TOOWOOMBA REGION

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25 October 2021

Our Reference: 10055593

Attention: Coordinator-General
C/- EIS Project Manager, Inland Rail – Gowrie to Helidon Project
Project Evaluation and Facilitation
Office of the Coordinator-General
PO Box 15517
City East QLD 4002 Australia

Inlandrailg2h@coordinatorgeneral.qld.gov.au

Dear Ms Power,

Draft Environmental Impact Statement [Inland Rail, Gowrie to Helidon (G2H) Project]

Thank you for inviting Toowoomba Regional Council (TRC) to comment on the draft Environmental Impact Statement (EIS) for the proposed Inland Rail, Gowrie to Helidon (G2H) project pursuant to Part 4 of the *State Development and Public Works Organisation Act 1971* (SDPWO Act).

While recognising that the proposal has the potential to provide benefits to the Toowoomba Region, Council has identified two fundamental concerns with the G2H project. Firstly, the draft EIS commits to the commencement of construction activities in the second half 2021. Council has concerns regarding this timeframe and requires that construction works not commence prior to the finalisation of the *Independent International Panel of Experts for Flood Studies of Inland Rail in Queensland Review* and finalisation and approval of the EIS. Secondly, Council's technical review of the draft EIS determined that it does not meet the requirements set out in the Office of the Coordinator-General's (OCG's) Terms of Reference (TOR) for the proposed project (dated August 2017).

Consequently, the draft EIS consistently does not provide sufficient detail or evidence regarding the potential and possibly significant environmental, infrastructure, water resource, cultural, social and economic impacts of the proposed project or identify and commit to appropriate mitigation measures. Council strongly recommends that the OCG require the proponent to update the draft EIS to address these matters and to ensure it meets the full requirements of the TOR as this is a statutory obligation of the proponent under the SDPWO Act. Further to this, the OCG should also require that the proponent provide the revised draft EIS for further community consultation and comment

Overarching issues of key concern to Council regarding the draft EIS include:

Overarching issues of key concern to Council regarding the draft EIS include:

- Conflicting, dated and irrelevant information and statements throughout the document (between the executive summary, main document, and the appendices, as well as between different sections).
- Gaps, inconsistencies, and deficiencies in technical studies, including a lack of commitment to the application of industry standard best practice and guidance.
- Potential impacts that are inadequately or inconsistently identified, assessed, and mitigated for, to ensure *no significant residual impacts* by the proposed project. This includes the provision of real, measurable and appropriate proponent commitments.
- Lack of consideration of the broader impacts of the proposal on existing land uses and land users.
- Limited or no evidence of how significant issues previously and consistently raised by TRC directly with the proponent have been considered in the draft EIS and how those issues are proposed to be managed (an example includes the proposed use of TRC water resources for construction).

Attached is the full table of issues, comments and recommendations that Council request that the Coordinator General consider and request the proponent provide additional information as required in reaching a final determination given the potential nature, scale and duration of the impacts of the G2H project on the environment (be it natural, built, cultural, social or economic).

Important issues raised in the submission that highlight the nature of Council's concerns include, but are not limited to:

Regional and Local Planning Framework

The Inland Rail route does not consider the cumulative effects of impacts of the proposal on existing and future urban growth areas of Toowoomba, particularly given the constrained corridor location between Gowrie and the escarpment.

ShapingSEQ, South East Queensland Regional Plan 2017 identifies Mount Kynoch as a potential future growth area and that the route transects urban footprint.

The draft EIS claims that the proposed project is 'government supported infrastructure' and therefore the consideration of local planning schemes is not required. The document dismisses the need to consider local planning schemes outright. However, the TOR require that the document address and consider local planning scheme requirements and, as such, the planning scheme requires acknowledgement. This should include consideration of proximity of the route to the existing and future urban areas (urban footprint) from the cumulative environmental impacts as well as the impact of increased rail frequency and change in rail type (e.g. type of engines, and length of train). As such, the draft EIS fails to meet the requirements of the TOR and requires update to ensure the appropriate consideration of TRC's planning scheme is included in the document

Passenger Rail

The draft EIS is inconsistent in its commitment to ensuring the ability and capacity to provide a high-speed passenger rail service from Toowoomba to Brisbane in the future, either by the proposed Inland Rail alignment or through an additional and alternative alignment by others. The document fluctuates between:

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- stating that passenger rail will be able to be provided in 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.'

The current location of the proposed alignment at Gowrie Junction fails to consider access to the planned location of the proposed Gowrie Junction Station by the community, which is not acceptable to Council. The content of the draft EIS appears to infer that passenger rail will not be provided on the proposed alignment, but that the proposed alignment itself will result in the inability to provide the Toowoomba Region with passenger rail to Brisbane at all, and certainly not in the Gowrie to Grandchester future state transport corridor which, as stated in the draft EIS, was originally intended for use for passenger rail (hence its location is in very close proximity to local communities).

It is not acceptable to Council 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, nor that a proposed freight alignment be given priority over passenger services in such a permanent way. It is Council's position that this dismissal of passenger rail services should be reconsidered and the draft EIS re-written to include the provision of the ability for the future provision of viable and reliable passenger rail services to Brisbane.

ARTC Design Horizon

ARTC has only adopted a ten (10) year development horizon for the design of the Inland Rail project. Given Council's future planning for Gowrie Junction and the Northern Communities area, a much longer design horizon (to 2050 as a minimum) would be more appropriate for the proposed project. This would ensure network connectivity is maintained, growth is enabled and adverse impacts to local services are minimised. Council believes that ARTC's current short design horizon does not adequately cater for the planned future growth in the local area, nor does it allow Council or the community sufficient confidence that the adverse impacts of the proposed project will be addressed with best-for-community or future-proofing solutions and outcomes.

