Attachment A

# Lockyer Valley Regional Council: Inland Rail EIS Review – Gowrie to Helidon (G2H)

| | EIS section and topic | Comment *What is the issue or what is suitable within the EIS* | Recommendation *What changes to the EIS or additional information is required?* |
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| | | **Draft EIS General Comments** | |
| **1** | Draft EIS | **Failure to Meet OCG's Terms of Reference:** as with the Helidon to Calvert (H2C) draft Environmental Impact Statement, the draft EIS for the Gowrie to Helidon (G2H) section of Inland Rail consistently fails to meet the requirements of the Office of the Coordinator General's (OCG's), Terms of Reference (TOR) for the project. In addition to this, there is a failure to commit to the appropriate consideration and management of both community concerns, and the significant and permanent impacts which the community will experience because of the proposed project in its current form.<br>Technical studies used to inform the draft EIS have been restricted by the use of insufficient or inappropriate study criteria, under-estimated background levels and/or the use of outdated or inappropriate guidelines or procedures. This has contributed to the failure of the draft EIS to meet the requirements of the OCG's TOR as it has effectively allowed higher and potentially (and likely) unacceptable levels of adverse impacts to be proposed. | The draft EIS requires update to meet the OCG's TOR for the proposed project, including, but is not necessarily limited to:<br>- An accurate identification of the adverse and permanent impacts resulting from the proposed project.<br>- The development of mitigation measures which ensures there is *no significant residual impact* because of the proposed project.<br>The development of detailed and measurable proponent commitments which may be converted to regulatory conditions (and to meet the requirements of TOR 7.4). |
| **2** | Draft EIS | **Deferring Works to the Detailed Design Phase –** the draft EIS consistently states that the identification and management of many issues, impacts, procedures and mitigation will be identified during the detailed design process. TOR 5.1 clearly states *"…The objectives of the EIS are to ensure that all relevant environmental, social and economic impacts of the project are identified and assessed, and to recommend mitigation measures to avoid or minimise adverse impacts"*. There are no provisions at TOR5.1 to delay works that are needed to accurately assess the proposal to a later stage of the project.<br>The draft EIS needs to give the community and OCG the required level of detail to understand what the impacts of the project are likely to be and how they will be managed. For example, Section 14.7.3.1 of Chapter 15 states that ongoing | The draft EIS requires update to meet the requirements of the TOR by appropriately considering and assessing all project issues and adverse impacts currently missing from the document and to propose measurable and detailed procedures, mitigation strategies and proponent commitments which will ensure that there is *no significant residual impact* from proposed project activities. |

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| | | groundwater studies are anticipated to determine if risks to groundwater drawdown and Groundwater Dependent Ecosystems (GDE) are acceptable as an increase in drawdown extents could affects water supply bores and GDE. This example suggests that the proponent has not assessed and understood the potential impacts to groundwater from the tunnel. Furthermore, it can only be assumed that these anticipated studies that are needed might be undertaken by PPP contractor. Hence, the community and OCG cannot reasonably be expected to understand how the project may impact groundwater and if these impacts can be managed.<br>This approach by the proponent has resulted in an overall failure to meet the OCG TOR because the draft does not:<br>- Illustrate transparency regarding the adverse and permanent impacts which the community and surrounding environment will experience because of the proposed project.<br>- Ensure technical soundness through the accurate and appropriate identification of these adverse impacts.<br>- Provide appropriate and measurable mitigation measures in response to the identified impacts.<br>- Develop detailed proponent commitments which can be converted into regulatory conditions (as required by TOR 7.4) (and which would then give the community some certainty that the proponent has appropriately considered all adverse impacts and committed to ensuring that there will be *no significant residual impact* because of the proposed project).<br>It is unrealistic for the proponent to defer so many aspects of the proposed project into detailed design as doing so essentially means that the draft EIS cannot be appropriately assessed or conditioned by the regulator. The approach taken by the proponent raises many questions:<br>• How is the OCG to understand if proposed mitigation measures are likely to work when no attempt has been made by the proponent to provide details or specifics about those measures?<br>• How can the proponent reasonably expect the OCG to approve the draft EIS when there is limited detail supplied in the EIS to give the OCG the confidence that the project can delivered in a manner that minimises impacts to environmental values? | |

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| | | • How reasonable is it for the proponent to presumably assume that the OCG can appropriately condition an approval based on the information supplied in the draft EIS?<br>• How realistic is it to assume that the successful PPP contractor will have the time, financial and technical resources and understanding of the complex issues associated with the potential environmental impacts of the project to undertake the necessary investigations to determine the required mitigation measures?<br>• If the draft EIS is approved how will the mitigation measures determined during the detailed design phase be assessed and approved?<br>• What happens if the draft EIS claims an impact can be mitigated but the PPP contractor later determines that is not reasonably possible?<br>• What happens if the proposed mitigation measures determined during the detailed design phase present unforeseen issues or additional impacts, how will this be resolved?<br><br>The approach of deferring works to the detailed design phase will place unrealistic pressure and expectations on the construction phase of the project. Given the limited nature of some studies in the draft EIS, it's possible that longitudinal or seasonal studies could be required for a complete assessment of impacts and determination of mitigation measures by the PPP contractor. The completion of these requirements is not considered to be realistically achievable in the proposed five-year construction time period, or prior to the stated start date for construction. This also seems to make the PPP contractor responsible for meeting the proponent's original obligations under the TOR for the EIS.<br><br>Pushing further assessment of matters to detailed design and placing the burden of restrictive timeframes on a contractor negates the proponent's responsibility, will put pressure on the contractor and raises the risk of corners being cut, regulatory requirements being dismissed and can result in adverse impacts, community concerns and due process not receiving appropriate management.<br><br>As a result, the document fails to meet the requirements of TOR 7.2 which states that 'the assessment and supporting information should be sufficient for the OCG and administering authorities to decide whether an approval sought through the EIS process should be granted.' | |

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| | | The proponent has had several years to do the EIS work yet has deferred many studies to detailed design to be undertaken by a PPP entity. Not only is this inappropriate it is considered impossible in the time frames that a PPP will be operating within. It is considered that additional work needs to be done by the proponent (ARTC) prior to any approval. | |
| **3** | Draft EIS | **Lack of Robust Review Process:** the errors and inconsistencies in the draft EIS add to the reader's inability to follow the document and have confidence in the quality of the assessment of the project. It is not apparent that a thorough, scientific and robust review was completed of the document which should have identified the errors and inconsistencies that are throughout the document. For example, (note this list is by no means exhaustive):<br>- Executive Summary (Air Quality) states 'by implementing the proposed mitigation measures, the impacts to air quality from both dust deposits *and human health* will be reduced to acceptable levels.' This sentence does not make sense.<br>- Section 3.4.10.2 (Relevance to the Project) states: 'The following ERAs prescribed under Schedule 2 of the EP regulation *are may be* required as part of the project's construction phase…'. Do these ERAs apply or not?<br>- Section 3.4.12.1 Overview (*Fire and Emergency Services Act 1990*) states: 'The also establishes a framework…' This sentence does not make sense.<br>- Section 17.5.3.1 overstates the number of non-employing agricultural businesses in the Lockyer Valley (as 6 647). This is incorrect, the number should be 647.<br>- Section 7.3.4.2 of Appendix Q discusses accommodation options for adversely affected residents however temporary relocation is not mentioned in Chapter 16.<br>The large numbers of simple errors throughout document draws into question the rigour and validity of the technical assessments which were used to determine the impacts and mitigation measures for the project. Our detailed specialist reviews of the draft EIS identified numerous issues with the technical assessments.<br>The current state of the draft EIS cannot be easily followed and relied upon with confidence due to the errors and inconsistencies throughout the document which should have been identified and addressed through the QA/QC process. | The draft EIS requires rigorous review and update to ensure all errors and inconsistencies are removed from the document to ensure it meets the requirements of the OCG's TOR. |

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| **4** | Draft EIS | **Failure to Consider Future Passenger Rail** – when discussing the provision of passenger rail services, the draft EIS consistently makes conflicting and often vague statements. While TOR 10.9 only requires the proponent to 'describe the ability and capacity of the proposed rail corridor to support future passenger rail services between Brisbane and Toowoomba' there are many more TOR which can be considered to directly relate to passenger rail including, but not necessarily limited to:<br>- Infrastructure Objective (a)<br>- Land Objective (c)<br>- Transport Objective (c)<br>- Social Objectives (a) and (b).<br>However, the lack of detail provided in the draft EIS surrounding passenger rail can be considered to be a missed opportunity for the proponent to commit to providing local communities with a very real benefit (which the project currently lacks). Instead, the document gives the reader the distinct impression that not only is passenger rail not considered, but that it is dismissed completely by the proponent and that further, and alarmingly, that the location of the proposed project in the Gowrie to Grandchester future state transport corridor will result in the future co-location of a separate, dedicated passenger rail line in the corridor to be next to impossible. For example:<br>- Section 6.2 states that the project 'connects into the Queensland Rail (QR) Network at Gowrie and Helidon allowing for interoperability between the two networks,' that the alignment is an 'open access rail service…' and that 'while the project is specifically designed for freight trains, it does not preclude the use of the track at a future date for passenger services. The current design, and EIS assessment, accommodates the existing QR narrow-gauge rail line, which runs passenger trains…'<br>- The text goes on to further state that 'the project design *does not consider the construction of a high-speed, dedicated passenger rail line, which was the original intent of the Gowrie to Grandchester future state transport corridor*, to be delivered by the Queensland Department of Transport and Main Roads (DTMR). Given that the project accommodates single dual-gauge track and includes significant infrastructure such as the tunnel and large viaducts, *the provision of passenger tracks being co-located along the entire project length at a future date is unlikely*.'<br>The exclusion of a dedicated passenger rail service through the proposed tunnel | The dismissal of passenger rail services is not acceptable to LVRC and does not meet the original intent of the Gowrie to Grandchester future state transport corridor. The proposed project design and alignment should be revised to include allowances for the provision of viable and reliable passenger rail services from Toowoomba to Brisbane, with commuter stations in the Lockyer Valley.<br>This should include, but not be limited to, reconsideration of the current proposed alignment to ensure that the proposed freight alignment does not result in the preclusion of future passenger rail services and an appropriate consideration of impacts to communities and intergenerational equity, including, but not limited to, the consideration of possible alternate freight alignments outside the Gowrie to Grandchester future state transport corridor and away from local communities.<br>LVRC request that the OCG impose the following condition:<br>'The proponent is required to revise the project design and alignment to allow for the provision of viable and reliable passenger rail services from Toowoomba to Brisbane and to include the ability to provide commuter stations in the Lockyer Valley.' |

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| | | (and essentially limited to the existing QR alignment) should be re-considered by the proponent.<br>- Section 6.2.3 refers to the Gowrie to Grandchester future state transport corridor, stating the corridor 'developed by (the then) Qld Transport and QR and finalised in 2003, was *designed with the aim of providing for future higher speed passenger services* as well as freight…' The document goes on to state that 'initially, the Gowrie 'and' Grandchester future state transport corridor alignment was *not considered to be the optimal solution for the inland railway* as outlined in the Melbourne-Brisbane Inland Rail Alignment Study.'<br>- Section 6.2.8 reiterates that the 'project also is *open access so passenger services can use the rail corridor*, while the design does not preclude a fast rail passenger service within the Gowrie to Grandchester future state transport corridor at a future date (e.g., *the design avoids proposed passenger stations*).' However, Section 6.2.3.4 states that the proposed alignment '*maintains proximity to the proposed location for a commuter station'*. These statements conflict with each other.<br>This essentially means that the current location of the proposed alignment will *negate* the possibility of future passenger rail in the Gowrie to Grandchester future state transport corridor and, when combined with the adverse and permanent impacts many of the towns in the Lockyer Valley will experience as a direct result of the location of a dedicated freight line in a corridor originally set aside to facilitate passenger rail services to local communities, this is not considered acceptable by LVRC.<br>The document fluctuates between stating that passenger rail will be able to be provided by the proposed alignment (as the proponent is providing the infrastructure only and services will be provided by others), and stating that the proposed alignment '*does not consider the construction of a high-speed, dedicated passenger rail line, which was the original intent of the Gowrie to Grandchester future state transport corridor*', that '*the provision of passenger tracks being co-located along the entire project length at a future date is unlikely*', and that '*the design avoids proposed passenger stations*' and will be primarily for '*freight services only*.'<br>Further, the content of the draft EIS appears to infer that not only will passenger rail not be provided on the proposed alignment, but that the proposed alignment itself will result in the *inability to provide the community with passenger rail to Brisbane in the Gowrie to Grandchester future state transport corridor which, as stated in the draft EIS,* | |

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| | | *was originally intended for use for passenger rail* (hence its location in either very close proximity, or through local communities).<br>It is not acceptable to LVRC that freight trains be given priority over passenger rail through local communities and in a corridor originally set aside to provide passenger services to the community. The draft EIS does not meet TOR 10.9 as it provides conflicting statements and does not clearly or accurately describe the ability and capacity (or lack thereof) of the proposed project to support future passenger rail services between Toowoomba and Brisbane (also servicing the Lockyer Valley). | |
| **5** | Draft EIS | **Outdated and Inappropriate Alignment Selection –** the Senate Inquiry findings into Inland Rail (the Rural and Regional Affairs and Transport References Committee's *Inland Rail: Derailed from the Start* (August 2021)) found that the proposed alignment for the project was based on an '*out of date business case'* and that there were '*significant shortcomings in (the proponent's) efforts to meaningfully engage with communities and landholders along the proposed alignment of Inland Rail.'* As pointed out in Council's Submission to the Senate Inquiry, LVRC have been advocating for improved public transport for the region for many years. This has included seeking the introduction of passenger rail to Brisbane and Toowoomba. Such services would be of substantial benefit to the broader region and the transport network in south-east Queensland.<br>The draft EIS states that there were 'two major studies' … 'commissioned in relation to the development of an inland rail route':<br>- The *North-South Rail Corridor Study* (Ernst & Young, 2006) which 'examined the adequacy of the existing Melbourne to Sydney to Brisbane rail corridor to meet future freight demand…' and '… also examined different options for an enhanced, existing coastal route or alternative inland routes'; and<br>- The *Melbourne-Brisbane Inland Rail Alignment Study* (ARTC, 2010a), the purpose of which was to 'analyse the likely economic and commercial benefits of an inland rail route between Melbourne and Brisbane…' and '…the outcome was a determination of a preferred alignment, based on consideration of the economic benefits and key commercial considerations.'<br>The draft EIS also states that in 2015, 'ARTC developed a Concept Business Case (ARTC 2015a) …' which 'outlined key scope and scheduling assumptions, identified key risks and environmental and planning considerations, and preliminary updates to demand, economic and financial analysis.' The document fails to make mention of community | The draft EIS should be revised to meet the requirements of the OCG's TOR, to appropriately consider adverse impacts to the community and the environment through the robust consideration of all possible alignments, and specifically, locations outside the Gowrie to Grandchester future state transport corridor. This should include, but not be limited to, undertaking studies which will enable the proponent to better identify an alignment which ensures the best possible solution for both the community and the environment. |

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| | | considerations, an appropriate assessment of alternate alignments, or whether the proposed use of the Gowrie to Grandchester future state transport corridor is appropriate for a dedicated freight line.<br>Section 4.1 of the draft EIS refers to the use of outdated studies to 'identify a preferred route for the Inland Rail Program' and goes on to state that 'as a result of these studies it was determined that the Gowrie to Grandchester future *passenger* rail corridor' … 'protected under the *Transport and Planning Coordination Act 1994* (Qld) in 2005, subject to minor amendments' was a 'suitable alignment for the G2H section of Inland Rail.' Studies which informed the location of the Gowrie to Grandchester future state transport corridor were completed in 2003.<br>The draft EIS for the proposed project has been developed based on the use of a rail corridor set aside for passenger rail and outdated studies, and as a result, has not considered the significant changes to both the community and environment which have occurred in the interim. Nor has the document considered whether locating a dedicated freight line in a corridor set aside for community use is an appropriate development. The selected alignment has also not considered community expectations regarding the provision of passenger rail between Toowoomba and Brisbane.<br>As a result, the draft EIS has not met the requirements of TOR 6.7, which calls for the document to 'consider *feasible alternatives* of the project's configuration.' | |
| **6** | Draft EIS | **Inappropriate Technical Assessments –** the potential impacts of the proposed project are discussed in very general terms, and at times, have not been adequately identified or assessed. To meet the requirements of TOR 5.1, the potential adverse impacts the surrounding environment will experience as a result of the proposed project need to be appropriately addressed as TOR 5.1 requires the assessment and mitigation of '*all relevant environmental, social and economic impact*s…'<br>Appropriate and robust technical assessments and the development of measurable mitigation measures and proponent commitments should have been included in the draft EIS. In general, most technical chapters fail to accurately identify the adverse impacts which the community and environment will experience because of the proposed project, or to commit to specific and appropriate mitigation measures to reduce the adverse impacts of the proposed project. Most of the mitigation measures and proponent commitments provided are in very general terms such as 'make good' or state that the issue will be addressed during the 'detailed design phase' (as discussed | The draft EIS requires update to appropriately identify all potential impacts (including cumulative impacts) to environmental, social and economic aspects and to propose and commit to adopting appropriate and real mitigation measures and measurable proponent commitments.<br>The update of the draft EIS should include, but not be limited to, committing to the development of appropriate monitoring locations and baselines for all measurable and proposed adverse environmental, social and economic impacts resulting from proposed project activities and the development of associated and appropriate monitoring programs for the operational phase. |

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| | | earlier). This is not considered sufficient to meet the requirements of TOR 5.1 or TOR 7.4 (which requires the proponent's commitments to be 'able to be carried over into the approval conditions as relevant'). | |
| **7** | Draft EIS | **Failure to Consider Potential Impacts from Longer and More Frequent Trains –** the draft EIS consistently states that the proposed rail corridor will be constructed to accommodate trains which will be up to 3 600 m (or 3.6 km), with the potential for a future substantial increase in train numbers and frequencies. This has recently been reiterated by the Deputy Prime Minister. However, the technical assessments, most of which require the input of train length and/or numbers to accurately determine actual project impacts, only consider the proposed initial 1 800 m (or 1.8 km) train length and projected rail traffic numbers. For example, in relation to train length:<br>- Chapter 1, Table 1.1 states that 'the rail corridor will be of sufficient width to allow future crossing loop extensions to accommodate trains of up to 3 600 m in length'.<br>- Chapter 6, Table 6.1 states 'the rail corridor width will be initially constructed for 1 800 m long double-stacked trains and designed so that the future extension of some crossing loops to accommodate 3 600 m trains is not precluded.'<br>- Chapter 12, Section 12.6.3.2 (Emissions inventory) is silent on train length, which is only stated in Appendix K (thereby failing to meet the requirements of TOR 12.2).<br>- Chapter 15, Section 15.5.8 states that 'railway noise and vibration levels were assessed for the train movements (trains up to 1,800 m long) on the mainline and crossing loops.'<br>Appropriate assessment ensures the development of a draft EIS which meets the requirements of the OCG's TOR. The use of only the initial train length for these assessments, and the dismissal of the potential and *significant* increase to train lengths (and numbers), results in the draft EIS failing to meet the requirements of the OCG's TOR. At the minimum, the draft EIS fails to meet the following TOR for the project:<br>- TOR 5.1 – 'ensure that all relevant environmental, social and economic impacts of the project are identified and assessed…'<br>- TOR 5.3 – 'the detail at which the EIS deals with matters relevant to the project should be proportional to the scale of the impacts on environmental values…'<br>- TOR 6.2 – 'cover both the short term and long term and state whether any relevant impacts are likely to be irreversible…' | That the draft EIS requires update to appropriately identify the significant and adverse impacts which will be experienced by local communities through the proposed future increase in train length and frequency. It is not acceptable to LVRC that the draft EIS only considers mitigation for 1.8 km trains when the project will be designed and constructed to allow for the doubling of train length to 3.6 km.<br>Failure to appropriately assess proposed future train length results in:<br>- The intensity of adverse and substantial impacts (such as noise levels) to be even further underestimated, dismissed, or ignored more than already done so by draft EIS.<br>- An inability to identify and commit to appropriate mitigation measures.<br>- A lack of suitable commitments from the proponent.<br>- Regulatory conditioning which does not consider the proposed future use of the project.<br>- Permanent adverse impacts to the surrounding environment and communities.<br>As such, LVRC strongly recommend that the OCG require the proponent re-assess all impact assessments based on a 3.6 km train length and to update the draft EIS to include the findings of assessing the correct length of trains. |

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| | | - TOR 6.6 – 'each matter assessed in the EIS …. should include a concise summary and suitable assessment of the nature, magnitude and duration of the potential direct and indirect and cumulative impacts of the project…'<br><br>The potential future use of 3.6 km long trains is noted repeatedly by the proponent throughout the draft EIS as well the inclusion of numerous references to future proofing the design by accommodating these significantly longer train lengths into the project design. Therefore, it is reasonable to assume that trains up to 3.6 km long are a viable prospect and will potentially be used on the G2H section of the Inland Rail project. Trains that are 3.6 km in length will have significantly greater impacts to the community and environment and therefore require assessment.<br><br>Assessing only 1.8 km long trains has resulted in the failure to appropriately identify adverse project impacts on the community and surrounding environment. The wording used in the TOR listed above, specifically 'all relevant,' 'long term' and 'suitable assessment' indicates that any potential future expansion *should have been assessed*. Should the draft EIS be approved based on impacts from only 1.8 km long trains, this may well result in the project receiving regulatory conditions which is not appropriate for the effective management of the adverse impacts of longer (and more frequent) trains.<br><br>The draft EIS clearly states that construction is proposed *to include the ability to expand* what will then be pre-existing infrastructure. It is not clear what level of assessment this 'expansion' will require. Will it too be subject to an EIS or some lesser form of assessment? What level of input involvement would the community have in the assessment of greater train lengths and frequencies? If the project is approved and constructed based on 1.8 km long trains, this will effectively allow any future increase to occur more easily as the impacts from the shorter trains will distort the current baseline conditions, thereby making the impacts from the 3.6 km long trains seem more acceptable. In short, the draft EIS does not meet the TOR as it does not adequately assess the impacts of the project future train lengths of 3.6 km have not been considered (even though the draft EIS indicates that trains of this length are a very real possibility). Therefore, the true impacts of the project are not known, and the required mitigation measures have not been determined. | |
| **8** | Draft EIS | **Lack of Quantifiable Commitment** – the draft EIS does not meet the requirements of TOR 5.1 as it consistently fails to provide any specific detail regarding mitigation measures and proponent commitments. Rather, the document mostly either uses | In its current form, the draft EIS leaves the determination of what, how and when mitigation is required completely open to interpretation, and as a result, poses a very real |

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| | | language which is open to interpretation, such as 'mitigation measures will be adopted,' which effectively provide no specific detail. In addition, the document also provides commitments which are, for the main, are mostly unmeasurable and lacking in any real provision to mitigate. The document consistently states that these matters will be decided during 'detailed design'. Stating that these matters will be decided during 'detailed design' is not acceptable as this is effectively an avoidance of the OCG's EIS assessment process and subsequent conditioning.<br>Further, without any commitment by the proponent to effectively mitigate adverse impacts, and by making this process a part of detailed design, means that the potential impacts of the project have not been adequately assessed or understood. If mitigation measures have not been appropriately identified there is no way for the OCG or the community to understand what impacts are proposed or how effective any mitigation measures will be. Also, without any detailed mitigation measures provided in the draft EIS, subsequent impacts cannot be appropriately managed. For example, how will the acoustic, flooding, social and visual impacts of noise barriers be assessed if the height, style, materials, length, location etc will not be known until detailed design? Who will assess the adequacy of mitigation measures if these commitments are allowed to be delayed until detailed design?<br>For example, on many occasions, the draft EIS provides wording such as '*limited where possible*' … and… '*avoided where possible'*. However, these are not definitive commitments and specific detail provided regarding exactly how mitigation will be achieved is missing from the document. 'Where possible' is not a commitment to mitigate.<br>In short, the draft EIS fails to meet the OCG's TOR as it does not demonstrate a clear understanding of the potential impacts of the project or of the required mitigation measures. As a result, there is no way for the OCG or community to know if the impacts of the G2H project will be acceptable. This is because fundamental elements of the environmental impact assessment process, such as impact identification and management are absent from the draft EIS. This is alarming given the scale and nature of the project. | risk of the project being inappropriately mitigated, conditioned, and regulated. The purpose of the OCG's EIS assessment process is to ensure the proponent has appropriately identified and committed to minimising impacts to ensure there will be *no significant residual impact* on the community or the environment. As such, the document should not state at any time that these decisions will be made during detailed design (i.e., *post approval*).<br>As a result, the draft EIS is deficient and does not accurately assess the impacts or mitigation measures required for the project. By providing mitigation measures and commitments which are not measurable or quantifiable, the draft EIS fails to meet the requirements of the OCG's TOR.<br>The draft EIS requires update to ensure that any commitment to provide mitigation includes definitive wording and is addressed and detailed and not simply deferred until detailed design. All mitigation measures and proponent commitments should be measurable and quantifiable. This should include the provision of specific details to allow the mitigation measure or commitment to be appropriately implemented, managed and regulated. The draft EIS also needs to consider how effective proposed mitigation measures will be and what impacts the mitigation measures themselves may have. |
| **9** | Draft EIS | **Use of Undrained Tunnel Terminology:** the term 'undrained tunnel' has been used consistently throughout the draft EIS. There has been no definition of what this term | The draft EIS should be updated to include a clear description of the term 'undrained tunnel' and how the tunnel will interact with groundwater in a way which can |

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| | | refers to. Providing a definition of what an 'undrained tunnel' is could affect how the draft EIS is interpreted.<br>Investigation into the use of the term 'undrained tunnel' indicates that the intention is that there will be no groundwater seepage (ingress) into a tunnel which is 'undrained'. However, the draft EIS mentions repeatedly that not only will construction of the tunnel drain an approximate 1 700 ML from the aquifer, but that once constructed, the tunnel will continue to experience ingress from aquifers in the LVRC LGA (10+ ML/year). This water is proposed to be released to the Rocky Creek Catchment. Use of the term 'undrained' in reference to the tunnel could be construed as misleading as the draft EIS provides no explanation or context of what this term means. | be easily understood by the general public and to meet the requirements of the OCG's TOR. |
| **Executive Summary** | | | |
| **10** | Executive Summary (Justification) (Assessment Approach) (Land Use and Tenure) (Economics)<br><br>Chapter 2 (Project Rationale) | **Perceived community benefits** – the draft EIS makes broad, and often unsubstantiated claims regarding community benefits and yet manages to remain silent on benefits specific to the LVRC region and its community. For example, in the Executive Summary:<br><br>- The 'Assessment Approach' section states that 'opportunities to maximise the economic and social benefits of the project have been identified and include local employment, local industry participation, and opportunities for complementary investment with continued community benefits.'<br>In the case of the G2H draft EIS and its impact on the LVRC region, all of these statements are exceptionally misleading given that the proposed project is a *rail line which traverses the region and provides no tangible commitment or ability to provide any regional benefits* as the project will not provide facilities to stop and load/unload in the LVRC region. Local Growers have advised existing road links are preferred and rail transport will be slower, require triple handling, and place the quality of produce at risk. | That the draft EIS should be updated to acknowledge that there are no benefits for the local communities in the LVRC region. The draft EIS should remove all misleading references which allude to benefits that simply will not occur. All claims to local benefits in the LVRC region made in the draft EIS should be removed where they cannot be justified as they are factually incorrect and misleading. |
| **11** | Executive Summary<br><br>Chapter 5 (Stakeholder Engagement) Table 5.12 | **Lack of Consideration of Community Consultation** – TOR 7.8 requires the draft EIS to 'describe the consultation that has taken place and *how the responses from the community and agencies have been incorporated into the design and outcomes of the project*.' Further, TOR 7.9 requires the draft EIS to 'include, as an appendix, a public consultation report detailing *how the public consultation plan was implemented, and the results of the implementation*.'<br>While the draft EIS makes broad, repetitive, and mostly unsubstantiated claims regarding community and stakeholder engagement, actual information provided by the | LVRC consider the lack of consideration of any community inputs by the proponent, and how these inputs may affect mitigation, to be a significant issue which should be discussed in the draft EIS. Until the release of the draft EIS there has been **no opportunity** for an **informed** community to understand the potential impacts of the project. LVRC's review of the draft EIS found that many impacts have either not been identified, dismissed or |

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| | Chapter 8 (Land Use and Tenure) Section 8.5 (Methodology) TOR 7.7 TOR 7.8 TOR 7.9 | document indicates that engagement was very high level and has not been converted into changes to the project which consider community concerns. The document fails to provide any specific detail regarding how consultation was 'incorporated into the design and outcomes of the project' or the 'results of the implementation'. Given this, the document has not met the requirements of TOR 7.8 or 7.9. | grossly underestimated and there is no detail regarding mitigation measures. Therefore, even with the draft EIS it is not possible for the community to understand the true impacts of the proposed alignment. That the OCG require further reviews to consider and incorporate community concerns and feedback and this should be clearly demonstrated. |
| **12** | Consequences of not Proceeding with Inland Rail Consequences of not Proceeding with the Project | **Trucks on Roads** – the 'consequences of not proceeding with Inland Rail' section of the Executive Summary presents the argument that, should the project not go ahead, that 'there will be an increase in the number of trucks on roads.' In fact, every point in the 'Consequences of not Proceeding with Inland Rail' section may be directly related to the perceived adverse impact of trucks on roads.<br>The 'consequences of not proceeding with the project' section of argues a required 'upgrade of the existing QR rail network and/or alternative mechanisms (i.e., road transport) to move freight between Toowoomba and Brisbane. The text goes on to discuss the upgrades QR has completed on the Toowoomba Range section of the West Moreton System and then states why the upgrades are incompatible with Inland Rail.<br>Both options present consequences that potentially impact Inland Rail however there is no discussion on either section that relates directly to consequences for the LVRC (or Toowoomba Regional Council (TRC)) community should the proposed project not proceed. Further, as discussed below, an increase in trucks on roads cannot be considered a consequence to not proceeding with the project given that Inland Rail proposes to terminate at Acacia Ridge in Brisbane, which will then require a substantial increase in truck numbers to distribute freight, including to the Port of Brisbane. | The draft EIS requires update to provide details relating to the consequences of not proceeding for local communities from the proposed G2H section of Inland Rail. |
| **Chapter 1 Introduction** | | | |
| **13** | Section 1.3.2 Location | **Inappropriate Investigation Corridor –** Section 1.3.2 states that 'investigations for the purposes of the EIS and ongoing engineering design, including field surveys, were generally undertaken within the EIS investigation corridor. The EIS investigation corridor comprises the project disturbance footprint, including the temporary construction disturbance footprint and the permanent operational disturbance footprint, with a buffer zone of approximately 1 km either side of the project disturbance footprint. Where the EIS investigation corridor extends further than 1 km | The draft EIS requires update to include field investigations which include an appropriate study area for the environmental aspect being assessed (including, but not limited to, noise and groundwater assessments) and in order to meet the requirements of the OCG's TOR. |

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| | | either side of the alignment, this is generally to allow for any design optioneering and refinement of the alignment and construction access. In some areas, the maximum width of the EIS investigation corridor from the project alignment is 3.4 km.'<br>The text infers that assessments generally did not go outside 1 km either side of the alignment and when they did, it was to include design refinement and access (and only up to 3.4 km either side of the alignment, and only when project infrastructure was proposed outside the 1 km buffer). Many studies completed only within the pre-determined investigation corridor have resulted in the determination of inaccurate results, which in turn lead to the development of inappropriate mitigation measures and proponent commitments which lack detail and therefore cannot be converted into regulatory conditions. As such, the requirements of TOR 5.1 and 7.4 have not been met. | |
| **14** | Section 1.3 (The Project)<br>Section 1.5 (EIS Objectives)<br><br>Chapter 6 (Project Description)<br>Section 6.3 (Project Objectives) | **TOR Objectives not Met** – TOR 5.1 states that 'the objectives of the EIS are to ensure that all relevant environmental, social and economic impacts of the project are identified and assessed, and to recommend mitigation measures to avoid or minimise adverse impacts. The EIS should demonstrate that the project is based on sound environmental principles and practices.'<br>The draft EIS provides numerous 'objectives' including Section 1.3, which states that the objectives of the project are to:<br>- 'Provide rail infrastructure between Gowrie and Helidon that meets the Inland Rail Program service offering.<br>- Provide a more efficient route through the challenging terrain of the Toowoomba Range, along with interoperability between the Inland Rail and Queensland Rail (QR) networks, which will benefit all rail operators.<br>- Minimise the potential for adverse environmental, social and economic impacts.'<br>Section 1.3 also provides 'Inland Rail Objectives', none of which align with the requirements of the OCG's TOR as they fail to mention any minimisation of adverse impacts.<br>Section 1.5 provides further detail, citing further objectives of the draft EIS namely:<br>- 'Provide information to stakeholders and the public on the need for the project. | The draft EIS requires update to appropriately consider the requirements of TOR 5.1 and the proponent's own stated 'EIS objectives.' This should include, but should certainly not be limited to:<br>- The re-assessment of the adverse impacts the project to appropriately consider 3.6 km long trains and the significant increase in numbers.<br>- The integration of community concerns regarding the current proposed alignment.<br>- The identification and commitment to an appropriate alternative alignment which is away from all LVRC towns and strikes a fair balance between impacts to all matters of concern |

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| | | - Describe the temporal and spatial extent of the project, its key features and proposed construction methods.<br>- Describe the expected benefits and opportunities associated with the project.<br>- Describe the existing environment associated with the project.<br>- Document the potential impacts to the natural, social and economic environment including, where applicable, cumulative impacts.<br>- Demonstrate how adverse impacts can be avoided, mitigated or managed, or where offsets for significant residual impacts are required.<br>- Present a draft Outline Environmental Management Plan to demonstrate practical implementation of detailed design and construction environmental management measures.<br>- Present sufficient information to enable the need for post-EIS approvals to be identified and the timing to obtain such approvals.'<br>The EIS objectives quoted above at Section 1.5 appear to be in line with the requirements of TOR 5.1, however, the document has failed to meet the requirements of the TOR as these objectives have not translated to real, appropriate and effective impact assessments, or the development of appropriate mitigation and/or commitments. As such, the draft EIS has not met the requirements of TOR 5.1 because it has not:<br>- Identified and assessed all relevant impacts; nor<br>- Detailed mitigation measures to avoid or minimise impacts of the project; nor<br>Provided real, measurable and relevant proponent commitments. | |
| **Chapter 2 Project Rationale** | | | |
| **15** | Section 2.3.4.1 (Maritime Shipping)<br>Section 2.4 (Benefits of Proceeding with Inland Rail)<br>Section 2.4.1 (Direct Benefits) | **Inappropriate Arguments** – Section 2.3.4.1 states that 'shipping can be used in conjunction with other modes, such as Inland Rail, to meet Australia's future transport needs', Section 2.4.2.1 states that Inland Rail will 'improve access to export ports' while Section 2.4 cites opportunities for 'the distribution of commodities at the national, regional and local level.' Given there will be no opportunity for LVRC communities to access Inland Rail, access at the local level is clearly not the case. Additionally, there is currently no plan for Inland Rail to go to the Port of Brisbane. Instead, the project intends to terminal at Acacia Ridge (a southern suburb of Brisbane) and freight using *trucks* (and approximately four semi-trailers every hour to keep up with the proposed | Chapter 2 of the draft EIS requires update to include accurate and realistic arguments regarding the perceived benefits of the proposed project. This should not be limited to the perceived benefits for capital cities, but should incorporate a real, measurable and accurate discussion of the benefits for the local communities the proposed project (and specifically, the G2H component) will traverse. |

