	2.00	Hrs
Marshalling	4.00	Hrs
Loaded Trip	8.28	Hrs
Unloaded Trip	6.03	Hrs
Days per Trips	1.14	Trips
Operational Days	310	Days
Trips per Year	272	Trips
Trip Distance	996	Kms
PAYLOAD		
Payload per Year	6.90	MTpa/Train
ROLLING STOCK REQUIREMENTS		
Trains for Payload	0.919	Trains
Locomotives	2.76	Locos
Wagons	220.62	Wagons
% Spare Locos	0.10	%
% Spare Wagons	0.05	%
Spare Locomotives	0.28	Qty
Spare Wagons	11.03	Qty
INPUT DATA		
Simulation Output		
Market Price		
Operational Experience		
Customer		

	Value	Unit
FUEL COST		
Fuel per Trip	32209	L
Fuel per Year	8065095	ML
Fuel Cost	1.2	$/L
Overall Fuel Cost	9.6781	$m / Year
CAPEX COST		
Locomotive Price	3.5	$m / Loco
Locomotive Overhaul %	0.75	%
Wagon Price	0.12	$m / Wagon
Wagon Overhaul %	0.5	%
Locomotive Fleet	4	Locos
Wagon Fleet	232	Wagons
Capital Spares (Locos/Wagons)	0.8	$m
Rollingstock Initial Capex	41.8	$m
Locomotive Overhaul Capex	21.0	$m
Wagon Overhaul Capex	13.9	$m
MAINTENANCE COST (Incl Facility Charge)		
Model Life	30	Years
Annual Distance	271	Kms (k)
Energy per Trip	403	GJ
Annual Power	10162	MWhrs / Loco
Locomotive per Year	0.4	$m / Loco
Wagon per Year	0.012	$m / Wagon
Rollingstock Maintenance	4.0	$m / Year
Locomotives Facility Charge	0.018	$m / Loco / Yr
Wagons Facility Charge	0.0004	$m / Wagon / Yr
Maintenance Cost USD	0.533	$m / Yr
Maintenance Cost AUD	4.011	$m / Yr
TRAIN CREW/CONTROL COST		
Drivers	0.15	Salary / Yr
Crews (2 man crews)	3	Crews / Train
Total Drivers	6	People
Overall Crews (10% Overhead)	0.99	$m / Year
Train Control	0.12	Salary / Yr
Max Trains per Controller	4	Trains
Train Control Team	0.75	People
Overall Train Control	0.09	$m / Year
Overall Labour Cost	1.08	$m / Year
LIFE CYCLE COST		
Life Cycle Cost per Year	0.008	$ / Tkm
Life Cycle Cost	416	$m

EVERYTHING INFRASTRUCTURE

East West Line Parks Limited

Galilee Infrastructure Corridor Project

Above and below rail comparative cost estimates

Appendices – Part D

July 2012

Appendix 8 Above Rail Capital Component

Above Rail Capital Component

Prices for the rolling stock are based on 2012 market prices. Quotations have not been obtained specifically for the purpose of this assessment. The price list is developed from knowledge for contract prices for the listed rolling stock for other clients in 2012,

Rolling Stock	Price Range	Source	Inflation Rate
ES44ACi Locomotive	$3.3 to 3.5m USD	Rio Tinto	0.4% - Import Price Index
GT42CU AC Locomotive	$4.8 to 5.0m USD	QRN and PN	0.4% - Import Price Index
40TAL Wagon	$125 to 130k USD	Extrapolated from 26.5TAL	0.4% - Import Price Index
32.5TAL Wagon	$115 to 120k USD	FreightCar America	0.4% - Import Price Index
26.5TAL Wagon	$105 to 110k USD	QRN and PN, Quotes from China	0.4% - Import Price Index
Locomotive Capital Spares	$70k USD for ES44ACi Loco	Assumed 2% of capital price	0.4% - Import Price Index
	$100k USD for GT42CU AC Loco	Assumed 2% of capital price	0.4% - Import Price Index
Wagon Capital Spares	$2.6k USD for 40TAL Wagon	Assumed 2% of capital price	0.4% - Import Price Index
	$2.4k USD for 32.5TAL Wagon	Assumed 2% of capital price	0.4% - Import Price Index
	$2.2k USD for 26.5TAL Wagon	Assumed 2% of capital price	0.4% - Import Price Index
Locomotive Overhaul	$1.785m USD and $0.8925m AUD for ES44ACi Locomotive	Assumed 75% of capital price (50% USD, 25% AUD) based on knowledge of past major overhaul projects	0.4% - Import Price Index for USD, 3.15% - Producer Price Index and Labour Index for AUD
	$2.55m USD and $1.275m AUD for GT42CU AC Locomotive	Assumed 75% of capital price (50% USD, 25% AUD) based on knowledge of past major overhaul projects	0.4% - Import Price Index for USD, 3.15% - Producer Price Index and Labour Index for AUD
Wagon Overhaul	$33.15k USD and $33.15k AUD for 40TAL Wagon	Assumed 50% of capital price (25% USD, 25% AUD) based on knowledge of past major overhaul projects	0.4% - Import Price Index for USD, 3.15% - Producer Price Index and Labour Index for AUD
	$30.6k USD and $30.6k AUD for 32.5TAL Wagon	Assumed 50% of capital price (25% USD, 25% AUD) based on knowledge of past major overhaul projects	0.4% - Import Price Index for USD, 3.15% - Producer Price Index and Labour Index for AUD
	$28.1k USD and $28.1k AUD for 26.5TAL Wagon	Assumed 50% of capital price (25% USD, 25% AUD) based on knowledge of past major overhaul projects	0.4% - Import Price Index for USD, 3.15% - Producer Price Index and Labour Index for AUD