Local Employment and Accommodation

The Toowoomba Region is currently experiencing record low unemployment rates and vacancy rates for accommodation. The Toowoomba Region currently has the lowest unemployment rates in the State. The draft EIS discusses sourcing construction workers locally, thereby assuming there will be no requirement for accommodation to be sourced by the proponent. While Council supports and desires to maximise local employment opportunities it is unlikely to be able to be feasible to fully source locally. Council does not consider that sourcing construction workers locally will be either feasible or successful. The proponent is likely to need to bring in workers from elsewhere for the temporary construction workforce. As the draft EIS has not appropriately considered this issue, the document also fails to appropriately consider accommodating a workforce sourced from outside the region. Given that Toowoomba is currently also experiencing exceptionally low vacancy rates and housing choice availability, it is erroneous for the proponent to assume that these workers

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will be easily accommodated in Toowoomba. Doing so will adversely impact the local community and further constrain an already exceptionally tight housing market.

Construction Water

The draft EIS identifies TRC water sources (including, but not limited to, Cooby Dam) as sources of water for construction purposes. Council officers have consistently advised that these sources are not available, and requires this reference be removed.

Council reiterates its position that *all* water sources, be they raw, potable, surface, groundwater or bore water, used to supply all Toowoomba communities are not available for the construction of Inland Rail by the proponent or its contractors.

Priority for water supply will always be for town water supply over any proposed project and the proposal to use any of these water sources for construction purposes is not considered an appropriate use of this resource. Given the significance of water in the region, the proponent must clearly outline a proposed approach to construction water management that does not include TRC water resources.

Impact on LGA Road Network

The draft EIS and reference design identifies several changes to road-rail interfaces, consolidations, diversions and closures of local roads, none of which are considered appropriate for the community as they will adversely impact the road network and significantly increase congestion in areas which are already experiencing very large volumes of traffic.

Council has not, at the time of making this submission, agreed in-principle or otherwise, with any of the proposed changes to road-rail interfaces, or any of the consolidations, diversions or closures of local roads proposed in the draft EIS.

Local Suppliers

It is disappointing that the draft EIS provides no focus or commitment in relation to providing real opportunities to members and businesses of the local community and as such, fails to meet the requirements of TOR 5.1. Council does not consider such information to be 'commercial-in-confidence' as stated by the proponent during 'consultation' sessions and recommends the proponent commit to meeting a minimum target of 75% local business participation in supplying goods and/or services to the proposed project. The proponent is to use the definition of 'local supplier' as per Council's procurement policy.

Groundwater Resource Security

The proposed project includes a tunnel which may breach and potentially drain an aquifer which TRC use to source town water. This has only recently been identified during Council's technical review of the draft EIS and had not been previously communicated to Council by the proponent during any 'consultation' session. While the draft EIS consistently mentions that the proposed tunnel will be 'undrained' (note, at no time is a clear definition provided as to what an undrained tunnel is), the inference by using this terminology is that groundwater will not breach the tunnel walls (ingress) and escape the aquifer through the tunnel. However, the draft EIS states that there may be up to 1 700 megalitres (ML) of groundwater to inflow into the Toowoomba Range Tunnel during the construction period and up to 85 ML/year during operations for the life of the tunnel.

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Further, the draft EIS fails to provide any mitigation measures or commitments regarding the loss of this town water from the aquifer, including but not limited to, detailing any intention to capture, reuse, or relocate groundwater which drains into the tunnel (either during construction or operation). Council's position in relation to this proposed loss of significant amounts of water is that the loss of any water is not acceptable. TRC demand that the proponent must be required to find a beneficial reuse solution in consultation with TRC for the proposed drainage of the town water aquifer. In line with TRC's position regarding use of community water for construction activities by the proponent, at no time will Council accept *any* loss of current or future town water supply *for any reason or under any circumstances*. Council reiterates its position that all water sources, be they raw, potable, surface, groundwater or bore water, used to supply all Toowoomba communities now and into the future are to be protected during both construction and operation of Inland Rail by the proponent and its contractors.

Indigenous Cultural Heritage

The draft EIS does not adequately address or protect areas of Indigenous cultural heritage. The study area used to inform the protection of Indigenous cultural heritage is exceptionally narrow and appears to encompass the rail corridor only. However, construction activities which may impact Indigenous cultural heritage will, by necessity, be located outside the proposed rail corridor and as such, the assessment of all potential impacts to Indigenous cultural heritage should be identified, with potential impacts highlighted and appropriate mitigation measures proposed to meet the requirements of the TOR. Further to this, the draft EIS did not include copies of Cultural Heritage Management Plans (CHMPs) or any other measures to demonstrate how any adverse impacts to Indigenous cultural heritage would be effectively and appropriately mitigated. The impact assessment for Indigenous cultural heritage should be updated to appropriately consider the total footprint of the project and not just the proposed alignment.

Flora and Fauna

The draft EIS defaults to offsets for impacts to flora and fauna and as such requires amendment to further describe and clarify commitment to the avoidance of potential impacts as the proposed project's first objective and to detail how this commitment has been extensively considered. Further surveys including on ground assessments are required to assist in the identification of core fauna and flora habitats, particularly given that desktop assessment has identified many habitats *critical to the survival of a species* as present on or in the vicinity of the proposed alignment. Minimising or mitigating options are appropriate secondary options to be employed after all avenues of avoidance have been exhausted.

Areas of sensitive environmental values should have a minimum footprint of disturbance as a priority. The proponent should commit to a more comprehensive assessment of ecological impacts and mitigation measures that align with standard industry practice, rather than choosing offsets as the only option for managing adverse impacts to sensitive areas.