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| | Section 2.4.2.1 (Create a Step Change in the Australian Freight Network) Section 2.4.2.4 (Provide Benefits for Metropolitan and Regional Areas) | initial number and size of trains). This defeats the argument that the proposed project will decrease congestion in Brisbane by taking trucks off roads.<br>Further, it may be considered that the 'trucks off roads' argument, which is made consistently throughout Chapter 2, negates any argument of 'employment benefits' from the proposed project as trucks employ many Australians consistently and in the long-term, whereas the proposed project has a limited employment opportunity, being primarily short-term employment during project construction (operations requiring limited number of personnel only).<br>In addition to this, Section 2.4.2.4 claims the proposed project will 'support economic activity in the regions and create regional jobs…' yet there is no detail to support this argument, particularly in regions which will only experience the adverse impacts of a freight alignment to which no local access is provided. | |
| **16** | Section 2.4.1.3 (Agriculture Sector) Section 2.4.1.5 (Increased Capacity of the Transport Network) | **No Agriculture Sector or Local Benefits** – the Lockyer Valley Region is well known for its agricultural produce however the Region will not benefit from Inland Rail as there will be no opportunity to access the service in the Lockyer Valley.<br>Section 2.4.1.3 states 'a number of constraints to the use of rail by the agriculture sector, including lack of transparency, ageing and outdated rail infrastructure, high cost of improving and maintaining infrastructure, and limited capacity…' but is silent on the lack of access to rail, which may be considered to be a very significant constraint to the agriculture sector.<br>Section 2.4.1.5 is highly focussed on capital city benefits and claims access which local markets won't have, stating that 'by providing new linkages between existing rail networks, such as those operated by QR, Inland Rail would provide an option for alleviating future short- or long-term capacity constraints on these railways.' The document is silent on how this is possible in the Lockyer Valley, where the proposed project provides no infrastructure to facilitate access for the community.<br>The draft EIS does not consider current issues being faced by the agriculture sector such as worker shortages due to COVID-19. How might the potential worker demand for the construction phase of the project affect the agriculture sector under prevailing restrictions due to COVID-19? | As discussed above, Chapter 2 of the draft EIS requires update to include accurate and realistic arguments regarding the perceived benefits of the proposed project. This should not be limited to the perceived benefits for capital cities, but should incorporate a real, measurable and accurate discussion of the benefits for the local communities the proposed project (and specifically, the G2H component) will traverse. It is not considered appropriate to only consider benefits to capital cities when the G2H section of Inland Rail is the topic of the draft EIS, and local regional communities will be permanently and adversely impacted from this section of Inland Rail.<br>The draft EIS also needs to consider how current worker shortages in the agricultural sector due to COVID-19 may be impacted by the project if current restrictions prevail into the future. |
| **17** | Section 2.4.1.7 (Improved Safety) | **Lack of Appropriate Township References** – Section 2.4.1.7 states the proposed project will 'relocate mainline freight traffic from existing railways out of some town centres such as Inglewood, Pittsworth and Southbrook, providing for a safer environment with | The draft EIS requires update to appropriately discuss the towns and communities which the G2H *will* affect. Further, any discussion which suggest that the proponent intends |

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| | Section 2.4.1.8 (Improved Sustainability and Amenity for the Community) | enhanced liveability.' Further, Section 2.4.1.8 states 'improved sustainability and positive amenity impacts through the potential to provide rail lines away from housing or bypass towns, improving accessibility and amenity in regional towns.' None of these towns are near the G2H alignment, however, Gatton, Forest Hill, Helidon and Laidley are all proposed to be permanently adversely impacted by the project (by either the G2H or H2C sections) as a direct result of the proposed location of the alignment in the Gowrie to Grandchester future state transport corridor. As such, the statements in Section 2.4.1.7 and Section 2.4.1.8 are not only erroneous but misleading. | to ensure that the proposed project will 'provide for a safer environment with enhanced liveability' or improved sustainability and positive amenity impacts through the potential to provide rail lines away from housing or bypass towns, improving accessibility and amenity in regional towns' should either be removed from the document altogether, or the proposed alignment relocated in order to achieve the intent of these statements. |
| **18** | Section 2.4.3 (Local Community Benefits) | **Inappropriate Consideration of Local Benefits** – Section 2.4.3 states the G2H section of Inland Rail 'will provide many benefits to the local community' yet is silent on the minimal operational personnel required for the proposed project, the transient and short-term nature of construction employment and how this workforce will be managed. The document assumes workforce will be able to be sourced locally but this is highly unlikely given the region's low unemployment figures and the worker shortages faced by the agriculture sector due to COVID-19. Further, the local business opportunities proposed are construction focussed, with the text stating the 'project's local supply arrangements will provide an opportunity to develop and grow local businesses.' However, the document provides no commitment to targeted local sourcing, or a solution to what happens when construction is complete, and these benefits dry up and businesses have to readjust to a post-project construction market. | The draft EIS requires update to provide real, achievable and accurate benefits to the local community. Providing short-term construction employment (and knock-on increased customers to local businesses) cannot be considered to be tangible benefits for the Lockyer Valley community. The permanent adverse impacts these factors have imposed on other regional communities in the past (from similar temporary construction projects) is well documented (e.g., gas industry construction impacts on Chinchilla and Miles). |
| **19** | Section 2.4.3 (Local Community Benefits) | **Lack of Local Benefits –** Section 2.4.3 is largely silent regarding local benefits, simply providing broad statements such as the proposed project 'will provide many benefits to the local community' and then generally speaking to 'employment', 'business opportunities', unsubstantiated 'crash reduction' claims, 'environmental externalities' and 'road decongestion benefits' while providing no factual evidence to back up these claims. Specifically, the document fails to address local benefits as they relate to:<br>- The ability to provide passenger rail services (either on the proposed alignment or co-located in the corridor), an issue which is of high importance to both TRC and LVRC and one that both the state and federal government are currently investigating and working towards. The draft EIS has not appropriately acknowledged or addressed passenger rail and appears to exclude the provision of this service in the corridor originally set aside to provide this service.<br>- The transient nature of construction employment and subsequent adverse impacts resulting from an imported and transient workforce. | To be compliant with TOR 5.1, the draft EIS should be updated to acknowledge that there will be no real benefits for the local communities in the LVRC region from the proposed project. The draft EIS should remove all misleading references which allude to benefits that simply will not occur. All claims to local benefits in the LVRC region made in the draft EIS should be removed where they cannot be justified as they are factually incorrect and misleading.<br>The proponent should consider that while the proposed project is a component of Inland Rail, the draft EIS and its assessment process relates directly to the G2H section of Inland Rail and should therefore focus on providing a discussion on any perceived benefits for the LGAs which |

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| | | - The assumption that the construction workforce will be able to be sourced locally (considered highly unlikely) and the subsequent lack of consideration of the provision of accommodation for an imported workforce.<br>- The perceived benefits for local businesses are broad and non-committal, with Section 2.4.3 stating that the 'project's local supply arrangements will provide an opportunity to develop and grow local businesses' but gives no firm commitment and fails to discuss what happens to local business benefits when construction ends, and the workforce (and local benefits) disappear.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.1. | the proposed alignment traverses. This should include, but not be limited to, a discussion regarding how passenger rail to Brisbane and Toowoomba is able to be facilitated by the proposed project, whether by the ability to provide the service on the proposed alignment, or the ability to co-locate a dedicated passenger rail alignment in the Gowrie to Grandchester future state transport corridor (which was originally set aside for this purpose), creating real opportunities for local residents and ensuring the project leaves a positive legacy for the local community. |
| **Chapter 3 Project Approvals** | | | |
| **20** | Section 3.4.20.2 (*Planning Act 2016*, Relevance to the Project)<br>Section 3.5.2 (Planning Schemes)<br>Table 3.4<br>Chapter 8 (Land Use and Tenure)<br>Section 8.5.3 (Data Sources)<br>Table 8.3<br>Section 8.4 (Legislation, Policies, Standards and Guidelines)<br>Section 8.6.4 (Land Tenure)<br>Section 8.9 (Impact Assessment) | **Local Planning Schemes -** the draft EIS argues that the proposed project is 'government supported transport infrastructure' and cannot be made assessable development under a local government planning scheme.<br>The OCG's TOR specifically mention the requirement to consider local planning schemes and as such, it is incorrect for the draft EIS to dismiss these requirements. As a result, the draft EIS fails to meet the requirements of TOR 9.6, 9.7, 11.66, TOR 11.72(a), TOR 11.76 and TOR 11.77.<br>- TOR 9.6 and 9.7 require the draft EIS to discuss the proposed project in relation to application processes and later approvals under the Planning Act 2016, and to identify any statutory approvals that will be required for the proposed project.<br>- TOR 11.72 requires the proponent to 'discuss the compatibility of the project with land that include the proposed alignment and surrounding land … referring to … the local government planning schemes.'<br>- TOR 11.76 and TOR 11.77 state that the local planning schemes must be discussed and the 'potential for the construction and operation of the project to change the existing and potential land uses of the preferred alignment and adjacent areas' must be described. This cannot be sufficiently achieved without addressing the local planning scheme.<br>Appendix B refers the reader to Section 8.9 as the section of the draft EIS where TOR 11.76 is addressed, however this section simply dismisses any consideration of local planning instruments. The references made to the local planning schemes in Chapter 8 is limited to: | The draft EIS requires updating to meet the requirements of the OCG's TOR and to appropriately consider local government planning scheme requirements for all adverse impacts related to the proposed project. |

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| | | - Section 8.4, Table 8:2, where the discussion is limited to 'the zoning intent for the area' … 'has been taken into consideration'.<br>- Section 8.6.4.1, Table 8:20, where the discussion is limited to the relevant zone purpose/intent and where the proposed project traverses land within these zones. There is no discussion regarding how the project may change existing or potential land uses (i.e., the zone purpose/intent).<br>Section 8.9, states that the 'provisions of the local planning schemes do not apply to the project'. This is inaccurate, as the TOR requires consideration to be given to the local planning schemes and therefore the draft EIS should be discussing the schemes, not dismissing them. Further to this, there has been no discussion around the strategic policy intent of the planning scheme or other code requirements. | |
| **21** | Section 3.4.22 (*Public Health Act 2005*)<br>Section 3.4.22.1 (Overview)<br>Section 3.4.22.3 (Project Compliance) | **Failure to Meet Public Health Act Requirements –** Section 3.4.22.1 states that 'the objective of the *Public Health Act 2005* … is to protect and promote the health of the Queensland public by, relevantly: preventing, controlling and reducing risks to public health…'<br>Section 3.4.22.3 goes on to state that 'the requirements in Health Considerations – Environmental Impact Statement: Guidelines for Proponents (Dept of Health, 2016) have been considered and addressed by the project…' and then lists the following assessments: air quality (to EPP Air), noise (to EPP Noise), water quality (to EPP Water and Wetland Biodiversity), land management; community health and social aspects.<br>However, detailed review of the draft EIS by appropriately experienced and qualified technical specialists have revealed that the assessments do not meet the objective of the Act as they are not considering adequately 'preventing, controlling and reducing risks to public health.' Two examples of this include the following which are expanded upon later in this response:<br>- the scale of sleep disturbance impacts by the proposed project have been grossly underestimated in the draft EIS. It is widely accepted and published in scientific literature that sleep disturbance can have serious effects on human health.<br>- the draft EIS does consider the potential risk of human health impacts in relation to Q-fever. Livestock transport is a known source of Q-fever transmission in communities and can affect receptors within many kilometres of a transport corridor. | The draft EIS requires update to meet the requirements of the OCG's TOR and to meet the objective of the *Public Health Act 2005*, which is 'preventing, controlling and reducing risks to public health.'<br>The proponent must also commit to being responsible for all control and mitigation measures that are required to reduce the risks to public health to within acceptable limits. |

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| | | The draft EIS does not meet the requirements of TOR 5.1 and 5.3 as the result of inadequate assessment of risks to public health and lack of consideration of relevant control and mitigation measures to reduce those risk to within acceptable limits. | |
| **22** | TOR 9.5 | TOR 9.5 requires the draft EIS to identify the approvals to enable the project to be constructed and operated.<br>The proponent states that the project will require environmentally relevant activities including the potential establishment of water treatment plant and concrete batching facilities however provides no details on what further approvals (if any) are required for these facilities.<br>Early engagement with Council for any further required development approvals is required. This is required whether or not the concrete batching plants and/ or water treatment plant/s will only be operational for the life of the inland rail project. | The proponent should clearly outline if further approvals are required to construct and operate the concrete batching plants and/ or water treatment plant/s.<br>Any engagement should also address site remediation if the facilities are be removed once the rail line construction has been completed |
| **Chapter 4 – Assessment Methodology** | | | |
| **23** | Section 4.2 (Approach)<br>Appendix F (Proponent Commitments) | **Lack of Robust Assessment and Commitments –** Section 4.2 states that impact assessments were conducted to consider construction, commissioning, and operation phases', 'short-term, long-term and cumulative impacts' … 'mitigation measures and management measures', and 'offsets for residual impacts.' The text further states that proponent commitments 'expand on those mitigation and management measures that have been proposed as part of the impact assessment process.' A review of Appendix F (Proponent Commitments) shows a lack of detail, potentially as a result of many aspects of the EIS assessment process having been deferred to 'detail design' (as previously discussed).<br>Section 4.2 goes on to state that the draft 'EIS has undertaken a conservative and 'worst case' approach to identifying the potential impacts of the project…' This is not an accurate statement given that the proposed alignment has not been appropriately considered as the identification of the location of the alignment relied on studies completed almost twenty (20) years ago and has not considered changes to the community or surrounding environment since. Further, study areas used to further inform the draft EIS have not been appropriate, and for certain assessments, the document has relied on outdated guidelines and standards which allow for an even greater (and unacceptable) impact on the community and environment. Also, the draft EIS only considers 1.8 km long trains, not 3.6 km long trains.<br>The document then states that 'where environmental impacts have been identified through the assessment process, efforts have, in the first instance, been made, where | The draft EIS requires update to include robust assessments, clear and measurable mitigation measures and proponent commitments, and to meet the requirements of the OCG's TOR. |

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| | | practicable, to avoid or minimise impacts through development of the design.' Given the issues raised above, the impacts of the project cannot be accurately known and accounted for during the development of mitigation measures as there has been a lack of robust assessment and as a result, the development of appropriate commitments to identify adverse impacts as part of the detail design phase. As a result, the draft EIS fails to meet the requirements of TOR 5.1 and 7.4. | |
| **Chapter 5 – Stakeholder Engagement** | | | |
| **24** | Section 5.3.3 Consultation Approach<br>Table 5.3 IAP2 Public Participation Spectrum | **Ignored Community Consultation** – Section 5.3.3 states that 'the consultation approach for the project is guided by the International Association of Public Participation Core Principles'.<br>Table 5.3 provides the IAP2 'public participation goal' of 'empower' to be 'to place final decision making in the hands of the public', and IAP2's 'promise to the public' of 'empower' to be 'we will implement what you decide.'<br>However, none of these factors have been incorporated into the draft EIS process, particularly given the fact that the preferred alignment was identified almost twenty (20) years ago, the community has become fatigued by proponent consultation which provides no information, and that community concerns have not been evolved into real project changes on any level or at any time.<br>The text goes on to further state that 'ARTC has created an ongoing and open dialogue with communities and stakeholders.' This statement remains unsubstantiated when it can be said that local Lockyer Valley communities are still unaware of the sheer impact of the project.<br>Further, Section 5.3.3.2 states that 'in several situations, such as alignment development' … 'ARTC collaborated with stakeholders through workshops and meetings with landholders, councils and key stakeholders.' While it can be said that consultation did occur, positive change as a result of such consultation cannot. If the proponent was to consider changing the project in response to consultation, the proposed alignment would not be located in a corridor originally set aside for passenger rail and which essentially maximises adverse impacts on the community (from aspects such as noise, light and safety) given the corridor's location close to communities such as Helidon. | The draft EIS requires update to appropriately consider community concerns and the impact the proposed project will have on the community and the surrounding environment. If this necessitates the identification of an alternate alignment located outside the Gowrie to Grandchester future state transport corridor, this should be considered by the proponent. |

| Chapter 6 – Project Description | | | |
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| **25** | Section 6.2.9 (Land Requirements)<br>Figures 6.4<br>Section 6.3.5 (Crossing Loops)<br>Appendix C (Design Drawings) | **Crossing Loops** – Figure 6.4 shows two (2) proposed crossing loop locations on the rail alignment in the LVRC LGA, however nowhere else in the draft EIS is there any mention of the proposed location of crossing loops, which appear to be in the middle of environmentally sensitive areas. Section 6.3.5 provides high level detail of these locations, specifically:<br>- 'Eastern end of the Toowoomba Range tunnel'<br>- 'Postmans Ridge – located in the vicinity of Murphys Creek Road.'<br>Further to this, scrutiny of Appendix C reveals that the crossing loops are not indicated on the design drawings and have not been provided in the drawing's keys either. As a result, the draft EIS fails to meet the requirements of TOR 5.1 (as all impacts have not been identified or assessed) and TOR 10.8 (which requires drawing to be detailed enough to enable the OCG and advisory agencies to adequately assess the impacts of the project). Crossing loops may be considered to be major components of the infrastructure of the proposed project, particularly given their length and apparent proposed locations in environmentally sensitive areas. The selection of proposed crossing loop locations does not appear to have applied the principal of "avoid and minimise" for areas of environmental significance. | Given the scale, nature and proposed location of the crossing loops, the draft EIS requires update to provide more information to meet the requirements of the OCG's TOR. This should include justification for the requirement of 2 crossing loops in environmentally sensitive areas. |
| **26** | Section 6.3.5 (Project Disturbance Footprint) | **Lack of Robust Assessment**: TOR 6.2, 6.3, 7.3, and 11.92 require the draft EIS assess all construction and operational environmental impacts. The draft EIS notes that 'any impacts, including additional vegetation clearing for the extension of crossing loops, will be assessed and confirmed through a separate approval process.' | The draft EIS requires update to meet the requirements of the OCG's TOR and appropriately assess the adverse impacts relating to crossing loops and maintenance sidings for the maximum train length of 3 6 km trains given that the proposed project includes this footprint. |
| **27** | Section 6.3.13 (Fencing)<br>Chapter 11 (Flora and Fauna)<br>Section 11.5.8 (Precautionary Principle)<br>Section 11.8.1 | **Fauna Fencing Locations Not Identified**: Section 6.3.13 states that fencing will be provided for the extent of the proposed project alignment and then goes on to note that the location of fauna fencing and fauna passages will be confirmed during detailed design. As a result, the draft EIS fails to meet the requirements of TOR 5.1 (given these impacts have not been appropriately assessed). Further, fauna fencing and passages aren't contained in Appendix C such as rail civil plan and profile or environmental design matters.<br>Section 11.5.8 however states that results from the flora and fauna investigations 'were used to inform the design and location of fauna crossings, fauna exclusion fencing…'. Section 11.8.1 also states that 'development of the design has progressed in parallel | The draft EIS requires update to include:<br>• consultation with local stakeholders and citizen science<br>• detailed flora and fauna studies<br>• studies to identify the local movement patterns of fauna<br>• the analysis of these studies into location and type of fauna crossing/passage structure design process |

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| | (Design Considerations)<br>Appendix C (Design Drawings) | with the impact assessment process. As a consequence, design solutions for avoiding, minimising or mitigating impacts have been incorporated into the design as appropriate and where possible.'<br>Fauna passage in this biodiverse region is paramount. While the proposed project alignment will be fully fenced, it is important to ensure fauna fencing and passage are identified in the early stages of design. The draft EIS fails to discuss how fauna exclusion fencing would block movement in biodiversity corridors, particularly those not associated with waterways. Chapter 11 contains extensive detailed information that could be used in the identification of fauna fencing and crossings and yet fails to do so. | • The locations, designs and target fauna group of all fauna crossings/passage<br>• A description of the proposed fauna fencing and passage locations<br>• These locations into the design and environmental design matters drawings in order to meet the requirements of the OCG's TOR for the proposed project.<br>*LVRC request the OCG impose the following condition:*<br>'The proponent is required to consult with LVRC regarding all aspects of fauna fencing design, construction and location, and to reach written agreement with LVRC regarding the achievement of high-quality and effective fauna fencing and fauna passage outcomes at least six months prior to the commencement of construction activities.' |
| **28** | Section 6.6 (Construction Activities)<br>Chapter 16 Section 16.11.7 (Housing and Accommodation) | **No Consideration of Workforce Accommodation** – issues associated with the provision of temporary workforce accommodation have not been appropriately discussed in the draft EIS. Section 6.6 states that there will be no need for an accommodation camp. Further, Section 16.11.7 notes that rental vacancy rates in areas such as Helidon, Postman's Ridge and Withcott were very low in 2020 and anecdotal evidence suggests that the rental market has tightened even further since then.<br>The draft EIS states that free or subsidised accommodation will be provided to construction personnel within non-resident workforce accommodation where personnel live outside the safe daily driving distance. The draft EIS assumes that sufficient vacant supply will exist within the LVRC area. This may well not be the case.<br>The draft EIS acknowledges the current record-low vacancy rates and the cumulative effects of other major construction projects in the area yet fails to discuss (or consider) providing accommodation camps to ensure impacts to the local community are minimised in a way which ensures there is no residual significant impact from construction workers requiring accommodation in the area. | The draft EIS should be updated to include the consideration of providing accommodation for the construction workforce through the use of construction camps, particularly given the potential adverse impact of the workforce on residential accommodation (and given current high demand and low rental vacancy rates). The current situation means that LVRC have a preference for the proponent to house construction workers in accommodation camps given the current housing shortage in the LVRC area.<br>The draft EIS requires update to consider current vacancy rates in the LVRC area and provide for appropriate non-resident workforce accommodation to satisfy any gap between acceptable supply levels and demand. |
| **29** | Section 6.6.4 (Hours of Work) | **Unrealistic Work Hours** – Section 6.6.4 defines proposed hours of work as generally between 6.30am to 6pm Monday to Friday and 6.30am to 1pm on Saturdays. However, | The draft EIS should update working hours to be more reflective of the likely construction hours. Construction |

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| | | based on other sections of the Inland Rail project and similar infrastructure projects of this scale this may not be the case. | contractors (particularly those with a large proportion of workers from outside the area) are unlikely to want to have short days and days with no work. Associated impacts with any changes to construction working hours (e.g., amenity impacts on local communities) must also be reviewed to determine any additional adverse impacts and any further mitigation measures. It is recommended that the OCG condition any approval to specify working hours. |
| **30** | 6.6.8 | Table 6.15 identifies **potential fuel storage** locations. Yet again this is a serious issue postponed until detailed design. These are hazardous chemicals that need proper evaluation. | That the COG require additional details of fuel storage locations and require that local and state government approval processes are undertaken in the usual process. |
| **31** | Section 6.6.16 (Civil Works) | **Civil Works** – Section 6.6.16 does not include reference to the likely significant volumes of lime and gypsum which will be required for soil stabilisation along the proposed alignment, or more importantly, where lime or gypsum may be sourced (in close proximity to the proposed project). | The draft EIS requires an update to include a discussion regarding the significant volumes of lime and gypsum required for the proposed project and where it will be sourced from, transport routes etc. |
| **32** | Section 6.8.1 (Design Criteria) Section 6.9.3 (Train Operations) | **Community Impacts** – Section 6.8.1 specifies that the design criteria for the line is to cater for an initial train length of 1.8km and a maximum train length of 3.6km, double stacked (i.e., 7.1 m above rail). Section 6.9.3 states that it is anticipated that an average of 33 trains per day will travel through the Lockyer Valley commencing in 2026. This will increase to an average of 47 services per day in 2040. 47 trains up to 3.6km long near rural and residential areas such Postman's Ridge and Helidon will have a significant impact on the environmental, social and amenity values of these areas. | Further detailed investigation into the social and amenity impacts of the Inland Rail project on rural and residential areas such Postman's Ridge and Helidon is required to ensure the balance between social and amenity impacts on rural residential areas has been achieved. |
| **33** | Section 6.2.6 (Timing) Section 6.2.6 (Construction Schedule) Table 6.11 | **Timing –** TOR 10.1(k) requires the proponent to describe the proposed timing and overall duration of the proposed project including construction staging and likely schedule of works.<br>The draft EIS states that a construction contractor is expected to be appointed in the second half of 2021, coinciding with the commencement of the detailed design phase of the proposed project, with pre-construction and early works commencing in early 2022 and construction planned to start in 2022.<br>The draft EIS will close for public comment on 25 October 2021, after which time it will be subject to further statutory stages of assessment under the SDPWO Act. Clearly the EIS cannot be completed and approved within the proposed project timeframes, let alone the granting of secondary approvals and permits that will be required. The | The draft EIS requires updating to:<br>- Meet the requirements of TOR 10.1(k).<br>- Provide realistic timing for the proposed project that is consistent with statutory approvals processes.<br>- Appropriately consider the findings of the flood panel and any further studies that are required to finalise the draft EIS and accurately assess the potential impacts and mitigation requirements for the proposed project.<br>Construction activities, including 'detailed design' and application for any associated approvals should not |

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| | | proponent's proposed project schedule is unrealistic and inconsistent with the statutory approvals processes required for this project. | commence prior to the finalisation of all required technical studies including, but not limited to, the *Independent International Panel of Experts for Flood Studies of Inland Rail in Queensland Review* and approval of the EIS. |
| **34** | Chapter 6 | **Unclear Project Footprint and Corridor Extent:** the draft EIS in unclear about the actual sizes of the proposed construction and operational footprints. It seems that a full assessment of impacted areas has not occurred and vague statements around the footprint of disturbance are provided. Examples include, but are not limited to:<br>- Section 6.2.4 notes a minimum corridor width of 62.5 m but Section 6.3.1 and Table 6.3 state the 'minimum corridor width of 40 m'.<br>- Figure 6.4 shows construction corridors between 100 m to 250 m wide through areas of contiguous remnant vegetation. It is not clear why this width is necessary and how the principle of avoid and minimise for environmental impact has been applied.<br>- Figure 6.4 nominally calls some areas of disturbance as 'laydown areas' which are in some instances over 400 m wide. As they fall within the proposed disturbance footprint of the draft EIS, it is unclear if they will be rehabilitated post construction.<br>Further, the draft EIS does not discuss alternate locations for Rail Maintenance Access Roads (RMARs) or laydown pads or provide justification for the nominated RMAR or laydown pad locations. | The draft EIS requires update to provide more accurate indications of construction and operational footprint sizes. Further, areas of both temporary and permanent disturbance should be appropriately assessed as part of the draft EIS in order to meet the requirements of TOR 6.2, TOR 6.3, TOR 7.3, and TOR 11.92. This should include the consideration of alternate locations and prioritising the use of already disturbed areas or areas of limited environmental value. Justification should be provided for all proposed locations for temporary and permanent infrastructure. |
| **35** | Section 6.3.13 (Fencing)<br>Chapter 10 Section 10.6.1.2 (Operational Phase)<br>Appendix C (Design Drawings) | **Fencing –** Section 6.3.13 discusses fencing as a barrier to livestock as the project is substantially located in rural agricultural grazing areas, and this inform the standard of fencing. However, the alignment is close to rural living areas such as Helidon and Postman's Ridge, and an appropriate standard of fencing is required near these more developed areas for amenity and public safety.<br>In addition, Section 6.2.9 notes that fencing will be 5 m outside the rail corridor. It is unclear why fencing should be located outside the corridor as doing so only increases the area of disturbance and is seemingly unnecessary.<br>The 'indicative' fencing shown in Section 10.6.1.2 is a short, single strand barbed wire fence. The standard fencing showing in Drawing Set K at Appendix C is 1.9 m high diamond mesh fencing. | The draft EIS requires update to commit to keeping fencing within the proposed alignment corridor, and to provide accurate and detailed information regarding proposed fencing, including a commitment to fence the entire alignment in manner that is considerate of land uses (i.e., rural vs urban), public safety, livestock, native fauna, visual amenity and other relevant design factors.<br>Appendix C should be updated to include designs for all fence types and portrayals of any indicative fencing should reflect the design drawings. |

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| | | | Fencing should be within the corridor, not outside it to minimise the disturbance footprint as far as practicable. |
| **36** | Section 6.6.6 (construction water) | **Water source:** TOR 11.55 - 11.57 requires detailed information about water usage for the project.<br>The EIS does not provide sufficient detail of volumes of water from each potential source. 'Potential sources' for various parts of the construction phase which includes priority town mains water, and dam water.<br>LVRC is concerned about the use of these water sources for the project particularly given the information provided in the draft EIS is very broad. Water usage in time of drought is critical and agricultural producers do not want additional competing uses for water. Commercial agreements with landholders are mentioned. Such water needs to be tested prior to use to ensure unacceptable levels of contaminants are present. | The draft EIS should be amended to meet the requirements of TOR 11.55 to 11.57 and account for a proper assessment of the impacts of the project on the region's water supplies.<br><br>Council requests a condition be imposed on any approval requiring the proponent to reach agreement with relevant water users including local government to water supply arrangements prior to commencement of construction activities.<br>All water sources to be tested prior to use to ensure fitness for purpose. |
| **37** | Section 6.8 (description of the project) | **Operational Impacts**. The Draft EIS focuses heavily on the construction impacts of the project, including in section 6.2 & section 6.8, however this section(s) and indeed this chapter does not outline the operational impacts of the project (ie. 47 train services @ 1,800m long – potentially up to 3,600m long - per day in 2040) until section 6.12. | That the EIS be amended so that the operational aspects of the project are captured in the relevant sections, so these impacts are then able to be considered by the reader when reviewing the remainder of the chapter. |
| **38** | Chapter 6<br>Section 6.8.1 (Design Criteria)<br>Section 6.12.2 (Train Operations) | **Impacts to townships** – Section 6.8.1 specifies that the design criteria for the line is to cater for an initial train length of 1.8 km and a maximum train length of 3.6 km, double stacked (i.e., 7.1 m above rail height). Section 6.12.2 (states that it is anticipated that an average of 33 trains per day will travel through the Lockyer Valley, commencing in 2026. This will increase to an average of 47 services per day in 2040.<br><br>Up to 47 double-stacked trains at 3.6 km long through Lockyer Valley will have a significant impact on the environmental, social and amenity values of these small urban precincts. | The draft EIS requires update to include further detailed investigation into the adverse social and amenity impacts of the proposed alignment on urban areas around Helidon. In addition, greater transparency on the route and alignment selection process is required to ensure the balance between social and amenity impacts on urban areas and impacts on agricultural land has been achieved.<br><br>LVRC do not consider the alignment assessment, with its narrow and pre-determined study area to be appropriate to safeguarding the communities in the region in a way which ensures that there is *no significant residual impact* as a result of the proposed alignment. Particularly given |

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| | | | the (unassessed) significant increase in train size and frequency.<br><br>To meet the COG TOR, LVRC strongly recommend that COG require the proponent to abandon the current alignment and to undertake further and more comprehensive and accurate assessments of alternate alignments that comply with the TOR to identify an alignment that will adequately avoid, minimise and mitigate the potential project impacts. That the COG require the proponent to include assessing areas which are *outside the pre-determined EIS investigation corridor* (as previously mentioned). |
| **39** | Section 6.9.3<br>TOR 10.9 | **Passenger Rail.** This section notes that "the project basis of the design is for freight services." And at 6.2.8 "Does not preclude a fast rail passenger service". However, the EIS does not demonstrate that the alignment, structures, gradients, signalling systems, tunnels, safety systems are compatible with fast passenger rail services. | That the COG require the proponent to demonstrate that the alignment, structures, gradients, signalling systems, tunnels, safety systems are compatible with fast passenger rail services. |
| **40** | Section 6.9.8 (Construction workforce and hours) | **Local jobs:** the draft EIS notes the estimated construction period is likely to generate significant FTEs although cite an extraordinary range of potential jobs depending on the relative "tightness of the market. (between 1027 and 225). Surely more accuracy can be demanded.<br>TOR 11.152 requires workforce management plans and a review of the broader EIS identifies these management plans will include indigenous training partnerships and employment pathways, and targets for local employment.<br>To ensure the community and Council has certainty on construction hours - No work on Sundays or public holidays be allowed. | With the reduction in expected construction jobs, the requirements for local workforce participation and training pathways must be an emphasis for any successful contractor. It is recommended a condition of approval require the construction contract to employ above 85% of locals and a targeted % from within the TRC/ LVRC local government area.<br>That a condition on any approval that no work be undertaken on Sundays or public holidays. |
| **41** | Section 6.13.3 (fencing) | **Fencing:** TOR requires the draft EIS to identify mitigation measures on land values.<br>A variety of fencing outcomes are discussed in the draft EIS including three or four strand barbed wire fencing (for stock and people), acoustic fencing, fauna friendly fencing. However, the draft EIS lacks clarity about the physical location and extent of the varied type of fencing which provides no certainty to landowners about the outcomes anticipated adjacent their properties. | It is recommended that the draft EIS should be amended to address the following:<br>• include a detailed fencing plan for the extent of the rail corridor to identify the fencing outcomes proposed;<br>• In accordance with the requirements for noise outlined in Section 15 below more appropriate |

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| | | | noise criteria should be defined and appropriate mitigation put in place;<br>• Where possible innovative acoustic mitigation measures should be employed to facilitate the ongoing visual connectivity within urban communities<br>• Where any solid acoustic fencing is proposed over 1.5m high, screen landscaping should also be provided to a minimum width of 3m for the full length adjoining the solid fencing to screen it from public view.<br>• Any solid fencing that cannot be visually screened by landscaping must consist of graffiti resistant materials unless otherwise agreed to through engagement with Council and the community.<br>• Screen landscaping must use native species endemic to the locality.<br>The impact of any solid acoustic walls must also be considered with any revised flood hazard assessment the corridor to provide certainty to landowners. |
| **Chapter 8 – Land Use and Tenure** | | | |
| **42** | Chapter 8<br>Figure 8.1<br>Section 8.2 (Scope of Chapter)<br>Section 8.6.1 (Land Tenure)<br>Figure 8.3 a-e<br>Appendix V (Impacted Properties) | **Lack of Appropriate Identification of Freehold Land –** the draft EIS fails to illustrate freehold land (as Lot on Plan) on any map. The reader is required to refer to Appendix V and, if potentially affected by the proposed project (by way of land acquisition), have their Lot on Plan number and scroll through the data to identify their property. Some residents will be renters and are highly likely to not have access to this information.<br>Section 8.2 states that the 'chapter identifies the land use and tenure aspects relevant to the project…' this statement is incorrect as the chapter fails to provide data relating directly to impacts to freehold properties and does not show impacted freehold properties on any figure. As a result, the draft EIS fails to meet the requirements of TOR 5.1, TOR 11.72(e) and TOR 12.2. | The draft EIS requires update to meet the requirements of TOR 5.1, TOR 11.72(e) and TOR 12.2 by providing clear and information regarding the acquisition of land tenure, and specifically freehold land tenure, and present it in a way in which it can be readily understood by the general public. |
| **43** | Section 8.5 (methodology) | TOR 11.76 requires the proposal to be discussed in the context of applicable **planning schemes.** | Council is in the process of gaining approval to undertake public consultation on its draft new planning scheme. The |

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| | Section 8.5.2 (Impact assessment methodology)<br><br>Section 8.6.3 (Future land use intent and development activity) | The H2C draft EIS has identified a range of negative impacts that will be experienced and for which, prior to release of the draft EIS, Council has not had complete visibility over. The impacts identified pose the potential for a fundamental rethink of Council's planned growth and settlement pattern. | draft new planning scheme has been being developed now for a number of years.<br><br>On this basis, the draft EIS should be amended to include:<br>• consideration of Council's new draft planning scheme when released and identify any new impacts as a result;<br>• a collaborative working approach with Council's strategic planning unit to identify impacts to Council's new draft planning scheme and strategies to address any required changes;<br>based on a revised land use audit assessment reflect any potential zone changes anticipated by the Lockyer Valley Regional Council draft planning scheme. |
| **44** | Section 8.7 (Potential impacts) | TOR 11.75 requires the draft EIS to discuss the potential impact of the construction and operation of the project on existing **land uses** along the preferred alignment and adjacent areas. | This chapter of the draft EIS should be amended to synthesise the amenity impacts resulting particularly from the operation of the project. |
| **45** | 8.7.2.1 | **Fragmentation** of land is a long term issue. The EIS gives only vague assurances about the issue. | That the COG require the proponent to demonstrate with principles and examples how the fragmentation of future land parcels is to be resolved. |
| **46** | Section 8.8.2 (Change in land use)<br><br>TOR 11.81<br>TOR 11.82 | **Amenity,** a core principle of land use planning, has not been appropriately discussed in chapter 8. Three (3) sentences in the 114-page chapter are related to amenity.<br><br>Council considers the amenity impacts on existing land uses a priority area of concern resulting from the impact of construction and operation of the preferred alignment. However, this chapter fails to critically analyse the impacts of such.<br><br>It is understood the project may ultimately result in up to 47 train movements where each train is 1.8km long. On average across a day this could result in a train movement through Lockyer every 30 mins or so. | |