Above Rail Operational Component

The prices listed below for the rolling stock operations are based on 2012 market prices. The price list is developed from knowledge for contract prices for the listed rolling stock operations for other clients in 2012.

Operational Task	Price Range	Source	Inflation Rate
Fuel	$1.10 to $1.20 per litre	Rolling Stock operator in Queensland	2.7% - Consumer Price Index
Locomotive Maintenance	$117 to $133k USD and $233 to $266 AUD per loco per year	Industry standard for maintenance price for ES44ACi Locomotives	0.4% - Import Price Index for USD, 3.15% - Producer Price Index and Labour Index for AUD
Wagon Maintenance	$10 to $12k AUD per wagon per year	Industry standard for maintenance price for Bradken Wagons	3.15% - Producer Price Index and Labour Index for AUD
Locomotive Maintenance Facility Charge	$15 to $18k AUD per locomotive per year	Industry standard for a facility charge	3.15% - Producer Price Index and Labour Index for AUD
Wagon Maintenance Facility Charge	$0.35 to $0.4k AUD per wagon per year	Industry standard for a facility charge	3.15% - Producer Price Index and Labour Index for AUD
Train Driver	$140 to $150k per driver per year	Rolling stock operator	3.68% - Labour Index

Appendix 9 Capex Estimate Data Sheets

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

	Flat	Hilly	Rolling	Flood	Total
ZONE 1 - BELOW RAIL - Capex	**20 km**	**148 km**	**15 km**	**36 km**	**219 km**

Start of Construction	1/01/14	NB: For start of construction date later than 1st Jan 2013,
Construction pricing inflation rate	4%	suggest inflation rate of 4%pa for construction pricing increases

	1	2	3	4	5	Total
Spend curve (Year)						
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories				
Construction (Third Party Costs)	**Costs $**			
Establishment of construction offices, camps & environmental surveys	64,780,350	**351,172,997**	35%	
Contractor's Indirect Costs (non-recurring & recurring costs)	286,392,647		NB: Includes allowance to fix price and time for construction contract	
Earthworks	274,448,183			
Capping Layer	130,942,000			
Structures	32,316,604			
Permanent Way	192,698,100			
Incidental & Environmental Works	13,291,642			
Fencing	7,195,850	**650,892,379**	65%	
Total Construction Costs	**$ 1,002,065,375**			
Contractors Mark Up **+10%**	$ 100,206,538			
Total Contractor's Price	$ 1,102,271,913			
Client Costs (PM, Planning & Approvals) **+10%**	$ 110,227,191			
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running				
Defect liability period	$ -		Not included : assumed covered by maintenance contractors	
Land Acquisition (provided by EWLP)	$ 32,900,000			
[Including clear & grub outside of stage 1 rail reserve]				
Project Costs (excluding contingencies)	**$ 1,245,399,104**			
Contingencies	$ 373,619,731	**(30% Base Case)**		
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]				
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]				
Total Zone 1 Construction Costs	**$ 1,619,018,835**	(Base case)		**$ 7,392,780 /km**
Cost Base Date :	1st Jul 2012			

ZONE 1 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.

Maintenance Cost escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**

No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$5,250,000** /km

Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

NOTE: This is a DUAL GAUGE section

ZONE 2 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	128 km	0 km	0 km	23 km	151 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%

NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices & environmental surveys	31,540,000	203,721,670	34%
Contractor's Indirect Costs (non-recurring & recurring costs)	172,181,670		
Earthworks	101,440,583		
Capping Layer	90,918,000		
Structures	20,427,619		
Permanent Way	164,952,400		
Incidental & Environmental Works	8,681,400		
Fencing	4,901,975	391,321,978	66%
Total Construction Costs	595,043,648		

NB: Includes allowance to fix price and time for construction contra

Contractors Mark Up	+10%	$	59,504,365
Total Contractor's Price		$	654,548,013
Client Costs (PM, Planning & Approvals)	+10%	$	65,454,801

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 15,100,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 735,102,814

Contingencies: $ 220,530,844 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 2 Construction Costs: $ 955,633,659 (Base case) $ 6,328,700 /km
Cost Base Date : 1st Jul 2012

ZONE 2 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop: $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

NOTE : This is a DUAL GUAGE Zone

ZONE 3 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total
	0 km	0 km	16 km	12 km	28 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices & environmental surveys	215,000	36,985,857	31%
Contractor's Indirect Costs (non-recurring & recurring costs)	36,770,857		
Earthworks	30,236,836		
Capping Layer	16,801,000		
Structures	3,854,644		
Permanent Way	30,587,200		
Incidental & Environmental Works	1,176,000		
Fencing	914,450	83,570,129	69%
Total Construction Costs	120,555,986		