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Air and Noise

The air assessment fails to consider existing emissions from and on several sources including Toowoomba Bypass traffic, Harlaxton Quarry, Baillie Henderson Hospital and nearby asphalt plants. It also overlooks potential human health risks associated with Q-fever from livestock trains which is highly infectious and can spread great distances from livestock transport routes. Proposed noise impacts are also not appropriately addressed or assessed by the draft EIS. The potential for sleep disturbance has been grossly underestimated and ultimately dismissed by the document. The draft EIS requires update to demonstrate how the assessment criteria that is currently adopted can possibly protect the ability to sleep at sensitive dwellings or the amenity at sensitive community centres (places where the community congregate for essential activities including schools and recreational areas).

The draft EIS therefore fails to achieve the air and noise assessment requirements in the TOR and requires update to achieve compliance with the TOR. The draft EIS needs to be updated to appropriately consider air emissions from existing sources and to use appropriate noise impact assessment criteria to inform the noise assessment, particularly given that the proposed project, in its current form, may well result in the permanent sterilisation of Toowoomba's Northern Communities. The proponent should also commit to being responsible for implementing meaningful air and noise impact mitigation measures that protect amenity and human health and wellbeing with regards to Q-fever and sleep disturbance and to ensure project impacts do not permanently adversely affect existing local communities or their future development. At no time, and for no reason, will TRC consider the permanent sterilisation of the Region's communities to be an acceptable outcome of the proposed project.

Landscape and Visual Amenity

The draft EIS provides many instances of 'indicative' landscape and visual amenity impacts which are clearly not indicative at all given that they are either not to scale or are completely different to what has been proposed. As a result, the draft EIS fails to meet the requirements of the TOR for 'representative' views of visual amenity impacts and requires update to appropriately show and consider these impacts to landscape and visual amenity.

The proponent also proposes a permanent spoil stockpile at the western tunnel portal. The estimated dimensions are 600 m x 200 m and up to 7m tall. The stockpile will cover an area of more than 15 football fields and be approximately 2 storeys tall. This would be a significant new visual feature in the existing landscape and the draft EIS provides no meaningful visualisations or descriptions of proposed mitigation measures. Council does not accept that a permanent stockpile is an appropriate solution for spoil management. At all times, high quality landscape outcomes are required and TRC will not accept the proponent permanently stockpiling spoil.

Recognised Standards and Practices

Council's position is that the proponent should be required to maintain the recognised standards and practices as stated in the TOR and that they be required to achieve these standards and practices in any of their modified information in responding to the Coordinator General. Further to this, Council requires that construction works not commence prior to the finalisation of the *Independent International Panel of Experts for Flood Studies of Inland Rail in Queensland Review* and finalisation and approval of the EIS.

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If you require any further information, please do not hesitate to contact Elizabeth Reed, Senior Environmental Planner from Toowoomba Regional Council.

Yours faithfully,

Nick Hauser

Acting CHIEF EXECUTIVE OFFICER

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Toowoomba Regional Council Inland Rail EIS Submission Form – 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?*
		Draft EIS – General Comments	
1	Draft EIS	**Failure to Meet the Requirements of the TOR:** the draft Environmental Impact Statement (EIS) for the proposed G2H project does not adequately meet the Office of the Coordinator General's (OCG) Terms of Reference (TOR). The proponent is required by the *State Development and Public Works Organisation Act 1971* (SDPWO Act) to prepare an EIS that meets the requirements of OCG which are defined in TOR for the proposed project. Inappropriate study criteria, background levels and/or the use of outdated or inappropriate guidelines or procedures to inform technical studies, which in effect allows higher (and potentially unacceptable levels) of adverse impacts has contributed to the failure of the document to meet the OCG's TOR. Toowoomba Regional Council's (TRC's) detailed responses (provided below) to the individual issues identified during TRC's technical review of the draft EIS consistently highlight this issue.	The draft EIS requires update in order to meet the OCG's TOR for the proposed project. This includes, but is not necessarily limited to: - The accurate identification of adverse and permanent impacts, and - The development of appropriate mitigation measures to ensure adverse impacts are minimised in a way in which ensures there is *no significant residual impact* as a result of the proposed project, and - The development of detailed and measurable proponent commitments which may be converted to regulatory conditions.
2	Draft EIS	**Failure to Address Community Concerns:** the draft EIS lacks transparency in relation to the adverse impacts which the community will experience. This includes, but is not necessarily limited to, adverse impacts not appropriately identified or considered and how adverse impacts will be mitigated. For example, TRC only learned recently (in September 2021) that the aquifer which the proponent intends to drain during construction of the tunnel (a quoted approximate 1 700 ML) is an aquifer which provides the TRC community with water. This is not inherently stated in the draft EIS, nor is there detailed discussion regarding the appropriate mitigation of the loss of	The draft EIS requires update with regards to community consultation including, but not limited to: - Reassessment of all adverse impacts to the community and the environment, and - Removal of all references relating to use or loss of community water supplies, and - The identification and adoption of real, measurable and detailed mitigation measures and commitments.