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| **47** | 8.9 | The EIS states **that Planning Schemes** cannot categorise transport infrastructure (that has been assessed by the COG) as impact assessable. | That the COG require that the proponent make it clear that local government planning schemes will apply to those aspects of development that are off the corridor and are not specifically 'transport infrastructure'. |
| **48** | Chapter 8<br>TOR 11.92 | **Fencing** has been inadequately considered throughout the document | It is recommended that the proponent be required to provide a detailed fencing plan for the extent of the corridor to identify the fencing outcomes the proponent proposes adjacent the corridor. The fencing detail is to include as a minimum information on fencing height, materials and finishes, and the purpose of the fencing (ie. Acoustic, fauna friendly, stock, etc). Any fencing over 2m in height and which will be visible from a public space of a township is to consider architectural elements, features, and finishes to reduce visual impacts. |
| **Chapter 9: Land Resources** | | | |
| **49** | Chapter 9 (Land Resources)<br>Appendix T (Spoil Management Plan) | **Inconsistent/Inaccurate Description of Impacts** to Land Resources**:** TOR 5.1 requires the draft EIS to identify 'all relevant environmental, social and economic impacts. The whole project is 28 km of new rail from Gowrie to Helidon. About 5 km of the new rail will run parallel to the existing West Moreton Rail System. Most of the alignment (23 km, which shall include 6 km of tunnel and 17 km of rail) will not be near any existing rail infrastructure. The project will require significant earthworks and changes to the landform and topography (refer Section 9.7.1). However, Table 9.25 of Chapter 9 states that the project is 'generally within existing road-rail infrastructure which will minimise the land resource impacts of the project'. Further to this, the final sentence of Section 9.11 states '…as the rail alignment follows the existing West Morton System rail corridor, potential impacts are expected to be further reduced.' The proposal only follows the West Moreton Rail System from Gowrie to the proposed western entrance (about 5 km) and does not re-join it or any other existing rail network. These statements/descriptions about the proposal in the draft EIS are incorrect, potentially misleading and conflict with other related parts of the draft EIS. | The draft EIS should be reviewed to ensure that the assessment and description of potential impacts to land resources is consistent and accurate throughout the document so as not to potentially mislead the reader and to meet the requirements of the OCG's TOR. |
| **50** | Chapter 9 Land Resources and | **Inadequate Assessment and Mitigation Measures** for<br>saline, dispersive and reactive soil impacts – Changes to landscape salt mass balances, salt movement from the project and exposure of dispersive and reactive soils could | The OCG should request that the proponent complete a more detailed salinity and dispersive soils risk assessment that considers the actual landscape and hydrological |

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| | Chapter 14 Groundwater. | have significant impacts to native vegetation, water quality (surface water and groundwater), aquatic ecosystems (including groundwater dependent ecosystems) and soil quality (in terms of its stability and agronomic value). Elements of the proposal which could affect landscape salinity, dispersive and reactive soils include deep cuttings, fill, removal of vegetation, altering waterways and their hydrologic regimes, lowering, raising and restricting movement of groundwater levels.<br>The Lockyer Valley has been studied for its dispersive and saline soils since the 1940's (Shaw 2008). Salinity and dispersive soil rectification is difficult, expensive and can disturb further ecological areas. It is much easier to prevent salinity and dispersive soil erosion than attempt to mitigate them.<br><br>The overall salinity hazard for the project was rated as Medium to High at Table 9.21 of Chapter 9. However, the impact risk assessment at Table 9.27 shows the salinity as a medium risk based on initial controls and then reducing to a low residual risk with the implementation of additional controls to be determined during detailed design.<br><br>Initial mitigation measures in Table 9.25 contained no meaningful measures in relation to soil salinity management to support a lower initial risk rating of medium instead of high which contradicts the assessment earlier in Chapter 9. Table 9.26 included subsequent mitigation measures that will be determined during the detailed to manage the potential secondary salinity impacts of the proposal. However, these subsequent measures were described in broad terms and did not appear to have any direct reference to the potential identified risks and impacts. For example, the salinity assessment and mitigation measures in Chapter 9 do not address:<br><br>- Risk of changed groundwater levels in shallow, compressible alluvial soils from embankments and constructions near Gowrie, Oaky, Rocky, Six Mile and Lockyer Creeks (Section 14.7.4 of Chapter 14). Chapter 9 includes no detailed assessment of this known salinity risk which is described in studies that were referenced for the study area. Accordingly, Chapter 9 doesn't include any mitigation measures to address this risk.<br><br>- Brackish drainage from cuts, which may cause evaporative salt deposition on batters, would be discharged by cess drains (refer to Chapter 14). How would this be managed to protect soil and water quality from increased salinity in these areas? This is not detailed in the Draft EIS. | changes the project will have to ensure that meaningful management measures that are tailored to the potential impacts are developed. |

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| | | - Groundwater from the tunnel is expected to have elevated salinity however there is no defined method of monitoring and management to protect water quality in the receiving environment.<br><br>Changes to hydrological regimes of watercourse through dewatering of cuttings and the tunnel. Discharge from the tunnel will be directed to Rocky (eastern end) and Gowrie (western end) Creeks turning them from ephemeral to perennial streams. Table 9.26 states that avoiding alteration to waterways is a proposed salinity risk mitigation measure. However, Chapter 9 does not address the salinity risk presented by the proposed hydrologic changes to impacted creeks. How may the change from occasional to permanent water flow in creeks affect salinity movement? Like the effects of stream sediment loading described by Shaw (2008) will this increased wetted area and hydraulic pressure in the creeks cause a reduced hydraulic gradient and allow groundwater levels to increase through reduced inflows/discharge to creeks. Additionally, leakage into local groundwater systems could further increase local groundwater levels and present a salinity risk.<br><br>Chapter 20 – Hazard and risk states that "The landscaping design will include a wide strip of land on either side of the tracks to be clear from vegetation, to provide a suitable fire break". Having bare earth next to the tracks has the potential to cause significant erosion issues if located on dispersive soils. | |
| **51** | Chapter 9<br>9.5.3 | Detailed **soil testing** has not been incorporated in the design of the alignment as soil testing *commenced in the first quarter of 2021*. | The OCG should request that the proponent complete detailed soil testing and analysis that considers the actual landscape and hydrological changes the project will have to ensure that meaningful management measures that are tailored to the potential impacts are developed and to meet the requirements of TOR 5.1. |
| **Chapter 10 – Landscape and Visual Amenity** | | | |
| **52** | Chapter 10<br><br>Appendix H (Landscape and Visual Impact Assessment | **SEQ Regional Plan *Shaping SEQ* goals not taken onto account –** the TOR Land objective *(d) Mitigate impacts to the natural landscape and visual amenity* and TOR *11.89 Describe any proposed measure to avoid, minimise or mitigate potential impacts on landscape character and visual amenity* have not been adequately addressed by the draft EIS. | The visual impact assessment needs to be amended to include consideration of how and where views from towns and residences include vistas and long-distance views over rural land; and the extent to which the proposed alignment (and associated noise barriers) will permanently obstruct such views. |

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| | Technical Report), Section 3.2 Table 3<br><br>Appendix Q (Social Impact Assessment) Section 7.1.5 | Table 3 Queensland (regional level) identifies the Shaping SEQ regional framework relevant to the project and includes:<br>- Goal 4: Sustain (DILGP 2017b) is the most important in terms of guiding the regional context for landscape and visual amenity values stating *'Our regional landscapes contain a wide range of values, including biodiversity, rural production, natural economic resources, scenic amenity, cultural landscapes and outdoor recreation. These values contribute to SEQ being one of the most biodiverse and liveable regions in Australia*.'<br>- Element 4 Regional Landscapes seeks to 'protect regional scenic amenity areas from development that would compromise their values.'<br>- Live Element 5 is identified in the EIS as being relevant in terms of landscape and scenic amenity: e.g., Live Element 3: Inspiration from local character requires that '*the communities of SEQ demonstrate a strong respect for their heritage, distinct context and local character'. This includes identifying and conserving local landscape, heritage and cultural assets including indigenous landscape values; working with natural topography to create development that contributes positively to the environmental and visual experience of a place; using appropriate building material; that add to a local area's character and diversity; and, working with the characteristics, traditions and values of the local community to create a distinctive local character and contributory community value.'*<br>- …'this subregion is characterised by features including 'a predominantly regional and rural lifestyle supported by spectacular open space, hinterland and natural landscape settings.'<br>While the draft EIS states the above are relevant to the project, it fails to adequately consider the impacts of the proposed alignment on the above State level strategic goals and proposed permanent change to landscape character especially where the proposed alignment passes through regional towns. Furthermore, the draft EIS does not consider the detrimental effect on existing local regional town landscape character values with regards to the above points and proposed mitigation for very high embankments and long and high noise walls through the towns.<br>Section 7.1.5 of Appendix Q identifies that 'rail overpasses would be constructed… (which) would change the appearance of the town centre from its approaches, and the addition of additional infrastructure (such as fencing and signage) will intensify the appearance of the rail corridor as a barrier through town.' | |

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| **53** | Chapter 10<br><br>Appendix H (Landscape and Visual Impact Assessment Technical Report)<br>Section 3.2, Table 3 | **State Scenic Amenity Guideline influence not taken into account –** TOR 11.88 states the draft EIS needs to '*Address the findings, requirements and recommendations of the South East Queensland Regional Plan 2005-2026 Implementation Guideline No. 8 – Identifying and Protecting Scenic Amenity Values (2007).'*<br>The draft EIS identifies the above guideline as being relevant to this project, however the State Government SEQ's scenic amenity mapping influence on ratings appears to have been dismissed as not relevant because only part of the proposed alignment is in SEQ scenic amenity mapping. This approach is inconsistent with the recognition and incorporation of local government planning schemes (which are different for each Council area) and the respect shown to various NSW transport corridor urban design guidelines. The broadscale SEQ scenic amenity mapping is relevant for the study area and should have been part of the baseline information. As a result, the draft EIS does not adequately address TOR 11.88 and the state scenic amenity influence on landscape values. | The draft EIS needs to be amended to include the broadscale SEQ scenic amenity mapping for the study area as part of the baseline information. |
| **54** | Chapter 10<br><br>Appendix H (Landscape and Visual Impact Assessment Technical Report) | **Appropriate Landscape Character and Intent –** there is considerable subjectivity surrounding another important 'big picture' issue - are trains of this size and frequency compatible or consistent with the existing and intended character of the study area? The viewpoint-by-viewpoint analysis of impacts provides relevant context (e.g., whether or not there is an existing railway line, HV transmission lines or other infrastructure in the viewshed), and this implies that the proposed alignment will be more compatible with existing character than in other places.<br>However, this also completely ignores the reasonable expectation of residents and the local community that a new railway line would at some stage be constructed in the Gowrie to Grandchester future public transport corridor. Although this 'reasonable expectation' test is somewhat peripheral to objective assessment of project-related visual impacts (comparing the future visual appearance of the study area with the existing landscape values), it is nonetheless relevant to ask whether or not the predicted 'High' and 'Major' visual impacts have been assessed relative to the existing situation, or relative to what would have occurred with the Gowrie to Grandchester future public transport corridor. | The visual impact assessment should be amended to compare the impacts of the proposed alignment relative to the existing situation, and also relative to what would have occurred with the Gowrie to Grandchester future public transport corridor, especially with respect to visual impacts rated as 'High' and 'Major.' |

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| | |  <br>Photomontage view from Viewpoint 18<br><br>Compare the impact of the road to that of the proposed railway. | |
| **55** | Chapter 10<br><br>Chapter 16 (Social), Section 16.2<br><br>Appendix H (Landscape and Visual Impact Assessment Technical Report) | **Loss of visual amenity unable to be mitigated for some residents** –the visual impact assessment is good with respect to rural and natural areas (i.e., it appropriately identifies values and impacts) but has flaws with respect to residences close to the alignment. Some of these pockets of housing will suffer major visual impacts and loss of amenity, which cannot be addressed through mitigation measures. The draft EIS does not suggest any means of mitigating impacts at this viewpoint. | The visual impact assessment should be amended to compare the impacts of the proposed alignment relative to the existing situation, and also relative to what would have occurred with the Gowrie to Grandchester future public transport corridor, especially with respect to visual impacts rated as 'High' and 'Major.' |
| **56** | Chapter 10<br><br>Sections 10.7.1 (Potential Impacts), Section 10.7.3 (Visual Impact), Section | TOR 11.82 requires description and illustration of the **visual impact of construction** and operation, including major views – but also stipulating that: *'such views should be representative of public and private viewpoints, including places of residence, work and recreation.'*<br>In consideration of the impacts on visual amenity (view), there are insufficient viewpoints in the draft EIS which have been selected from private residences. Further, some road users that may be in the line-of-sight of oncoming trains have also not been appropriately considered. As such, the draft EIS fails to properly evaluate the impact of | The draft EIS requires update to meet the requirements of TOR 11.87 and to include the assessment of impacts to critical residential and road user viewpoints which are potentially in line-of-sight of operating train headlights and include appropriate mitigation measures and commitments in relation to same. |

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| | 10.7.4 (Lighting Impact)<br><br>Appendix H, Sections 5.2, 5.3 and 7 | transient lighting effects due to train headlights during operation and therefore has not met the requirements of TOR 11.82<br>Transient lighting associated with train headlights during operation is dismissed by the draft EIS as having no potential impact (from a landscape amenity point of view). However, it can still be a potential source of disability glare to road users and possible nuisance (i.e., obtrusive light) for nearby residences in line of sight of oncoming trains (this is subject to alignment and elevation of the track). There is no information in this chapter regarding whether assessment has been conducted on these line-of-sight issues particularly considering their frequency and duration.<br>The viewpoints used by the draft EIS for the lighting impact assessment are the same as the visual amenity (view) impact assessment. This means they are not generally selected to be coincident with the critical visual receptor in this case (i.e., the nearby residents or road users with a potential view of oncoming trains) and as such, they are unable to capture issues related to glare or nuisance lighting.<br>Potential sensitive viewpoints which should be considered by the draft EIS are likely to include any residences where rail alignment and local topography facilitate interior incursion of light from rolling stock headlight. | |
| **57** | Chapter 10 | **Inappropriate or Missing Viewpoint Montages –** the viewpoint montages provided in Chapter 10 either shows infrastructure which is not to scale or hard to see or fails to show the proposed project in the landscape, refer the reader to Appendix H for an 'appropriately scaled image'. Appendix H then refers the reader to its appendix. As a result, Chapter 10 fails to meet the requirements of TOR 11.82 and TOR 12.2. | The draft EIS requires update to meet the requirements of TOR 11.82 and TOR 12.2. |
| **58** | Chapter 10 (Landscape and Visual Amenity)<br>Appendix H (Landscape and Visual Impact Assessment Technical Report) | **Template Approach to Amenity Assessment** – the methodology and documentation utilised for Chapter 10 (and Appendix H) are obviously a standard 'template' approach which has flaws. In particular, the visual impact assessment does not holistically address the effects of the proposal on views of tourists and motorists of a regionally significant scenic asset *viz.* the Toowoomba Escarpment and surrounds. | The draft EIS needs to address visual and character impacts on the regionally-significant scenic asset of the Toowoomba Escarpment and surrounds – not only by examining impacts on each LCT and representative viewpoint in a reductionist manner, but in a more holistic manner taking into account the views of existing and future motorists. |
| **59** | Chapter 10<br>Appendix H (Landscape and | **Land objectives in relation to existing rail line -** the 'Land' objectives provided in the OCG's TOR states that the proposed project should be designed and operated to: | The visual impacts of the proposed project Rail should be more systematically related to those of the existing rail corridor, especially for the 3 km (approximately) section |

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| | Visual Impact Assessment Technical Report) | (a) Improve environmental outcomes; and<br>(b) Contribute to community wellbeing; and<br>(c) Contribute to social, economic and environmental sustainability; and<br>(d) Mitigate impacts to the natural landscape and visual amenity.<br>This implies that the visual impacts of the proposed project should be compared to the existing visual amenity. However, the draft EIS does not take into account the significantly greater visual impacts of the proposed alignment (and its trains) compared to existing rail corridors and railway traffic.<br>Within the LVRC area, the proposed alignment will not be parallel or even close to the existing rail, and most of the route will be through land previously undisturbed by visible major infrastructure. Only one-sixth of the G2H alignment (the eastern-most 3 km, of an approximate 18 km long LVRC section) is parallel to the existing alignment, but other parts are parallel to existing roads and other linear infrastructure. The analysis of visual impacts at each viewpoint mentions whether or not it is within view of the existing infrastructure (i.e., the visual appearance and effects of the proposed project will generally have less impact where it is adjacent to existing linear infrastructure). There is however little transparency regarding this aspect of the assessment. Some viewpoints may be within view of the existing alignment, but the new alignment will cause significantly greater visual impacts than the existing alignment (e.g., higher embankments, more trains per day, 6.5 m high stacked containers, night-time train lights, extent of casting of shadows and moving shadows due to combined train and embankment heights etc.). The visual impacts of the proposed project are generally 'downplayed' (e.g., as 'moderate') when they will be seen in close proximity to existing infrastructure. This approach should be more transparently explained, and qualifications discussed. | where they are in parallel - these comparisons are not appropriately addressed or assessed by the draft EIS. The draft EIS therefore needs some further work to achieve the requirements of the OCG's Land Objectives (b) and (d). |
| **60** | Section 10.3 (Policies, Standards and Guidelines)<br>Table 10.2<br>Section 10.4 (Methodology) | **Lack of Consideration of Current Australian Standard** – TOR 5.4 requires 'the EIS is to be generally in accordance with relevant policies, standards and guidelines'. Table 10.2, The Australian Standard for Obtrusive Light referenced in Table 10.2 and Section 10.4 is outdated and requires amendment. There have been significant changes to the new edition of this standard which should be considered in the draft EIS.<br>Reference to the Australian standard for **obtrusive light** is outdated (Currently written AS 4282:1997, should read AS/NZS 4282:2019) - significant changes in the latest edition (relevant to the draft EIS) are: | The draft EIS requires update to appropriately reference AS/NZS 4282:2019. This should include a revision and update of the Lighting Impact Assessment and methodology. |

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| | | - The 1997 edition is a guidance document whereas the 2019 edition specifies requirements.<br>- Classification of environmental areas has been expanded to include environmentally sensitive areas and better align the categories to international standards.<br>Although in general this standard does not apply to public (road) lighting, limits have been included in the 2019 edition that can be applied when specified by the relevant authority. This was done so that obtrusive light can be controlled in areas where it may be seen as a problem without the need to calculate the impact of every streetlight. | |
| **61** | Section 10.4 (Methodology) Table 10.3 | TOR 11.82 requires the draft EIS 'describe and illustrate the **visual impact** of the construction and operation of the project' …and… 'views should be representative of public and private viewpoints, including places of residence.' The methodology for lighting impact assessment provided in Section 10.4 does not address the full impact of obtrusive light at night and does not adequately include critical private viewpoints that are most sensitive to this issue.<br>From the draft EIS, 'the lighting assessment was carried out based on analysis of representative viewpoints identified through visual assessment … the significance of lighting impact in each representative viewpoint was then made…'<br>By only considering the representative views used to assess (daytime) view amenity this methodology does not consider the most significant impacts of light at night, which are those that relate to obtrusive light (nuisance and glare).<br>This potentially leads to failure to identify more significant impacts for sensitive receptors (particularly those in private residences) than currently determined in the draft EIS. | To meet this requirement, and to properly consider the effects of obtrusive light at night, the lighting assessment methodology requires update to include the consideration of all potential instances of direct view of light sources (obtrusive light), particularly to the private viewpoints from residences adjacent to the project during construction and operation. |
| **62** | Section 10.4.2 (Significance Assessment Criteria) Table 10.4 Section 10.6.3.3 (Lighting Impact Assessment) | **Impact Assessment for Defined Viewpoints** – TOR 11.82 requires the draft EIS 'describe and illustrate the visual impact of the construction and operation of the project' …and… 'views should be representative of public and private viewpoints, including places of residence.'<br>The visual impact that light at night has on private viewpoints is underestimated by representing the sensitivity of these receptors according to their daytime sensitivity level instead of their sensitivity to lighting, as specified in the methodology.<br>It appears that all sensitivity assessments for the lighting impact assessment have used the daytime evaluation and not the sensitivity to lighting (i.e., night-time) definitions | The lighting impact assessment requires reassessment to comply with TOR 11.82 and to meet the criteria provided in Section 10.4.2 by appropriately re-evaluating the sensitivity and magnitude of change for critical viewpoints. |

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| | | provided in Table 10.4. For example, the residence north-east of Viewpoint 17 (at the end of Howmans Road), depending on alignment of track through the area, could potentially be exposed to obtrusive light from train headlights. Similarly, there is a dwelling south-west of Viewpoint 20 which could experience similar obtrusive light potential. Generally, these viewpoints are described as moderate and low sensitivity (respectively), in accordance with their daytime sensitivity evaluation, even though there are sensitive receptors living in private residences within 200 m of the proposed alignment.<br>Section 10.6.3.3 details the lighting impact assessment for each of the defined viewpoints. The methodology for this impact assessment, shown in Table 10.4 defines landscapes with 'high sensitivity to lighting' including 'those with prolonged viewing opportunities located at very close distances (typically less than 200 m) to the light source', which describes private residences close to the proposed alignment.<br>Transient lighting associated with train headlights during operation is dismissed as having no significant impact in the magnitude of change assessment for lighting. While the light source in question is transient in nature, it is also frequent and regular enough (throughout the night) to warrant investigation of any residences near the track that could be impacted by obtrusive light, and an indication of how any potential issues would be resolved. Given the frequency of the proposed service, obtrusive light due to direct line of sight of train headlight must be investigated for residences near the proposed alignment. It is not suitable to consider the impact in such cases as negligible (as is currently the case). There is no presentation of assessment of the likelihood of these conditions occurring in this Lighting Impact Assessment.<br>Furthermore, the magnitude of change in these viewpoint lighting assessments is minimised by using only the lighting change criteria (which lacks sensitivity and relates mostly to distant sky glow effects), and not acknowledging the landscape and visual changes that occur at night in the presence of nearby light sources (< 200 m away). | |
| **63** | Section 10.4.2 (Significance Assessment Criteria)<br>Table 10.4<br>Section 10.7.3 (Residual Impact | **Visual Impact Methodology –** as summarised in Table 10.61 (and Appendix H), most residual 'operational' and 'lighting' on VPs 16-20 are low or negligible, and there are likely to be 'moderate' visual impacts during the construction phase on VPs 18-20 in the Helidon area. The only long-term 'Moderate' residual visual impacts are likely to be suffered by Viewpoint 20 (Airforce Rd Helidon, looking west). However, the visual | The draft EIS needs to be amended and visual impact significance ratings for residential receptors should be re-examined, for example by changes to Sensitivity Tables to take into account the impacts on all views (short-range and rural vistas) from residences. |

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| | Assessment) Table 10.61<br>Appendix H (Landscape and Visual Impact Assessment Technical Report) and (Landscape and Visual Amenity) Table 6<br>Table 8<br>Section 4.9.2 | impacts on Viewpoints 14 and 15 (lookouts within the Toowoomba Region, but with views into the LVRC area) are 'High'.<br>Also, the piecemeal (and reductionist) approach tends to underestimate the severity of impacts, for example:<br>- - Appendix H, Table 6 rates only the landscape being viewed*, not the receptor; and this flows through to the significance of impacts (Table 8).<br>- - The VAM is based on Visual Exposure i.e., strongly influenced by the number of viewers. Where a small group of houses is within view of a development, the VAM tends to under-report the visibility.<br>- - Visual Sensitivity (Appendix H Section 4.9.2 and Table 10) do not value the private views of small numbers of residents<br>- - The approach to sensitivity (Table 10.4 of Chapter 10) combines two things – Visual Absorption Capacity (VAC) and Significance. While this combination is useful and legible in most instances, in some cases the two concepts are opposed, for example when infrastructure affects forested foothills – a 'significant' LCT, but one with a high capacity to visually absorb change.<br>* NOTE: This is also the case with visual impact assessment with respect to LCTs in Appendix H Section 7.1 – the impacts assessed are those directly affecting the land unit *per se*, not on views to the land unit. This is acknowledged or implied in several of the assessments. | |
| **64** | Section 10.5.4.1 (Visual Audiences and Receptors)<br>Appendix H (Landscape and Visual Impact Assessment Technical Report) Section 4.9.5 Figure 8 | **The relation of photomontages to Viewpoints –** TOR 7.2 states the 'assessment and supporting information should be sufficient for the OCG and administering authorities to decide whether an approval … should be granted'.<br>Of the 20 viewpoints (VPs) selected, only 6 are in the LVRC area (VPs 16 to 20), plus another 3 in the adjoining (Toowoomba) LGA or on the boundary, but overlooking the LVRC area (VPs 13, 14 and 15).<br>However, there is no transparency in how these viewpoints were selected as representative of the multitude of sensitive receptors (yellow dots in Appendix H Figure 8), nor whether or not Warrego Highway and Toowoomba Bypass motorists (shown as scenic drives in Appendix H Figure 8) are regarded as receptors. It appears from Section 10.5.4.1 that scenic drives and highways have been taken into consideration (and Viewpoints 3, 8, 12 and 18 purport to represent a number of receptor locations including highways) but it is not clear how this has been achieved. Only one of these | The draft EIS needs to be amended to discuss the range of viewing distances 'represented' by each selected Viewpoint and visualisation; and also include photomontages for several additional viewpoints; to enable affected stakeholders to appreciate the probable impacts of the proposed project. |

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| | | (VP 17) is a Warrego Highway view from within the LVRC area (and VP 18 is similar to a highway view), but these are such a long distance from the Toowoomba Escarpment that they show no visual impacts on this regionally significant scenic area.<br>Also, although Section 4.9.5 of Appendix H states 'visualisations have been selected on the basis of those illustrating key infrastructure elements likely to be of interest to the community and/ or the most sensitive viewpoints, such as from regionally significant scenic lookouts', some critical viewpoints have not been visualised. Some of the VPs are not accompanied by photomontages, which makes it hard for some affected stakeholders (and the reader) to appreciate the probable impacts on these particular visual amenities.<br>Further, for some 'representative' viewpoints, the photomontage visualisations show what the trains and viaducts etc will look like when seen from one location (which may for example be 2.6 km from the proposed alignment) but gives no indication whether the surrounding sensitive receptors are closer or more distant. It would be helpful, when looking at the photomontages, to show the distance of view represented, and to understand how the receptors 'represented' by this viewpoint may be impacted by seeing the trains at viewing distances ranging from (e.g.) 1 to 5 km. This is alluded to with respect to VPs 14 and 15 in Appendix H but not otherwise addressed.<br>Also, it appears from the draft EIS that the Inland Rail route is unlikely to be used for passenger rail. If that is not the case, and there remains a future possibility of passenger rail traffic, the visual impact assessment should at least mention (not necessarily through analysis of representative viewpoints) that the proposed alignment will offer opportunities for attractive rural views, especially as the train passes through forested hills and the Toowoomba Escarpment.<br><br>Vistas such as below are truly confronting. | |

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| | |  <br>Photomontage view from Viewpoint 20 | |
| **65** | Section 10.6.3 (Visual Impact Assessment) Section 10.6.3.1 (Viewpoint Assessments) | **Lack of Consideration of Night-Time Amenity (Views) –** TOR 11.82 requires the draft EIS to 'describe and illustrate the visual impact of the construction and operation of the project' …and… 'views should be representative of public and private viewpoints, including places of residence.'<br>The draft EIS fails to consider the change to view amenity at night-time due to prolonged and frequent views of moving train headlights in the operation phase of the proposed project. It would seem that a number of residences on the valley floor (for example, those on Jones Rd between Amos Rd and Wallens Rd) will have a clear view of frequent train headlights in their night-time vista, particularly as the proposed alignment runs across the northern ridge of the valley. However, the magnitude of change assessment in viewpoint assessments does not include consideration of night-time views. | The draft EIS requires update to appropriately consider impacts to residential communities from the proposed prolonged and frequent views of moving train headlights at night, and in order to meet the requirements of the OCG's TOR. |

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| **66** | Section 10.7.1 (Initial Mitigation – Design Measures)<br>Chapter 23 Section 23.15.3.2 (Performance Criteria) | **Lack of Mitigation for Obtrusive Light** Impacts – TOR 11.84 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity.'<br>The draft EIS provides no specific design measures for mitigating the visual impacts of lighting during the construction or operational phase and as a result, the requirements of TOR 11.84 have not been met.<br>Section 10.7.1 states that any operational impacts due to lighting will be reviewed again at the detailed design phase. This is not a mitigation strategy, and no reference is made to any standards adherence that could mitigate impacts.<br>In general, there are no mitigation strategies proposed that relate to operational lighting, although possible changes to permanent lighting (streetlighting) on new roads should certainly be considered. In addition to this, any residential viewpoints that are identified as potentially exposed to obtrusive light may require mitigation strategies to reduce this impact.<br>The mitigation strategies for construction lighting recommends avoiding or minimising out-of-hours works, although security flood lighting will be present at night on some sites. Non-specific attenuation measures are suggested on an ad hoc basis ('in discussion with potentially affected residents'). This statement does not include reference to adherence to any Australian Standards that could mitigate impact or suggest any actual attenuation measures that would be forthcoming.<br>Other than minimising unavoidable out-of-hours work, there are no mitigation strategies related to minimising the impact of obtrusive lighting at night due to construction activities. This is essential. | The draft EIS requires update to meet the requirements of the OCG's TOR and to provide specific mitigation strategies to reduce the impact of obtrusive light at night in the construction and operational phases of the proposed project (such as those outlined in Section 23.15.3.2. |
| **Chapter 11 – Flora and Fauna** | | | |
| **67** | Chapter 11 | The EIS does not adequately address the TOR (11.93 and 11.94) – Mitigation Measures<br><br>**Buffer zones** are mentioned only in relation to construction. No buffers, retention or rehabilitation planting or construction of movement corridors has been outlined in detail.<br><br>The draft EIS states that fauna passages and fencing will be determined by the availability of suitable habitat adjacent to the alignment, however these studies haven't been conducted and no fencing plan is provided. It is not known what impact the | The draft EIS requires updating to include:<br>• further studies to accurately assess the actual and potential impacts of the proposed project,<br>• appropriate mitigation measures to ensure no significant residual impacts on matters of environmental significance<br>• development commitments which are appropriate to the scale and impacts of the proposed project in |

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| | | proposed construction of barriers including temporary and permanent fences and barriers, tracks, waterway barriers, the rail corridor itself, construction laydowns and noise attenuation fences will have on matters of environmental significance. No details or schedule has been provided for fencing maintenance.<br><br>Annual weed monitoring and is proposed through the ongoing operational Biosecurity Management Plan. Annual monitoring and treatment is not considered effective enough as weed and pest animal impacts are seasonal.<br><br>Lighting impacts have not been adequately mitigated. There are more detailed mitigation measures available to ensure lighting has little impact on wildlife apart from "incorporating minimum lighting requirements feasible for project safety". E.g. lighting guards, placement, direction etc. | order to ensure there is no significant residual impact for the environment.<br>LVRC request that the OCG consider imposing the following conditions:<br>That the proponent is required to:<br>• Use the information collected through the detailed seasonal surveys to better refine the location of the disturbance footprint to avoid, minimise and mitigate impacts on Matters of Environmental Significance<br>• Provide the following management plans addressing activities both during construction and operation:<br>o Fauna and Flora Management Plans<br>o Soil Tests, Soil Management Plans and Soil Management Sub-plans including soil testing, soil conservation measures, dispersive and sodic soil management measures and erosion and sediment controls.<br>o Environmental Management Plan<br>o Biosecurity management plan<br>o Construction and Operation Noise, Dust, Odour, Light and Vibration Management Plans<br>o Fencing and barrier plan including ongoing maintenance and monitoring schedule<br>o Monitoring evaluation and review management plans<br>• Provide an Offset Delivery Strategy |

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| **68** | Chapter 11 | The EIS does not adequately address the TOR 11.95 which describes how the achievement of objectives will be **monitored and audited**, and how corrective action would be managed.<br><br>No monitoring, evaluation and review type plans have been detailed to demonstrate compliance with this TOR objective. It is unknown what corrective actions will be put in place and how and when they will be implemented if necessary.<br><br>e.g. monitoring of artificial hollows to ensure off target/pest animals aren't using them<br>e.g. impacts of lighting, vibration, odour and noise<br>e.g. effectiveness of fauna fencing<br>e.g. impacts of water quality and quantity changes | The EIS needs to be updated to provide monitoring, evaluation and review plans which incorporate a monitoring schedule, criteria and thresholds for intervention and what corrective actions would be undertaken and who is responsible. |
| **69** | Ch 10/11 | There are a number of references to temporary and permanent **spoil stockpiles**. Yet nowhere is there any discussion of how these will be managed from a visual amenity perspective. References to disposing of spoil "along the alignment" are disturbing. Additional detail is required on how this significant visual amenity impact is going to be managed during construction and beyond. | That the COG seek additional information on the disposal of spoil from a location, volume and visual amenity perspective. This should be with agreement of local governments. |
| **70** | Chapter 11<br><br>11.1 | The EIS does not provide enough evidence of the **mitigation hierarchy** (i.e. Avoid, Minimise, Mitigate). There is no information provided regarding alternative alignment options that avoid or minimise the impacts on MES. The EIS states (11.1) that "Additional ecological surveys in accordance with Australian Government and Queensland Government guidelines are currently being undertaken to confirm the assessment and address known gaps in the approach (e.g. shift in the Project alignment subsequent to surveys)" . | *LVRC request the OCG impose the following conditions:*<br>'The proponent is required to undertake detailed ecological surveys to address the mitigation hierarchy (avoid, minimise, mitigate) and demonstrate the that chosen alignment has the least ecological impact across all species. |
| **71** | Chapter 11<br><br>Table 11.3.9 (page 11-133) | Missing heading row for<br><br>"Woodland birds: Swift parrot (Lathamus discolor), Regent honeyeater (Anthochaera phrygia), Painted honeyeater (Grantiella picta), Red goshawk (Erythrotriorchis radiatus), Grey falcon (Falco hypoleucos) and Black -breasted button -quail (Turnix melanogaster) in the table on page 11-169. | The EIS needs to be updated to amend this table and include the species name at the top of each page for ease of reading. |
| **72** | Section 11.1 (Summary) Section 11.5.5 (Field | **Failure to Complete Appropriate Ecological Surveys:** Section 11.5.5 and Figure 11.2a-11.2c of the draft EIS make it very clear that only one rail corridor route was proposed as part of the consideration of 'alternate alignments' for the proposed project and that no alternate routes were considered. The field survey locations shown in Figures 11.2a- | By failing to complete flora and fauna surveys on the complete length of the preferred alignment and not including survey for alternate alignments, the draft EIS has |