NB: Includes allowance to fix price and time for construction contract

Contractors Mark Up	+10%	$	12,055,599
Total Contractor's Price		$	132,611,584
Client Costs (PM, Planning & Approvals)	+10%	$	13,261,158

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,400,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 147,272,743

Contingencies: $ 44,181,823 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 2 Construction Costs: $ 191,454,566 (Base case) $ 6,837,663 /km
Cost Base Date : 1st Jul 2012

ZONE 3 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop: $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

	Flat	Hilly	Rolling	Flood	Total Km
ZONE 4 - BELOW RAIL - Capex	**0 km**	**44 km**	**0 km**	**0 km**	**44 km**

Start of Construction	**1/01/14**	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases
Construction pricing inflation rate	**4%**	

Spend curve (Year)	**1**	**2**	**3**	**4**	**5**	**Total**
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories				
Construction (Third Party Costs)	**Costs $**			
Establishment of construction offices, camps & environmental surveys	30,115,000	**80,840,057**	41%	
Contractor's Indirect Costs (non-recurring & recurring costs)	50,725,057			NB: Includes allowance to fix price and time for construction contract
Earthworks	41,607,423			
Capping Layer	26,584,800			
Structures	5,117,148			
Permanent Way	38,715,600			
Incidental & Environmental Works	1,848,000			
Fencing	1,411,250	**115,284,221**	59%	
Total Construction Costs	**$ 196,124,278**			
Contractors Mark Up **+10%**	$ 19,612,428			
Total Contractor's Price	$ 215,736,706			
Client Costs (PM, Planning & Approvals) **+10%**	$ 21,573,671			
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running				
Defect liability period	$ -			Not included : assumed covered by maintenance contractors
Land Acquisition (provided by EWLP)	$ 2,200,000.00			
[Including clear & grub outside of stage 1 rail reserve]				
Project Costs (excluding contingencies)	**$ 239,510,377**			
Contingencies	$ 71,853,113	**(30% Base Case)**		
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]				
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]				
Total Zone 1 Construction Costs	**$ 311,363,489**	(Base case)		**$ 7,076,443 /km**
Cost Base Date :	1st Jul 2012			

ZONE 4 -BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$5,250,000** /km
Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on
Cost Base Date : 1st Jul 2012 construction costs

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

ZONE 5 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	0 km	0 km	24 km	10 km	34 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	215,000	41,438,160	31%
Contractor's Indirect Costs (non-recurring & recurring costs)	41,223,160		NB: Includes allowance to fix price and time for construction contract
Earthworks	35,109,682		
Capping Layer	20,454,000		
Structures	5,673,341		
Permanent Way	29,916,600		
Incidental & Environmental Works	1,430,228		
Fencing	1,105,150	93,689,001	69%
Total Construction Costs	$ 135,127,161		

Contractors Mark Up	+10%	$ 13,512,716	
Total Contractor's Price		$ 148,639,877	
Client Costs (PM, Planning & Approvals)	+10%	$ 14,863,988	

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%), Community/Fees (1%), Contract Support Services (0.5%), Insurance (1.5%) = 10%]

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,700,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 165,203,865

Contingencies: $ 49,561,159 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 214,765,024 (Base case) $ 6,316,618 /km
Cost Base Date : 1st Jul 2012

ZONE 5 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

ZONE 6 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	4 km	0 km	0 km	18 km	22 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	30,895,000	58,053,128	48%
Contractor's Indirect Costs (non-recurring & recurring costs)	27,158,128		
Earthworks	23,508,733		
Capping Layer	13,065,000		
Structures	4,153,410		
Permanent Way	19,357,800		
Incidental & Environmental Works	924,000		
Fencing	714,075	61,723,019	52%
Total Construction Costs	$ 119,776,147		

NB: Includes allowance to fix price and time for construction contract

Contractors Mark Up	+10%	$	11,977,615
Total Contractor's Price		$	131,753,762
Client Costs (PM, Planning & Approvals)	+10%	$	13,175,376

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%),

Defect liability period $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP) $ 1,100,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies) $ 146,029,138

Contingencies $ 43,808,741 **(30% Base Case)**
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs $ 189,837,880 (Base case) $ 8,628,995 /km
Cost Base Date : 1st Jul 2012

ZONE 6 - BELOW RAIL - Opex	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

ZONE 7 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	36 km	0 km	0 km	0 km	36 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	215,000	41,612,727	31%
Contractor's Indirect Costs (non-recurring & recurring costs)	41,397,727		
Earthworks	32,345,763		
Capping Layer	21,352,000		
Structures	6,033,977		
Permanent Way	31,676,400		
Incidental & Environmental Works	1,514,228		
Fencing	1,163,375	94,085,743	69%
Total Construction Costs	**$ 135,698,470**		

NB: Includes allowance to fix price and time for construction contract

Contractors Mark Up	**+10%**	$ 13,569,847	
Total Contractor's Price		$ 149,268,317	
Client Costs (PM, Planning & Approvals)	**+10%**	$ 14,926,832	