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		this water (such as capture, treatment, use or re-use). Further to this, TRC have advised the proponent on numerous occasions that adverse impacts to community water supplies (including the use of community water for construction purposes) will not be acceptable or allowable at any time. Other assessments which may also be considered to not effectively identify adverse impacts include, but are not limited to, noise, light, air, groundwater, and flora and fauna assessments.	
3	Draft EIS	**Unreasonable Construction Pressures:** as was the case for the Border to Gowrie (B2G) draft EIS, the draft EIS for G2H consistently states that certain adverse impacts, issues, processes and mitigation, which are required to be identified as part of the draft EIS process (in order to meet the requirements of the OCG's TOR) will be determined during the 'detailed design' phase of the proposed project. This results in unrealistic pressure on the construction phase, potentially making the construction contractor responsible not only for meeting construction timeframes, but to also meeting regulatory timeframes and gaining approvals which should already have been achieved through the development of the draft EIS and remain the proponent's responsibility. To consider pushing so many aspects and impacts onto 'detail design', adversely impacts the proposed construction timeframe, which is stated in the document to be five (5) years and is proposed to commence in the first half of 2022. The proponent should consider that the failure to appropriately consider aspects and issues which should have been included in the draft EIS can only result in these timeframes becoming unachievable. The timeframes described in the draft EIS are unrealistic as the proponent may be required to: - Update the draft EIS (including conducting new, or repeating inappropriate, technical assessments which have to date been either inadequate or inaccurate and which can have their own time	The draft EIS requires update to meet the requirements of the OCG by appropriately considering and assessing all adverse impacts currently missing from the document and to propose and commit to appropriate mitigation strategies which will ensure that there is *no significant residual impact* from proposed project activities. The OCG should not allow the proponent to defer this to the detailed design phase.

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		constraints (for example, seasonal variabilities or the identification of appropriate baselines). This may also include another public consultation period. - Undertake further on-ground assessment prior to the start of construction to inform the finalisation of the proposed alignment. - Consider that other approvals will be required prior to the commencement of certain activities and that these applications also take time to prepare and will have their own regulatory timeframes attached (and may result in Requests for Information from the regulator) which can further result in construction delays. The completion of these requirements is not considered to be realistically achievable in the proposed five-year time period, or prior to the stated start date for construction. Pushing back draft EIS assessments to detail design and placing the burden of restrictive timeframes on a contractor will put pressure on the contractor and raises the risk of corners being cut, regulatory requirements being dismissed and adverse impacts, community concerns and due process not appropriately managed. 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.'	
4	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 would have identified the errors and inconsistencies that are	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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		throughout the document. For example, (note this list is by no means exhaustive): - Executive Summary (Land Resources) states 'while discussions with TRC indicated that there was negligible risks from the leachates *from…*' This sentence stops here. - 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. - 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? - Section 3.4.12.1 Overview (*Fire and Emergency Services Act 1990*) states: 'The also establishes a framework…' This sentence does not make sense. - Section 17.5.3.1 a review of the Australian Bureau of Statistics website (Regional Statistics by LGA 2011-2020) shows that the quoted numbers of both employing and non-employing agricultural businesses in the Lockyer Valley are completely incorrect. Further, the link provided in Chapter 26 (References) does not take the reader to the page which provides these numbers. - Section 7.3.4.2 of Appendix Q discusses accommodation options for adversely affected residents however temporary relocation is not mentioned in Chapter 16.	

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		- Table 10.10 of the Landscape and Visual Amenity Assessment shows an indicative stockpile which is inconsistent with that shown in Figure 6.10. 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 also identified numerous issues with the technical assessments. The current state of the draft EIS means that the document 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).	
5	Draft EIS	**High-Speed Passenger Rail Not Appropriately Considered**: Section 1.3 of the draft EIS states that the 'current design of the project does not preclude the future development of a high-speed passenger service following the Gowrie to Grandchester future state transport corridor. The land and infrastructure requirements (e.g., stations) for the possible future passenger transport service are excluded from this project and would be progressed by DTMR.' This reads as though the proponent expects an additional rail line to be built to service high-speed passenger rail however the current proposed project alignment potentially precludes possibility of this, and certainly precludes the proposed station for Gowrie Junction and as such, precludes the future development of an alignment for high-speed passenger service. This is not however discussed in draft EIS. Further, Section 2.4.1.3 states that the proposed project will be a 'dedicated freight corridor through the Toowoomba Range…' which suggests that the proponent has no plans to enable the provision of future high-speed	The dismissal of high-speed passenger rail services is not acceptable to TRC and does not meet the intent 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 high-speed passenger rail services from Toowoomba to Brisbane. This should include, but not be limited to: - Reconsideration of the current proposed alignment to ensure that future high-speed passenger rail services are not excluded by a freight line, and - An appropriate consideration of impacts to communities and intergenerational equity, including, but not limited to, consideration of possible alternate alignments outside the Gowrie to Grandchester future state transport corridor (and away from local communities).

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		passenger rail services on the alignment and specifically, not through the proposed tunnel or on the proposed viaducts. In addition to this, 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…' 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**.' 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.' 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	*TRC request that the OCG impose the following conditions:* 'The proponent is required to revise the project design and alignment to allow for the provision of viable and reliable high-speed passenger rail services from Toowoomba to Brisbane including, but not limited to, the identification of an alternate alignment to carry freight which is outside the Gowrie to Grandchester future state transport corridor, and (where the proposed alignment is already outside this corridor) an appropriate assessment of the co-location of a separate, dedicated high-speed passenger rail line (specifically through the proposed tunnel and on the proposed viaducts).' and 'The proponent is required to work closely with both TRC and the Lockyer Valley Regional Council (LVRC) to reach written agreement regarding the location of the proposed rail alignment and the facilitation of high-speed passenger rail services in the Gowrie to Grandchester future state development corridor, including identifying and committing to, locating the proposed freight alignment elsewhere'.