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| | Methodology)<br>Figure 11.2 a-c (Location of Areas)<br>Section 11.8.2 (Proposed Mitigation Measures)<br>Table 11.27<br>Table 11.33<br>Section 11.14 (Conclusions)<br><br>Chapter 22 (Cumulative Impacts) | c are located on the preferred rail alignment or where bridges are required to cross the preferred rail alignment. As noted in earlier comments, the draft EIS has not appropriately addressed TOR 6.7, which requires the draft EIS to 'present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes'. As such, the document has not met the requirements of TOR 6.7.<br><br>In addition, Section 11.5.5.1 notes that 'at each terrestrial sampling location, a vegetation survey, a fauna habitat assessment, active searches for cryptic fauna and opportunistic observations were undertaken as a minimum. The field survey locations shown in Figures 11.2a-c show only eight (8) 'supplementary terrestrial ecological surveys' on the actual proposed rail alignment. A further 11 were undertaken in areas outside the preferred rail alignment. This poses serious doubt over whether the summary provided in Section 11.1 accurately represents impacts on threatened species and ecological communities within the footprint of disturbance.<br><br>Further doubt is cast over survey results when:<br><br>- Section 11.8.2 makes statements such as: 'in addition, it is recognised that targeted surveys for most threatened flora and fauna species <u>have not been undertaken within the Project disturbance footprint</u>…'<br>- Table 11.27 states that 'fauna fencing opportunities will be further assessed…'<br>- Table 11.33 states that 'Project Design to consider further incorporating fauna crossing structures to allow fauna movement across alignment.<br>- Section 11.14 concludes that '…sensitive environmental receptors identified during the EIS will be subject to further investigation, <u>in order to more accurately determine the magnitude of the significant adverse impacts on the identified environmental receptors</u>.' (Note that environmental receptors are defined in Section 11.5.2 as a 'feature, area or structure that may be affected by direct or indirect changes to the environment.'<br>- Section 11.9.1 '*targeted surveys for most threatened flora and fauna species have not been undertaken within the Project disturbance footprint as part of Project surveys detailed in this report' (Ref: Table 11.27 EIS Chapter 11)* | not met the following TOR or been able to definitively state whether impacts are deleterious to the environment:<br><br>- TOR 6.2 requires that the EIS assesses 'both the short term and long term and state whether any relevant impacts are likely to be irreversible.'<br>- TOR 6.2 requires that the EIS discusses 'scenarios of known and unpredictable impacts'.<br>- TOR 6.3 requires that the EIS 'provide all available baseline information relevant to the environmental values of the project, including seasonal variations'.<br>- TOR 6.7 requires that the EIS 'present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes'.<br>- TOR 7.3 requires that the EIS assess cumulative impacts 'over time and in combination with impacts created by the activities of other local, upstream and downstream land uses, major projects under construction, and proposed development progressing through the statutory assessment processes for which information is publicly available'.<br>- TOR 7.3 requires that the EIS 'propose means to suitably address predicted cumulative impacts'.<br>- TOR 10.11(e) requires that the EIS describe proposed construction and operations, including 'any infrastructure alternatives, justified in terms of ecologically sustainable development'.<br>- TOR 10.11(p) requires that the EIS describe 'landscaping and the rehabilitation of affected areas after construction and during operation'. |

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| | | The assessment of project impacts on flora and fauna is obviously incomplete. This again raises further doubt that Chapter 22 presents a reasonable assessment of impacts if further survey work is required across such a wide are of environmental values. | - TOR 11.18 requires that the EIS provide 'sufficient detail to make clear why any alternative or option is preferred to another'.<br>- TOR 11.19 requires that the EIS discuss 'short-, medium- and long-term advantages and disadvantages of the alternatives or options'.<br>- TOR 11.92(a) requires that the EIS assess 'MSES, matters of local environmental significance (MLES) and designated State and regional biodiversity values and conservation corridors of conservation significance'.<br>- TOR 11.99 requires that the EIS 'provide information on the current distribution of animal pests and weeds on the preferred alignment'.<br>- TOR 11.101 requires that the EIS 'describe the impact the project's construction and operation will have on the spread of pest animals and weed species along the preferred alignment and into adjoining properties'.<br>As a result, the draft EIS requires reassessment and update to appropriately assess adverse impacts to flora and fauna as a result of the proposed project and in order to meet the requirements of the OCG's TOR.<br><br>Detailed seasonal targeted surveys for threatened flora and fauna species within the proposed project disturbance footprint and within an appropriate buffer, adjacent to the proposed project disturbance footprint are required. |
| **73** | Section 11.4 (Legislation, Policies and Guidelines) | **Lack of Consideration of Light Pollution Guideline for Wildlife** – TOR 5.4 requires 'the EIS is to be generally in accordance with relevant policies, standards and guidelines'. Section 11.4 of the draft EIS fails to include reference to the 'National Light Pollution | The draft EIS requires update to reference the 'National Light Pollution Guidelines for Wildlife' (January 2020) particularly in relation to developing appropriate |

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| | | Guidelines for Wildlife' (January 2020). As a result, the draft EIS fails to meet the requirements of TOR 5.4.<br><br>This guideline should be included in the draft EIS as it is highly relevant regarding the topic of the impacts of light at night on Australian wildlife, and best-practice mitigation measures. | mitigation strategies for the impact of light at night on flora and fauna. |
| **74** | Section 11.5 (Methodology) Section 11.8.2 (Proposed Mitigation Measures) Section 11.8.3 (Impact Mitigation) | **Lack of Appropriate Assessment**: the draft EIS fails to include important assessment information, deferring instead to 'detailed design'. This includes, but is certainly not limited to, appropriate consideration of:<br>- Proposed locations of all fauna exclusionary and movement instruments.<br>- Proposed threat abatement and recovery plans.<br>- Information on the expected disturbance on waterways from water diversions.<br>- Additional surveys to provide representation of all remnant and regrowth vegetation communities that will be impacted by the project.<br>- The location and details of the strategies for rehabilitation/reinstatement/stabilisation of disturbed areas from the construction of the railway.<br><br>Deferring important information and design elements in relation to fauna and flora to detailed design is a tactic that dilutes transparency, public involvement and community engagement and is not consistent with TOR 11.92. | The draft EIS requires update to provide the necessary information to meet the requirements of TOR 11.92 and to allow the community to understand design elements that will impact native flora and fauna including; proposed locations of all fauna exclusionary and movement instruments; proposed threat abatement and recovery plans; information on the expected disturbance on waterways from water diversions; additional surveys to provide representation of all remnant and regrowth vegetation communities that will be impacted by the project; the location and details of the strategies for rehabilitation/reinstatement/stabilisation of disturbed areas from the construction of the railway. |
| **75** | Section 11.5.5 (Methodology) | **Use of Unreliable Data:** the fauna and flora data used in the draft EIS is unreliable and insufficient to address the following TOR: 11.26, 11.27, 11.28, 11.29, 11.31, 11.32, 11.33, 11.34, 11.35, 11.91, 11.92. 11.93, 11.94, 11.95. The surveys do not cover large areas of mapped or areas known to contain species of MNES, MSES and MLES and defers to habitat modelling as the primary source of data. Secondly, most of the raw data used comes from previous studies that were undertaken for pre-clearing and geotechnical purposes. For the draft EIS, primary data, or data collected first-hand must account for most of the raw data to have any scientific confidence in the conclusions. The reliance on secondary data compromises all assumptions made, including being representative spatially and temporally of the ecology study area; and the reasoning for any proposed actions, including mitigation strategies and offsets. In addition, all surveys were undertaken during an extreme dry period which is inappropriate as it does not | In order to meet the requirements of the OCG's TOR and to appropriately demonstrate reliability in the data, additional surveys will need to be undertaken in both terrestrial and aquatic environments and the draft EIS amended accordingly. To ensure that the data is representative of the existing natural environment, surveys should be undertaken in all areas mapped and areas known to contain MNES, MSES and MLES species. Where potential habitats exist that aren't mapped as being environmentally significant, surveys should be undertaken by habitat type, such as open agricultural fields. To ensure the results are reliable and |

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| | | represent the dynamic changes in flora and fauna abundance and diversity that occur in wetter periods. | representative, surveys should have at a minimum three (3) replicates undertaken in Autumn and again in Spring in accordance with the guidance for surveying in the SEQ Bioregion. The draft EIS should also discuss the impact of abiotic conditions on survey results, particularly the influence of rainfall on the regions terrestrial and aquatic habitats. Analysis should discuss the methodology of using primary and secondary data to illustrate the level of confidence in the outcomes of the draft EIS. It is expected that the proposed strategies including avoidance, mitigation, offsets and precautionary matters will require amendment in order to be considered appropriate. |
| **76** | Section 11.5.5 (Methodology) Table 11.5 Figure 11.2 a-c | **Lack of Detailed Assessment**: Table 11.5 includes a summary of surveys undertaken by various consulting groups from March 2016 through to May 2019. Within this table, 345 survey sites were 'investigated,' yet Figure 11.2a-c show significantly less survey sites. The inclusion of this table is misleading and the 345 tabulated survey sites, and the document has not confirmed that any of these sites are within the footprint proposed alignment. | The draft EIS requires update to clearly show all 345 survey sites noted in Table 11.5 on relevantly scales alignment plans in order to provide transparency regarding the suitability of the inclusion of these survey sites. |
| **77** | Section 11.5.7 (Stakeholder Engagement) | **Inappropriate Community Engagemen**t: the method of community engagement provided in Section 11.5.7 lacks transparency and accessibility. Directing people to Wildnet with species recordings is not meaningful or effective community engagement as that it is impossible for the reader to know what records on Wildnet were a result of stakeholder engagement, so it is therefore impossible to know whether the method of stakeholder engagement was effective. Secondly, relying on a third-party vetting process has obvious issues with transparency, particularly understanding the ratio and reason why some records are successful and why others were unsuccessful. Additionally, some people may not have been able to attend the workshop or be competent or have access to use Wildnet; thereby further reducing people's ability to be involved. As a result of these gaps and issues with transparency, the requirements of TOR 11.21 have not been met. | In order to appropriately address the requirements of TOR 11.21, it is recommended that community engagement be revisited, with changes to the style that will clearly demonstrate how the community's input was not only considered but how it also influenced the outcome of the draft EIS. The style of consultation should provide quantitative and qualitative data from a cross-section of stakeholders across the community and address the issues of transparency and accessibility. |
| **78** | Chapter 11 11.6.3 Appendix I and Appendix J | **Grey Headed Flying Foxes**<br>The EIS states that no breeding places for threatened species (including grey headed flying camps) were observed during the pre-clearance surveys. "The EIS also states that | The EIS needs to be updated to analyse the impacts of noise, odour, vibration, lighting, dust, changes in breezes, water quality and quantity during construction works and ongoing operation and how these will be mitigated. |

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| | | the nearest roost site is approximately 540 m south of the Project footprint although there is no recent data indicating the site is still used."<br>This roost has historically contained Grey Headed Flying Foxes, Black Flying Foxes and Little Red Flying Foxes.<br><br>Flying foxes are known to intermittently use roosts. Some roosts remain unused for years and then suddenly become occupied again. This particular roost suffered (possibly intentional) vegetation damage along the Lockyer Creek in 2018 which caused the flying foxes to move to the Helidon School over summer 2019/2020. The State Education Department dispersed the roost and removed all the branches from the trees within the school grounds. There were no known flying fox roosts in Helidon area over the 2020/2021 summer period. The vegetation within the original roost along the Lockyer Creek is recovering.<br><br>Flying fox roosts need to be considered a sensitive environmental receptor as Grey Headed Flying Foxes are listed as vulnerable under the EPBC Act and NCA therefore flying fox roosts containing Grey Headed Flying Foxes are MNES and MSES.<br><br>LVRC is concerned that the potential impacts of noise, lighting, vibration, dust, changes to breezes, water quality and quantity on flying foxes at this roost, both during construction and operation have not been considered. It is likely, that if the animals return to the roost and find the new conditions due to the construction or operation of the project unsuitable, they will attempt to once again roost in the trees in residents backyards of Helidon township, causing community angst.<br><br>These impacts need to be taken into account during the design phase. | |

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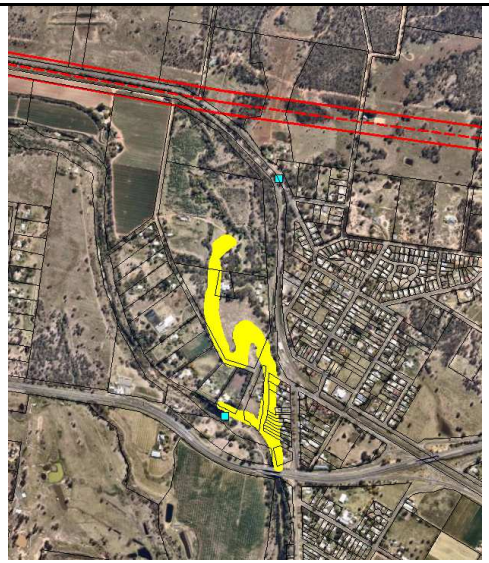
| | |  | |
| **79** | Chapter 11 and Appendix I Appendix J | The EIS notes that **Spotted-tailed quolls** as likely to occur within the disturbance footprint, however does not include any recent records.<br>A confirmed dead adult male spotted tailed quoll (*Dasyurus maculatus maculatus*) record was lodged with Wildnet on 7 May 2021. (GPS: GDA94 – S27.54138 x E152.296771; +/- 20 metres)<br><br>Although this record is outside of the G2H section, it demonstrates that quolls are living and moving within the local area. This information should be incorporated into the EIS. | Update the EIS to include this important recent local Spotted-tailed quoll record and update the impacts and mitigations sections. |
| **80** | Section 11.7.9 (Potential Impacts) | **Lack of Appropriate Assessment for creeks**: literature shows that anthropogenic sound and vibration disrupts aquatic fauna ecology including communication, breeding and orientation. It is expected that vibrations caused by the train's movement will permanently alter the natural ecology of the affected creeks however, Section 11.7.9 provides no discussion surrounding these potential adverse impacts. Noise and vibration impact on aquatic fauna is considered a relevant impact in accordance with TOR 11.11 and TOR 11.92 and must be discussed in the draft EIS. | In order to meet the requirements of TOR 11.11 and TOR 11.92, the draft EIS requires update to describe the likely impact of vibration from the operation of the inland rail on significant aquatic fauna and the overall ecology of all impacted creeks. A literature review should inform the potential impacts on different taxa and any best practice mitigation strategies. The ecology of the riparian and aquatic habitats should be represented through targeted site surveys with multiple sites in accordance with relevant state and national guidelines. The flora and fauna |

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| | | | management plans must also be updated to consider the impact of vibration and propose any additional mitigation strategies and on-going monitoring requirements. |
| **81** | Section 11.7.9 (Noise, Dust and Light Impacts)<br>Chapter 23 (Draft Outline Environmental Management Plan)<br>Table 11.27 | **Adverse Lighting Impacts on Flora and Fauna** – TOR 11.93 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on natural values, and enhance these values' … and … 'in particular, address measures to protect or preserve any threatened or near-threatened species.'<br>The draft EIS provides no clear mitigation strategies to address the impact on flora and fauna of light at night during construction and operation phases of the proposed project and as a result, the document fails to meet the requirements of TOR 11.93.<br>Section 11.7.9 acknowledges the potential impacts of lighting. The following text states the proposed project will result in 'minor light spill (i.e., 'warm light' at level crossings and around the tunnel portals)' during construction and operation phases. The text acknowledges impacts related to changes in predation and altered foraging or habituation but dismisses the construction phase as temporary and operation phase light spill as only 'transient' in nature. This is not an appropriate assessment of the situation, in particular:<br>- 'Warm' light is not a comprehensive specification.<br>- There appear to be no new level crossings in this region.<br>- Spill from light at tunnel portals is not minor in its impact to fauna at the site of the portal (although it may be considered minor in the overall context of the region).<br>- This portal lighting is not transient during operation and how its impacts will be mitigated should be included in this section.<br>The section concludes by confirming that 'activities likely to cause longer term impacts will be conducted in accordance with the relevant environmental management plans'. However, it is important to note that the draft Outline Environmental Management Plan (Chapter 23) of the EIS *does not include any mitigation measures for lighting impacts in Table 11.27.*<br>There is some permanent lighting to be expected (at the eastern entrance to the tunnel), along with some changes to streetlighting, but no specifications provided regarding how impacts to flora and fauna from permanent lighting will be mitigated. | It is critical that mitigation measures provided in the draft EIS are updated to include the appropriate reduction of adverse impacts of lighting on flora and fauna during both the construction and operation of the proposed project. As previously discussed, guidance on such measures is available from the National Light Pollution Guideline for Wildlife (2019). |

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| **82** | Section 11.7.11 (Aquatic Degradation) | **Lack of Appropriate Assessment** for all impacted creeks: the draft EIS states that the tunnel's impact to groundwater is expected to have flow-on effects on the hydrology of Rocky Creek. It is anticipated that the quantity of water to be discharged to this creek will change the watercourse from an ephemeral creek to a perennial or permanently flowing stream when it is naturally subject to wetting and drying cycles. However, neither Chapter 11, Chapter 13, Chapter 14 or the supporting technical appendices provide as assessment of the aquatic ecological impacts of the proposed hydrologic regime changes. This is very concerning to LVRC as this is a significant change to the hydrological regime of the Rocky Creek catchment.<br><br>The lack of assessment of this proposed action leaves many questions unanswered by the Draft EIS, examples of which include but are not limited to:<br>• How will this change to a permanent flow affect the geomorphology of Rocky Creek? The draft EIS does not consider bank and bed stability, watercourse alignment, sediment dynamics and transport.<br>• Will the permanent flow of water provide a vector for weed movement in the catchment?<br>• Will the constant presence of water in the Rocky Creek catchment increase nuisance insects such as mosquitoes?<br>• How will the increased moisture levels in the catchment affect vegetation composition? Will this encourage weeds which will outcompete native species? Will a change in vegetation composition affect watercourse stability, habitat values etc?<br>• What will be the effects on aquatic ecological communities by changing the stream flow regime from event based to permanent? Presumably species that utilise the Rocky Creek catchment are adapted to the normal wetting and drying cycles of an ephemeral system. How will they be impacted by a significant change to the flow regime?<br>• How will water quality be monitored and maintained to protect aquatic ecological receptors?<br>• How will the hydrological change affect catchment salinity? | The draft EIS requires update to meet the requirements of the OCG's TOR and to appropriately discuss the very real possibility of deleterious and irreversible damage caused to the ecology of the Rocky Creek catchment and surrounding environment from the permanent lowering of surrounding groundwater reservoirs and constant discharge of groundwater from the eastern entrance to the tunnel to an ephemeral tributary of Rocky Creek. To support this, a detailed assessment is required to inform a revised draft EIS that at least considers:<br>- Aquatic ecological and riparian zone values<br>- GDE<br>- Stream geomorphology<br>- Water quality<br>- Salinity<br>- Invasive species and nuisance insects, and<br>- Vegetation communities |

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| | | The potential impact this action will have on the ecology, hydrology and geomorphology of the Rocky Creek catchment must be addressed within the draft EIS in order to meet the requirements of TOR 11.11 and TOR 11.14. | |
| **83** | Section 11.6.7 (Springs and Groundwater Dependent Ecosystems) | **Failure to Identify all Mapped Groundwater Dependent Ecosystems (GDE):** Section 11.6.7 and Table 11.24 of the draft EIS state that only Terrestrial GDEs occur in the study area, however this is incorrect. Queensland Government's GDE mapping in QLD Globe shows that the proposed alignment will cross numerous surface water features that are classified as Surface GDE Lines (see below), however this was not identified in the draft EIS. The draft EIS has not identified all relevant aquatic ecological values of the study area and the potential impacts to GDE, therefore TOR 11.92 or 11.54 have not been met.<br>  <br> | The draft EIS requires update to identify all mapped applicable aquatic ecological values and impacts, as required by TOR 11.92 and 11.54. All GDE must be identified, and potential impacts assessed which consider direct impacts from construction and maintenance activities and ongoing operational impacts associated with the constant discharge of intercepted groundwater from the tunnel to the Rocky Creek catchment. |
| **84** | Section 11.6.7 (Springs and Groundwater Dependent Ecosystems) and 11.7.13 (Tunnel) | **Failure to Confirm Presence of GDE in** Study Area: Section 11.6.7 and Table 11.24 of the draft EIS state that only Terrestrial GDEs occur in the study area. The below map from QLD Globe shows Terrestrial GDE in the study area, mainly associated with watercourses. | The draft EIS requires update to include a more complete assessment of GDE to meet the OCG's TOR. This should include:<br>- further desktop studies to identify all potential GDE<br>- detailed field investigations to confirm the extent and type of GDE and relationships with local groundwater systems<br>- assessment of potential impacts which should include but not be limited to: impacts from |

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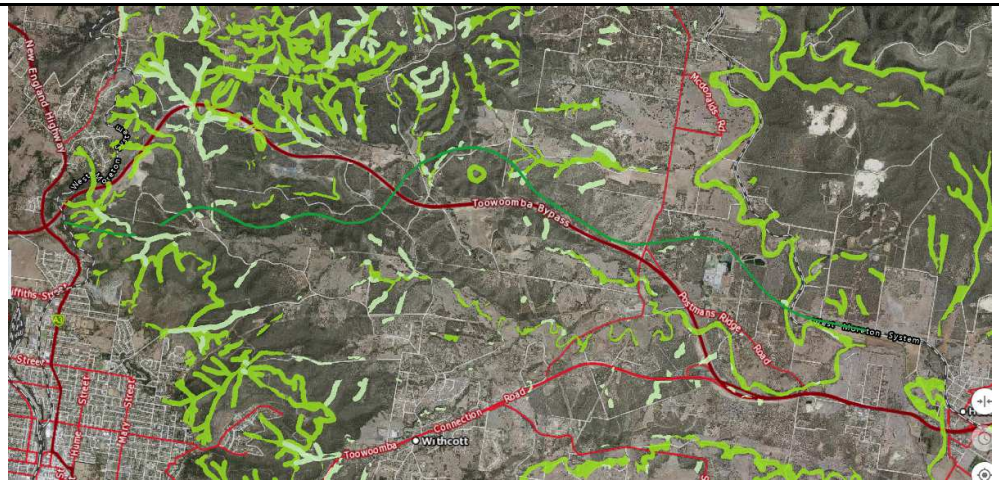
| | |  <br>GDE in the study area were only determined by a desktop assessment using BOM's national dataset and not by field survey as would normally be expected in a standard impact assessment process. Section 14.6.9 of Chapter 14 describes this as a conservative approach, however this is not the case and a misleading statement. A ground survey may have identified more GDE in the study area than what is recorded in the broadscale national dataset due to matters of scale and data resolution.<br><br>The typical process of impact assessment is a desktop study followed by a ground-truthing survey to accurately determine the environmental values that will be impacted so appropriate mitigation measures can be developed.<br><br>The draft EIS has not met TOR 11.91, 11.92 or 11.54 because:<br>• The desktop assessment failed to identify all potential mapped GDE (refer to above comment).<br>• No field survey was conducted to confirm the type and extent of GDE that occur in the study area<br><br>The draft EIS states that further post-EIS surveys will be undertaken during optimal conditions to confirm the presence of mapped GDEs in the study area. This is an unacceptable approach by the proponent as this level of study should be completed as part of the EIS, not after it, and raises several questions:<br>• What are optimal conditions for GDE assessment? | clearing during construction, impacts from changes to groundwater levels, impacts from changes to surface water regimes due to tunnel dewatering.<br>Determination of required mitigation measures to address the impacts of the project |

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| | | • What if optimal conditions do not occur before construction?<br>• How can the proponent assess impacts to GDE when they have not been identified and understood?<br>• How can the OCG or community be reasonably expected to understand the impacts to GDE given the shortcomings of the draft EIS with respect to this ecological value?<br><br>Based on the meagre and incomplete desktop assessment completed, the draft EIS has not identified all GDE and gives no consideration to the significant impacts that the project will have to these ecological values. The project will impact GDE by:<br><br>• Removal of GDE during construction.<br>• Reducing groundwater levels (estimated at about 5 m drawdown during construction and between 1 – 5 m during operations) and availability which will affect stream flow in Surface GDE features and vegetation communities in Terrestrial GDE<br><br>Constant release of water to Rocky Creek catchment from the tunnel. | |
| **85** | Section 11.8.2 (Proposed Mitigation Measures) Table 11.27 | **Inappropriate Assumption of Clearing Requirements**: the draft EIS includes a broad statement in Table 11.27 that '…the assessment assumes the entire project disturbance footprint will be cleared…' Approval of the draft EIS allow the proponent to clear a minimum 178 ha (28.5 km x 62.5 m width) or up to 712 ha (28.5 km x 250 m wide) requires further consideration and detail. Such broadscale clearing would require a very thorough investigation and definitive survey work to be completed prior to the draft EIS being approved.<br><br>Section 11.8.2 includes numerous mitigation measures and states that the proponent is committed to undertaking additional ecological surveys post EIS approval. While Table 11.27 includes reference to additional surveys at least 36 times. It seems clear that insufficient survey work has been completed to truly determine actual flora and fauna impacts or cumulative impacts. Specifically, as a result, the requirements of the following TOR have not been addressed:<br><br>- TOR 6.3 requires that the draft EIS 'provide all available baseline information relevant to the environmental values of the project, including seasonal variations'. | The draft EIS is incomplete as appropriate and required surveys to inform impacts to flora and fauna have clearly not occurred. As a result, the document requires update to meet the requirements of the OCG's TOR and should not be approved until all details survey work is complete and definitive impacts are clearly known. |

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| | | - TOR 7.3 requires that the draft EIS assess cumulative impacts 'over time and in combination with impacts created by the activities of other local, upstream and downstream land uses, major projects under construction, and proposed development progressing through the statutory assessment processes for which information is publicly available'.<br>- TOR 7.3 requires that the draft EIS 'propose means to suitably address predicted cumulative impacts.<br>- TOR 11.92(a) requires that the draft EIS assess 'MSES, matters of local environmental significance (MLES) and designated State and regional biodiversity values and conservation corridors of conservation significance'.<br>- TOR 11.99 requires that the draft EIS 'provide information on the current distribution of animal pests and weeds on the preferred alignment'.<br>TOR 11.101 requires that the draft EIS 'describe the impact the project's construction and operation will have on the spread of pest animals and weed species along the preferred alignment and into adjoining properties.'<br>Yet again key details that should be provided are postponed to detailed design phase. Why cannot a pest management plan to control pests such as fire ants be provided at this time? | |
| **86** | Chapter 11 and Chapter 20 | The impacts in changes to **fire regimes** during construction and operation have not been considered throughout the EIS. The proposed alignment will create new barriers that don't currently exist. It is also possible that land managed by the proponent will undergo altered fire regimes both during construction and operation/maintenance. This has the potential to impact on flora and fauna particularly sensitive remnant and regrowth semi-evergreen vine thicket. These impacts have not been considered in the EIS.<br>Damage to the surrounding ecological values from bushfire has not been considered in the impact assessment Table (20.11)<br>LVRC recommend that an ecological bushfire assessment and management plan should be written to mitigate impacts. | An ecological bushfire assessment and management plan be written for the project area and surrounds.<br>The EIS be updated to incorporate the findings of the ecological bushfire assessment and management plans. |

| Chapter 12 – Air Quality | | | |
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| **87** | Chapter 12<br>Appendix K Section 5.3.1.4 (Toowoomba Range Tunnel Entrance Emissions) | **Assessment of Tunnel Portal Emissions –** Table 5.12 of Appendix K presents an estimate of pollutant emissions from the tunnel entrances There is inadequate information on how these emissions have been estimated.<br>Furthermore, modelling results presented at the sensitive receptors in Section 7.1.1 do not provide any information or discussion on specific contribution from the tunnel entrances to emissions. As a result, the draft EIS fails to meet the requirements of TOR 5.1 and 11.128. | The draft EIS requires revision to meet the requirements of the OCG's TOR and to revise Appendix K to provide additional information on how emissions from the tunnel entrances have been estimated. Also, additional information is required in understanding the contribution of emissions from the tunnel entrances to predicted ground level concentrations. |
| **88** | Chapter 12<br>Appendix K Section 2.3 (Operations) | **Weekly Train Movements and Selection of the Assessment Year** – Section 2.3 of Appendix K estimates train movement rate of approximately 226 trains per week during the opening year of the project (2027), with volumes projected to significantly increase in future operational years. There is no information on how weekly train volume estimates have been determined.<br>Assessment of air quality impacts has been conducted for forecasted typical and peak train volumes in 2040. There is no justification in Appendix K for selecting the 2040 year as the assessment year. Additional information is required for the readers to appreciate and understand the significance of selecting the 2040 year as the assessment year.<br>The forecast typical train volume for 2040 is anticipated to represent 81.6% of the peak volume with an equal reduction of 18.4% across each train type. There is no clear information as to how these percentages have been derived.<br>It is imperative that additional information be provided on these matters, as the entire assessment is based on these projections of typical train movements of 328 trains per week as opposed to a peak volume of 402 trains per week. | In order to meet the requirements of the OCG's TOR, Additional information needs to be provided on:<br>- Selection and justification of the 2040 year as the assessment year.<br>Weekly typical and peak train movement estimates. |
| **89** | Chapter 12<br>Appendix K Section 4.7 (Selection of Sensitive Receptors) | **Future Sensitive Receptors –** the Air Quality Technical Report takes into consideration existing sensitive receptors surrounding the rail alignment but does not make any mention regarding the identification of potential future sensitive receptors which could be potentially impacted by train movements. This is a major limitation with the assessment, considering that the assessment year is 2040 which is more than 20 years from the time of releasing the draft EIS.<br>There can be an argument from the proponent that concentration isopleths would provide relevant information on any future residential development, however, notwithstanding the above, it would be largely beneficial if there can be a separate section in the assessment providing technical commentary on impacts on future | The Air Quality Technical Report should be revised to address TOR 5.1 and TOR 11.127 corresponding to selection of sensitive receptors. Additional information is required with respect to impacts on future residential development and the potential impacts from the project on those future developments. |

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| | | residential development. As a result of the lack of discussion regarding future sensitive receptors, the draft EIS fails to mee the requirements of TOR 5.1 and TOR 11.127. | |
| **90** | Chapter 12<br>Appendix K Section 5.3.2.1 (Selection of Meteorological Year) | **Selection of the 2013 Meteorological Modelling Year** – Meteorological modelling was conducted for the 2013 calendar year and the justification was that neutral conditions were observed during this year and for the remaining years between 2007 and 2017 were either characterised by El Nino or La Nina episodes. There is no information in the report regarding how atmospheric stability and mixing height parameters varied between the chosen 2013 year and the remaining years which had either a El Nino or La Nina episode. | It is recommended that the Air Quality Technical Report be revised to present CALMET mixing height and stability parameters for a typical El-Nino/ a-Nina year for at least one (1) CALMET modelling domain in order to provide a robust meteorological assessment. |
| **91** | Chapter 12<br>Appendix K Section 4 (Existing Environment) | **Characterisation of the Existing Environment –** TORs 11.124-11.127 outline the requirements for a detailed characterisation of the existing environment.<br>The review of the Air Quality Technical Report has identified several limitations regarding quantifying / characterising the existing quality levels. Some of the key limitations are listed below:<br>- Section 5.3.1.7 of the Air Quality Technical Report mentions that emissions from the Toowoomba Bypass were included as a part of the cumulative assessment. However, the review was unable to determine the emission rates that have been estimated for vehicular traffic on the Bypass and how it was included in the dispersion modelling to determine cumulative impacts. Furthermore, Section 5.3.1.7 states that the source parameters corresponding to modelling of emissions from the Toowoomba Bypass are included in Table 5.17. However, Table 5.17 includes only sources corresponding to the G2H Project (G2H-1 to G2H-6), a 1 km stretch of the B2G alignment, a 1 km stretch of the H2C alignment, the West Moreton System and the 3 crossing loops. There is no mention of sources corresponding to the Toowoomba Bypass.<br>Although the selection of the 70th percentile value to determine background concentrations is agreeable, this approach tends at times to underestimate the background concentrations of the study area and a more conservative approach to estimate background concentrations is warranted. | The Air Quality Technical Report requires update to address limitations regarding characterisation of the existing air quality levels and to meet the requirements of the OCG's TOR. |
| **92** | Chapter 12<br>Appendix K Section 7.3 (Assessment of | **Assessment of Impacts to Ecological Receptors –** Section 7.3 of the Air Quality Technical Report determines impacts from the project on ecological receptors. The key pollutant for consideration is the annual average NO2 ground level concentration of 33 $mg/m^3$. | The Air Quality Technical Report requires update to provide additional information with regards to impacts to ecological receptors and to meet the requirements of the OCG's TOR. |

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| | Impacts to Ecological Receptors) | Observations presented in Section 7.3 suggest an exceedance of the assessment criteria outside the permanent disturbance footprint area. Moreover, the exceedance is largely attributed to traffic on the Toowoomba Bypass. However, as mentioned earlier, there is no clear information on the modelling of emissions from the Toowoomba Bypass.<br>As-such, there is a level of uncertainty associated with the impacts predicted at the ecological receptors.<br>Further, there is no discussion on mitigating the exceedances predicted to the ecological receptors (although the exceedance is restricted to limited areas outside the proposed project's permanent disturbance footprint). Given this, the draft EIS fails to meet the requirements of TOR 5.1 and 11.128. | |
| **93** | Chapter 12<br>Appendix K (Section 7.5 Agricultural Train Odour Impacts) | **Agricultural train odour impacts –** Section 7.5 of the Air Quality Technical Report identifies livestock freight trains as presenting the greatest risk of nuisance related to odour emissions, when compared to agriculture freight. The potential for offensive odours is especially quite high when stopping at crossing loops. Assessment of odours has been conducted using the FIDOL factors Table 7.8 of the Air Quality Technical Report makes a note that the odour intensity from livestock freight trains is expected to range from strong to very strong. Taking into consideration the strong odour intensity coupled with longer durations at crossing loops, a qualitative assessment of odour impacts would not deem fit and appropriate for a project of this magnitude.<br>In other jurisdictions such as NSW and Victoria, odours are assessed on a sub-hourly timescale and trains with a strong to very strong odour intensity idling / stopping for a period of one hour or less has a considerable potential to generate adverse odour impacts on the surrounding community.<br>The assessment of odour impacts does not meet TOR 11.131 as the assessment does not:<br>- Adequately consider cumulative impacts of odour at receptors. If the population is already exposed to similar (livestock) odour from local agricultural activities, what impacts may occur to amenity from adding an additional odour source – which is similar in character.<br>- The assessment does not take into consideration the assimilative capacity with regards to livestock odours.<br>- It is assumed that the 6 livestock trains would be spread over a 1-week period, resulting in an average of less than 1 train per day. However, there is no | Appendix K requires update to include a revised approach for the quantitative assessment of agricultural/freight train odour impacts in order to meet the requirements of TOR 11.131. |

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| | | additional discussion regarding the likelihood of two (2) trains turning up on the same day. This would worsen the odour impacts at the sensitive receptors and the assessment does not provide enough discussion on this matter.<br>- Additional analysis is warranted regarding the estimated duration of a livestock train pass by which may be up to 1 hour and comparing its intensity impacts to a more common form of livestock transport such as a livestock truck. This would seem like a considerably longer duration than say a livestock truck (which is understood given the length of the train).<br>Commentary would be required on how the scale of livestock numbers on a livestock train compares to livestock numbers on a cattle truck. Presumably, a livestock train will be a more significant odour source than existing modes of livestock transport given the significant difference in scale. | |
| **94** | Chapter 12<br>Appendix K<br>Section 7.2<br>(Impacts to Tank Water Quality) | **Impacts to Tank Water Quality –** the assessment of tank water quality impacts is based on pollutant guidelines (mg/L) outlined in the 2018 version of the Australian Drinking Water Guidelines 2011. It is to be noted that these guidelines were updated back in August 2018 and in March 2021. The assessment has to be amended such that the predicted concentrations (mg/L) are compared against the guidelines published in the most recent versions.<br>Section 5.3.7.3 of the Air Quality Technical Report notes that there is uncertainty with respect to volume of storage dams at Withcott Seedlings and the catchment surface area for each dam. An approximate volume of 1 000 L for the dam and a 200 $m^2$ catchment area has been assumed. Across many sections of the report, Withcott Seedlings is considered a high-value sensitive receptor, as it is a commercial business producing vegetable seedlings. The project traverses the business facility, on viaduct, between two large water storage dams.<br>As proposed project operations could have considerable impacts on the facility, it is imperative that the assumptions be validated as the model outcomes for tank water quality are directly based on these assumptions, and to meet the requirements of TOR 5.1 and TOR 11.128. | The assessment of tank water quality impacts requires update to meet the requirements of the OCG's TOR and to reflect the updated guidelines published in the most recent versions of the Drinking Water Guidelines.<br>Further, assumptions pertaining to dam volume and catchment area at Withcott Seedlings need to be confirmed/validated, as it is a high value receptor. |
| **95** | Chapter 12<br>Appendix K | **Microbiological Emissions to Air –** the Air Quality Technical Report does not give any consideration to microbiological contaminants in air emissions during operations, namely Q-fever (*Coxiella burnettii*) in dust from livestock trains. TOR 11.128 requires characterisation of any contaminants or materials that may be released as a result of | The Air Quality Technical Report requires update to meet the requirements of the OCG's TOR through the inclusion of an assessment of microbiological emissions released from the freight activities. More, specifically, the air |