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost

Defect liability period $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP) $ 1,800,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies) **$ 165,995,149**

Contingencies $ 49,798,545 **(30% Base Case)**
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs **$ 215,793,693** (Base case) **$ 6,078,696 /km**
Cost Base Date : 1st Jul 2012

ZONE 7 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$5,250,000** /km
Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

ZONE 8 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	21 km	0 km	0 km	2 km	23 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	215,000	24,509,623	31%
Contractor's Indirect Costs (non-recurring & recurring costs)	24,294,623		
Earthworks	12,559,398		
Capping Layer	14,046,000		
Structures	5,829,256		
Permanent Way	20,237,700		
Incidental & Environmental Works	1,781,448		
Fencing	761,250	55,215,052	69%
Total Construction Costs	$ 79,724,674		

NB: Includes allowance to fix price and time for construction contract

Contractors Mark Up	+10%	$ 7,972,467
Total Contractor's Price		$ 87,697,142
Client Costs (PM, Planning & Approvals)	+10%	$ 8,769,714

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,200,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 97,666,856

Contingencies: $ 29,300,057 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 126,966,913 (Base case) $ 5,520,301 /km
Cost Base Date : 1st Jul 2012

ZONE 8 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 1

ZONE 9 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	20 km	0 km	0 km	0 km	20 km

Start of Construction: 1/01/26
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases
Construction pricing inflation rate: 4%

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	13,652,017	34,008,952	42%
Contractor's Indirect Costs (non-recurring & recurring costs)	20,356,935		NB: Includes allowance to fix price and time for construction contrac
Earthworks	12,245,341		
Capping Layer	12,084,000		
Structures	2,842,043		
Permanent Way	17,598,000		
Incidental & Environmental Works	842,228		
Fencing	654,150	46,265,762	58%
Total Construction Costs	$ 80,274,714		
Contractors Mark Up +10%	$ 8,027,471		
Total Contractor's Price	$ 88,302,185		
Client Costs (PM, Planning & Approvals) +10%	$ 8,830,218		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,000,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 98,132,403

Contingencies: $ 29,439,721 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 127,572,124 (Base case) $ 6,378,606 /km
Cost Base Date : 1st Jul 2012

ZONE 9 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GVK - 150Mtpa

GVK Main Line - BELOW RAIL - Capex	Flat 149 km	Hilly 136 km	Rolling 20 km	Flood 180 km	Total 485 km
Start of Construction: 1/01/14	NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate: 4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	127,975,550	796,875,781	35%
Contractor's Indirect Costs (non-recurring & recurring costs)	668,900,231		NB: Includes allowance to fix price and time for construction contract
Earthworks	647,594,477		
Capping Layer	288,366,000		
Structures	77,943,959		
Permanent Way	404,926,500		
Incidental & Environmental Works	19,483,576		
Fencing	15,816,425	1,454,130,937	65%
Total Construction Costs	$ 2,251,006,719		
Contractors Mark Up +10%	$ 225,100,672		
Total Contractor's Price	$ 2,476,107,390		
Client Costs (PM, Planning & Approvals) +10%	$ 247,610,739		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period	$ -	Not included : assumed covered by maintenance contractors
Land Acquisition (provided by EWLP) [Including clear & grub outside of stage 1 rail reserve]	$ 76,100,000	
Project Costs (excluding contingencies)	$ 2,799,818,129	
Contingencies	$ 839,945,439	(30% Base Case)

[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs	$ 3,639,763,568	(Base case)	$ 7,504,667 /km
Cost Base Date :	1st Jul 2012		

GVK Main Line - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 6.0 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,000,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GVK - 150Mtpa

GVK - ZONE 7 - BELOW RAIL - Capex	Flat 20 km	Hilly 0 km	Rolling 0 km	Flood 16 km	Total km 36 km

Start of Construction: 1/01/19
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	3,555,350	47,836,067	32%
Contractor's Indirect Costs (non-recurring & recurring costs)	44,280,717		
Earthworks	40,518,012		
Capping Layer	21,352,000		
Structures	6,033,977		
Permanent Way	30,056,400		
Incidental & Environmental Works	1,514,228		
Fencing	1,163,375	100,637,993	68%
Total Construction Costs	**$ 148,474,060**		

NB: Includes allowance to fix price and time for construction contract

Contractors Mark Up	**+10%**	$ 14,847,406	
Total Contractor's Price		$ 163,321,466	
Client Costs (PM, Planning & Approvals)	**+10%**	$ 16,332,147	

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client

Defect liability period $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP) $ 1,800,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies) **$ 181,453,612**

Contingencies $ 54,436,084 **(30% Base Case)**
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs **$ 235,889,696** (Base case) **$ 6,552,492 /km**
Cost Base Date : 1st Jul 2012

GVK - ZONE 7 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **6.0 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$5,000,000** /km
Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on
Cost Base Date : 1st Jul 2012 construction costs

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GVK - 150Mtpa

GVK - ZONE 8 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	21 km	0 km	0 km	2 km	23 km