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		states that the project alignment 'maintains proximity to the proposed location for a commuter station' yet fails to mention that the intended location of the proposed alignment will impede the proposed station from being built. Appendix F, Table F2.1 P1 states that the project will 'align with the Gowrie to Grandchester future state transport corridor where applicable and will not preclude the use of the future state transport corridor for a high-speed passenger service at a future date.' However, as discussed above, the proposed location of the alignment does preclude the provision of a dedicated passenger alignment and associated infrastructure. The document clearly states that the original intent for Gowrie to Grandchester future state transport corridor was for passenger rail and that the co-location of passenger tracks on the alignment at a future date is unlikely. This essentially means that the proposed alignment will negate the possibility of future high-speed passenger rail in the Gowrie to Grandchester future state transport corridor and this is not acceptable to TRC. The draft EIS is inconsistent in its commitment to ensuring the ability and capacity (either by enabling the use of the service on the proposed Inland Rail alignment or through an additional and alternative alignment by others which is co-located in the corridor) to provide a high-speed passenger rail service from Toowoomba to Brisbane in the future. 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	

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		date is unlikely', and that 'the design avoids proposed passenger stations' and will be primarily for 'freight services only.' The current location of the proposed alignment at Gowrie Junction fails to consider access to the planned location of the proposed Gowrie Junction Station by the community, which is not acceptable to TRC. Further, the content of the draft EIS appears to infer that not only will high-speed passenger rail not be provided on the proposed alignment, but that the proposed alignment itself will result in the inability to provide the Toowoomba Region with high-speed passenger rail to Brisbane in the Gowrie to Grandchester future state transport corridor which, as stated in the draft EIS, was originally intended for use by high-speed passenger rail (hence its location in very close proximity to local communities). It is not acceptable to TRC that freight trains be given priority over high-speed passenger rail through local communities and in a corridor originally set aside to provide high-speed passenger services to the community. The draft EIS does not meet TOR 10.9 as it does not clearly or accurately describe the ability and capacity (or lack thereof) of the proposed project to support future high-speed passenger rail services between Toowoomba and Brisbane.	
6	Draft EIS	**Boundary Street / Toowoomba Bypass – Western Ramps:** as part of the newly constructed Toowoomba Bypass, east-facing ramps were constructed at its intersection with Boundary Street. The current configuration of east-facing ramps allows freight travelling to Brisbane from west Toowoomba (including the > 400 ha industrial estate at Torrington) to effectively bypass Toowoomba City and improve traffic flow and safety through Toowoomba. TRC wants to ensure that the local road network supports the existing State-controlled network (including the Toowoomba Bypass and the New England Highway), thereby ensuring a whole-of-network outcome. TRC, with the support of the DTMR, therefore recommends that west-facing ramps be	The draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass. *TRC request the OCG impose the following condition:* 'The proponent is required to design and construct two ramps on the western side of the Toowoomba Bypass to connect the Bypass to Boundary Street, at the proponent's cost. The proponent is required to undertake these works in consultation

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		constructed by the proponent to connect Boundary Street to the Toowoomba Bypass to facilitate this. Once complete, these ramps will effectively connect Toowoomba's Northern Communities to the employment opportunities associated with the proposed project and the growing industrial precinct (Toowoomba Trade Gateway, formerly the Toowoomba Enterprise Hub), located in Toowoomba's west. Further, the construction of the western ramps by the proponent prior to the commencement of construction of the proposed alignment or the western tunnel entrance will facilitate the use of the ramps by project construction traffic, which would then ensure this traffic is not adversely impacting Toowoomba's roads, and Toowoomba City itself (which the draft EIS is currently proposing to do and which TRC do not agree with (as discussed below in Chapter 19 comments).	with TRC and to reach written agreement with TRC regarding design and construction of the ramps, at least six months prior to the commencement of any construction activities. Further, the ramps are required to be constructed prior to the commencement of any construction activities on the proposed alignment (including the western tunnel entrance) in order to enable the proponent to have use of these ramps during construction and for construction traffic.'
7	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 '**significant shortcomings in (the proponent's) efforts to meaningfully engage with communities and landholders along the proposed alignment of Inland Rail.'** The inquiry's findings may be considered to be an accurate representation of the community's frustration with the project and the proponent's failure to consider community concerns and make changes to the proposed alignment in response to these concerns. The draft EIS states 'two major studies have been commissioned in relation to the development of an inland rail route' … the first being 'the North-South Rail Corridor Study (Ernst & Young, 2006)' which 'examined the adequacy of the existing Melbourne to Sydney to Brisbane rail corridor to	The draft EIS should be revised to meet the requirements of the OCG's TOR and to appropriately consider adverse impacts to the community and the environment through the robust consideration of all possible alignments, including, but not limited to, those 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. *TRC request that the OCG impose the following conditions:* 'The proponent is required to revise the project design and alignment to allow for the provision of viable and reliable high-speed passenger rail services from Toowoomba to Brisbane including, but not limited to, the identification of an alternate alignment to carry freight which is outside the Gowrie to

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		meet future freight demand…' and '… also examined different options for an enhanced, existing coastal route or alternative inland routes.' The second study was 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.' The document further states that in 2013, federal government funding was provided for Inland Rail 'to be used for pre-construction activities such as detailed corridor planning, environmental assessment and community consultation.' Note, there is no mention of the identification of an appropriate alignment or even a consideration of reassessing the proposed alignment in the Gowrie to Grandchester future state transport corridor which was originally dedicated to future high-speed passenger rail. 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.' Again, there is no mention of community consideration, or an appropriate assessment of alternate alignments, or the appropriateness of the proposed use of the Gowrie to Grandchester future state transport corridor. 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.'	Grandchester future state transport corridor, and (where the proposed alignment is already outside this corridor) an appropriate assessment of the co-location of a separate, dedicated high-speed passenger rail line (specifically through the proposed tunnel and on the proposed viaducts).' and 'The proponent is required to work closely with both TRC and the Lockyer Valley Regional Council (LVRC) to reach written agreement regarding the location of the proposed rail alignment and the facilitation of high-speed passenger rail services in the Gowrie to Grandchester future state development corridor, including identifying and committing to, locating the proposed freight alignment elsewhere'.