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| | | construction / operational activities. TOR 11.131 requires quantification of human health risk and amenity impacts, which has not been addressed with regards to microbiological emissions in air.<br>QLD Health provide extensive information about Q-fever which is summarised here (refer to https://www.worksafe.qld.gov.au/safety-and-prevention/hazards/hazardous-exposures/biological-hazards/diseases-from-animals/q-fever).<br>Q-fever is an infectious disease spread from animals (mainly cattle, sheep and goats) to humans by a bacteria called (*Coxiella burnettii*). People become infected with Q-fever by inhaling contaminated aerosols and dusts. Sources of relevance to the project can include animal wastes (urine, faeces etc) and contaminated machinery/equipment/vehicles. The risk of infection is significant as:<br>- Q fever is very infectious, and people can become infected from inhaling just a few bacteria.<br>- Large numbers of bacteria are shed by infected animals.<br>- The bacteria can survive in the environment for long periods, tolerate harsh conditions and spread in the air.<br>Information from the Australian Q-fever Register website (https://www.qfever.org/aboutqfever#IndirectExposure) states that people may be exposed to infected dusts even if located a kilometre or more from the source. Much larger potential zones of infection are reported by various studies, ranging from 5km to more than 10 km. Stock transport trucks are identified a source of infective dusts. Research by the University of Queensland published in the BMC Infectious Diseases Journal in 2018 noted that outbreaks of Q-fever had been reported previously in Europe for residents living along roads where livestock were transported.<br>Based on this information, the livestock trains present a health risk to receptors with regards to Q-fever and this needs to be assessed in the Air Quality Technical Report. | quality assessment and hazard and risk assessment need to be revised and updated to include an assessment of the potential risks of Q-fever from livestock trains to human health<br>It is recommended that the proponent consult with Queensland Health in relation to the further assessment of this matter. This is to ensure that an appropriate method of assessment is used that an acceptable zone of infection (i.e., study area) is applied to adequately assess the hazards and risks to public health from the project with respect to Q-fever. |
| **96** | Appendix K (Air Quality) | **Coal Dust–** Table 2.3, Section 2.3 states that the modelled coal trains were 990 m long, however the project description says trains may be up to 3.6 km long. It is not clear if coal trains will be limited to 990 m or if they may be longer (i.e., up to 1.8 km or 3.6 km long). Table 6.2 in Chapter 6 suggests longer trains could be used based on customer requirements within the maximum train length which is potentially up to 3.6km. The draft EIS does not consider the effect of train lengths up to 3.6 km on air quality from coal dust emissions. | The assessment of coal dust emissions does not meet 11.135 of the TOR because the assessment does not accurately estimate the rate of coal dust lift off and concentration at sensitive receptors. It is recommended that the COG require the proponent to update the air quality impact assessment to include the following to |

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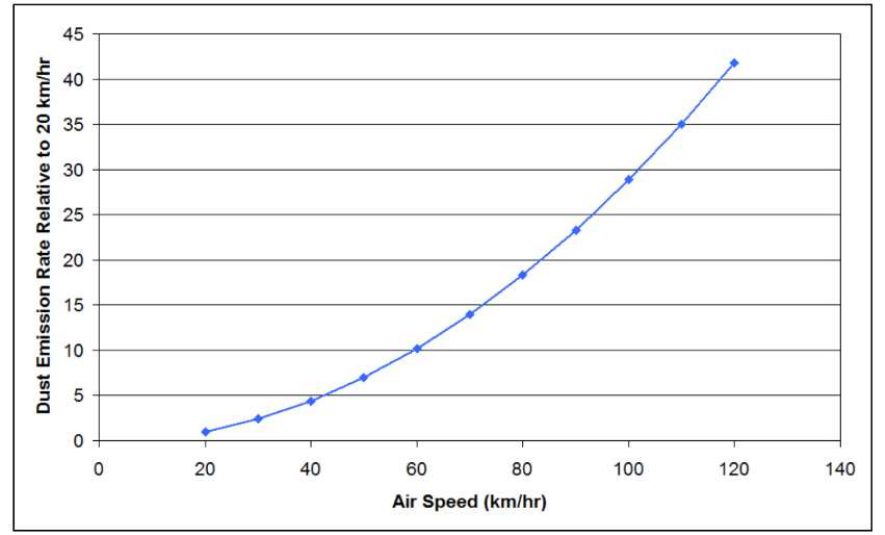
| | | Table 4.17, Section 4.4.3.1 describes the release height above ground level of 3.3 to 4.3 m, however the project description clearly states trains will be double stacked and exceed heights of 7 m. We have assumed though it is not stated that coal trains will be limited to single wagons not double stacked. If that is incorrect, the draft EIS does not consider the effect of double stacked train heights on air quality from coal dust emissions.<br>Appendix K and Table 6.2 in Chapter 6 suggest that the maximum coal train speed will be 80 km/hr based on 25 ton axle loads (TAL). The modelling however did seem to include contributions to the effective wind speed over the coal wagons by local winds which could contribute to coal lift off. The Environmental Evaluation of Coal Dust Emissions (Connell Hatch, 2008) suggests that on average, local wind could add 10-15 km/hr to the air speed across the coal surface in the wagon. The graph below is from Environmental Evaluation of Coal Dust Emissions (Connell Hatch, 2008) (which is referred to by the draft EIS). It shows that if air speed across the surface of the coal increased from 80 km/hr to 95 km/hr (assuming an allowance for local winds) the coal dust emission rate would increase by about 35%.<br>  <br><br>Also, Table 6.2 in Chapter 6 indicates that future proofing works will include structures and formation that can allow higher speeds for heavier axle loads (30 TAL). This | better estimate the potential impact of coal dust emissions at sensitive receptors:<br>- Clarify the limit of rollingstock sizes<br>- Assess impacts for all train sizes potentially used<br>- Consider train speeds of 80 km/hr with an appropriate allowance for local winds on coal dust lift off.<br>- Consider train speeds of 115 km/h with an appropriate allowance for local winds on coal dust lift off.<br><br>The proponent should commit to the application of coal wagon veneering. |

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| | | suggests that coal trains may be able to travel at higher speeds in the future, but this is not clearly defined in the EIS nor is it assessed by the air quality assessment which limits coal train speed to 80 km/hr. Referring to the above graph, if air speed across the surface of the coal increased from 80 km/hr to 115 km/hr (**excluding an allowance for local winds**) the coal dust emission rate would increase by 100%.<br>The draft EIS notes that plumes of coal dust could be visible at the tunnel portals but this was not assessed as it was assumed that coal wagon veneering would be applied.<br>The assessment of coal dust emissions does not meet 11.135 of the TOR because the assessment does not accurately estimate the rate of coal dust lift off and emission and concentration at sensitive receptors. This is because it fails to consider maximum train lengths and source heights and wind speeds across the surface of coal wagons do not include the effect of local winds or the effect of higher train speeds in the future. | |
| **97** | Chapter 12 (Air Quality) and Appendix E (Proponent Commitments) | **Coal Wagon Veneering** – Veneering was assumed in the draft EIS to be used as a mitigation measure for controlling coal dust from wagons and is overly critical to the outcomes of the coal dust emission and modelling assessment. The model relies on a reduction in coal dust lift off from the wagons of 75% due to veneering. Veneering is currently used for trains on the West Moreton Rail System. However, the draft EIS makes no firm commitment to ensuring all trains using the H2C alignment will apply veneering to coal wagons.<br>Therefore, the draft EIS does not meet 11.136 of the TOR as it makes no clear commitment to any mitigation measures to control coal dust emissions. This is important because the draft EIS has shown that if veneering is not used the air quality criteria will not be met. | The draft EIS needs to make a clear commitment to the use of veneering on coal wagons to meet 11.136 of the TOR. The veneering must be adequately specified and detailed in the EIS to ensure that it can achieve a reduction in coal dust emissions by at least 75%.<br><br>That the COG should condition that the surface of all coal wagons shall be veneered to minimise dust emissions. The veneering must be adequate to achieve a reduction in coal dust emissions of at least 75%. |
| **98** | Chapter 12<br>Appendix K Section 9 (Mitigation and Management Measures) | **Inadequate Information on whether Mitigation and Management Measures are recognised Best Practice Measures –** TOR 11.133 requires the proponent to provide relevant information on how the proposed activity will be consistent with 'best practice' environmental management. Section 9 of the Air Quality Technical Report outlines a range of mitigation measures applied during the various design phases – detailed design, pre-construction and construction, construction and commissioning and operations. However, there is no information (i.e., benchmarking of the mitigation measures) on how these measures can be considered best practice. There is no comparison of the mitigation measures with other similar projects, and as-such, the assessment lacks information on whether the management and mitigation measures are truly best practice measures. | The Air Quality Technical Report should be revised to address TOR 11.133 corresponding to mitigation measures being considered best practice. |

| Chapter 13 - Surface Water and Hydrology | | | |
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| **99** | Chapter 13 | The Independent International Panel of experts for **Flood Studies** of Inland Rail in Queensland has prepared a Draft Report on the Review of Gowrie to Helidon Section. This report identifies a range of issues and areas of concern ranging in significance from Low to Very High. | It is recommended that the Panel's report be adopted and the areas of concern addressed through conditions. |
| **100** | TOR 11.64 to TOR 11.71 | Council thus considers that **the bulk of the Panel's listed items are of a serious nature** with the potential ability to impact the feasibility of railways alignment and configuration and need to be addressed and changes independently verified as satisfactory before the design process proceeds any further. This includes, and is not limited to, the documented medium to very high classified items.<br>In addition to the panel's recommendations, based on Council's experience and information provided to date we have further concerns in relation to the consideration and satisfactorily addressing of:<br>• climate change impacts;<br>• blockage and embankment collapse;<br>• management of regional and local flooding as well as their interaction;<br>• the impacts of noise walls, earthworks and redirection of flood flows in extreme events;<br>• the adverse impacts on flood evacuation routes and waterways alignments in both Laidley and Gatton;<br>• the consideration of ultimate development as dictated by the planning documentation and the SEQ Plan; and<br>• the risk management of creation of debris, heavy objects and washing away of stored materials relating to proposed Laydown areas.<br>Any variation in the design water elevation will likely have a significant impact on rail and other configurations. Based on reporting there is a lack of confidence in the models and their ability to replicate design events appropriately.<br>The listed issues constitute standard requirements in relation to normal development and the need to satisfy the State Planning polices and accepted engineering practice. | It is recommended that Councils issues of concern are also included in this review.<br>(Note that the above raised Panel and Council issues include, but are not limited to, the items documented in the schedule below.)<br>The panel has advised that revised documentation should be provided to the panel for their review. In line with this advice, a key recommendation from LVRC (that is not within the scope of the Panel) is to strongly recommend that the scope and period of engagement of the Panel be extended to cover the time frame of the detailed design to ensure continuity, timeliness, consistency, defendablity and irrefutability of advice to the project by a recognised body of professionals.<br><br>Given the extent of the issues raised and the number of issues that will need to be addressed at detailed design, it is critical that there be independent oversight of the modelling work and in the review of the detailed design. It is recommended that the outcomes of the design review from this process be provided and a new report issued by the flood panel for Councils review prior to finalising conditions for any approval. |
| **101** | TOR 11.64 to TOR 11.71 | Detailed design will be undertaken by the preferred tenderer. Given they are a **PPP** driven by profit it is fundamental that there be independent oversight of the modelling process through to detailed design. Given the issue identified by the Panel with ARTC's modelling it would be inappropriate for ARTC to be conditioned to oversee this report. The communities of the Lockyer Valley will demand independent oversight. | The panel has advised that revised documentation should be provided to the panel for their review. In line with this advice, a key recommendation from LVRC (that is not within the scope of the Panel) is to strongly recommend that the scope and period of engagement of the Panel be |

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| | | | extended to cover the time frame of the detailed design to ensure continuity, timeliness, consistency, dependability and irrefutability of advice to the project by a recognised body of professionals. Given the extent of the issues raised and the number of issues that will need to be addressed at detailed design, it is critical that there be independent oversight of the modelling work and in the review of the detailed design. |
| **102** | TOR 11.66 | It is noted that the Panel was not provided with copies of the flood models developed with respect to the **local catchments.** | LVRC would recommend that these models be provided to the Panel and the scope widened to enable a complete review of local and regional flooding as well as their interaction. |
| **103** | TOR 11.64 to TOR 11.71 | The EIS has used **2016 version** of the Australian Rainfall and Runoff. It is currently accepted engineering practice to utilise the most recent available data.<br>Similarly, currently accepted engineering practice would require the use of the most recently work available including the WMA 2020 work. | It is recommended that The COG require the proponent to use the currently accepted best practice in relation to rainfall- namely a maximum of the combination of 2019 ARR and WMA 2020 IFD data as inputs as recommended by the 2020 study Peer Reviewer. |
| **104** | TOR 11.64 to TOR 11.71 | Given the potential for impact on people property and infrastructure appropriate **flood impact objectives (FIO)** should be utilised. | It is recommended that the Quantitative Design Limits utilised in the N2NS project (Table 3.2 of the Panel report) be utilised in the modelling along with the extreme event risk management objectives and the sensitivity testing objectives specified in Table 3.1 of the Panel Report.<br>Impacts must be less than 0.01 M as specified in ARTC Basis of Design.<br>"Was Dry Now Wet" should also be considered under a FIO.<br>These matters must also satisfy current engineering practice and common law requirements. |
| **105** | TOR 11.64 to TOR 11.71 | **Farm drain connectivity** is a significant issue for agricultural and other affected land-owners e.g. urban settings, even for small local catchment events | It is recommended that the proponent be required to demonstrate that the capacity of existing open channels and/or and transverse drainage is maintained at a minimum. |
| **106** | TOR 11.64 to TOR 11.71 | Currently accepted best practice requires **sensitivity testing** for climate change eg regarding intensity of rain events. Ultimate development requirements need to be | That climate change sensitivity testing be applied and reported upon. Demonstration that the consideration of |

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| | | considered and accommodated. Construction scenarios need to be investigated and risks addressed and managed. | ultimate development as dictated by the planning documentation and the SEQ Plan; and, the– risk management of creation of debris, heavy objects and washing away of stored materials relating to proposed Laydown areas has been managed. |
| **107** | TOR 11.64 to TOR 11.71 | **Flood Impact Objectives are fundamental.** | It is recommended that FIOs be amended to consider and include the additional requirements with respect to:<br>• Impact on roads<br>• Duration of inundation<br>• Velocity<br>• Flood hazard<br>• Extreme events<br>• Increased concentration/ diversion and management of flows |
| **108** | TOR 11.64 to TOR 11.71 | **Hydrology needs to be modified** to current acceptable engineering practice. Differences identified between the hydrological and hydraulics models i.e. peak flows, levels, velocities and affluxes. Use of latest modelling software. | It is recommended that the proponent be required to undertake sub catchment division and address other identified matters in the hydrological model sets as well as resolve identified issues between the hydrological and hydraulics models in accordance with accepted engineering practice in relation to the proposed use i.e. the ARTC alignment and related and affected uses. The use of the latest modelling software is recommended. |
| **109** | TOR 11.64 to TOR 11.71 | There appear to be no Flood or **Emergency Evacuation plans** described either for construction or operation of the railway. This is an issue for Helidon and other communities in the region where in an emergency, with limited crossing points of the corridor, communities can become isolated. | Recommend that the COG condition the proponent to incorporate flood evacuation plans including the establishment of the base case (including future ultimately developed requirements) and demonstration of equal or better arrangements after implementation of the ARTC works. This work should incorporate "all hazards" approach as these are commonly interdependent. |
| **110** | TOR 11.64 to TOR 11.71 | Was the proposed **constant discharge** of water from the eastern tunnel portal to Rocky Creek catchment considered by the flood modelling? | The flood model must include the constant discharge of groundwater from the eastern tunnel portal to Rocky Creek. |
| **111** | TOR 11.64 to TOR 11.71 | **Groundwater** in the eastern tunnel portal is proposed to be discharged to Rocky Creek catchment. The draft EIS presents a very limited groundwater quality data set from | The draft EIS does not provide any detail regarding proposed monitoring and management of the quality of |

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| | | 2018. It is limited in terms of currency of data (3 years old), spatially (vertically and laterally as there were a very small number of bores installed) and temporally (only a single monitoring event was conducted so there is no longitudinal data regarding water quality). As outlined later in this response, the draft EIS does not include adequate field studies.<br><br>Groundwater quality data presented for Rocky and Oaky Creek alluvia and the Gatton Sandstone (all of which may be affected by the tunnel) did not meet the Water Quality Objectives (WQO) for surface water at Table 13.4 of Chapter 13 for Electrical Conductivity or Total Nitrogen. Concentrations of these parameters were an order of magnitude higher than the WQOs. Elevations of these parameters may affect surface water catchments by: increased salinity in the catchment which may adversely impact aquatic organisms, soil structure decline and bed and bank stability, riparian vegetation, algal blooms during periods of low flow in warm weather, eutrophication. | groundwater that is intercepted by the tunnel and discharged to surface waters.<br><br>If water is proposed to be treated by Reverse Osmosis (RO) or similar the draft EIS needs to clearly articulate how water that is "ultra clean" will be amended to make it suitable for release. For example, will it be shandied with untreated water to return the chemistry to a more compatible balance with a natural surface water receiving environment? |
| **112** | TOR 11.64 to TOR 11.71 | DTMR Hydrologic and Hydraulic **Modelling Guidelines** were recently released. | That DTMR Hydrologic and Hydraulic Modelling Guidelines be utilised in future design work along with accepted engineering best practice. |
| **113** | TOR 11.64 to TOR 11.71 | The Panel has noted that **interaction of local and regional flood** mechanisms may not be captured. Some inconsistencies are noted the severity of which is unknown. The need for satisfactory inclusions of the Interfaces in the models between structures and channels has been raised. | That Detailed design must consider and address satisfactory management of regional and local flooding as well as their interaction to meet FIO objectives.<br>That Detailed design must satisfactorily include acceptable interfaces in the models between structures and channels in accordance with accepted engineering practice |
| **114** | TOR 11.64 to TOR 11.71 | **Interaction of local and regional models is fundamental.** Varying Beta values to account for local and regional responses is not common practice. Issues in relation to differing parameters between flood model sets, placement/configuration of inflow points, boundary conditions, losses, model instabilities, TOS, storage, missing structures, current topographic surfaces, lack of sensitivity testing to support adopted strategies, need to look at extreme and frequent event impacts etc. | Hydraulic modelling needs to be undertaken using updated hydrological modelling with inflows and related modelling parameters applied along with appropriate sensitivity testing for all issues raised in this schedule in accordance with accepted engineering practice. |
| **115** | TOR 11.64 to TOR 11.71 | The Panel notes that **no stream gauges** were present for the Oaky Creek and Six Mile Creek catchments which has meant no calibration events were assessed. This weakens the reliability of these models. Only one gauge was utilised in the Lockyer Creek technical report. It appears Flood Frequency Analysis has been based on that one gauge while other gauge data is available. It is recommended that where available multiple | It is recommended that multiple gauges be utilised to assess FFA in accordance with accepted engineering practice. |

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| | | gauges be utilised to assess FFA in accordance with accepted engineering practice. Where no gauge information exists then the full consideration of alternative means of verification should be put in place. | |
| **116** | TOR 11.64 to TOR 11.71 | The **model results** section 7.8 of the Panel report are concerning. | It is recommended that the COG require the proponent to undertake sufficient calibrated modelling in accordance with accepted engineering practice to ensure design evaluation can be validated so there can be confidence in the design. |
| **117** | TOR 11.64 to TOR 11.71 | The use of **only 2 design rainfall locations** across 38 catchments also reduces confidence in the efficacy of the modelling. This project straddles the Great Dividing Range and there are significant differences in rainfall between catchments despite their proximity. There is significant scope for inappropriate design if inaccurate rainfall data is assumed. | It is recommended that additional rainfall data is utilised and ARF be applied in the areas of interest in accordance with accepted engineering practice. |
| **118** | TOR 11.64 to TOR 11.71 | There is a need to review and justify the use of **model parameters** such as roughness. Similarly, there is a need to review cross drainage in the model. Longitudinal drainage needs also be considered. Additional modelling is required to address these matters. | It is recommended that the proponents justify the selection of parameters and the subsequent design solution. Longitudinal and cross drainage needs to be investigated for impacts along the alignment and a satisfactory design response documented. Additional modelling is required to address these matters. |
| **119** | TOR 11.64 to TOR 11.71 | **Local drainage** impacts are a concern. | That as part of detailed design there is a need to confirm that the local catchment drainage to each culvert does not produce a higher flow than that calculated for the regional case. |
| **120** | TOR 11.64 to TOR 11.71 | Further documentation is required on **diversion drains**. A specific example is at Chainage 15.05 in proximity to McNamara's Road. | Further documentation required. |
| **121** | TOR 11.64 to TOR 11.71 | Given the nature of the **soils** in this region there will be a need consider scour protection. In detailed design the proponent will need to investigate and detail suitable scour protection through the length of the alignment. | That in detailed design the proponent investigates and details suitable scour protection through the length of the alignment. |
| **122** | TOR 11.64 to TOR 11.71 | Key aspects need to be reviewed and accepted before going to detailed design which is to be undertaken by a **third-party PPP.** | That ARTC be required to address key items and submit a revised reference design to the COG prior to detailed design. |
| **123** | TOR 11.64 to TOR 11.71 | **The Panel has concluded that the Technical Report is not sufficiently comprehensive** to meet the Panel's Terms of reference or all necessary affected aspects. That the | That the proponents provide additional modelling and details in relation to the calibration of the flood models and the modelling of design events. That the panel or |

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| | | panels terms of reference did not cover all necessary affected aspects e.g. local flooding and the interaction with the regional event. | equal future review body have a suitable 'terms of reference' to cover all necessary affected aspects. |
| **124** | TOR 11.64 to TOR 11.71 | It is concerning that **local landowners** may not be aware of the potential impacts. | That the proponents provide a table of consultation specifying consultation on flood modelled outputs with affected landholders and the land-holders acceptance of the findings and the impacts to their property. |
| **125** | TOR 11.64 to TOR 11.71 | **Flood evacuation routes** have not been identified | That the proponents identify current evacuation routes and evacuation centre locations particularly for Helidon. These routes to be to the satisfaction of the LVRC and the Lockyer LDMG. |
| **126** | TOR 11.64 to TOR 11.71 | It is assumed based on Council's EIS review that **noise walls** will be required in some locations. The adverse impacts of these structures on flood operation in both frequent and rarer events (including sensitivity checking for greater than 1%AEP) will need to considered and managed. | That noise walls be assessed at detailed design for impacts on flooding. |
| **127** | TOR 11.64 to TOR 11.71 | Council remains concerned about the modelling and believes the **hydrology** needs to be modified to current acceptable engineering practice. The Panel has identified differences between the hydrological and hydraulics models i.e. peak flows, levels, velocities and affluxes. The use of the latest modelling software is also recommended. While implementation of the modelling outputs is not within the scope of the Panel's work it is a further example of the need for the modelling to be reliable.<br>The Model Results Section (7.8) of the Panel's report is again troubling. Clearly the proponent needs to undertake sufficient calibrated modelling in accordance with accepted engineering practice to ensure design evaluation can be validated in order for there to be confidence in the design.<br>Councils new 2021 Upper Lockyer modelling may prove useful to solve some of the hydrology issues.<br>It is unclear at the major creek crossings e.g. Lockyer Creek, 6 Mile Ck, Oaky Ck what level of analysis has been undertaken. Councils planning scheme is based on the highest of the 2011 flood and the 1%AEP event. As the 2011 event is higher it is uncertain whether the proposed infrastructure will impact properties and change Council's impacts maps.<br>The reference to an issue of flow diversion at chainage 15.05 is concerning as this is in the vicinity of McNamara's Road where a substantial (local) road over rail structure is | That the proponents provide additional modelling and details in relation to the calibration of the flood models and the modelling of design events. |

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| | | proposed. Council will need assurance that this diversion is optimal and will not lead to long term maintenance issues for McNamara's Road.<br>This location may be one of many that need to be considered for transfer of flows between catchments.<br>However, it appears to due to the gaps in the cross-drainage management strategy analysis it is difficult to make a judgement on satisfactory achievement of acceptable engineering criteria for the proposed reference design configuration. | |
| **128** | Section 13.7.2.1 (Summary of Field and Laboratory Assessed Surface Water Quality Data) | **Lack of Detailed Mapping**: reference is made in the draft EIS to Figure 13.1, which shows monitoring sites. This is a very broad scale map and provides little detail. As a result, the draft EIS fails to meet the requirements of TOR 5.1 and TOR 11.38. Maps of the sampling locations should be presented to show accuracy and knowledge and maps that can be easily cross referenced against Table 13.17. | The draft EIS requires update to include additional mapping at an appropriate scale to provide a clear indication of proposed sampling locations in order to meet the requirements of the OCG's TOR. |
| **129** | Section 13.12.1: (Surface Water Quality) | **Inadequate Project Specific Details:** the draft EIS fails to include appropriate monitoring and mitigation measure to ensure impacts to water quality are minimised in a way which ensures that there is no significant residual impact to water quality as a result of the proposed project.<br><br>No ongoing operational monitoring regime is detailed, nor threshold criteria or intervention responses. | The draft EIS requires update to include an appropriate and clear monitoring evaluation and review plan which incorporates a monitoring schedule, criteria and thresholds for intervention and what corrective actions would be undertaken and who is responsible.<br><br>*LVRC request the OCG impose the following condition:*<br>'The proponent is required to monitor surface water quality impacts during operational face and take appropriate actions where necessary to ensure that there is no significant impacts to surface water quality as a result of the proposed project.' |
| **Chapter 14: Groundwater** | | | |
| | Chapter 14 | **The majority of the Groundwater feedback relates to Appendix N found towards the end of this attachment.** | |
| **130** | Chapter 14 Section14.5.1 Groundwater study area | **Limited Understanding and Assessment of Impacts to Groundwater:** The assessment of groundwater in the draft EIS is limited and was considered inadequate from LVRC's expert review given the potential for significant short and long-term impacts to groundwater resources and associated environmental and ecological values. The | The groundwater assessment completed by the proponent is inadequate for the scale and nature of the project and does not meet the TOR. Further, the proponent should |

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| | Appendix N Groundwater Technical Report, Section 3.1 Groundwater study area | proponent openly states that more work is needed to refine the model for inclusion in the final EIS to *'…better understand the impacts on groundwater and their significance'.* This means that the draft EIS does not provide the community with the most accurate assessment of potential groundwater impacts. This is considered unreasonable as the community cannot be expected to understand and comment on the full risks to groundwater based on the current draft EIS prepared by the proponent.<br><br>The draft EIS does not meet the TOR objectives or requirements for water as it does not:<br>- describe how groundwater can be managed within currently regulatory requirements for water resources, particularly where there is no unallocated water available in some aquifers.<br>- Use an acceptable sized study area to predict impacts to groundwater resources. The impact assessment is limited to a study area 1 km from the centreline, however the draft EIS clearly shows that impacts to groundwater levels will occur beyond this distance.<br>- accurately describe the complex groundwater systems because an insufficient level of field assessment was undertaken to understand the properties of and relationships between the various groundwater aquifers. This means there is not enough data to understand and accurately model the groundwater systems with any confidence or to seek temporary water permit allocations.<br>- Consider existing stresses on groundwater systems from current users and the cumulative impact the proposed project may have.<br>- Use appropriate modelling methods, model parameters or calibration. This means the predicted impacts cannot be relied upon to determine their significance.<br>- clearly define the potential impacts of the project, namely because of a lack of detailed understanding of the existing hydrogeological environment<br>- does not clearly define proposed commitments to avoid, minimise and mitigate impacts to groundwater. | not be permitted by the OCG to finalise the assessment of such a critical issue in later stages of the project.<br><br>LVRC strongly recommend that the OCG require the following:<br>- The proponent shall revise the groundwater assessment to ensure it meets the TOR and address all the limitations and recommendations made in this response regarding groundwater.<br>The proponent shall prepare a revised draft EIS that shall be subject to further consultation and review by the community. |
| **131** | Chapter 14.6.9.1 (Potential Aquatic Groundwater | **Lack of Appropriate Assessment of GDEs:** the draft EIS fails to appropriately assess impacts on Groundwater Dependent Ecosystems (GDEs) by merely stating that further field investigations will be undertaken to determine GDEs when it is already known that they exist. This is considered insufficient to meet the requirements of TOR 5.1. | The draft EIS requires update to include a clear commitment to undertake field investigations for GDEs. |

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| | | | *LVRC request the OCG impose the following condition:* The proponent is required to undertake additional field survey to identify the location and condition of GDEs in the vicinity of the proposed alignment prior to the commencement of construction activities. Findings of these surveys are to be provided to DES and LVRC and reported as part of the pre-design phase and are to include appropriate and clear mitigation measures and commitments which will ensure that there is no significant residual impact on GDEs as a result of project activities. |
| **132** | Section 14.7.4.2 (Toowoomba Range Tunnel) | **No Consideration of Water Use from Eastern Tunnel Portal:** the draft EIS states throughout Chapters 13, 14 and the supporting technical appendices that during operations, groundwater that is intercepted by eastern portion of the tunnel may be treated and discharged to an ephemeral tributary of Rocky Creek.<br><br>The EIS gives no consideration to a beneficial use of this water other than potential use on site for washing down or landscaping.<br><br>Section 14 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 outlines the management hierarchy for surface or groundwater in relation to the disposal of wastewater. It has been assumed that the water from the tunnel would constitute wastewater under this policy. The hierarchy is presented below: | The proponent must review proposed management strategies for water from the eastern tunnel portal to ensure they can meet the objectives for water in the TOR. A current approach of disposal to Rocky Creek catchment is unsustainable and does not comply with QLD regulatory frameworks as limited consideration was given to other options other than disposal.<br><br>LVRC do not accept that the proposed management measures for tunnel inflows are sustainable and strongly recommend that the proponent be required to identify and commit to an alternate management strategy that focuses on beneficial reuse.<br><br>LVRC request the OCG impose the following condition:<br><br>'The proponent is required to consult with LVRC and local businesses regarding beneficial reuse opportunities for water from the eastern tunnel portal at least six months prior to commencement of construction of the project. The proponent shall not dispose of tunnel inflow water to surface waters unless it can be demonstrated that there are no other suitable management measures'. |

**14 Management hierarchy for surface or groundwater**

(1) This section states the management hierarchy for an activity that may affect water.

*Note—*

See the *Environmental Protection Regulation 2019*, section 35.

(2) To the extent it is reasonable to do so, release of waste water or contaminants to waters must be dealt with in the following order of preference—

(a) firstly—reduce the production of waste water or contaminants by reducing the use of water;

(b) secondly—prevent waste and implement appropriate waste prevention measures;

(c) thirdly—evaluate treatment and recycling options and implement appropriate treatment and recycling;

(d) fourthly—evaluate the following options for waste water or contaminants in the order in which they are listed—

(i) appropriate treatment and release to a waste facility or sewer;

(ii) appropriate treatment and release to land;

(iii) appropriate treatment and release to surface waters or groundwaters.

The proposed option of disposal of water from the eastern tunnel portal to Rocky Creek catchment is the least preferred management option under Queensland law. In a drying climate it is not acceptable to LVRC that the proponent has given no consideration to the management hierarchy for waters to identify beneficial use opportunities for water that the tunnel will drain from the aquifer.

The proposed disposal to surface water management option for water from the eastern tunnel portal does not meet any of the TOR's Objectives for Water (see below).