Start of Construction: 1/01/19
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	15,555,000	39,512,165	42%
Contractor's Indirect Costs (non-recurring & recurring costs)	23,957,165		NB: Includes allowance to fix price and time for construction contra
Earthworks	12,827,448		
Capping Layer	14,046,000		
Structures	5,829,256		
Permanent Way	19,202,700		
Incidental & Environmental Works	1,781,448		
Fencing	761,250	54,448,102	58%
Total Construction Costs	$ 93,960,267		
Contractors Mark Up +10%	$ 9,396,027		
Total Contractor's Price	$ 103,356,294		
Client Costs (PM, Planning & Approvals) +10%	$ 10,335,629		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,200,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 114,891,923

Contingencies: $ 34,467,577 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 149,359,500 (Base case) $ 6,493,891 /km
Cost Base Date : 1st Jul 2012

GVK - ZONE 8 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 6.0 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,000,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on
Cost Base Date : 1st Jul 2012 construction costs

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GVK - 150Mtpa

GVK - ZONE 9 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	20 km	0 km	0 km	0 km	20 km

Start of Construction: 1/01/26
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2014, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	13,652,017	33,440,912	43%
Contractor's Indirect Costs (non-recurring & recurring costs)	19,788,895		NB: Includes allowance to fix price and time for construction contrac
Earthworks	11,854,341		
Capping Layer	12,084,000		
Structures	2,842,043		
Permanent Way	16,698,000		
Incidental & Environmental Works	842,228		
Fencing	654,150	44,974,762	
Total Construction Costs	$ 78,415,674		
Contractors Mark Up +10%	$ 7,841,567		
Total Contractor's Price	$ 86,257,241		
Client Costs (PM, Planning & Approvals) +10%	$ 8,625,724		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,000,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 95,882,965

Contingencies: $ 28,764,890 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 124,647,855 (Base case) $ 6,232,393 /km
Cost Base Date : 1st Jul 2012

GVK - ZONE 9 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 6.0 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop: $5,000,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

QRN - 90Mtpa

QRN/Adani - BELOW RAIL - Capex	Flat 75 km	Hilly 0 km	Rolling 0 km	Flood 99 km	Total 174 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	64,995,350	305,423,314	37%
Contractor's Indirect Costs (non-recurring & recurring costs)	240,427,964		
Earthworks	242,222,398		
Capping Layer	103,329,000		
Structures	28,671,193		
Permanent Way	134,136,600		
Incidental & Environmental Works	8,678,220		
Fencing	5,632,075	522,669,486	63%
Total Construction Costs	**$ 828,092,800**		

NB: Includes allowance to fix price and time for construction contract

Contractors Mark Up	**+10%**	$ 82,809,280
Total Contractor's Price		$ 910,902,080
Client Costs (PM, Planning & Approvals)	**+10%**	$ 91,090,208

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%),

Defect liability period — $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP) $ 26,100,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies) **$ 1,028,092,287**

Contingencies $ 308,427,686 **(30% Base Case)**
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs **$ 1,336,519,974** (Base case) **$ 7,681,149 /km**
Cost Base Date : 1st Jul 2012

QRN/Adani - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$45,000	$45,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **3.2 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$4,875,000** /km
Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

QRN - 90Mtpa

QRN ZONE 4 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	0 km	44 km	0 km	0 km	44 km

Start of Construction: 1/01/23
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	3,815,350	53,733,573	32%
Contractor's Indirect Costs (non-recurring & recurring costs)	49,918,223		NB: Includes allowance to fix price and time for construction contract
Earthworks	44,569,709		
Capping Layer	26,584,800		
Structures	5,117,148		
Permanent Way	33,919,600		
Incidental & Environmental Works	1,848,000		
Fencing	1,411,250	113,450,507	68%
Total Construction Costs	$ 167,184,080		
Contractors Mark Up +10%	$ 16,718,408		
Total Contractor's Price	$ 183,902,488		
Client Costs (PM, Planning & Approvals) +10%	$ 18,390,249		
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%),			
Defect liability period	$ -		Not included : assumed covered by maintenance contractors
Land Acquisition (provided by EWLP)	$ 2,200,000		
[Including clear & grub outside of stage 1 rail reserve]			
Project Costs (excluding contingencies)	$ 204,492,736		
Contingencies	$ 61,347,821	(30% Base Case)	
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]			
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]			
Total Zone 1 Construction Costs	$ 265,840,557	(Base case)	$ 6,041,831 /km
Cost Base Date :	1st Jul 2012		

QRN ZONE 4 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$45,000	$45,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 3.2 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $4,875,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 2

ZONE 1 - BELOW RAIL - Capex	Flat 20 km	Hilly 148 km	Rolling 15 km	Flood 36 km	Total 219 km