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		The draft EIS for the proposed project has clearly been developed based on the use of a rail corridor set aside for high-speed passenger rail and outdated studies, and as a result, has not considered an appropriate alignment location, or considered the significant changes to both the community and environment which have occurred in the interim, and which will continue to occur in the future. The selected alignment has also not considered community expectations regarding the provision of high-speed passenger rail between Toowoomba and Brisbane. The proposed alignment has not been appropriately assessed and as such the requirements of TOR 6.7 have not been met as the proponent has failed to consider feasible alternatives to the project's proposed location in an alignment close to local communities (which are used to a quiet amenity) and which was originally set aside to facilitate high-speed passenger rail services.	
8	Draft EIS	**Inappropriate Visuals:** TOR 11.82 requires the draft EIS to 'describe and illustrate the *visual impact* of the construction and operation of the project. Include major views, view sheds, outlooks, and features contributing to the amenity of the area. Such views should be *representative* of public and private viewpoints, including places of residence, work, and recreation.' Comparison of several of the illustrations of some significant visual elements of the proposed project in the landscape, including, but not necessarily limited to the western entrance to the tunnel, spoil stockpile and proposed fencing may either not be to scale, or only indicative of proposed infrastructure. Further, some proposed infrastructure, such as crossing loops, are not shown at all in any detail. As a result, the draft EIS fails to meet the requirements of TOR 11.82.	The draft EIS requires amendment to meet the requirements of TOR 11.82. This should include, but not be limited to, updating illustrations of visual impacts (including, but not limited to, impacts from crossing loop locations) to ensure the assessment of impacts have accurately considered the scale of the proposed infrastructure and in order to appropriately meet the requirements of TOR 11.82.

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9	Draft EIS	**Inappropriate Data Sources, Standards and Guidelines:** the draft EIS makes use of outdated data, statistics, systems, guidelines and studies including, but not limited to: - Alignment/corridor studies (including, but not limited to: Gowrie to Grandchester Rail Corridor Study (2003), and the North-South Rail Corridor Study (Ernst & Young, 2006)). - Light assessment guidelines (Australian Standard (AS) 4282:1997 for obtrusive light). - WHO Sleep Disturbance Noise Criteria (2009) (this guideline was updated in 2018). - Unemployment data (6.7% quoted, 3.5% in July 2021). - Geocentric Datum of Australia 1994 (GDA94) is used throughout the draft EIS. While this is the current standard, GDA2020 is the current system and provides a more robust and accurate datum. - The draft EIS fails to appropriately address the potential impact to existing utilities as a result of the proposed project.	The draft EIS should be updated to consider current data, statistics, guidelines and studies, to align with TRC systems and to ensure best practice can be achieved including, but not limited to: - Technical studies to be reviewed and updated to ensure that they include accurate data and accord with the requirements of the TOR and current Queensland and Federal regulatory requirements, Australian Standards, industry guidance and best practice. - The draft EIS should reflect GDA2020 to align with TRC systems and achieve best practice. - The draft EIS requires update to adequately address potential impacts to existing utilities.
10	Draft EIS	**Missing Infrastructure Discussions:** the draft EIS fails to mention gas as a utility. Further to this, an easement will be required on the trunk sewer from Landfill Access Rd to the Gowrie Creek Trunk Sewer to allow ease of access. The same requirement applies for all other water and trunk wastewater infrastructure, including the proposed Seqwater pipeline from the northern side of Toowoomba through to Warwick. The proposed pipeline will likely cross the proposed project alignment.	The draft EIS requires updating to include the consideration of *all* infrastructure types including but not limited to: - A clear commitment surrounding the requirement (as part of project planning) to include easement/s for TRC infrastructure. - A discussion regarding Seqwater's proposed pipeline from Toowoomba to Warwick. This should include, but not be limited to, details relating to the proponent's consultation with Seqwater about the proposed route and how the

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			proponent intends to make allowance for this in the design of the proposed project.
11	Draft EIS	**Consultation Not Actioned:** TOR 7.8 requires the 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.' TOR 7.9 requires the inclusion of a public consultation report (as an appendix) 'detailing how the public consultation plan was implemented and the results of the implementation'. TRC have met with the proponent's project team on multiple occasions in relation to concerns TRC have regarding the proposed adverse impacts from the proposed project. However, the details of the commitments made by the proponent during consultation with TRC have not been adequately addressed or included as commitments in the draft EIS, including issues relating to: - Construction water sources. - Local road and traffic requirements. - The current and significant accommodation shortages in the TRC region. - The appropriate management of providing regional job opportunities for the local community given current low unemployment rates.	The draft EIS requires updating to include real and appropriate commitments including, but not limited to, those already made by the proponent to TRC during consultation sessions and to meet the requirements of TOR 7.8 and 7.9.
12	Draft EIS	**Inappropriate Technical Assessments:** the draft EIS collected and assessed existing information on groundwater, surface water, water quality, land use, land use tenure and most other environmental values relevant to the surrounding environment. However, the potential impacts of the proposed project are discussed in very general terms, and at times, failed to identify and assess all existing information (e.g., groundwater bores, surface water monitoring). The potential adverse impacts the surrounding environment will experience as a result of the proposed project need to be addressed	The draft EIS requires update to appropriately identify all potential impacts (including cumulative impacts) to environmental, social and economic aspects and propose and commit to adopting appropriate and real mitigation measures (and measurable proponent commitments). The update of the draft EIS should include, but not be limited to, committing to the development of appropriate monitoring