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| | | **Water**<br><br>**Objective**<br>Development is planned, designed, constructed and operated to protect environmental values of Queensland waters and supports the achievement of water quality objectives.<br>The construction and operation of the project should aim to meet the following objectives:<br>(a) equitable, sustainable and efficient use of water resources<br>(b) environmental flows, water quality, in-stream habitat diversity, and naturally occurring inputs from riparian zones support the long-term maintenance of the ecology of aquatic biotic communities<br>(c) the condition and natural functions of water bodies, lakes, springs and watercourses are maintained—including the stability of beds and banks of watercourses<br>(d) volumes and quality of water resources are maintained and current lawful users of water (such as water entitlement holders, stock and domestic users) and other<br><br>The alignment passes between two water storage ponds at Withcott Seedlings who are presumably a large water user. This business is about 10 km from the eastern portal but has the proponent considered the option of supplying treated water from the eastern portal to this business or other potential users in the local area?<br><br>LVRC do not accept that the proposed management measures for tunnel inflows are sustainable and strongly recommend that the proponent be required to identify and commit to an alternate management strategy that focuses on beneficial reuse. | |
| **133** | | Given the local government areas reliance on agriculture, there is significant concern in the Lockyer valley regarding competing uses of water especially in time of drought. The project will be a significant user of water but has not adequately described the sources and quantities of water required for construction. | It is recommended that the COG specify that groundwater use will be prohibited without due consultation with Water Users and LVRC. All other potential water sources are to be considered.<br>Further, that the proponents be required to identify water sources unsuitable for agriculture use that can be utilised for works such as dust suppression provided it is tested for contaminants, salinity and other relevant parameters to ensure its suitability for use without causing environmental harm. |

| Chapter 15 – Noise and Vibration | | | |
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| | Chapter 15 | **Lack of Appropriate Noise Assessment** – the draft EIS has nominated noise criteria that ensures the majority of the cost of rail noise mitigation, financial or otherwise, is borne by the community. Costs to the community include the direct noise mitigation costs, reduced amenity, reduced property value, reduced ability to develop, and increased cost of future development.<br>The LAmax trigger level chosen by the proponent for noise mitigation is 80 dB(A). To put that into perspective, acceptable construction for a dwelling in a rail noise corridor that experiences 80 dB(A) Lmax is:<br>- Minimum 10.38mm laminated glass with acoustic seals for small windows.<br>- Minimum 14.38mm laminated glass or double-glazing with acoustic seals for large windows and sliding doors.<br>- Double brick walls.<br>- Insulated roof with sarking.<br>This is an extremely onerous level of noise mitigation that Queensland requires at 80 dB(A) Lmax, however the same noise level is only the point at which the proponent will *consider* mitigation. Queensland mandate acoustic construction requirements via the QDC MP4.4 for dwellings in a noise corridor with rail noise levels over 69 dB(A) Lmax. QDC MP4.4 does not provide Leq criteria. The WHO guidelines, as previously discussed, recommend 44 dB(A) Lnight as the limit to mitigate sleep disturbance.<br>Therefore, it can be considered that any sensitive dwellings that are predicted to experience noise over 44 dB(A) Lnight and 69 dB(A) Lmax and below the proponent's trigger levels are being overlooked by this assessment and as a result, the requirements of the OCG's TOR have not been met. These dwellings will have varying noise impacts but will not receive any mitigation. The majority of sensitive receptors in the study area fall into this category.<br>As a result, the draft EIS fails to meet the requirements of the OCG's Objective for Noise and Vibration which requires the proposed project to be 'planned, designed, constructed and operated to protect the environmental values of the acoustic environment.' Further, TOR 5.1 states that 'the objectives of the EIS are to ensure that all relevant environmental, social and economic impacts of the project are identified and assessed, and to recommend mitigation measures to avoid or minimise adverse | The draft EIS requires update to meet the requirements of the OCG's TOR. |

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| | | impacts.' Based on the points raised above, it is clear that the draft EIS does not satisfy the fundamental objectives of the OCG's TOR. | |
| **134** | Chapter 15<br>Appendix O Section 5.3 (Blasting Assessment Methodology) | **Underpredicted Blasting Impacts –** Section 5.3 of Appendix O indicates the blasting relationship that has been used in the draft EIS for predicting the vibration impact from blasting. The relationship is taken from the Australian Standard AS2187.2 and applies the constants for average field conditions that can be used to estimate the mean vibration level (50% probability of exceedance).<br>While it would be more appropriate to use a relationship better correlated to the rock mass for the tunnel portals and cuttings, the key issue is that the relationship predicts only a mean level. This is inconsistent with the specified vibration criteria that require compliance at 95%. The applied relationship will therefore underpredict the adverse impacts resulting from blasting activities. Similarly, the relationship is expected to over-estimate the quantiles of explosive that can be used.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.1 (which requires 'all relevant environmental, social and economic impact of the project are identified and assessed…') and particularly 5.3, which requires 'matters relevant to the project should be proportional to the scale of the impacts on environmental values. When determining the scale of an impact, consider its intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies...' | The draft EIS requires update to appropriately identify compliance at 95% and to correctly predict the adverse impacts resulting from blasting activities in order to meet the requirements of TOR 5.1 and TOR 5.3. |
| **135** | Chapter 15<br>Appendix O Section 5.4.1 (Ground-borne Vibration – Construction) | **Missing Assessment of Vibration Impacts from Hydraulic Hammers –** Section 5.4.1 provides list of the formula that have been used to predict the vibration impacts from the construction equipment. Table 5.6 in the same section lists the equipment types that have been used and includes, impact piling, vibratory piling and vibratory rolling. While each of these methods will introduce elevated levels of vibration at some locations along alignment, the assessment has not considered the impact from large scale hydraulic hammers which will necessarily be used in multiple areas. The level of vibration from the vibratory roller or piling may be applicable for some areas of the assessment however it would be beneficial for residents along the alignment which may be potentially affected to understand the impacts from equipment that might be used near their properties. As a minimum, it would be appropriate to compare the vibration from the hydraulic hammer with that from the vibratory roller.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.1 (which requires 'all relevant environmental, social and economic impact of the project are identified and | The draft EIS requires update to appropriately assess adverse vibrational impacts from the use of hydraulic hammers in order to meet the requirements of TOR 5.1 and TOR 5.3. |

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| | | assessed…') and TOR 5.3, which requires the consideration of 'matters relevant to the project' in relation to 'intensity, duration, cumulative effect, irreversibility, the risk of environmental harm, management strategies...' | |
| **136** | Chapter 15<br>Appendix O<br>Section 5.5.3 (Construction Vibration Impacts) | **Inappropriate Setback Distances –** Section 5.5.3 of Appendix O assesses the vibration impacts from the vibratory rollers and piling options and tabulates the set-back distances required to achieve compliance with the with proposed vibration criteria. When compared to other projects, the setback distances are significantly higher than expected and could lead to unnecessary concern by residents within the zone calculated by this set back distances, or possibly an unnecessary change to the practices that contractors may adopt, leading to an increased project duration and overall impact.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.3 as the consideration of 'matters relevant to the project' is not 'proportional to the scale of the impacts on environmental values.' | The draft EIS requires update in order to meet the requirements of TOR 5.3. |
| **137** | Chapter 15<br>Appendix O<br>Section 5.5.5.4 (Ground-borne Construction Vibration Impacts) | **Failure to Appropriately Assess Ground-borne Construction Noise Impacts –** Section 5.5.5.4 of Appendix O addresses the ground-borne construction noise impacts from the TBM and indicates that properties within 390 m of the TBM cutter head will experience elevated ground borne noise exceeding the night-time criteria and affecting potentially 72 properties. As a result, the draft EIS fails to meet the requirements of TOR 5.1 as the document fails to 'recommend mitigation measures to avoid or minimise adverse impacts' resulting from the exceedance of night-time noise criteria, and potentially adversely affecting 72 properties.<br>Further, the assessment appears very conservative and is inconsistent with other tunnelling projects that have been completed throughout eastern Australia that have reported similar type effects, but at distances around 10% of the 390 m value. The source of the modelling parameters for the draft EIS has not been identified and as such, the requirements of TOR 6.3 have not been met. Further, the failure to include this information in the document may unnecessarily result in concern for some residents along the proposed alignment. | The draft EIS requires update in order to meet the requirements of TOR 5.1 and TOR 6.3. |
| **138** | Section 15.4 (Legislation, Policies, Standards and | **Inappropriate Night-time Assessment (Sleep Disturbance)** – with regard to the WHO Night Noise Guidelines for Europe (2009), the draft EIS states that 'the document has not been used to establish criteria…but rather provides context on contemporary approaches to considering potential night-time noise impacts.' The document goes on | The latest guidelines from the WHO represents the most comprehensive and current information on noise related sleep disturbance and must be used to establish night-time noise criteria |

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| | Guidelines)<br>Table 15.3 | to say that the 'WHO acknowledges the establishment of relationships between single event noise indicators, such as LAmax, and long-term health outcomes remains tentative.'<br>The WHO published a relevant updated guideline in 2018. The draft EIS has discussed and ultimately dismissed the older guideline, yet stayed completely silent on the newer, current guideline. The 2018 guidelines strongly recommends a night time outdoor noise limit of 44 dBA Leq,night (external façade level), yet the noise assessment has adopted trigger levels of 55 dBA Leq,night and 80dBA Lmax, both of which appear to have no connection to any credible guidance on the mitigation of sleep disturbance.<br>As it stands, 122 out of the approximately 165 sensitive receptors in the LVRC have significant predicted night-time noise levels of ≥ 44 dB(A) Leq,night but these levels are below the adopted criteria. These 122 dwellings are not triggered for mitigation but are above the WHO guidelines for sleep disturbance. The result is that the financial and personal cost of the rail noise impacts are borne by those residents without any form of compensation. Figure 24 from the draft EIS Appendix P (below) shows the dwellings that exceed WHO noise guidelines but do not trigger the proponent's mitigation process (those enclosed in the red box). As a result, the draft EIS fails to meet the requirements of the OCG's Objective for Noise and Vibration which requires the proposed project to be 'planned, designed, constructed and operated to protect the environmental values of the acoustic environment.' | The draft EIS requires update to demonstrate how the assessment criteria that is currently adopted can protect the ability to sleep at sensitive dwellings. If this cannot be demonstrated, the criteria and assessment need to be revised. |

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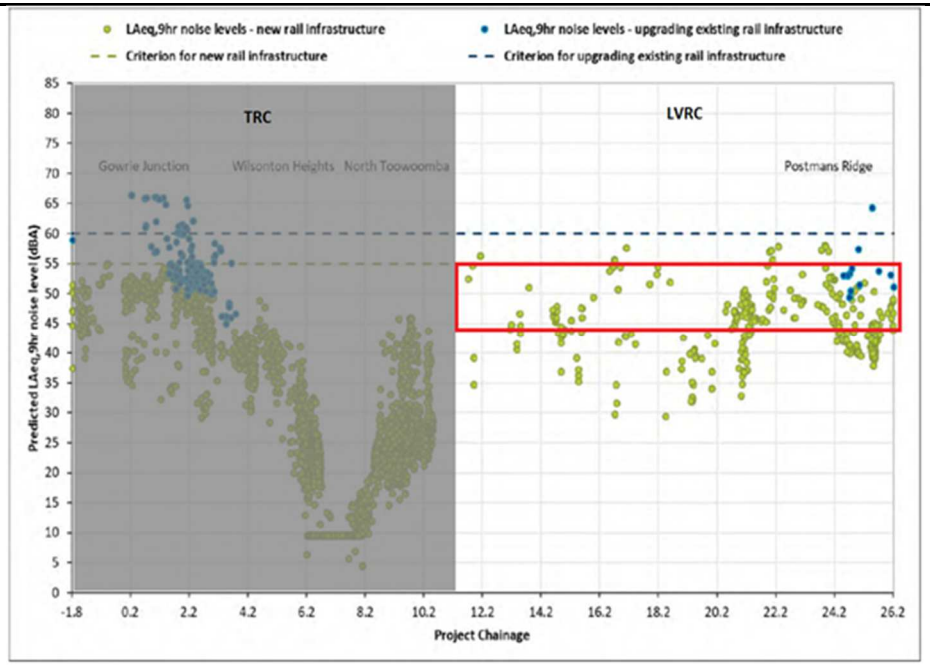
| | |  | |
| **139** | Section 15.8.9.4 (Potential for Sleep Disturbance from Railway Operations) | **Underassessment of Sleep Disturbance** – Section 15.8.9.4 states that 'The adopted LAmax noise trigger accounts for the highest level of noise during train passbys and the number of passby events in the night-time.' It is not clear how the LAmax assessment accounts for the number of pass-by events during the night if its normal definition of 'the single highest noise level during a time period' is to be applied.<br>Further, the text goes on to propose that LAmax noise levels are well below the adopted criteria at receptors that are > 500m from the rail corridor but accepts that rail noise has the potential to be audible both internally and externally even where the adopted criteria are achieved. This demonstrates that the proponent accepts there will be noise affects at levels lower than their adopted criteria but are not willing to assess those effects against available guidelines.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.1 and the Objectives for Noise and Vibration. | The draft EIS requires update to correct wording and provide clarity and accuracy. This should include, but not be limited to quantification of the number of dwellings that may experience sleep disturbance and the real extent of those impacts. The assessment should also be updated to include the requirements of the most recent WHO guideline. |
| **140** | Section 15.8.9.4 (Potential for | **Failure to Adopt WHO Night Noise Guidelines** – Section 15.8.9.4 references the WHO Night Noise Guidelines for Europe (2009) and accepts that an external level of LAmax | The draft EIS requires update to quantify the number of dwellings that may experience sleep disturbance and the |

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| | Sleep Disturbance from Railway Operations) | 49 dB(A) is the trigger for sleep disturbance, assuming windows are open. The section goes on to state that 'noise modelling indicates that predicted noise levels from rollingstock could be above LAmax 49 dBA within approximately 1 km of the rail corridor' and goes on to state that 'the 1 km distance is a guide to where night-time noise levels may have the potential to result in sleep-reactions in habitable rooms of residential properties.'<br>Noise modelling in the draft EIS demonstrates that levels much higher than 49dBA Lmax are predicted to be experienced at distances greater than 1 km. For example, receiver 314282 is approximately 1.2 km from the track and is predicted to experience 67 dBA Lmax. The paragraph states "<br>The potential for sleep disturbance for residents is underestimated and ultimately dismissed.<br>Further, the Section states that 'in practice, the response to noise, and aspects such as sleep disturbance, is personal and responses vary between individuals. A range of factors influence tolerance to noise, not just an absolute level of noise.' The text does not elaborate on factors that do influence tolerance to noise or suggest an assessment method that is more suitable than the WHO guidelines. The wording appears to dismiss the need to assess sleep disturbance without any strong reasoning. Many residents will be disturbed and annoyed by audible train noise, especially where it has not existed before or has become significantly more intense and/or frequent. These people will most likely complain, and for those who experience noise above credible guidelines, their complaints will be justifiable. Also, understanding that responses vary includes acknowledging that a lack of complaints cannot be considered evidence of a lack of impacts.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.1 and the Objectives for Noise and Vibration. | real extent of those impacts. The assessment should be made according to the most recent WHO guideline. |
| **141** | Section 15.8.1 (Airborne Construction Noise Impacts) | **Construction Noise Levels over Limits** – a significant number of dwellings and critical facilities are predicted to receive construction noise levels above the limits. Section 15.8.1 states that 'the assessment has identified that measures to reduce and control construction noise will need to be developed and implemented…'. | The draft EIS requires update to appropriately consider noise impacts to sensitive receptors, including a clear commitment to the adoption of appropriate policies which will provide effective mitigation from adverse noise impacts during construction of the proposed project.<br>LVRC request the OCG impose the following condition: 'The proponent is required to develop and implement, in |

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| | | | consultation with LVRC, construction noise management plans and to reach written agreement regarding noise impacts with LVRC at least six months prior to commencement of construction activities. The construction noise management plans are to include detail relating directly to how appropriate policies which exist in Queensland will be complied with during construction activities.' |
| **142** | Section 15.11.3 (Operational Railway Noise and Vibration Mitigation) | **Lack of Clarity** – Section 15.11.3 presents examples of at-premises noise mitigation 'such as increased glazing or façade constructions'. It is not expected whether this is intended to limit the possible mitigation options, but it is unclear, nonetheless.<br>The word 'or' should not be used as it implies that increased glazing AND façade construction will not be offered together. Air-conditioning should also be mentioned here as any improvements to glazing and facades imply that windows are closed, and alternative ventilation and/or air-conditioning will be required. | Section 15.11.3 requires update to provide clarity. |
| **143** | Section 15.11.3 (Operational Railway Noise and Vibration Mitigation) | **Inappropriate Consideration of Noise Impacts** – Table 15.51 list at-property noise mitigation options. The options generally seem reasonable; however, they are mostly specific to internal habitable areas. Rail noise, especially at close proximity, will affect a whole property including outdoor spaces. The acoustic amenity of private open space does not appear to have been considered in the draft EIS at all.<br>This point seems especially relevant in the Queensland climate where residents often make use of outdoor living and dining areas on a regular basis. These areas are not considered in the assessment. Informally - imagine trying to entertain in your BBQ area with 2 freight trains passing each hour at noise levels up to 91 dB(A). As a result, the draft EIS fails to meet the requirements of 5.1 and the Objectives for Noise and Vibration. | The draft EIS requires update to consider private open spaces as living areas and provide specific mitigation options for these spaces. |
| **144** | Section 15.12.7 (Operational Tunnel Infrastructure Noise)<br>Appendix O (Section 6.1 | **Inappropriate Noise Criteria** – it is noted that the ongoing operation of infrastructure associated with the tunnel (e.g., ventilation fans) has been assessed against the EPP (Noise) Acoustic Quality Objectives, resulting in an external night-time criterion of 37 dB LAeq,1hr (30 dB(A) indoors). It may be the case that Section 440U of the *Environmental Protection Act 1994* (EP Act) applies as it relates to 'air-conditioning equipment'. The night-time criterion from Section 440U is background + 3 dB(A), which may be lower | The draft EIS requires update to include the criteria for fixed infrastructure should be revised and based on the EP Act criteria. Certification measurements of fixed plant noise should also be undertaken to ensure expectations are met. |

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| | Operational Fixed Infrastructure) | than the applied AQO if the background level at the sensitive receptor is less than 34 dB(A). The EP Act represents an ongoing obligation to remain within criteria at all times.<br>The predicted tunnel infrastructure noise level at the closest residential receptor to the eastern entrance to the tunnel is 19 dB(A) and the background level nearby (G2H_06) is 30 dB(A). The different criteria is unlikely to change the outcome in this case, however the ongoing requirement to comply with the EP Act is worth noting. | |
| **Social** | | | |
| **145** | Chapter 16 | Chapter 16 of the draft EIS gives **little regard** to the impacts associated with the proposed alignment on LVRC's communities and over-emphasises the benefits to local communities. The Chapter does however acknowledge that there will be significant residual adverse impacts. Refer Table 16.25.<br>79 Impacts are identified with 66 of these adverse to the communities.<br>As a result, the draft EIS fails to meet the requirements of TOR 5.1, which requires that 'all relevant environmental, social and economic impacts of the project are identified and assessed and to recommend mitigation measures to avoid or minimise adverse impacts.' | The project review indicates it is highly unlikely, if not practically impossible, that the proponent can adequately mitigate the social impacts of the project on the residents of LVRC.<br>Clearly additional work needs to be undertaken to identify strategies that will adequately avoid, minimise and mitigate the potential project impacts. |
| **146** | Section 16.12 (Impact assessment) | TOR 11.141 requires the social impact assessment to describe the potential impacts on affected communities.<br>The **social impact assessment** has identified "Significance of social impact ratings" at Table 16.28 however there is no discussion or explanation around what the different ratings mean. This discussion is required.<br>For example, the impact assessment summary identifies many residual risks in the 'Extreme' social impact rating however it is not clear if an 'Extreme' residual risk is acceptable or unacceptable for the project to continue.<br>In the strongest terms, Council recommends any 'Extreme' residual risks are inappropriate for this project and must be further mitigated to reduce the residual impact (which may involve a revised alignment). | It is recommended that the COG require the proponent to further consider mitigation options to reduce social impacts is required by the project. (This may involve a revised alignment). |
| **147** | Section 16.11.6 Workforce management | TOR 11.148 and 11.146 requires management plans addressing workforce management.<br>The **Workforce Management Plan** states an objective is to enable residents of nearby communities to access the project's construction and operational employment benefits.<br>Targets for employment within **125** km do not support local employment where the impacts of the project are felt. | That unambiguous and clear commitments that 85% of the construction workforce of the G2H alignment will be sourced from Lockyer Valley and TRC is required for the region to see any tangible benefit from this project.<br>That ARTC procure with this target in place. |

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| | | 17.6.2.2. states “Most of the workforce is anticipated to be drawn from the local region within safe driving distance to the Project". This is simply wrong and should be properly addressed in the EIS. | Firm targets be introduced for employment and made publicly available and reported upon. (Unreleased targets are not targets at all.) |
| **148** | Chapter 16 | The TOR objectives for the Social chapter are to **“avoid or mitigate/ manage adverse social impacts arising from the project”.**<br><br>This chapter has outlined in several instances that the project will result in ongoing and long-term impacts to the communities of Lockyer Valley including impacts to:<br>• Residential amenity<br>• Rural character<br>• Tourism values<br>• Community safety<br>• Regional development<br>• Health and wellbeing<br>• Traffic safety and travel times<br>• Agricultural movements<br>• Connectivity<br>• Noise<br>• Sense of place (Table 16.5 of the draft EIS)<br><br>It has further identified that these themes are valued by the community members of Lockyer Valley, determined through the outcomes of the SIA engagement process. Council recognises some mitigation measures have been identified (ie. Community Wellbeing Plan, Workforce Management Strategies). However, even with the project specific strategies the residual risk remains too significant.<br>The social impact assessment has identified the impacts to the communities of the Lockyer Valley will be profound, significantly adverse, and irreversible. | Shifting assessments of social impacts from catastrophic/major to major/moderate is not avoiding impacts or appropriately managing social impacts. This is not an academic exercise. Impacts are real and it is recommended that the OCG require the proponent to develop further strategies to address the identified impacts. |
| **149** | Chapter 16 Section 16.9.2.1 (Community Survey) | **No translation of Community Survey findings** – Section 16.9.2 discusses the findings of a community survey completed in 2018 regarding the project. The section openly states that ‘the general tone of the survey comments indicates *mistrust, anger, fear and opposition to the project’* and that the respondents *anticipated negative effects* for their community in relation to many issues including, but not limited to, *community* | LVRC consider that community consultation has not been appropriately managed, and this is made clear through the lack of consideration of the findings of the community survey in the document. |

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| | Appendix Q: Social Impact Assessment Technical Report, Section 6.3.1 (Community Survey) and Section 8.6.6 (Action Plan), Table 8.12 | *fragmentation, noise impacts, impacts to sleep and general health and wellbeing*.'<br>Specifically, community concerns regarding anticipated negative affects garnered from the survey included:<br>- Impacts on local property values and on quiet enjoyment of private properties.<br>- Severance of farming land and impacts to agricultural productivity and local business operations.<br>- Impacts to the scenic amenity and character of townships.<br>- Disruption of residents' quiet way of life and enjoyment of public spaces and townships, also affecting local visitor appeal.<br>- Community wellbeing, including:<br>- Fear of community fragmentation, harming cohesion.<br>- The potential for increased stress, anxiety and depression among affected property owners and also nearby residents who fear or oppose the project.<br>- Noise impacts causing nuisance, affecting sleep and general health and wellbeing.<br>- Potential for pollution and coal dust to affect the drinking water of nearby residents that rely on rainwater tanks.'<br>The Chapter provides no evidence that any community or stakeholder inputs were actually integrated into mitigation measures. Rather the reader is directed to Appendix Q. As a result, the draft EIS fails to meet the requirements of TOR 12.2 which states that '*no significant issue or matter should be mentioned for the first time in an appendix* – it must be addressed in the main text of the EIS.' These community concerns are a significant issue and should be treated accordingly, rather than dismissed.<br>Section 6.3.1 (Community Survey) of Appendix Q also fails to address any of these concerns, rather it instead cites key themes from respondents including 'changes to the project alignment to avoid impacts on towns, and/or minimising agricultural land severance.' Table 8.12, which claims to provide commitments and management measures to support the mitigation of impacts is silent on any and all community concerns and completely fails to consider realignment.<br>As a result, the draft EIS fails to meet the requirements of TOR 7.8 as it has not made clear how the findings of the community survey were 'incorporated into the design and outcomes of the project.' | It is recommended that the OCG require the proponent to update the EIS to demonstrate how the findings of the survey have resulted in changes to the proposed project. The very real adverse impacts the proposed alignment will have on the local community, and the communication (through various means) of community concerns, need to be considered by the proponent and addressed in a way which will ensure that there will be *no significant residual impact* to the community as a result of the project. |
| **Chapter 17** | | | |
| **150** | Chapter 17<br>TOR 11.21 | A fundamental concern remains regarding the **real economic viability** of Inland Rail. Chapter 17 states it is based on a 2015 Business case, yet the previous deputy PM announced additional costs of $5B and the PPP process has still yet to be concluded. | That the COG requires the significant reduction in benefit and the substantial additional costs be factored in to require that the economic analysis and BCR be reassessed. |

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| | | That process is likely to introduce substantially more cost. Yet the additional benefits have not been described.<br>The Australian Government is undertaking a business case to add an Inland Rail link to Gladstone to enable coal to be exported from that port. The deputy PM has announced on several occasions (most recently on 13 October 2021) that the Gladstone project will proceed. The export of coal from Gladstone rather than coal trains going through the Lockyer Valley and SEQ is a sensible approach, however, the Business case for Inland rail to Brisbane is predicated on substantial coal train movements to the Port of Brisbane. Removing that significant revenue stream (the details of the coal volumes and charging/pricing/revenue contribution from coal has never been publicly released) reduces the business case benefits. Covid-19 has also introduced increased costs of materials and the scarcity of inputs to construction and labour. This will significantly impact on construction costs.<br>So, with reducing benefits and spirally costs, at what point does the project become economically unviable? The BCR may well be less than 1. | The Project has claimed a net economic benefit. This needs to be tested. |
| **151** | 17.6.3<br>TOR 11.149 | TORs 11.149 requires an identification of economic impacts on the **local and regional area**. This has not been adequately undertaken and the TOR 11.149 has not been met. The data and information is generic and dated. (It assumes a 'slack labour market' which demonstrates how out of date the data is. )The benefits are generic and at a macro level. There is no data provided for the subregion where the project is to be constructed. | It is recommended that the CoG require ARTC to provide a meaningful analysis of economic impacts within the local area that translates to actual strategies to mitigate economic impacts. |
| **152** | 17.6.<br>TOR 11.21 | The EIS admits that there are limitations on the assessment methodology and **does not examine economic impacts at a local leve**l. The statement from ARTC in this section that the 2015 Business Case should be relied upon is dismissive of CoG processes and the requirements of the IAS.<br>Fundamental problems have clearly arisen with that business case given the Australian Governments press release increasing funding of the project to $14.5 B up by $5 B. The 2015 Business case is no longer current – refer above. | Proper economic assessment should look at the benefits and costs at a Local government and regional area level. Looking at National benefits does not demonstrate the costs and benefits of the G2H project. |
| **153** | 17.6.<br>TOR 11.21 | The **loss of agricultural land** is discussed. Though calculations are very poorly made and misleading. To suggest that the loss of this land represents loss of $78000 pa is absurd. | That the section be corrected with appropriate methodology for this calculation. |
| **154** | 17.6.<br>TOR 11.21 | The **impacts on local businesses** are not properly considered. For example the EIS states "the project design has aimed to minimise impacts on the current and future operations at Withcott Seedlings – a major regional supplier of seedlings…." The design actual bisects 2 water storage facilities at this location up on a rail structure. The | It is recommended that the OCG require these impacts be considered and mitigated. |

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| | | disruption during years of construction will be enormous and during operation of the railway is an unknown. The specific impact on the economic viability of farming and other operations, as a result of this potential disruption to access and infrastructure, is not quantified in this assessment. | |
| **155** | 17.6.<br>TOR 11.21 | The **benefit categories are too generic** and are meaningless at a local level. The EIS has not been able to demonstrate any tangible benefits at this critical level. Making a high-level assessment based on invalid assumptions is meaningless for assessment. For example, assuming a significant mode shift from road to rail. No farmers from the Lockyer Valley have advised Council they would utilise rail - for valid timing and product risk reasons<br>No direct costs have been identified to assess true economic costs. For example, no analysis is attempted for costs such as reduced mental and physical health for local residents. | Full economic analysis at the local and regional level is required |
| | | **Chapter 18 Cultural Heritage** | |
| **156** | Chapter 18: Cultural Heritage | The EIS states that **indigenous cultural heritage** will be managed under the CHMP's (CLH017009) for the project which was developed in 2018.<br>Local first nations people within the Lockyer Valley have recently discovered a significant amount about their cultural history through connecting with Country, training and collaboration with other first nations groups. LVRC are concerned that the CHMP written in 2018 may not incorporate all current knowledge. Below is an example:<br><br>Extract from the Lockyer Valley Natural Resource Management Strategy 2020-2030: Written by Larena Thompson.<br>*"Lockyer Valley was a part of the main pathway by which Original People and their neighbours journeyed to and from the triennial Bunya Mountains Gathering. The Bonyi Bonyi Gathering was of immense significance to all peoples of southern Queensland and northern New South Wales. It was a gathering for feasting, trade, competitive sport and corroboree contests, sharing of news, tournaments to settle inter-tribal affairs, and arranging marriages. Multuggerah is one of the definitive examples for Yugara People's survival, his story and the many warriors and warrioresses fighting beside him is testament as to why we are here today. When settlers started to move into the area, many important inter-tribal strategies were discussed and decided at the Bonyi Bonyi* | Update the EIS to incorporate the significant first nations pathways, cultural sites and history (particularly Multuggerah). |

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| | | *Gathering. It was trips back and forth across this Ancient Traditional Pathway that played a big part in organising the inter-tribal tactics Multuggerah used. All over Australia, Originals tracks were the only and best routes through the land; they smoothly followed the ridges, valley floors and waterways and linked waterholes or other resources that travellers needed. Many main roads (e.g. Toowoomba Second Range Crossing - Multuggerah Way) largely follow ancient Original pathways, and over time they became dray and horse riding tracks, then roads and railways, and eventually highways. Everywhere along these routes, stone scatters and scarred trees still attest to their frequent journeying. Even though colonialism deeply affected Yugara in Lockyer Valley and surrounds, we maintain our stories, culture and connection physically and spiritually to our Ancient homelands, this is important for our past, present and future generations[18]."*<br><br>*Ref* [18].Kerkhove, R (2016), Multuggerah and Multuggerah way, Commissioned by Jagera Daran<br><br>The Cultural Heritage Chapter of the EIS does not mention "pathways", "Multuggerah" or "Bunya Mountains" and therefore it is unknown if the EIS incorporates local first nations cultural heritage values or meets the requirements of the TOR "*The construction and operation of the Project aims to ensure that the nature and scale of the Project does not compromise the cultural heritage significance of a heritage place or heritage area"* | |
| **Chapter 19 Traffic and Transport** | | | |
| **157** | Chapter 19 | The Proponent is to amend Chapter 19 and Appendix U Part 1 & 2 –<br>The **Traffic Impact Assessment** has a number of data and assumptions which are challenged by LVRC. Please refer to further detailed commentary. In aggregate, these issues understate the impact of the project on the local road network. | That the COG require the Proponent to submit an amended Traffic Impact Assessment incorporating:<br>- actual traffic counts on all impacted road links<br>- justification of forecast construction movements<br>- growth rates agreed by LVRC |
| **158** | Chapter 19 | The i**mpacts on LVRC roads are enormous**. Virtually the entire project within the Lockyer Valley is either in the tunnel, on structures (viaducts bridges etc) or in cuttings. This is a scale of infrastructure (and road impact) that is difficult to envisage. | That the COG require the Proponent and/or their appointed Contractor to enter into an agreement with LVRC to fully compensate the Council for increased maintenance costs on roads and other impacted infrastructure assets as a result of project construction traffic. |

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| | | | Further, such agreement is to specify that Council shall be entitled to further compensation for accelerated degradation of road pavement and sealed assets, whether or not short-term maintenance is required. |
| **159** | Chapter 19 | **Interface agreements** with ARTC and the PPP are envisaged but have not been executed at this stage. It will be critical that the COG recognise negotiated and agreed positions and underpin any agreement with a requirement for the proponent and/or PPP to compensate LVRC and the community for this impact. | That the COG require Council to be compensated for impacts to road network and cost of maintenance and road consumption.<br>That should any contractual agreements between LVRC and the Proponent or their contractor result in a higher standard of condition than that imposed by the COG in the EIS, or be a direct impact to LVRC assets, confirm that the contractual agreement shall take precedence. |
| **160** | Chapter 19 | **Project Scope and Technical Requirements (PSTR**) including Finalised Record documents represents Council's position with regard to impacts on its infrastructure assets. | That the COG support Councils position on the PSTR and confirm that any conditions imposed by the EIS should not lessen the standard agreed by LVRC in relation to the construction and/or maintenance of its assets. |
| **161** | 19.7.7<br>19.7.8 | Grant funding has recently been received to upgrade the **existing mountain biking** tracks and facilities that straddle the escarpment in Redwood and Jubilee Parks. This location has been spoken of as a potential 2032 Olympics eventing area or training facility and will be a destination of national and potentially international significance. These tracks cover areas in both TRC and LVRC with the main eastern access via Amos Road in the Lockyer Valley. This intersects with Jones Road that is likely to take significant construction traffic. Safety of mountain bike trail users will be paramount. This facility has not been mentioned in the EIS and will need to be considered in safe access plans. | That the COG require the proponent to assess the risks associated with safe access for bike users and their support vehicles on the route particularly (but not only) along Jones Road between Withcott and the Amos Road intersection particularly during construction.<br>That the proponent be required to examine the impacts on this developing tourism opportunity on the escarpment.<br>That the COG condition the proponent to require the necessary safety upgrades in this location. |
| **162** | 19.8.2.2 | **Mary McKillop Street level crossing** is identified as a level crossing with very significant construction traffic volumes. It should be noted that vehicles servicing the explosives precinct also utilise this level crossing. | That the COG require the proponent to identify specific strategies to reduce the risks at the Mary McKillop St level crossing during construction. |
| **163** | Chapter 19<br>Table 19.27 | Intersections listed for LVRC are potentially underreported due to **erroneous traffic count data** being used to evaluate intersection impacts.<br>No detail detailed assessment of the listed intersections is provided, nor mitigation measures proposed. | The Traffic Impact Assessment shall be amended using actual or agreed traffic volumes and turning movements and re-submitted for consideration by the impacted road authorities. |

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| **164** | Chapter 19<br>Section 19.11 | Other Inland Rail projects forming part of the PPP (H2C and C2K) are listed only as projects considered in **cumulative assessment.**<br><br>These three (3) projects are being procured as one (1) contract and to not consider specific impacts of all three (3) being delivered concurrently is significantly understating cumulative impacts. | The Traffic Impact Assessment should cover all three (3) Inland Rail projects in combination in order that full traffic impacts can be assessed with specific numbers available.<br><br>This is particularly relevant for the town of Helidon which is heavily impacted by both G2H and H2C projects. |
| **165** | TOR 11.113 Not met<br>Sect 11. | **Traffic impacts** only consider the G2H project. This does not adequately consider the total transport task of all IR projects. | Cumulative impacts of the delivery of the three (3) Inland Rail projects under one (1) contract shall be quantified in a consolidated Traffic Impact Assessment. |
| **166** | U_Traffic_P1<br>Sect 5.4 | Council would consider an appropriate **construction worker camp(s)** being constructed subject to the usual planning approval process. No such camps should be considered as part of the project on the corridor and outside of the planning scheme framework | No construction worker camps are to be built as a part of the project. Any proposal to do so should require development approval from the relevant local government and normal planning application processes to be followed. |
| **167** | U_Traffic_P1<br>Sect 5.4 | The **lack of rental accommodation** in local and surrounding regions is not adequately addressed. With the number and type of workers required for this project, it is expected that a significant number will require local accommodation for the duration of the project. Current rental vacancies in Toowoomba and the Lockyer Valley are very low and the impact of a major project on the market, particularly squeezing out the lower socio-economic end is considered a significant social risk to be addressed. | An updated assessment is required regarding accommodation supply and demand based on current prevailing conditions as well as addressing the impact on the small rental market in the Lockyer Valley for other participants in terms of availability and affordability. |
| **168** | Appendix U Part 1<br>Table 5.10 | A significant quantity of **spoil** is generated by the project ~300,000 cubic metres. It is noted that this will be transported along the road network to a final re-use location. | The spoil management plan makes a number of broad assumptions around disposal sites that have not been resolved with the owners of these sites. The Proponent should be required to produce a specific plan for spoil sites that have been agreed with the owner of the land, the route proposed to be used for haulage and how they intend to mitigate impact to the road network on an asset and safety level. |
| **169** | Appendix U Part 1<br>Sect 5.7.6 | **Movement of greater than 1 million cubic metres of spoil** on the road network is of great concern to LVRC as the owner of the local road network. The majority of council roads, particularly lower order roads are not designed to handle this volume of heavy vehicle traffic. It can be expected that this will result in significantly increased maintenance costs, reduction in the remaining life of the pavement and seal, together with increased safety risk on the network. | The Proponent and/or their contractor shall be required to enter into an agreement with the road authority including, but not limited to, compensation for maintenance of agreed haulage routes during the project, compensation for accelerated deterioration of pavement and seal assets. Road safety audits shall be conducted along all haulage |

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| | | | routes with any identified required upgrades to be funded by the project. |
| **170** | Appendix U Part 1<br>Sect 12.5 | The **Pavement Impact Analysis** has only been undertaken on state-controlled roads. | The impact of significant numbers of heavy vehicle movements on the local road network must be accounted for and compensation agreements are required to be in place between the Proponent, project company and local road authority. |
| **171** | Appendix U Part 1 Table 6.2 | Reporting the percentage changes without listing the existing traffic used as the denominator in the calculation is **misleading** as some of the existing traffic data is based on assumed counts, often significantly higher than reality, which has the effect of showing a lower percentage increase than what it would be with real data. | The Traffic Impact Assessment shall be amended using actual or agreed traffic volumes and turning movements and re-submitted for consideration by the impacted road authorities. |
| **Chapter 20 – Hazard and Risk** | | | |
| **172** | Chapter 20 (Hazard and Risk)<br><br>Chapter 16, Section 16.10.4 (Health and Wellbeing) | **Failure to Appropriately Address Community Health and Safety Risks** – the OCG's TOR objective (b) for hazards, health and safety states: 'developments are to be appropriately located, designed and constructed to minimise health and safety risks to communities and individuals and adverse effects on the environment.'<br><br><u>Rail Safety</u><br>The draft EIS fails to meet this objective as the proposed co-location in the WMSRC corridor (which passes close to rural living and urban areas) significantly increases the risk to the community from potential rail accidents such as derailments.<br>Rail safety and concerns over a catastrophic derailment have been raised by members of the public and have been discussed in Section 20.7.2.1. However, Chapter 20 of the draft EIS only makes mention of the possibility of derailment, with Table 20.5 citing an incident rate of '0.451 per million freight km'. It seems from Section 20.7.2.2 that the incident rate used in the EIS is based on historic derailment data from 2016 to 2020. It is not clear from the EIS if the predicted derailment incident rate statistics have been adjusted for the increased risk of derailment associated with the height, length and speed of proposed trains. Section 20.7.2.3 states that the risk of derailment may potentially escalate, with double-stacked containers on bridges and viaducts during extreme weather and high wind conditions". Other factors that are acknowledged in Chapter 20 as increasing the risk of derailment include steep grades, tunnels, shifting loads from double stacked container and potential interactions with the West Moreton | To meet the TOR, LVRC strongly recommends the OCG require the proponent to undertake further and more comprehensive and accurate assessments of alternate alignments that comply with the TOR to identify an alignment that will adequately avoid, minimise and mitigate the potential health and safety impacts to the residents of the Lockyer Valley.<br><br>The hazards and risks of the project to the community must be reviewed by the proponent to:<br>• Provide a project specific assessment of derailment risk that accounts for unique elements of the proposal which increase the potential for derailments.<br>• Provide an accurate assessment of sleep disturbance impacts from noise emissions and the associated health risks.<br>Provide an assessment of the risk of Q-fever to the community associated with livestock trains. |

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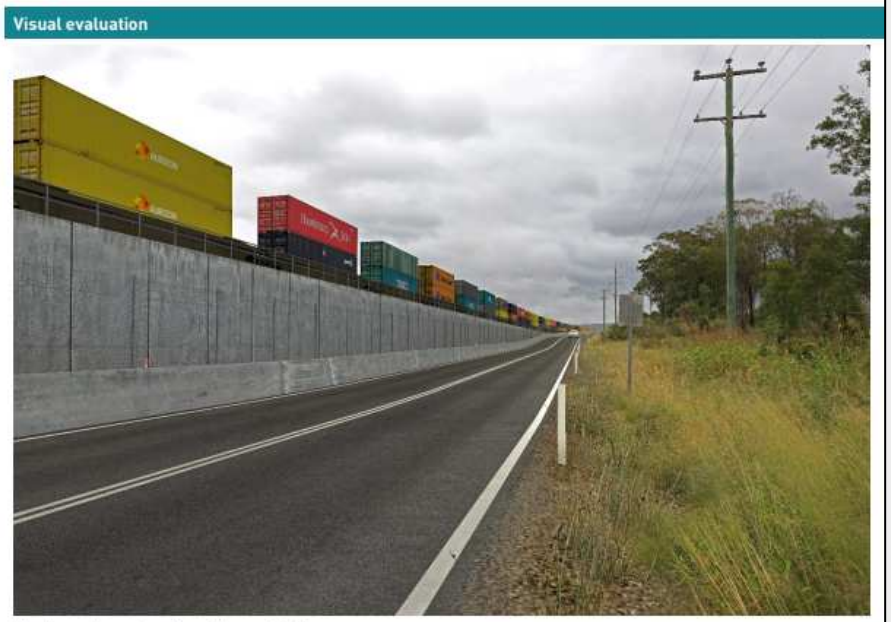
| | | Rail System. A project specific estimated derailment rate is not provided in the EIS even though the EIS acknowledges that there are project specific factors which increase the risk of derailment.<br>Table 20.12 outlines the management of a derailment. At no time does the document discuss in detail how derailments would be managed to ensure there is no significant residual risk to communities.<br>Independent research reveals that train derailments occur quite frequently, with many incidents and accidents on rail each year. The Australian Transport Safety Bureau (ATSB) rail safety investigation database shows that of the 285 recorded rail incidents between 1997 and 2021, 97 were incidents were derailments (equivalent to 4 derailments per year). However, as noted above, there are several factors which increase the potential for train derailments along the alignment compared with more traditional existing freight rail transport networks.<br><br>At capacity, and at speed, the possibility of an incident on Inland Rail increases exponentially. If such an incident occurred near a town, such as Helidon, or public road, there would be catastrophic consequences. For example, the alignment is beside Airforce Road which services the Helidon Explosives Precinct (see below). Heavy vehicles use this road to transport explosives and other chemicals to and from the precinct. Therefore, a train derailment is this area could present a significant safety risk if it collided with a vehicle transporting explosives or chemical. | |



Photomontage view from Viewpoint 20

Further, Table 20.11 states that proposed 'mitigation strategies' would only reduce the risk of these incidents from 'high' down to 'medium'. This level of risk post-mitigation is not acceptable to LVRC. The concern about the possibility of a derailment is very real given the speed, length and height of trains and the proximity of the alignment to public roads. Even though the EIS acknowledges a there are a range of factors that increase the risk of derailment for the proposal, the incident statistics used to assess public risks do not appear to have been corrected to account for project specific factors.