Start of Construction: 1/01/18
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories	Costs $		
Construction (Third Party Costs)			
Establishment of construction offices, camps & environmental surveys	64,780,350	351,172,997	35%
Contractor's Indirect Costs (non-recurring & recurring costs)	286,392,647		NB: Includes allowance to fix price and time for construction contract
Earthworks	274,448,183		
Capping Layer	130,942,000		
Structures	32,316,604		
Permanent Way	192,698,100		
Incidental & Environmental Works	13,291,642		
Fencing	7,195,850	650,892,379	65%
Total Construction Costs	$ 1,002,065,375		
Contractors Mark Up +10%	$ 100,206,538		
Total Contractor's Price	$ 1,102,271,913		
Client Costs (PM, Planning & Approvals) +10%	$ 110,227,191		
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running]			
Defect liability period	$ -		Not included : assumed covered by maintenance contractors
Land Acquisition (provided by EWLP) [Including clear & grub outside of stage 1 rail reserve]	$ 32,900,000		
Project Costs (excluding contingencies)	$ 1,245,399,104		
Contingencies	$ 373,619,731	**(30% Base Case)**	
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]			
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]			
Total Zone 1 Construction Costs	$ 1,619,018,835	(Base case)	$ 7,392,780 /km
Cost Base Date :	1st Jul 2012		

ZONE 1 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 2

ZONE 2 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	128 km	0 km	0 km	23 km	151 km

Start of Construction: 1/01/18
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories				
Construction (Third Party Costs)	Costs $			
Establishment of construction offices & environmental surveys	31,540,000	187,908,091	35%	
Contractor's Indirect Costs (non-recurring & recurring costs)	156,368,091		NB: Includes allowance to fix price and time for construction contract	
Earthworks	94,954,502			
Capping Layer	90,918,000			
Structures	21,059,379			
Permanent Way	132,864,900			
Incidental & Environmental Works	10,682,144			
Fencing	4,903,100	355,382,025	65%	
Total Construction Costs	543,290,117			

Contractors Mark Up +10% $ 54,329,012

Total Contractor's Price $ 597,619,128

Client Costs (PM, Planning & Approvals) +10% $ 59,761,913
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client

Defect liability period $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP) $ 15,100,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies) $ 672,481,041

Contingencies $ 201,744,312 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 2 Construction Costs $ 874,225,354 (Base case) $ 5,789,572 /km
Cost Base Date : 1st Jul 2012

ZONE 2 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 2

ZONE 3 - BELOW RAIL - Capex	Flat 0 km	Hilly 0 km	Rolling 16 km	Flood 12 km	Total 28 km

Start of Construction: 1/01/18
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories				
Construction (Third Party Costs)	Costs $			
Establishment of construction offices & environmental surveys	-	31,830,175	31%	
Contractor's Indirect Costs (non-recurring & recurring costs)	31,830,175			NB: Includes allowance to fix price and time for construction contract
Earthworks	24,958,014			
Capping Layer	16,801,000			
Structures	3,854,644			
Permanent Way	24,637,200			
Incidental & Environmental Works	1,176,000			
Fencing	914,450	72,341,308	69%	
Total Construction Costs	104,171,483			
Contractors Mark Up +10%	$ 10,417,148			
Total Contractor's Price	$ 114,588,632			

Client Costs (PM, Planning & Approvals) +10% $ 11,458,863
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP) $ 1,400,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies) $ 127,447,495

Contingencies $ 38,234,248 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 2 Construction Costs $ 165,681,743 (Base case) $ 5,917,205 /km
Cost Base Date : 1st Jul 2012

ZONE 2 - BELOW RAIL - Opex	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

Option 2 - ZONE 4 - BELOW RAIL - Capex	Flat **0 km**	Hilly **44 km**	Rolling **0 km**	Flood **0 km**	Total Km **44 km**

Start of Construction 1/01/22
Construction pricing inflation rate 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	**1**	**2**	**3**	**4**	**5**	**Total**
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%

Spend required in this zone

Categories				
Construction (Third Party Costs)	**Costs $**			
Establishment of construction offices, camps & environmental surveys	215,000	**50,940,057**	31%	
Contractor's Indirect Costs (non-recurring & recurring costs)	50,725,057		NB: Includes allowance to fix price and time for construction contract	
Earthworks	41,607,423			
Capping Layer	26,584,800			
Structures	5,117,148			
Permanent Way	38,715,600			
Incidental & Environmental Works	1,848,000			
Fencing	1,411,250	**115,284,221**	69%	
Total Construction Costs	**$ 166,224,278**			
Contractors Mark Up **+10%**	$ 16,622,428			
Total Contractor's Price	$ 182,846,706			
Client Costs (PM, Planning & Approvals) **+10%**	$ 18,284,671			
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%), Community/Fees (1%), Contract Support Services (0.5%), Insurance (1.5%) = 10%]				
Defect liability period	$ -		Not included : assumed covered by maintenance contractors	
Land Acquisition (provided by EWLP) [Including clear & grub outside of stage 1 rail reserve]	$ 2,200,000			
Project Costs (excluding contingencies)	**$ 203,331,377**			
Contingencies [NB: Range from -10% ~ + 30%, therefore use +30% for base case] [Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]	$ 60,999,413	**(30% Base Case)**		
Total Zone 1 Construction Costs	**$ 264,330,789** (Base case)			**$ 6,007,518 /km**

Option 2 - Zone 4 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$5,250,000** /km
Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

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EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 2

ZONE 5 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	0 km	0 km	24 km	10 km	34 km