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		appropriately in order for the draft EIS to meet TOR 5.1 which requires 'all relevant environmental, social and economic impacts…. identified and assessed… and to recommend mitigation measures to avoid or minimise adverse impacts…' The potential impacts of the proposed project have real and direct consequences for the community in terms of adverse environmental, social and economic impacts and as such, 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 identify and commit to specific mitigation measures required to appropriately manage the adverse impacts from the proposed project. The majority of the mitigation measures and proponent commitments provided are in very general terms such as 'makes good', or state that the issue will be addressed 'during the detailed design phase'. As a result, the requirements of TOR 5.1 and TOR 7.4, which requires the proponent's commitments to be 'able to be carried over into the approval conditions as relevant', have not been met.	locations and baselines for all measurable, proposed and adverse environmental, social and economic impacts resulting from proposed project activities. This should include, but not be limited to, the development of associated and appropriate monitoring programs for both the construction and operational phases of the proposed project. *TRC request the OCG impose the following condition:* 'The proponent is required to undertake monitoring of all measurable and proposed adverse environmental, social and economic impacts resulting from proposed project activities. Such monitoring is to be completed to current Australian Standards and utilising current and relevant policies, procedures and guidelines. This should include, but not be limited to, the identification of appropriate baselines and monitoring locations and realistic and appropriate timelines and monitoring frequencies. The proponent is required to develop monitoring plans for each aspect to be monitored and to provide these plans to TRC for review and approval at least six months prior to the commencement of construction activities. Further, monitoring is to be completed both during construction and operational phases (as appropriate) and should any aspect which, in TRC's view, requires monitoring, not be proposed to be monitored by the proponent, TRC are able to request that the proponent undertake this monitoring to their satisfaction and in accordance with this condition.'
13	Draft EIS	**Inappropriate Assessment of Potential Impacts from Longer and More Frequent Trains:** the draft EIS consistently states that the proposed rail corridor will be constructed to accommodate up to 3 600 m (or 3.6 km) long	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

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		trains in the future, to cater to the future (and substantial) increase in train numbers and frequencies. However, the technical assessments, many 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, with regards to train length: - 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.' - 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.' - 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). - 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.' The purpose of the draft EIS's technical assessments is to *appropriately identify* the potential impacts the proposed project will have on the surrounding environment (and local communities). This then enables the development of appropriate mitigation measures and commitments to manage these impacts in a way which ensures that there is *no significant residual impact* as a result of the proposed project. Appropriate assessment also ensures the development of a response 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	length and frequency. It is not acceptable to TRC 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. To fail to appropriately assess proposed future train length results in: - 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. - An inability to identify and commit to appropriate mitigation measures. - A lack of suitable commitments from the proponent. - Regulatory conditioning which does not consider the proposed future use of the project. - Permanent adverse impacts to the surrounding environment and communities. As such, TRC 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. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC and to manage the relocation of any TRC infrastructure and utilities to facilitate longer and more frequent trains on the proposed alignment. This is to be completed at the proponent's expense. Further, the proponent is required to reach written agreement with TRC

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		significant increase to train lengths and numbers, means that the draft EIS fails to meet the requirements of the OCG's TOR, specifically, and at a minimum: - TOR 5.1 – 'ensure that all relevant environmental, social and economic impacts of the project are identified and assessed…' - 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…' - TOR 6.2 – 'cover both the short term and long term and state whether any relevant impacts are likely to be irreversible…' - 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…' The potential use of 3.6 km long trains is noted repeatedly by the proponent throughout the draft EIS as well as 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 proposed alignment. Trains that are 3.6 km in length will have significantly greater impacts to the community and environment however, the impacts of 3.6 km trains are not considered by the draft EIS, which is misleading at best. 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 incorporated into the technical*	in relation to the relocation of any infrastructure and/or utility at least six months prior to commencement of any construction activities to facilitate such an increase in train length and numbers.'

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		assessments which have informed the draft EIS. Should the draft EIS be approved based on impacts from only 1.8 km long trains, this may result in the project receiving regulatory conditions which are not appropriate to effectively manage the adverse impacts of longer and more frequent trains, which is not acceptable to TRC. 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 adequately assess the impacts of the project because it does not consider future train lengths of 3.6 km (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.	
14	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 language which is open to interpretation, such as 'mitigation measures will be adopted,' which provides no specific detail. In addition, the document also provides commitments which are, for the main, like the 'mitigation measures provided' is 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	It is recommended that the proponent be required to revise the draft EIS to ensure that any mitigation measures, and any commitment to provide mitigation includes definitive wording and is addressed and detailed. All mitigation measures and proponent commitments should be measurable and quantifiable. This should include, but not be limited to, the provision of specific details which will allow the mitigation measure or commitment to be appropriately implemented, managed, and regulated.

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		this is effectively an avoidance of the OCG's EIS assessment process and subsequent conditioning. Further, without any real commitment by the proponent to mitigation provided in the draft EIS and by making this a part of detailed design, the potential impacts of the project have not been adequately assessed and/or understood. If mitigation measures have not been appropriately detailed, there is no way for the OCG or the community to understand what is proposed or how effective any mitigation will be. Also, without any detailed mitigation provided in the draft EIS, subsequent impacts cannot be assessed. 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? The lack of definitive commitments and specific detail provided regarding exactly how these statements have been or will be achieved is missing from the document. 'Where possible' and other such non-specific wording is not a commitment to mitigate. In short, the draft EIS has failed to meet the TOR as it does not demonstrate a clear understanding of the potential impacts of the project or of the required mitigation measures. There is therefore no way for the OCG or the community to know if the impacts of the proposed 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 proposed project. 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 risk of the project being inappropriately mitigated, conditioned, and regulated. The purpose of the OCGs EIS assessment process is to ensure the proponent has appropriately identified and committed to minimising impacts to ensure there will be *no significant*	The draft EIS also needs update to consider how effective proposed mitigation measures will be and what impacts the mitigation measures themselves may have.