Health Risks

The project poses very significant potential health risks to the community from noise and air emissions, but these lack any form of meaningful assessment in the draft EIS. LVRC's assessment found that sleep disturbance may be experienced at 122 out of the approximately 165 sensitive receptors. The draft EIS grossly underestimates the scale of sleep disturbance that will be experienced as it fails to use recognised best practice guidance on this matter. The impacts of sleep disturbance are widely reported and are

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| | | well understood to have a major impact on health and quality of life. The WHO (2018) states that sleeping satisfies a basic need and the absence of undisturbed sleep can have serious effects on human health. Causal pathways have been established between noise induced sleep disturbance and health effects such as cardiovascular and metabolic disease. Other effects include impaired cognitive function and psychological impacts. The draft EIS is silent on the health impacts associated with sleep disturbance and makes no firm commitment to addressing this profoundly serious and real risk.<br>Table 20.11 at Chapter 20 rates the residual risk of noise impact from rail operations as low. LVRC oppose this finding as the assessment of noise is seriously flawed (as demonstrated in earlier in this response) and the proponent provides no detail or commitment to noise mitigation. Therefore, how can the risk of noise impact be known given the seriously flawed nature of the assessment and lack of detail around mitigation. Sleep disturbance will occur from the project at a far greater scale than predicted by the draft EIS and this will present profoundly serious health risks to Lockyer Valley residents that the proponent has failed to recognise or demonstrate how they will accept responsibility for preventing these impacts.<br>As demonstrated earlier in this response, the air quality assessment does not give any consideration to microbiological contaminants in air emissions during operations, namely Q-fever (*Coxiella burnettii*) in dust from livestock trains. TOR 11.128 requires assessment of <u>any contaminants or materials</u> that may be released from the project. Q-fever is an infectious disease spread from animals (mainly cattle, sheep and goats) to humans by a bacterial called (*Coxiella burnettii*). People become infected with Q-fever by inhaling contaminated aerosols and dusts. Sources of relevance to the project can include animal wastes (urine, faeces etc) and contaminated machinery/equipment/vehicles. People may be exposed to infected dusts even if located a kilometre or more from the source. Much larger potential zones of infection are reported by various studies, ranging from 5 km to more than 10 km. Stock transport trucks are identified a source of infective dusts. Research by the University of Queensland published in the BMC *Infectious Diseases Journal* in 2018 noted that outbreaks of Q-fever had been reported previously in Europe for residents living along roads where livestock were transported. Table 20.11 at Chapter 20 rates the residual risk of air emission impacts from rail operations as low. LVRC strongly opposes this finding as the assessment of air emissions is seriously flawed (as demonstrated in detail later in this response) as the proponent has failed to meet the TOR and identify all potential risks and impacts. The livestock trains present a real and profound health | |

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| | | risk to receptors with regards to Q-fever and this needs to be assessed by the draft EIS. Given the potential dispersal distance, the scale of impact and number of exposed receptors is enormous but wholly unaccounted for in the draft EIS.<br>The draft EIS does not meet TOR objective (b) for hazards, health and safety as it does not accurately identify, assess and mitigate the potential significant health and safety risks associated with the project. The current alignment near towns, namely Helidon, and other regional localities such as Postman's Ridge, means that it is highly unlikely that the proponent can adequately mitigate the potential health and safety impacts of the project on the residents of Lockyer Valley. | |
| **173** | TOR 11.156 | As discussed in Chapter 13 comments **flood and bushfire evacuation routes** have not been identified. | That the proponent identify current evacuation routes and evacuation centre locations particularly for Helidon and demonstrate the viability of future evacuation routes during construction and following rail construction. These routes to be to the satisfaction of the LVRC and the Lockyer LDMG |
| **174** | TOR 11.156 | The proposed railway will prevent access across the corridor. **Escape routes** for flood and bushfire events need to be identified and established. | Recommend that a condition be imposed requiring the identification of flood and bushfire evacuation routes for both the construction and operational phases of the railway. |
| **175** | Outline of Management of Incidents Identified - Rail incidents | **Rail Accidents refers to ARTC's Accident or Derailments** - Actions to be Taken (SMP03). SMP03 available online does not outline the process for notifying emergency services and the Local Disaster Management Group if required | That ARTC be required to include communication protocols with emergency services and the Local Disaster Management Group in SMP03 or appropriate document |
| **176** | Outline of Management of Incidents | **Consult with local emergency service/local government** to plan and develop alternative means of access for use in emergencies. | That ARTC be required to consult with local emergency service/local government to plan and develop alternative means of access for use in emergencies. |
| **177** | Hazard and Risk Mitigation Measures - Bushfire | **Bushfire mitigation and management measures** do not include maintaining access/egress for community during all project phases. | ARTC be required to maintain community accesses during all phases of the project including construction. |
| **178** | Hazard and Risk Mitigation | Bushfire mitigation and management measures do not include maintaining **existing fire trails.** | That ARTC be required to maintain access to fire trails at southern end of McNamaras Road, Withcott, Hodgets to Howmans Road, Lockyer. |

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| | Measures - Bushfire | | |
| **179** | Hazard and Risk Mitigation Measures - Bushfire | Bushfire mitigation and management measures do not identify where **water supply** for firefighting purposes will be accessed from. | ARTC be required to source water for firefighting purposes from sources other than private properties and ensure water storage on corridor is maintained during construction and operational phases. |
| **180** | Natural Hazards Mitigation | The potential impacts to environmental values throughout the Project lifecycle will be managed in accordance with ARTC's **Safety Management System,** e.g. Emergency Management Procedure (ARTC, 2019) | That ARTC be required to provide their Emergency Management Procedures to Emergency Services and the Local Disaster Management Group to identify level of response capability within ARTC and level of service required from emergency services and the Local Disaster Management Group. |
| **181** | Bushfire<br>TOR 11.156 | The EIS does not address where **fire breaks/access** will be established.<br>The EIS describes the very significant number of locomotive fires that occur annually. This potential source of catastrophic bushfires needs to be mitigated.<br>19.7.9.1 states that 83 train fires occurred in 19/20 year.<br>This is an extraordinary risk for the project given the nature of the vegetation through which it travels and where operations are proceeding up and down the Great Dividing Range where overheating diesel locomotives will ne common. The risk remains high. Additional mitigation measures need to be identified. | That ARTC be required to engage with Rural Fire Brigades and residents to identify fire trails and emergency accesses not included in Lockyer Valley Regional Council fire trail mapping (provided to ARTC).<br>That ARTC be required to prioritise construction of fire breaks and accesses at the commencement of construction phase and advise Rural Fire Service, emergency services and the Local Disaster Management Group of locations. |
| **182** | Bushfire<br>TOR 11.157 | The EIS does not confirm what capacity of **'trained personnel'** ARTC has for fire response. | That ARTC be required to confirm their bushfire response capacity and level of service required from emergency services and the Local Disaster Management Group. |
| **183** | Bushfire<br>TOR 11.156 | The EIS states 'consideration will be given to providing and maintaining **access** where local roads can facilitate emergency access, first response firefighting, accessibility and sufficient water supply for firefighting purposes and safe evacuation. | That ARTC be required to:<br>• maintain or provide alternative access to local roads to the road managers satisfaction with no loss of connectivity<br>• ensure there is sufficient water storage during construction phase for firefighting purposes.<br>• provide emergency access for emergency services. |

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| | | | • construct corridors to enable firefighting and emergency vehicles to traverse across the corridor considering current and future vehicles heights widths weights, capacity etc |
| **184** | Emergency Planning<br>TOR 11.157 | **Testing of emergency procedures** for Level 1 incident - through exercising should include emergency services and the Local Disaster Management Group | That ARTC be required to provide for emergency procedures for Level 1 incident to be tested annually to evaluate the effectiveness of emergency preparedness, communications and response including emergency services and the Local Disaster Management Group. |
| **185** | Residual Risks – Mitigation Measures | This section does not **identify evacuation routes** across the corridor for communities under threat from bushfire, flood or other disaster. | That ARTC be required to consider local and regional hazards and their interaction on evacuation routes current and future considering climate change and the ultimate developed footprint and usages of the region. |
| **186** | Climatic Conditions<br>11.166 | **Increased wind speeds**, could potentially result in derailments or escalate the spread of fire. | That ARTC be required to demonstrate that operational limits on approaches to and from built up areas and on high structures take into account climatic conditions.<br>That ARTC be required to demonstrate how they have reduced the risk of sparking fire on high or higher Fire Danger Rating days. |
| **Chapter 21 Waste and Resource Management** | | | |
| **187** | Chapter 21 Waste and Resource Management<br><br>TOR 11.169 to 11.176 | **Waste issues** for the project construction have been considered and there is an emphasis on applying the waste hierarchy which promotes reduction and reuse where possible. | It is recommended that the COG confirm this approach with the proponent. |
| **188** | Ch 21 | It is acknowledged much of the waste generated in the project will be **spoil** and this will be reused where possible. | That the OCG require consultation with Council over appropriate locations and treatment of spoil. |

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| **189** | | Section 21.4 notes there are **existing waste management facilities** in Lockyer Valley and incorrectly indicates that these may have the ability to accept waste from the project. Whilst Council is licensed to receive up to 20,000 tonnes per annum of waste at the Gatton Landfill, the management of the waste streams for our community currently absorbs almost all this figure. There is only five years remaining life at the Gatton Landfill so acceptance of large amounts of waste from this project is not feasible in either tonnage terms or protection of our valuable landfill space.<br>Council currently carefully manages the amount of clean fill accepted into our waste sites so that we both manage our stockpile sizes and don't store material in excess of what we need for our operational use. There is no capacity to accept any clean fill at any of our landfill sites.<br>Table 21.4 incorrectly indicates transfer stations in the Lockyer Valley may have capacity to take waste. These facilities are provided for the use of residents to dispose of domestic waste and have no capacity to stockpile or dispose of waste. Large vehicle access is also not available to take the types and volumes of waste suggested. | It is recommended that the Draft EIS be amended to:<br>1. Remove any Lockyer Valley transfer stations from Table 21.4 as they are not available for any waste disposal for this project.<br>2. Remove Gatton Landfill from Table 21.4 as there is no tonnage capacity at this site to take waste generated by this project.<br>3. Note formally that there is no opportunity to manage waste disposal through the Lockyer Valley Regional Council waste facilities.<br><br>It is recommended that the COG condition the proponent to require that that all disposal be to other landfills owned by the private sector or (with their approval) other local governments. |
| **190** | | There is no ability at any of the Lockyer Valley sites to take or **stockpile green waste** that is removed as part of this project. Council mulches green waste every 1-2 years (depending on volumes) and does not have the room to stockpile volumes of green waste that are over and above normal domestic and small commercial generation rates. | That the COG note there is no capacity for the project's green waste at Lockyer Valley sites and require the proponent to find alternate disposal sites. |
| **191** | | Section 21.7 discusses potential **spoil disposal locations**. LVRC sites are not mentioned here (and can't accept fill material). However, it may be possible to accept some material in coming years for landfill remediation. The remediation program of old landfills across the Lockyer Valley is expected to be mapped out in 2021/22 and, depending on the quality of the spoil produced, this material could be suitable for final capping of the landfills. Discussions should be held with the project managers when more information is known on the type of fill required. This would be mutually beneficial to dispose of certain spoil and remediate old landfills. | That the COG require the proponent to identify potential suitable excess spoil in the Lockyer Valley for potential use in landfill remediation.<br>That the COG require the proponent to liaise with LVRC to facilitate the use of this spoil for land fill remediation. |
| **Chapter 22 Cumulative Impacts** | | | |
| **192** | Chapter 22 | **Cumulative Impacts for Operations** – Cumulative impacts can be defined as successive, incremental and combined impacts of activities on society, the economy and the environment (NSW Social Impact Assessment Guideline, 2017). The Cumulative Impacts chapter of the draft EIS states that cumulative impacts are more likely to have the most material impact during the construction phase and that operational impacts are | A cumulative impact assessment of the operational phase of the project needs to be undertaken. |

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| | | typically restricted to expansion activities. The cumulative impact assessment therefore predominantly focusses on the construction phase of the project. This assumption of minimal cumulative operational impacts is incorrect and fails to address the substantive impacts on rural and residential communities throughout the Lockyer Valley. These impacts are associated with the significant increase in both the volume and size of trains. | |
| **193** | Section 22.6 (Summary of Cumulative Impacts and Mitigation Measures) Section 22.6.3 (Landscape and Visual Amenity) Table 22.12 | **Cumulative Impacts from Lighting** – TOR 7.3 requires the draft EIS assess the cumulative impacts over time and in combination with impacts created by other activities and propose a way to suitably address predicted cumulative impacts. The cumulative impacts arising from temporary and permanent lighting from the proposed project are inappropriately dismissed.<br>Table 22.12 states that 'due to the low level of lighting proposed for the project, there are not anticipated to be any significant cumulative lighting impacts associated with these projects.' This statement ignores the actual lighting impacts that should be recorded, even if they are not highly significant in their overall assessment of cumulative impact. In particular:<br>- There will be night lighting associated with construction activities (e.g., 24/7 activities and on-site security floodlighting) that should be considered, although their significance may be low-medium due to their relatively low duration).<br>There will be some impact from permanent changes to streetlighting and tunnel lighting during operation of the proposed project. | Dismissing the impacts from lighting entirely results in no actual mitigation measures recommended in the event of such impacts and as a result, the draft EIS fails to meet the requirements of TOR 7.3. The draft EIS requires update to discuss adverse impacts from lighting and mitigation measures and proponent commitments discussed. |
| **194** | Section 22.6.3 (Landscape and Visual Amenity) | **Localised Enhancements:** Section 22.6.3 states that localised enhancements, e.g., buffer planting, may enhance outcomes and minimise impacts on particular receptors.' This suggests that some of the landscape treatments may be installed prior to the decommissioning of laydown areas and other temporary construction sites adjacent to the proposed alignment. | The draft EIS requires update to include more information on how the landscape works will be managed in such a two-phase construction and whether there will be a coordinated approach to each of the treatment types and locations. For example, 'buffer planting' may be extended into 'revegetation' of the entire site once construction has finished. At all times, high quality landscape outcomes are required.<br><br>*LVRC request the OCG impose the following conditions*: 'The proponent is required to ensure high quality |

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| | | | landscape outcomes are achieved for every aspect of the proposed project and specifically with buffer planting and the minimisation of adverse impacts to sensitive receptors.'<br>and<br>'The proponent is required to work closely with LVRC and to reach written agreement with LVRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.' |
| **195** | Section 22.6.8.2 (Operational Cumulative Impact) | **Cumulative Impacts from Toowoomba Bypass** – the section following Table 22.19 provides commentary on the cumulative impacts of road traffic and railway noise. It is accepted that cumulative impacts only materialise as a measurable difference when the two sources are within 10 dB(A) of each other, with a maximum increase over the component levels expected to be 3 dB(A). However, the risk of noise impacts and ongoing complaints is potentially high for residents who are already exposed to noise from the Toowoomba Bypass. These residents may already be sensitive to noise from the bypass, which was constructed recently, and any additional noise is likely to be met with resistance. As a result, the draft EIS fails to meet the requirements of TOR 7.3. | The draft EIS requires update to meet the requirements of TOR 7.3 and to assess the cumulative noise impacts from the proposed project and the Toowoomba Bypass in detail. |
| **196** | Chapter 22 | **Lack of Assessment of Operational Cumulative Impacts –** cumulative impacts can be defined as 'successive, incremental and combined impacts of activities on society, the economy and the environment' (NSW Social Impact Assessment Guideline, 2017). Chapter 22 of the draft EIS states that cumulative impacts are more likely to have the most material impact during the construction phase and that operational impacts are typically restricted to expansion activities. The cumulative impact assessment therefore predominantly focusses on the construction phase of the project. This assumption of minimal cumulative operational impacts is incorrect and fails to address the substantive impacts on rural and residential communities throughout the Lockyer region. These impacts are associated with the significant increase in both the volume and size of trains. As a result, the document fails to meet the requirements of TOR 6.6 and TOR 7.3. | A cumulative impact assessment of the operational phase of the project needs to be undertaken in order to meet the requirements of the OCG's TOR.<br><br>Further that the cumulative transport impacts of the PPP projects be considered given the shared transport impacts on the Lockyer Valley from those projects. |
| **Chapter 23 – Draft Outline Environmental Management Plan** | | | |
| **197** | Section 23.15.3 (Landscape and Visual Amenity) Table 23.7 | **Lack of Specific Mitigation for Lighting Impacts** – TOR 11.84 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity.' However, the draft EIS fails to propose any | These statements require update to be more specific with respect to mitigation measures and should include examples of localised attenuation measures for lighting impacts, particularly as they fail to appear anywhere else |

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| | | specific measures for mitigating the visual impacts of lighting during the construction or operational phase of the proposed project.<br>Table 23.7 lists proposed mitigation measures related to visual amenity for the draft Environmental Management Plan. There are 2 lighting-relevant measures listed:<br>1) 'During detailed design, review assessment of the potential for operational light impacts to residents and identify if/where attenuation measures are required.'<br>This statement seems to suggest an assessment has already been conducted (although this is not documented). However, this statement lacks detail on the impacts being addressed (which elsewhere have been dismissed) or provide specifics regarding the attenuation measures that may be required.<br>2) 'Avoid or minimise the effects of unavoidable out-of-hours works in close proximity to residences and, where construction light impacts are predicted, implement attenuation measures in discussion with potentially affected residents.'<br>This statement acknowledges the impacts that may occur during the construction phase of the project. The text should provide specific strategies which reference AS/NZS 4282:2019. | in the draft EIS, and in order to meet the requirements of the OCG's TOR. |
| **198** | Section 23.15.3 (Landscape and Visual Amenity | **Lack of Specific Monitoring for Lighting Impacts** – TOR 11.93 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on natural values, and enhance these values' … 'in particular, address measures to protect or preserve any threatened or near-threatened species.' The draft EIS fails to make clear what monitoring will be conducted related to permanently installed lighting.<br>Section 23.15.3 suggests that environmental monitoring should include lighting monitoring and/or audits (in order to implement visual amenity related management processes). However, this is not explicitly stated here or elsewhere. Other sections on monitoring include specific monitoring (e.g., see air quality monitoring in Section 23.15.5). | The draft EIS requires update to meet the requirements of TOR 11.93 and to make specific reference to what type of monitoring will be conducted (and if lighting monitoring or audit is included) in the management of landscape and visual amenity. |
| **199** | Section 23.15.3.1 (Environmental Outcomes) | **Environmental Outcomes:** Section 23.15.3.1 downplays the required rehabilitation of all affected waterways and associated creek crossings, by stating that 'project works are designed to minimise vegetation loss and mitigate impacts through appropriate rehabilitation.' 'Project works are designed to minimise impacts on the visual amenity of watercourses.' 'The design of rail infrastructure and associated landscape treatments (including slope and stabilisation measures) responds to the natural and rural | The draft EIS requires update to include a wider scope of rehabilitation to all impacted waterways to provide a legacy of landscape renewal which goes above the constraints of the existing site condition and extent of the Project works. |

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| | | landscape, topography and landform, to the greatest extent possible, while complying with engineering design standards and legislative requirements' and that the 'project design results in a minimal maintenance landscape.' As a result, the document fails to meet the requirements of TOR 5.1, which requires the proponent to ensure that 'all relevant environmental, social and economic impacts of the project are identified and assessed, and to recommend mitigation measures to avoid or minimise adverse impacts…' | This will require significant site preparation beyond the immediate disturbed areas, treatment and then ongoing maintenance and monitoring for a successful revegetation outcome.<br><br>This is therefore not a 'minimal maintenance landscape' but a rehabilitated landscape which will be sustainable and ultimately self-regenerating. Revegetation requires a significant level of maintenance to be successful, primarily regular watering until established (12-18 months min.).<br><br>By focussing on drainage line/creeks within the proposed project footprint and beyond, there may be improved success rate of revegetation due to the higher ground moisture content to sustain growth. This then creates the catalyst for ongoing riparian corridor improvements. |
| **200** | Section 23.15.4 (Flora and Fauna)<br>Table 23.8 | **Lack of Mitigation for Lighting Impacts** – TOR 11.93 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on natural values, and enhance these values' … 'in particular, address measures to protect or preserve any threatened or near-threatened species.'<br><br>Table 23.8 does not include any measures to mitigate adverse impacts of lighting to fauna and fauna during construction or operation of the proposed project. As a result, the draft EIS fails to meet the requirements of TOR 11.93. | The draft EIS requires update to include appropriate mitigation measures to ensure impacts of lighting on flora and fauna are reduced in a way which ensures that there is *no significant residual impact*. Guidance on such measures is available from the National Light Pollution Guideline for Wildlife (2019). |
| **Chapter 24 - Conclusions** | | | |
| **201** | Chapter 24, Chapter 22, draft EIS | **Lack of Consideration of Collective G2H Project Impacts and Interactions:** The draft EIS fails to consider the overall impact of the proposed project by considering the interactions between and integrating the findings of various technical assessments. The draft EIS does not seem to adequately consider the compounding impacts (like cumulative effects) of the project. This is demonstrated by a lack of linkages or communication between the various parts of the draft EIS suggesting that the technical assessments have been completed in isolation. Some examples of this are below (this is by no means an exhaustive list).<br><br>Groundwater that enters the tunnel during operations is proposed to be discharged to the Rocky Creek catchment in the LVRC LGA. This will turn the receiving ephemeral watercourse (only flows after rainfall) into a permanently flowing watercourse. | To meet TOR 5.1, the draft EIS needs to be reviewed to ensure technical assessments are not completed in isolation to ensure the collective impacts of the project are identified and assessed and suitable mitigation measures developed. |

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| | | However, this significant action which is described in Chapter 14 is barely considered in the following chapters:<br>• Chapter 9 (Land Resources) – includes a salinity assessment but this gives no consideration to how landscape salinity may be affected by the surface water hydrology changes and its effect on groundwater dynamics and salt movement.<br>• Chapter 13 (Surface Water and Hydrology) – Makes no assessment of the impacts of changes to surface water hydrology or water quality in catchments at the eastern and western end of the tunnel. Chapter 13 does say in construction that groundwater infiltration can affect natural ecology and aquatic ecosystems and wet weather releases of water are preferred. This comment is made in relation to the western end of the tunnel but would presumably also apply to the eastern end. The comment does not extend to continuous flows during operations. Does not consider impacts to Environmental Values of the catchment by the step change in hydrological regimes.<br>• Chapter 11 (flora and fauna) gives no consideration at all to the proposed hydrology changes in relation to aquatic habitat and ecosystems, aquatic flora and fauna, riparian vegetation etc. At 11.7.11 it refers to impacts to Murray Cod (in western section of study area) but says construction impacts will be temporary and a return to pre-construction creek flows will protect this species. This chapter does not include an assessment of the ecological impacts of changing ephemeral watercourses to perennial watercourses.<br>This is just one example of an issue which demonstrates a lack of communication/interaction between the numerous elements of the draft EIS. In short, the draft EIS does not address the collective impacts of the proposed project and therefore does not meet TOR 5.1. Therefore, the draft EIS has not identified all the likely impacts of the project nor determined the required mitigation measures. | |

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| | | **Appendices** | |
| **202** | Appendix F Section F2 (Project-wide Commitments) | **Lack of Appropriate Commitment to Monitor Noise** – a commitment is required to monitor and verify noise levels within six (6) months post-commencement of rail operations. The section does not give detail on the scope of the monitoring or verification that is expected. | The proponent should specify the extent of noise monitoring that will be undertaken and whether it will include monitoring and reporting in response to noise complaints. |
| **203** | Appendix F Section F3 (Detailed Design Phase) Table F3.1 | **Lack of Obtrusive Light Commitments** – TOR 11.84 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity' While TOR 11.93 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on natural values, and enhance these values' … 'in particular, address measures to protect or preserve any threatened or near-threatened species.'<br>The wording of proponent commitments provided in Appendix F does not comprehensively address obtrusive light issues.<br>Addressing commitments related to landscape and visual amenity, item D18 in Table F3.1 states that the proposed project's landscape design will develop treatments, landscaping and stabilisation at 'key view-points identified in the EIS.' As discussed previously, significant problems can arise related to obtrusive light during construction and operation phases, where the area of concern is not aligned precisely to the viewpoints identified in the draft EIS. | The draft EIS requires update to include appropriate and necessary design actions to mitigate adverse impacts from obtrusive light in proponent commitments in order to meet the requirements of the OCG's TOR. |
| **204** | Appendix F | **Inappropriate Proponent Commitments:** Appendix F fails to meet the requirements of TOR 7.4, which requires the proponent to 'include a consolidated description of all the proponent's commitments to implement management measures (including monitoring programs). Should the project proceed, these should be able to be carried over into the approval conditions as relevant.' The proponent has failed to consider the second half of TOR 7.4 as most of the 'commitments' are not considered to be appropriate for use as approval conditions as they are broad statements which are open to interpretation and lack any real measurable structure or form. As a result, they are not appropriate to be converted to regulatory conditioning.<br>Further, most of the 'commitments' provided in Table F2.1 are standard actions which are required to occur as part of due and regulatory processes (e.g., 'the proponent will continue to engage with the State of Queensland to protect and acquire the rail | The draft EIS requires update to provide more specific and appropriate mitigation and/or commitments to ensure best practice is achieved. Committing to deciding how to mitigate during detailed design is not considered an appropriate response as it is no commitment at all and therefore fails to meet the requirements of the OCG's TOR. |

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| | | corridor and land required to facilitate the project works and operations, including maintenance'). Such wording cannot be considered to be robust or a commitment to achieve best practice. | |
| **205** | Appendix F<br>Table F2.1 | **Failure to Provide** Appropriate Commitments for Rehabilitation or Revegetation: the draft EIS fails to meet the requirements of TOR 7.4 as Table F2.1 fails to include any reference to rehabilitation or revegetation. | The draft EIS requires update to meet the TOR and to include referencing proponent commitments to rehabilitation and revegetation of all areas disturbed as a result of proposed project activities (including, but not limited to, adjacent areas). At all times, high quality landscape outcomes are required.<br><br>*LVRC request the OCG impose the following conditions:*<br>'The proponent is required to ensure high quality landscape outcomes are achieved for every aspect of the proposed project, specifically with regards to rehabilitation and revegetation and the minimisation of adverse impacts to sensitive receptors.'<br>and<br>'The proponent is required to work closely with LVRC and to reach written agreement with LVRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.' |
| **206** | Appendix H<br>Figure 8<br>Figures 10 - 12 | **Visibility modelling** not clear **–** transparency is lacking with respect to visibility modelling shown in Appendix H, Figures 10 - 12 (but inexplicably not included in Chapter 10). It is not clear if the 'observation points' on which the Visibility Analysis Mapping (VAM) was based are the same as the receptor points (yellow dots) and scenic drives shown in Appendix H, Figure 8 (also not in Chapter 10), or whether a more accepted approach to visual exposure mapping was used (which gives weight to the number of observers on busy roads and public lookouts, more than to single residential viewpoints).<br>The draft EIS fails to meet the requirements of TOR 12.2, which requires 'no significant issue or matter should be mentioned for the first time in an appendix'. Figures 8 and 10 – 12 may be considered significant issues as they show visibility modelling. | The draft EIS needs to be updated to clarify the visibility modelling and mapping and to meet the requirements of TOR 12.2. |

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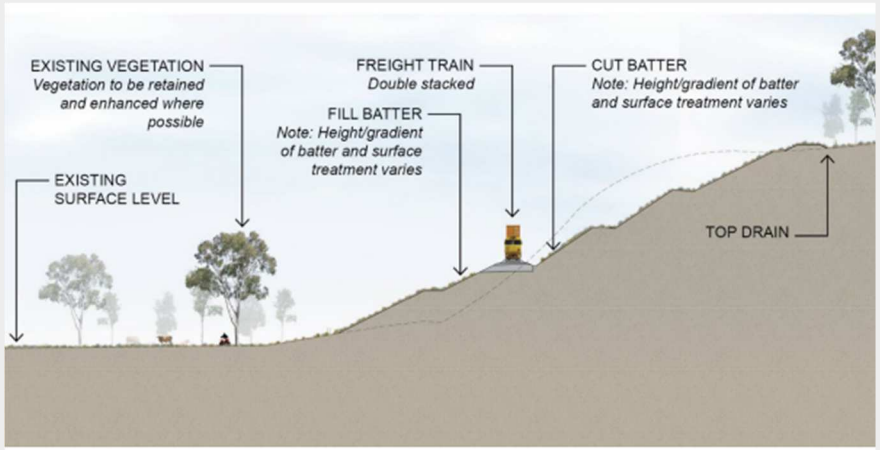
| **207** | Appendix H Section 6.3 (Illustrative Cross sections of Typical Conditions) Figure 15 | **Surface Treatment to Cut/Fill Batters:** TOR 10.11(p) requires a description of landscaping and the rehabilitation of affected areas after construction and during operation. The draft EIS is unclear regarding the typical revegetation extents in terms of the major earthwork cross-sections where there is sufficient space for planting, and as such does not meet the requirements of TOR 10.11(p). Figure 15 provides schematic cross-sections showing typical revegetation outcomes in terms of proposed vegetation forms (trees/shrubs, groundcovers/grass).<br>  <br><br>***Figure 15: Typical cut/fill batter*** | The draft EIS requires update to include details relating to revegetation and rehabilitation activities in areas where major earthworks are proposed in order to meet the requirements of TOR 10.11(p). At all times, high quality landscape outcomes are required.<br><br>*LVRC request the OCG impose the following conditions:*<br>'The proponent is required to ensure high quality landscape outcomes are achieved for every aspect of the proposed project and specifically with buffer planting and the minimisation of adverse impacts to sensitive receptors.'<br>and<br>'The proponent is required to work closely with LVRC and to reach written agreement with LVRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.' |
| **208** | Appendix H Section 11.4 (Residual Impact Assessment | **Reinstatement and Rehabilitation Management Plan:** Section 11.4 of Appendix H states that 'ARTC will develop an Inland Rail Reinstatement and Rehabilitation Management Plan that will include landscape objectives and principles, as well as outline landscape and rehabilitation treatments for various phases of the Inland Rail Program.' | The draft EIS requires update to include a commitment to ensure that the Reinstatement and Rehabilitation Management Plan is consulted with LVRC no less than six months prior to the commencement of construction activities. This should also include coordination with council's Infrastructure Branch for works within road corridors associated with all proposed bridges and adjacent to existing roads.<br><br>*LVRC request the OCG impose the following condition:*<br>'The proponent is required to consult with LVRC regarding |

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| | | | the development of a Reinstatement and Rehabilitation Management Plan, including coordinating with LVRC's Infrastructure, Growth and Policy and Community Wellbeing Teams regarding works within road corridors associated with all proposed bridges and adjacent to existing roads. The proponent is required to reach written agreement with LVRC regarding the contents and implementation of the plan at least six months prior to the commencement of construction activities.'<br><br>At all times, high quality landscape outcomes are required.<br><br>*LVRC request the OCG impose the following conditions:*<br>'The proponent is required to ensure high quality landscape outcomes are achieved for every aspect of the proposed project and specifically with buffer planting and the minimisation of adverse impacts to sensitive receptors.'<br>and<br>'The proponent is required to work closely with LVRC and to reach written agreement with LVRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.' |
| **209** | Appendix H<br>Figure 12 | Dynamic Movement of Trains through the landscape – the methodology used for this visual impact assessment does not adequately address the dynamic aspect of train movement frequency – the proposed alignment will be used by 33 trains per day (and up to 47 per day in 2040). Although Figure 12 purports to distinguish between static and dynamic visibility, it doesn't really, it just shows the visibility of permanent fixed infrastructure compared to a static snapshot of a train as it moves through. Also, the length of trains needs to be taken into account. There will be several viewpoints within view of at least one moving train for a high proportion of the day and night. Although a 1.8 km long train may (on average) take 1 - 2.5 minutes to pass any one point, if they slow down through hilly areas they may then be within view of any residence or sensitive receptor for much longer periods. Further, 33 trains per day represents (on | The draft EIS needs to be updated to address the impacts of dynamic aspects of train movement frequency combined with length and speed of trains – for example (one suggestion) by identifying the total time per day and when any part of the long trains will be visible within the full arc of view as seen from each viewpoint. |