Start of Construction: 1/01/22
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	18,895,350	59,694,213	39%
Contractor's Indirect Costs (non-recurring & recurring costs)	40,798,863		NB: Includes allowance to fix price and time for construction contract
Earthworks	34,145,369		
Capping Layer	20,454,000		
Structures	5,673,341		
Permanent Way	29,916,600		
Incidental & Environmental Works	1,430,228		
Fencing	1,105,150	92,724,688	61%
Total Construction Costs	$ 152,418,900		

Contractors Mark Up	+10%	$ 15,241,890	
Total Contractor's Price		$ 167,660,790	
Client Costs (PM, Planning & Approvals)	+10%	$ 16,766,079	

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%), Community/Fees (1%), Contract Support Services (0.5%), Insurance (1.5%) = 10%]

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,700,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 186,126,869

Contingencies: $ 55,838,061 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 241,964,930 (Base case) $ 7,116,616 /km
Cost Base Date : 1st Jul 2012

ZONE 5 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop: $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 2

ZONE 6 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	4 km	0 km	0 km	18 km	22 km

Start of Construction: 1/01/22
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	50%	50%	0%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	215,000	22,154,319	31%
Contractor's Indirect Costs (non-recurring & recurring costs)	21,939,319		NB: Includes allowance to fix price and time for construction contract
Earthworks	13,087,926		
Capping Layer	13,309,000		
Structures	3,834,737		
Permanent Way	17,996,000		
Incidental & Environmental Works	924,000		
Fencing	710,425	49,862,088	69%
Total Construction Costs	$ 72,016,407		
Contractors Mark Up +10%	$ 7,201,641		
Total Contractor's Price	$ 79,218,048		
Client Costs (PM, Planning & Approvals) +10%	$ 7,921,805		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,100,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 88,239,853

Contingencies: $ 26,471,956 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 114,711,809 (Base case) $ 5,214,173 /km
Cost Base Date : 1st Jul 2012

ZONE 6 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

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EVERYTHING INFRASTRUCTURE

EWLP
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Output template - for use in EY financial model

Option 2 - ZONE 7 - BELOW RAIL - Capex	Flat **20 km**	Hilly **0 km**	Rolling **0 km**	Flood **16 km**	Total Km **36 km**

Start of Construction	**1/01/26**	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases
Construction pricing inflation rate	**4%**	

Spend curve (Year)	**1**	**2**	**3**	**4**	**5**	**Total**
Spend profile / curve - applied to all zone spend	100%	0%		0%	0%	100%

Spend required in this zone

Categories				
Construction (Third Party Costs)	**Costs $**			
Establishment of construction offices, camps & environmental surveys	13,782,017	**55,179,744**	37%	
Contractor's Indirect Costs (non-recurring & recurring costs)	41,397,727		NB: Includes allowance to fix price and time for construction contract	
Earthworks	32,345,763			
Capping Layer	21,352,000			
Structures	6,033,977			
Permanent Way	31,676,400			
Incidental & Environmental Works	1,514,228			
Fencing	1,163,375	**94,085,743**	63%	
Total Construction Costs	**$ 149,265,487**			
Contractors Mark Up **+10%**	$ 14,926,549			
Total Contractor's Price	$ 164,192,035			
Client Costs (PM, Planning & Approvals) **+10%**	$ 16,419,204			
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost (1%), Community/Fees (1%), Contract Support Services (0.5%), Insurance (1.5%) = 10%]				
Defect liability period	$ -		Not included : assumed covered by maintenance contractors	
Land Acquisition (provided by EWLP) [Including clear & grub outside of stage 1 rail reserve]	$ 1,800,000			
Project Costs (excluding contingencies)	**$ 182,411,239**			
Contingencies [NB: Range from -10% ~ + 30%, therefore use +30% for base case] [Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]	$ 54,723,372	**(30% Base Case)**		
Total Zone 1 Construction Costs	**$ 237,134,611**	(Base case)		**$ 6,587,073 /km**

Option 2 - ZONE 7 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.

Maintenance Cost Escalation Factor : **2.5%** Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry **7.5 Mtpa**
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop **$5,250,000** /km
Passing Loop escalation Factor : **4.0%** Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

Project Costs (excluding contingencies)	**$ 97,666,856**		
Contingencies [NB: Range from -10% ~ + 30%, therefore use +30% for base case] [Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]	$ 29,300,057	**(30% Base Case)**	

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GIC - Option 2

ZONE 9 - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total Km
	20 km	0 km	0 km	0 km	20 km

Start of Construction: 1/01/29
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	100%	0%	0%	0%	0%	100%

Spend required in this zone
Categories

Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	13,652,017	34,008,952	42%
Contractor's Indirect Costs (non-recurring & recurring costs)	20,356,935		NB: Includes allowance to fix price and time for construction contrac
Earthworks	12,245,341		
Capping Layer	12,084,000		
Structures	2,842,043		
Permanent Way	17,598,000		
Incidental & Environmental Works	842,228		
Fencing	654,150	46,265,762	58%
Total Construction Costs	$ 80,274,714		
Contractors Mark Up +10%	$ 8,027,471		
Total Contractor's Price	$ 88,302,185		
Client Costs (PM, Planning & Approvals) +10%	$ 8,830,218		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 1,000,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 98,132,403