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| | | average) equates to one passing any one point every 44 minutes, and in future 47 trains per day will equate to (on average) approximately one every 30 minutes. | |
| **210** | Appendix H Table 67 | **Mitigation measures -** with respect to mitigation measures, the assessment make a number of recommendations which do not appear to make much difference to the severity of visual impacts (refer Appendix H Table 67). It is clear that high steep-sided cuttings will be visible as a linear scar across an attractive landscape with high scenic values (see for example Viewpoint 14). This is a significant impact within an attractive rural and forested hillside view, visible from a major public lookout, and needs to be more adequately mitigated by design and vegetation. | The draft EIS needs to be updated as it fails to address the Impacts and possible mitigation of linear earthworks cuttings through attractive hillside scenery – appropriate mitigation measures should be discussed and if appropriate recommended. |
| **211** | Chapter 14 Appendix N Section2.2.2 | **Existing Groundwater Allocations Not Recognised:** it is identified that the proponent has consulted with Department of Regional Development, Manufacturing and Water (DRDMW) regarding water authorisations under the various water plans, with DRDMW 'noting the complexities of the groundwater resources in the area and the overarching legislation'. The requirement for further consultation is identified and the draft EIS notes that most of the issues relate to groundwater allocations. The draft EIS does not meet TOR 11.52, 11.58 or 11.59 as it does not clearly articulate what the complexities of existing water allocations are or how the proponent would be able to meet current regulatory requirements for water resource management. | It is recommended that the complexities in relation to groundwater are explicitly identified in a revised draft EIS. The way water will be allocated to the proposed project in accordance with the legislation and regulation should be identified in the draft EIS as this will inform monitoring, management and mitigation measures as required under TOR 11.63. |
| **212** | Chapter 14 Appendix N Section 2.3.2.2 Water Plan (Moreton) 2007 | **Lack of Detail Regarding Water Allocations:** The draft EIS identifies that there is no unallocated water in the Oaky Creek, Rocky Creek, Six Mile Creek and Lockyer Creek alluvia.<br>It is not apparent from the draft EIS whether the proposed project will interfere with groundwater from these aquifers, and therefore whether allocations may be required. | The EIS should explicitly identify whether it will require an allocation from these units.<br>The draft EIS should identify how the proposed project will obtain the necessary water allocation if there is no unallocated water in either the general or State reserve for these aquifers. |
| **213** | Section14.5.1 (Groundwater Study Area)<br><br>Appendix N Section 3.1 Groundwater Study Area | **Lack of Robust Assessment:** the draft EIS identifies the investigation corridor as a 1 km radius from the centreline of the proposed alignment. The draft EIS also identifies that the extent of (predicted) groundwater drawdown was not limited by the study area. The groundwater investigation study area was not at an appropriate scale and did not meet TOR 11.36, 11.38 and 11.40. | The groundwater study area should be increased to incorporate the full extent of the predicted groundwater drawdown including the maximum extent of any sensitivity analysis performed with the groundwater model. This will ensure that all potential impacted environmental values are appropriately identified in accordance with TOR 11.36, TOR 11.38 and TOR 11.40. |
| **214** | Section 14.5.2.2 (Stage 2 – | **Model Refinement:** The proponent has committed to refinement of the numerical groundwater flow model and predictions and will be included in the Final EIS. | It is considered critical that these refinements are undertaken for a revised draft EIS that should be made |

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| | Geotechnical and Hydrogeological Investigations)<br><br>Appendix N Section 3.2.3 (Stage 3 – Groundwater Impact Identification) | | available for further review. These refinements should include but not be limited toIncorporation of the findings of additional site-specific investigations that are appropriate for the nature of the proposal.<br>The extent of the groundwater study area should be defined based on the maximum extent of predicted drawdown (not an arbitrary 1 km), including the outcomes of the sensitivity analysis. |
| **215** | Chapter 14 Appendix N, Section 3.3.1 (Magnitude of Impacts) | **Lack of Robust Assessment:** the criteria for magnitude categorisation are linked to the timing/duration of the potential impact and this will necessarily downgrade the significance rating in the assessment. The potential for significant impact is not necessarily dependent on the duration of the impact.<br>For example, drawdown due to tunnel inflows may result in temporary (<12 months) or short term (12-24 months) reduction in groundwater supply which may present a significant impact for groundwater users. Also, it assumes ecological resilience, i.e., that ecosystem function will not be harmed by a short duration impact. However, for example, if a GDE loses access to groundwater even for a short period of time, it may not be possible for that GDE to re-establish to its previous system function. | The magnitude criteria should be unlinked from the timeframe component and the potential impacts should be reassessed in a revised draft EIS. |
| **216** | Chapter 14 Appendix N Section 3.4 (Cumulative Impact Assessment) | **Lack of Robust Assessment:** the cumulative impact assessment excludes existing groundwater uses within the groundwater study area. This results in the assessment excluding consideration that the aquifers may already be stressed through existing allocations and that any additional drawdown may cause a tipping point to be reached. | The groundwater study area should be increased to an appropriate scale based on the extent of predicted drawdown including the maximum extent of any sensitivity analysis performed with the groundwater model. Within the revised study area, existing groundwater usage should be included in the cumulative impact assessment. |
| **217** | Chapter 14 Appendix N Section 4.4.2 Figure 4.4 | **Incorrect Data**: the graph y-axis label is incorrect, showing negative annual rainfall. Also, the annual rainfall trends are difficult to discern because of the type of graph used. | Correct the y-axis labels so data is presented accurately for interpretation by the reader. |
| **218** | Chapter 14 Appendix N Section 5 (Field | **Lack of Robust Assessment:** the draft EIS is based on field investigations from 2018, which included twelve open monitoring bores, one cemented vibrating wire piezometer and a very limited (less than one year) period of water level monitoring. Additional | Sufficient field investigation of the site-specific hydrogeological characteristics is required to make an accurate assessment of potential groundwater impacts by |

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| | Investigations) Table 5.1 | geotechnical and hydrogeological investigations were undertaken from 2018 to early 2020, however this information has not been quantitatively incorporated into the draft EIS (*results…were considered and are presented at a high level to complement the desktop geological and hydrogeological discussion*).<br>Given the number of different formations/aquifers that the alignment traverses, the construction of a tunnel and the overall distance of the tunnel, the small number of investigation bores quantitatively incorporated in the draft EIS is considered insufficient. Importantly, the installed bores are only from the Koukandowie Formation and Gatton Sandstone (Table 5.1) and only the VWP is constructed in the Main Range Volcanics (MRV). Furthermore, three of the bores were dry, negating their usefulness. While the proposed tunnel alignment is predominantly in the Koukandowie Formation, it is likely that the MRV would be affected by tunnel drainage. As basalt aquifers are usually highly heterogenous, significant investigation effort would be required to assess the hydrogeological implications thereof. The investigations reported in the draft EIS do not address TOR 11.38. | the project. To satisfy TOR 11.38, multiple sampling events and multi-season water level monitoring must be undertaken to enable description of the natural variability of groundwater associated with climatic and seasonal factors. The additional data should be used for the refinement of the predictive groundwater model and the data should be quantitatively incorporated into a revised draft EIS. |
| **219** | Chapter 14 Appendix N Section 5.4 (Groundwater Level Monitoring) | **Lack of Robust Assessment:** the vertical scale at which the groundwater level monitoring data is presented is inappropriate to clearly elucidate trends. | Figure 5.2 to Figure 5.8 should be regenerated at an appropriate vertical scale such that any temporal trends can be observed. |
| **220** | Chapter 14 Appendix N Section 5.4 (Groundwater Level Monitoring) | **Lack of Robust Assessment:** the period of groundwater level monitoring is insufficient to appropriately understand seasonal water level trends and therefore does not meet TOR 11.54. From the data presented (but not discussed), there appears to be an overall declining trend to the water levels despite the period of monitoring corresponding to the wettest months (refer Section 4.3). This may be related to the recent years of below average rainfall (refer Section 4.4.2 and Figure 4.4) but may relate to longer term stress on the aquifers due to overallocation. | The period of groundwater level measurements should be extended to incorporate at least one full year of data to assist in understanding seasonal versus longer term behaviour to meet the requirement of TOR 11.54. |
| **221** | Chapter 14 Appendix N Section 5.5 (Groundwater Sampling) | **Missing Data**: the draft EIS states that groundwater quality data is presented in Table 5.1, however Table 5.1 does not include this data. | Groundwater quality data should be presented in a revised draft EIS. |

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| **222** | Section 14.6.4.3 (Groundwater Quality Summary)<br><br>Appendix N Section 5.5 (Groundwater Sampling)<br>Section 7.3.8 (Groundwater Quality Summary) | **Water Quality Assessment Criteria:** Groundwater quality data (not presented) was compared with drinking water and livestock guideline values only. The draft EIS clearly identifies that there are a range of relevant Environmental Values (EVs) associated with groundwater, not just stock watering or drinking water. | Groundwater quality data should be compared with all relevant water quality objectives for the identified EVs. At a minimum, this should include ecosystem protection water quality objectives to inform the feasibility of discharge to surface water courses of tunnel inflow waters (in accordance with Condition 11.62 of the ToR). These criteria are commonly the most conservative and would provide an appropriate reference for assessing groundwater quality and potential impacts on aquatic ecosystems. |
| **223** | Section 14.6.8.1 (Registered Bores)<br>Appendix N Section 7.5.1 (Registered Bores) | **Lack of Robust Assessment:** the draft EIS only includes those bores within 1 km of the alignment, however the predicted drawdown extends beyond the study area.<br>The current extent of the groundwater impact assessment conflicts with Water Objective (d) of the TOR. | The assessment of registered bores should be extended to the maximum extent of predicted drawdown to ensure that all potentially impacted bores are identified. |
| **224** | Section 14.6.8.2 (Groundwater Entitlements)<br>Appendix N Section 7.5.2 (Groundwater Entitlements) – | **Lack of Robust Assessment:** the draft EIS only includes those entitlements within 1km of the alignment, however the predicted drawdown extends beyond the study area.<br>The current extent of the groundwater impact assessment conflicts with Water Objective (d) of the TOR. | The assessment of groundwater entitlements should be extended to the maximum extent of predicted drawdown to ensure that all potentially impacted entitlements are identified. |
| **225** | Chapter 14<br>Appendix N Section 9.3.1 (Methodology and Model Construction | **Incorrect Modelling** the model domain abuts the eastern entrance to the tunnel, which is proposed to be drained. The predicted drawdown extent is therefore likely to reach the model boundary and may therefore the boundary may influence the model predictions. This is in conflict to the statement in Section 3.2.4 and does not meet TOR 11.38. | The groundwater model needs to be revised to ensure a suitable model domain is applied and does not limit the assessment of impacts to groundwater. |

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| | Summary)<br>Figure 9.3 | | |
| **226** | Chapter 14<br>Appendix N<br>Section 9.3.1<br>(Methodology and Model Construction Summary) | **Incorrect Modelling**: Section 3.2.4 discusses an optimum model grid spacing of 35 m, yet Section 9.3.1 identifies grid spacings from 65x65m down to 18x21m. | The model grid spacing should be clarified in a revised draft EIS and appropriate model grid applied. |
| **227** | Chapter 14<br>Appendix N<br>Section 9.3.3<br>(Model Calibration) | **Incorrect Model Calibration** the draft EIS suggests a 'reasonable' match between observed and calibrated model levels. There are only 16 calibration points for 11 model layers and the draft EIS does not identify with which layer each monitoring bore is associated. | Additional information should be provided in a revised draft EIS to adequately assess the appropriateness of the calibration. This should include:<br>- Identification of the monitored unit of the calibration target; and<br>Explicit (tabulated) identification of the relationship between the observed and modelled water levels. |
| **228** | Chapter 14<br>Appendix N<br>Section 9.3.3<br>(Model Calibration) | **Incorrect Model Calibration** the model has only been calibrated to a small number of water level measurements at a single point in time. Discussion in the draft EIS (Section 9.3.6.1) suggests that inflows may be sensitive to rainfall recharge. The draft EIS does not meet TOR 11.38 or 11.54. | The revised model should undergo transient calibration to the temporal water level data measured in the groundwater monitoring bores. |
| **229** | Chapter 14<br>Appendix N<br>Section 9.3.3<br>(Model Calibration) | **Incorrect Model Calibration**: the model was not calibrated to specific yield as no field values were available. The model will be highly sensitive to the storage coefficients used (specific yield, storativity). The storage coefficients in the model used for the draft EIS are considered incorrect, and thus are likely to significantly underestimate the extent of drawdown.<br>This lack of model calibration using actual values and parameters for the impacted groundwater system reflects the very limited groundwater field studies completed for the draft EIS. Detailed field studies should have been completed for the draft EIS to meet TOR 11.38 and develop an accurate and detailed understanding of hydrogeological conditions. | Greater consideration needs to be given to storage coefficients and the marrying of the numerical model to the conceptual model. Furter detailed field studies are required to understand the storage coefficients of the impacted aquifers to allow for an accurate assessment of potential groundwater impacts. If there is uncertainty in the storage coefficients following the additional field investigations, this should be explored in the sensitivity analysis. |
| **230** | Chapter 14<br>Appendix N<br>Section 9.3.4 | **Monitoring Requirements**: the draft EIS states '*hydraulic properties were estimated…using results from aquifer hydraulic conductivity tests undertaken at Project bore*.' It goes on to discuss that the Project bore testing was via slug tests. | It is recommended that pumping tests are undertaken at relevant locations and incorporating nested monitoring bores to assess field scale hydraulic conductivities. |

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| | (Hydrogeological Design Parameters) | Because of the limited displacement (stress) imparted during a slug test, the radius of investigation is very small, i.e., in the immediate vicinity of the bore only. The slug tests do no not assess the degree of lateral connectivity and hydraulic conductivity of the fracture network, which is particularly relevant to the western portion of the alignment. | |
| **231** | Chapter 14 Appendix N Section 9.3.4 (Hydrogeological Design Parameters) | **Missing Justification**: parameterisation of the vertical hydraulic conductivity will control the predicted interaquifer leakage and therefore the magnitude and extent of drawdown from the overlying aquifers and the volumetric allocations that may be required from those aquifers.<br>There is no discussion of vertical hydraulic conductivity in the draft EIS prior to this section. | Justification should be provided for the adopted Kv values. A pumping test should be undertaken in close proximity to the tunnel alignment to quantify the effective Kv at the field scale. |
| **232** | Section 14.7.2.1 (Toowoomba Range Tunnel) Appendix N Section 9.3.6.1 (Groundwater Inflow Short-term (Construction Phase)) | **Missing Data**: the predicted water inflow estimates show two significant peaks in water inflows into the TBM tunnel from the Main Range Volcanics towards the end of the tunnelling operations. The underlying cause of these significant peaks is not evident from the descriptions of the model. | Additional description of the model is required to clarify the significant increases in tunnel inflows, and why this is occurring from the Main Range Volcanics when the tunnel is presumably in the Koukandowie Formation at that chainage. The description should identify both the components of the underlying geological model and the hydraulic parameterisation of the groundwater model that led to these increases. |
| **233** | Section 14.7.2.1 (Toowoomba Range Tunnel) Appendix N Section 9.3.6.1 (Groundwater Inflow Short-term (Construction Phase)) | **Management of Tunnel Inflows:** The draft EIS states that the maximum predicted inflow rates are conservative as they do not include control measures. The control measures identified are only relevant to the tunnel constructed with a tunnel boring machine (TBM). The draft EIS does not identify control measures for the mined tunnel (eastern end). | The proponent should prepare a revised draft EIS that includes an assessment of the options that were considered for managing water inflows to the tunnel. The proponent should clearly state the expected performance of each control measure with respect to water inflows and justify the selected option. Minimising groundwater inflows to the tunnel should be a priority for minimising impacts to groundwater and surface waters. |
| **234** | Chapter 14 Appendix N Section 9.3.6.1 (Groundwater | **Lack of Appropriate Mitigation Measures**: the draft EIS states *'these estimates are conservative, will be refined for the Final EIS, and do not consider any water control mitigation techniques that are likely to be used for construction…'* This section of Appendix N relates to long term (post construction) inflows yet the mitigation measures | A revised draft EIS should prepared that includes details of mitigation measures that would limit groundwater ingress during the operational phase of the tunnel. |

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| | Inflow Long-term (Operation Phase)) | are for construction activities, therefore the estimates are not conservative based on these mitigation measures. | |
| **235** | Section 14.7.2.1 (Toowoomba Range Tunnel) Appendix N Section 9.3.6.2 (Groundwater Level Drawdown) | **Incorrect Assessment**: in a multilayered system, the propagation of drawdown can be delayed from the time of maximum extraction to the time of maximum drawdown in non-pumped/drained layers. The implications of this have not been addressed. | A revised draft EIS should include timeseries model hydrographs for relevant locations, including potential receptors (particularly all town water supply bores), showing the groundwater level drawdown over time, and should include both the construction and operational phases. It is on the basis of these model hydrographs that potential impacts should be assessed. |
| **236** | Chapter 14 Appendix N Section 9.3.6.2 (Groundwater Level Drawdown) | **Incorrect Maximum Drawdown**: while not stated in this section, Table 10.1 indicates a maximum water column height above the tunnel of 100m. Since the proposed tunnel invert would be the drainage point, it would be expected that this would equate to the maximum anticipated drawdown (in the formation in which the tunnel is constructed at that point – presumably the Koukandowie Formation). The maximum drawdown presented drawdown is ~50m, approximately half of that which would be expected. | The discrepancy between the model predicted drawdown and the depth of the proposed tunnel beneath the water table should be explained. This discrepancy may have significant implications with respect to inflow estimates and the subsequent lateral propagation of drawdown due to potentially increased water extraction. |
| **237** | Chapter 14 Appendix N Section 9.3.7 (Sensitivity Analysis) | **Sensitivity Analyses**: the sensitivity analyses included only two scenarios exploring variability in horizontal hydraulic conductivity. | Given the uncertainties related to storage co-efficient, fracture hydraulic conductivities and vertical hydraulic conductivities, the sensitivity of the model predictions to these parameters should be investigated.<br><br>The sensitivity analysis should also include the presence/absence of regional structures. |
| **238** | Section 14.7.2.1 (Toowoomba Range Tunnel) | **Inconsistency Between Chapter and Appendix:** the description of the modelling of the Toowoomba Range Tunnel indicates that uncertainty analyses of the predicted long-term drawdown were undertaken. There is no discussion of this uncertainty analysis being undertaken in Appendix N.<br>The sensitivity analysis was stated to have considered the potential effects of increasing hydraulic conductivity and the presence of three higher permeability structures. While the sensitivity to hydraulic conductivity was performed, there is no discussion regarding the inclusion of higher permeability structures. | The draft EIS should be revised updated to ensure accuracy and consistency between the Chapter and the Technical Report in terms of what was performed in the model sensitivity analysis. |
| **239** | Chapter 14 Appendix N Section 9.3.7 | **Incorrect Predicted Drawdown**: notwithstanding the tabulated inflow rates (Table 9.9 and Table 9.10) – with changes of >70% indicated, the draft EIS does not present the magnitude and extent of the changes to the predicted drawdown. | Maps of the predicted drawdown of the sensitivity analysis should be presented. Potential impacts should be assessed |

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| | (Sensitivity Analysis) | | against the greatest magnitude and extent of predicted groundwater drawdown. |
| **240** | Chapter 14 Appendix N | **TOR 11.54 Not Met:** the groundwater flow model presented in the draft EIS is considered inadequate to adequately assess the potential impacts of the project on water resources. | It is recommended that the model is revised or rebuilt, with sufficient sensitivity or parameter and conceptual model uncertainty analysis performed to quantify the potential range in water level drawdown such that potential impacts of the proposed project can be adequately assessed. The model must utilise the findings of the additional field investigations that are required to have an acceptable level of understanding and knowledge of the local hydrogeological conditions. |
| **241** | Chapter 14 Appendix N Section 9.5 (Refinement of the Predictive Model) | **Inappropriate Modelling:** Section 9.5 of the draft EIS recognises the significant limitations of the existing predictive model. This section clearly states that the model was designed specifically to assess the feasibility design. It also goes on to say that the proponent is working on refinements to the model for inclusion in the final EIS to *'…better understand the impacts on groundwater and their significance'.*<br>LVRC's expert review of the groundwater assessment found that the existing numerical model is considered unsuitable for the purposes of the draft EIS. The draft EIS, by the proponent's own admission, does not accurately describe the potential groundwater impacts of the project.<br>Therefore, the OCG and community cannot be expected to rely on the draft EIS to understand how the proposal will affect groundwater resources. It is unreasonable for the proponent to seek comment on the draft EIS when it does not provide a meaningful assessment of the proposed development, expected groundwater impacts, and required mitigation measures. The assessment of groundwater in the draft EIS does not meet Water Objective D of the TOR as the assessment cannot be relied upon to understand expected impacts to groundwater resources. | The existing numerical model is considered unsuitable for the purposes of the draft EIS. The refinement of the model by the proponent should consider all inadequacies regarding groundwater assessment that have been discussed in this response.<br>The groundwater assessment in the draft EIS needs to be revised based on further detailed field studies and improved predictive modelling. |
| **242** | Chapter 14 Appendix N | **TOR 11.55(d) Not Met:** TOR 11.55 requires '*sufficient hydrogeological information to support the assessment of any temporary water permit applications*.' The draft EIS is strongly lacking site-specific field data, including but not limited to:<br>- Geological variability especially with respect to potentially high permeability structures and the presence/absence of aquitards.<br>- Temporal water level monitoring across at least one full year.<br>- Water quality analysis, including seasonal variation. | It is recommended that the inadequacies in the groundwater assessment outlined in this response are addressed by the proponent and are quantitatively incorporated into a revised draft EIS to enable temporary water permit applications to be adequately assessed. |

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| | | - Sufficient monitoring bores to provide understanding of aquifer interconnectivity.<br>- Hydraulic conductivity representative of fracture networks/regional structures.<br>- Vertical hydraulic conductivities.<br>- Storage coefficients.<br>The limited sensitivity analysis undertaken with the modelling of the tunnel inflows is considered to result in significant uncertainty with respect to the potential impacts. As a result, it is considered that there is insufficient hydrogeological information to support the assessment of any temporary water permit applications and therefore the draft EIS does not meet TOR 11.55. | |
| **243** | Chapter 14 Appendix N Section 10.1 (Project Elements Relevant to Potential Groundwater Impacts) | **Groundwater Dependent Ecosystems (GDE):** The Appendix N of draft EIS does not consider the physical destruction of terrestrial GDEs through the construction of the proposed project. | The physical area of GDEs that may potentially be impacted through construction should be determined and assessed to determine the significance of impact. The cumulative impacts of the project on GDEs should also be evaluated to account for:<br>• the physical removal of GDEs<br>• GDEs that may be affected by changes to groundwater levels and dynamics<br>GDEs that may be impacted by changes to surface waters that receive tunnel inflow waters. These normally dry watercourses are expected to become perennial watercourses by the proposed discharge of tunnel inflow waters. |
| **244** | Chapter 14 Appendix N Section 10.1.5 (Tunnelling) | **Tunnel Construction**: Chapter 6 indicates that the tunnel will likely be constructed from west to east. Section 10.1.5 of Appendix N indicates that water collected within the tunnel will be conveyed via gravity to the eastern entrance to the tunnel. It is unclear how this would occur during construction if the proposed tunnel is constructed from west to east. It has significant implications for the management of the significant predicted groundwater inflows water during construction. | The management of water in the tunnel during construction must be clarified in a revised draft EIS. |
| **245** | Chapter 14 Appendix N Section 10.1.5 (Construction Water Supply) | **Construction Water Supply**: the draft EIS indicates that bores may be used to supply construction water. The potential impacts of the use of bores on other environmental receptors has not been assessed. | The potential groundwater impacts of using bores to supply construction water should be assessed in a revised draft EIS. |

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| **246** | Chapter 14 Appendix N Section 10.2.1.1 (Dewatering) | **Inappropriate Modelling:** Figure 10.4, 10.5 and 10.6 shows the predicted drawdown contours to 1 m. It is evident from these figures that the modelled drawdown extends to the edge of the model domain and therefore the model predictions may be influenced by the extent of the domain. Furthermore, from the descriptions of the model provided, it is unclear why the 1 m contour would extend to the southwest but not elsewhere in a layer that has been modelled as homogeneous and transversely isotropic. | The model domain must be extended to ensure that the boundaries do not influence the predictions of groundwater impacts. If the revised model does not incorporate spatially variable hydraulic conductivities and/or geological structures, the proponent should provide an explanation of why the predicted drawdown shows unexpected spatial variations. |
| **247** | Chapter 14 Appendix N Section 10.2.1.1 (Dewatering) | **Misleading Figures:** Figure 10.5 and Figure 10.6 in Appendix N are misleading as they do not show all of the registered water bores in the vicinity of the proposed project. Rather they only show bores within the 1 km corridor study area and the modelled 1m drawdown contour within the model domain. | All registered bores should be plotted on the figures, not a subset. |
| **248** | Chapter 14 Appendix N Section 10.2.1.1 (Dewatering) | **Insufficient Mapping**: the maps provided in Section 10.2.1.1 of Appendix N do not show the predicted drawdown and potential receptors along the full extent of the proposed project – the eastern end near Helidon is missing. | Include additional maps to display the full spatial extent of the proposed project. |
| **249** | Chapter 14 Appendix N Section 10.2.1.1 (Dewatering Registered Bore Potentially Impacted by Groundwater Level Drawdown) | **Under-representation of Drawdown Rates:** the potential drawdown at bores is presented for specific timing related to maximum groundwater extraction rates. Because of potential differences between extraction and drawdown, particularly in multiple aquifer systems, this may underrepresent the number of bores that may be potentially impacted. | The maximum predicted drawdown for the bore at any time should be identified. The timing of that predicted drawdown should also be identified, and the timing for exceedance of a trigger (presumably 1m) to enable mitigation measures to be adequately assessed and implemented. |
| **250** | Section 14.7.3.1 (Water Resources) Appendix N Section 10.2.1.1 (Dewatering Registered Bore Potentially Impacted by | **Registered Bores Potentially Impacted by Groundwater Level Drawdown:** Table 10.5 of Appendix N includes the same bores multiple times. This makes the table difficult to interpret. | Table 10.5 should be modified to be presented by RN rather that elapsed time. |

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| | Groundwater Level Drawdown) | | |
| **251** | Chapter 14 Appendix N Section 10.3.1.2 (Registered Bores within the Project Permanent Footprint) | **Inappropriate Decommissioning**: the draft EIS states that '*all bores within the permanent footprint are also in the construction footprint and are to be decommissioned during construction'*. Since at least some of these bores are not owned by the proponent, there may be an unwillingness to decommission the bores. Furthermore, there may be regulatory obligations relating to those bores. | It is recommended that the wording is modified identify that the proponent will ensure that an agreement is reached with the bore owner. The management of these bores should be agreed with the bore owner prior to the commencement of construction activities. |
| **252** | Chapter 14 Appendix N Section 11.1 (Design Considerations) Table 11.1 | **Insufficient Baseline Data:** the draft EIS identifies discharge to the surrounding environment as a potential option dependent on receiving water quality but recognises that there is currently insufficient baseline data to confirm whether environmental values will be impacted.<br>It is considered that the detailed design phase is too late in the process to quantify water quality. | The tunnel ingress water quality should be better quantified prior to the finalisation of the EIS to ensure that potential impacts associated with management options are adequately assessed prior to detailed design. |
| **253** | Chapter 14 Appendix N Section 11.2 (Proposed Mitigation Measure) Table 11.2 | **Insufficient Assessment:** a significant program of additional hydrogeological investigation is described, to be undertaken prior to final design. | The proposed investigation scope is not explicit. It should include all items identified in the Feasibility Design Report. It should be ensured that these investigations are completed prior to and incorporated into revised draft EIS to ensure that potential impacts associated with the project area appropriately quantified and management/mitigation measures for the proposed project are suitable. |
| **254** | Chapter 14 Appendix N Section 11.2 (Proposed Mitigation Measure) Table 11 | **Inadequate Assessment:** the draft EIS states that predictive modelling will be refined using additional information from further geotechnical and hydrogeological investigations, including updates to the sensitivity analyses and hydraulic conductivity parameters.<br>The refinement or reconstruction of the groundwater model is considered essential prior to the finalisation of the EIS as the current modelling is considered flawed. | Refinement of the model should include (but not be limited to):<br>- Review of the model domain.<br>- Reconsideration of the assumptions of homogeneity and isotropy.<br>- Revision of the geological model to incorporate structural elements such as dykes, faults and vertically jointed basalt, and the potential absence of a low conductivity layer between the Koukandowie Formation and the MRV. The |

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| | | | implications of these features with respect to predicted drawdown should be explored in parallel models as part of the sensitivity analysis.<br>Reconsideration of vertical hydraulic conductivity values. |
| **255** | Section 14.8.2 (Proposed Mitigation Measures)<br>Section 14.8.2.1 (Groundwater Bore Impairment)<br>Appendix N Section 11.2 (Proposed Mitigation Measure)<br>Table 11 | **Inappropriate Baseline Assessment:** the proponent proposes to undertake a bore baseline assessment.<br>The draft EIS indicates that the assessment will be undertaken with '*…due consideration of the Queensland Government's Guideline Bore Assessments (ESR/2016/20051).'* | A bore baseline assessment is recommended. It is recommended that the baseline assessments be undertaken for all properties within the maximum extent of the predicted 5m drawdown contour at any time including all sensitivity scenarios.<br>The proponent should be conditioned by the OCG to undertake baseline assessments of all bores in the maximum extent of predicted drawdown (including all sensitivity analyses). |
| **256** | Section 14.8.2 (Proposed Mitigation Measures)<br>Appendix N Section 11.2 (Proposed Mitigation Measure)<br>Table 11 | **Inappropriate Mitigation:** a key groundwater risk to the project is access to water allocations for the inflow as there is no allocation available in multiple of the potentially impacted aquifers. The mitigation of this risk is not considered in the draft EIS. | The draft EIS should identify measures to mitigate the possibility of not obtaining a groundwater allocation or temporary permit under the Water Plans. |
| **257** | Section 14.8.2 (Proposed Mitigation Measures)<br>Appendix N Section 11.2 | **Insufficient Mitigation:** the mitigation measures for potential impacts to water resources during operation only include monitoring. This is considered insufficient for long term operation, especially since the construction of the tunnel will impart a significant stress on the groundwater system that will enable the model to undergo transient calibration. | LVRC request the OCG impose the following condition:<br>'The proponent is required to provide a transient calibration of the model and re-prediction of operational impacts to water resources following the construction of the tunnel with associated implementation of the GMMP. This calibrated model should be used to inform future |

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| | (Proposed Mitigation Measure) Table 11 | | make good, water licensing requirements and updates to the GMMP.' |
| **258** | Chapter 14 Appendix N Section 11.3 (Groundwater Management and Monitoring Program) | **Inadequate Detail Regarding Monitoring:** while the draft EIS provides an indicative minimum monitoring network, it is tabulated only and is difficult to compare against the conceptual model and numerical model predictions. The network will be revised after completion of the revised model. | The revised draft EIS should include a map that identifies the proposed monitoring bore locations and their primary purposes for inclusion in the monitoring network. |
| **259** | Section 14.8.3.1 (Baseline Groundwater Management and Monitoring Program) Table 14.30 Appendix N Section 11.3 (Groundwater Management and Monitoring Program) Table 11.3 | **Confusing Data Presentation:** Table 11.3 of Appendix N includes duplicate entries of the same bores (including but not necessarily limited to RN56783, RN173789, BH2203, RN172087, RN172088. While it is agreed that one bore may achieve multiple objectives, duplicating the bores is considered misleading. | Table 11.3 should be reformatted to identify the planned monitoring bores only once each. |
| **260** | Section 14.8.3.1 (Baseline Groundwater Management and Monitoring Program) Appendix N Section 11.3.1 (Groundwater | **No Detail Regarding Baseline Study Duration:** While the draft EIS commits to establishing baseline groundwater conditions prior to the start of construction, it does not quantify what constitutes a baseline in terms of duration. | The proponent should be conditioned by the OCG to complete a baseline groundwater study over a period of at least 1 year one year to ensure that a wet season and dry season are included. The baseline study should include but not be limited to:<br><br>- Installation of piezometers in identified geological structures. |

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| | Level Monitoring) Section 11.3.2 (Groundwater Quality Monitoring) | | - Assess the likelihood of presence of hazardous contaminants in groundwater and test accordingly.<br>- Borehole permeability testing.<br>- A minimum of 3 aquifer pumping tests following detailed investigations to target identified geological structures.<br>- Continuous recording of groundwater levels and assessment of recharge from water level records of several larger rainfall events and chloride concentrations in groundwater.<br>- Site-specific installation of monitoring bores and groundwater sampling for water quality analysis.<br>- Conduct a pumping test(s) with the MRV basalt aquifers and the Koukandowie Formation to determine the connectivity between units and aquifer characteristics.<br><br>This data should then be incorporated into updated modelling and assessment for inclusion in revised draft EIS. |
| **261** | Section 14.9 (Impact Assessment) Table 14.31 | **Revised Groundwater Modelling Required:** the draft EIS identifies the residual significance of reduced groundwater levels affecting groundwater users due to the Toowoomba Range Tunnel as moderate for both construction and operations.<br>The groundwater assessment and modelling undertaken for the draft EIS is considered insufficiently robust to reduce the significance of any predicted impacts. LVRC's expert review of the groundwater assessment found that there is insufficient data and detail included in the draft EIS to have confidence in the assessment and risk rating of potential groundwater impacts. | In accordance with the proponent's commitments throughout the draft EIS, the groundwater modelling should be updated in a revised draft EIS. It is recommended that revised modelling include:<br>- Incorporation of all the comments and recommendations provided in LVRC's response that relate to groundwater.<br>- A base case scenario incorporating those mitigation measures to which the proponent has committed to incorporating in the design and construction.<br>Additional scenarios that are modelled to incorporate the proposed (but uncommitted) mitigation measures to assess the reduction in potential impact. |
| **262** | Section 14.9 (Impact | **Inadequate Consideration of GDEs:** The draft EIS does not identify the physical removal of GDEs as a potential impact. | It is recommended that the physical removal of GDEs is included as a potential impact in a revised draft EIS. |

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| | Assessment) Table 14.31 | | |
| **263** | Chapter 14 Appendix N | **G2H Volume 1: Feasibility Design Report (02-0001-320PEN-10-RP-0001, Rev0) Section 10.3.9 – Desktop Groundwater Assessment:** no site-specific data exists for the connectivity between the basalt and the sandstone groundwater systems. | It is recommended that field investigations are undertaken to explicitly investigate the potential connectivity of the basalt and sandstone groundwater systems at all locations where there is an anticipated change to the geology along the tunnel alignment.<br>Should the tunnel alignment be altered, it must be ensured that adequate investigation of the alternative alignment is undertaken to quantify this issue. |
| **264** | Section 14.5.4 (Groundwater Impact Assessment) | **Incorrect Modelling**: Section 14.5.4 states that:<br>- Steady-state followed by transient model calibration was performed. This was not described – only steady-state calibration was performed.<br>- Model parameterisation was determined using both the simple (homogeneous) and complex (heterogeneous) approach. Appendix N Section 9.3.4 indicates that a single hydraulic conductivity value was assigned to each layer. **There is no heterogeneity within each model layer.**<br>Model parameters were determined using PEST. **There is no mention of using PEST in Appendix N.** | This section is factually incorrect with respect to model calibration and is misleading in the veracity of the modelling effort. The draft EIS must be revised to represent what was actually performed by the proponent as part of the groundwater assessment for the proposal. |
| **265** | Section 14.6.4.2 (Groundwater Characterisation) | **Missing Piper Diagram:** this section starts with describing a Piper diagram however no piper diagram is presented which is confusing for the reader. | Remove all references to a piper diagram or present a piper diagram in a revised draft EIS. |
| **266** | Appendix O Section 6.1.1.3 Identification of Receptors | **Tunnel Infrastructure Noise** – receptors are identified for assessment of tunnel infrastructure noise, with RES2573 identified as a residential receptor at the eastern entrance to the tunnel. Section 6.1.1.3 states that the receptors are shown in Appendix F (of Appendix O), and it is noted that receiver locations are shown in Appendix B, however it is unclear where RES2573 is located by referencing either Appendix. The receptor location maps are included as bitmaps and the text on the map is not searchable, which is not good practice for a document with such a large amount of information. It is noted that the operational noise assessment Appendix P includes maps with searchable text labels. As a result, the draft EIS fails to meet the requirements of TOR 11.115. | The draft EIS requires update to meet the requirements of the OCG's TOR specify the locations on a map for the fixed infrastructure receptors and Include maps with searchable text. |