Contingencies: $ 29,439,721 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 127,572,124 (Base case) $ 6,378,606 /km
Cost Base Date : 1st Jul 2012

ZONE 9 - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$60,000	$60,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost Escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 7.5 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,250,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

GVK - 60Mtpa

GVK Mainline - BELOW RAIL - Capex		Flat 149 km	Hilly 136 km	Rolling 20 km	Flood 180 km	Total 485 km
Start of Construction	1/01/14	NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases				
Construction pricing inflation rate	4%					
Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories	Costs $		
Construction (Third Party Costs)			
Establishment of construction offices, camps & environmental surveys	127,975,550	796,875,781	35%
Contractor's Indirect Costs (non-recurring & recurring costs)	668,900,231		NB: Includes allowance to fix price and time for construction contract
Earthworks	647,594,477		
Capping Layer	288,366,000		
Structures	77,943,959		
Permanent Way	404,926,500		
Incidental & Environmental Works	19,483,576		
Fencing	15,816,425	1,454,130,937	65%
Total Construction Costs	$ 2,251,006,719		
Contractors Mark Up +10%	$ 225,100,672		
Total Contractor's Price	$ 2,476,107,390		
Client Costs (PM, Planning & Approvals) +10%	$ 247,610,739		
[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running			
Defect liability period	$ -		Not included : assumed covered by maintenance contractors
Land Acquisition (provided by EWLP)	$ 76,100,000		
[Including clear & grub outside of stage 1 rail reserve]			
Project Costs (excluding contingencies)	$ 2,799,818,129		
Contingencies	$ 839,945,439	(30% Base Case)	
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]			
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]			
Total Zone 1 Construction Costs	$ 3,639,763,568	(Base case)	$ 7,504,667 /km
Cost Base Date :	1st Jul 2012		

GVK Mainline - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$50,000	$50,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.

Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 6.0 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost [Brownfield] of Typical Passing Loop $5,000,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012

EWLP
Galilee Infrastructure Corridor Project (GICP)
Below Rail Costing - CAPEX
Output template - for use in EY financial model

QRN - 60Mtpa

QRN Mainline - BELOW RAIL - Capex	Flat	Hilly	Rolling	Flood	Total
	75 km	0 km	0 km	99 km	174 km

Start of Construction: 1/01/14
Construction pricing inflation rate: 4%
NB: For start of construction date later than 1st Jan 2013, suggest inflation rate of 4%pa for construction pricing increases

Spend curve (Year)	1	2	3	4	5	Total
Spend profile / curve - applied to all zone spend	30%	40%	30%	0%	0%	100%

Spend required in this zone

Categories Construction (Third Party Costs)	Costs $		
Establishment of construction offices, camps & environmental surveys	64,995,350	305,423,314	37%
Contractor's Indirect Costs (non-recurring & recurring costs)	240,427,964		NB: Includes allowance to fix price and time for construction contract
Earthworks	242,222,398		
Capping Layer	103,329,000		
Structures	28,671,193		
Permanent Way	134,136,600		
Incidental & Environmental Works	8,678,220		
Fencing	5,632,075	522,669,486	63%
Total Construction Costs	$ 828,092,800		
Contractors Mark Up +10%	$ 82,809,280		
Total Contractor's Price	$ 910,902,080		
Client Costs (PM, Planning & Approvals) +10%	$ 91,090,208		

[PM (3%), Contractor procurement (1%), Concept Design & Environmental Approval (2%), Client running cost

Defect liability period: $ - Not included : assumed covered by maintenance contractors

Land Acquisition (provided by EWLP): $ 26,100,000
[Including clear & grub outside of stage 1 rail reserve]

Project Costs (excluding contingencies): $ 1,028,092,287

Contingencies: $ 308,427,686 (30% Base Case)
[NB: Range from -10% ~ + 30%, therefore use +30% for base case]
[Preliminary evaluation at strategic level based on market rates and supplied quantities / alignments]

Total Zone 1 Construction Costs: $ 1,336,519,974 (Base case) — $ 7,681,149 /km
Cost Base Date : 1st Jul 2012

QRN Mainline - BELOW RAIL - Opex

	Throughput (Mtpa)				
Assumed Lower Limit	0	11	31	51	101
Assumed Upper Limit	10	30	50	100	400
Annual track maintenance cost per km	$12,000	$22,000	$30,000	$45,000	$45,000

NB: Assume for the purposes of modelling, maintenance costs are stepped as shown in the table above.
Maintenance Cost escalation Factor : 2.5% Assumed annual inflation rate based on CPI (mainly labour)
Maintenance Cost Base Date : 1st Jul 2012

PASSING LOOPS - GENERAL

As a rule of thumb each of train can carry 3.2 Mtpa
No passing loops have been included in the Total Construction Costs.
For each additional train a new passing loop will be required.
It is assumed passing loops are build every 3 years

Total Construction Cost (Brownfield) of Typical Passing Loop: $4,875,000 /km
Passing Loop escalation Factor : 4.0% Assumed annual inflation rate based on construction costs
Cost Base Date : 1st Jul 2012