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		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*). 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 and quantifiable, the draft EIS fails to meet the requirements of the OCG's TOR. As such, the document requires update to provide appropriate mitigation measures and commitments.	
15	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 in TOR 5.1 to delay works that are needed to accurately assess the proposal to a later stage of the project. 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 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 the construction contractor. Hence, the community and OCG cannot reasonably be expected to	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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		understand how the project may impact groundwater and if these impacts can be appropriately managed. This approach by the proponent has resulted in an overall failure to meet the OCG TOR because the draft does not: - Illustrate transparency regarding the adverse and permanent impacts which the community and surrounding environment will experience because of the proposed project. - Ensure technical soundness through the accurate and appropriate identification of these adverse impacts. - Provide appropriate and measurable mitigation measures in response to the identified impacts. - 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). 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: - 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? - How can the proponent reasonably expect the OCG to approve the draft EIS when there is limited detail supplied in the draft 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? - How realistic is it to assume that the successful construction contractor will have the time, financial and technical resources and understanding of the complex issues associated with the potential environmental impacts of the proposed project to undertake the necessary investigations to determine the required mitigation measures? - If the draft EIS is approved how will the mitigation measures determined during the detailed design phase be assessed and approved? - What happens if the draft EIS claims an impact can be mitigated but the construction contractor later determines that is not reasonably possible? - What happens if the proposed mitigation measures determined during the detailed design phase present unforeseen issues or additional impacts, how will this be resolved? 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 construction 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 construction contractor responsible for meeting the proponent's original obligations under the TOR for the draft EIS. Pushing further assessment of matters to detailed design and placing the burden of restrictive timeframes on a contractor negates the proponent's	

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		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. As a result, the document also 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.'	
		Executive Summary	
16	Local Context (Table 1) Chapter 6 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. 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. 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 proponent's proposed project schedule is unrealistic and inconsistent with the statutory approvals processes required for this project.	Construction activities, including 'detailed design' and application for any associated approvals should not 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 draft EIS. As such, the draft EIS requires updating to: - Meet the requirements of TOR 10.1(k). - Provide realistic timing for the proposed project that is consistent with standard statutory approvals processes. - Appropriately consider the findings of the flood panel and any further studies that are required to finalise the draft EIS. Accurately assess the potential impacts and mitigation requirements for the proposed project.

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17	Project Description Chapter 19 Section 19.7.1 (Rail Network) Table 19.12 Section 19.8.3.1 (Rail Network)	**High-speed Passenger Rail:** TOR 10.9 requires the proponent to describe the ability and capacity of the proposed rail corridor to support future high-speed passenger rail services between Brisbane and Toowoomba. The draft EIS only provides one option for a high-speed passenger rail connection to Toowoomba (a spur line approx. 1.5 km east of Gowrie Junction). Due to the number and location of interconnections with other rails lines and crossing loops, the proposed location of this spur line limits the future ability of the State and TRC to develop a passenger rail station in the vicinity of Gowrie Junction, with consequent potential to restrict future transport services for TRC's community. The dismissal of high-speed passenger rail services is not acceptable to TRC and does not meet the intent 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 high-speed reliable passenger rail services from Toowoomba to Brisbane. This should include, but not be limited to, reconsideration of the current proposed alignment to ensure that future passenger rail services (included the location of future passenger rail stations and associated infrastructure) are not excluded by a freight line, and an appropriate consideration of impacts to communities and intergenerational equity, including, but not limited to, consideration of possible alternate alignments outside the Gowrie to Grandchester future state transport corridor and away from local communities.	The draft EIS requires updating to meet the requirements of TOR 10.9 and to adequately demonstrate that the proposed project does not prevent the State and TRC developing a passenger rail station in the vicinity of Gowrie Junction to support the future transport needs of the TRC community. *TRC request that the OCG impose the following condition:* 'The proponent is required to revise the project design and alignment to allow for the provision of viable and reliable high-speed passenger rail services from Toowoomba to Brisbane and to ensure the planned locations of future passenger rail stations are not precluded as a result of the proposed project.'
18	Project Description (Local Context) (Relationship to Other Inland Rail	**Lack of Appropriate Assessment:** the Executive Summary states that there will be 28 km of new track, which 'generally follows the existing Queensland Rail (QR) West Moreton System rail corridor and the protected Gowrie to Grandchester future state transport corridor.' The Summary goes on to state the proposed alignment is 'predominately greenfield corridor, creating a more efficient and direct route through the Toowoomba Range compared to the existing railway line' … 'also connects the QR's Western Line to the Main	In order to meet the requirements of the OCG's TOR and to appropriately consider impacts to local communities, the draft EIS requires update to consider whether the proposed project location in the Gowrie to Grandchester future state transport corridor is appropriate given that the original purpose of the corridor was to provide high-speed passenger rail services to local communities. Further, the document should remove any

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	Projects) (Land)	Line providing interoperability between the two rail networks.' Further the document states that the proposed project will 'generally be located within the protected Gowrie to Grandchester future state transport corridor' … that 'extensive public consultation and technical, environmental and cultural heritage studies were undertaken before the Gowrie to Grandchester future state transport corridor was protected' (**in 2003**) … and which …'provided a base alignment for the project to be designed on.' These statements give the reader the impression that the proponent conducted the stated 'extensive public consultation and technical, environmental and cultural heritage studies…'. The Gowrie to Grandchester Rail Corridor Study was completed in May 2003 (as stated on the DTMR website), which means that the referred-to studies are out-of-date and therefore inappropriate to informing the draft EIS, particularly when there has been no consideration given to the **significant substantial increase** in community numbers since 2003. As a result, there are many more local residents that will be affected by the proposed location of the proposed alignment in the Gowrie to Grandchester future state transport corridor Consideration should be given to whether a corridor (which was identified almost 20 years ago) and which today would have significantly more impact on the local community, is appropriate for a freight line which is proposing to carry significantly long and frequent trains, particularly when the corridor was originally set aside to provide future high-speed passenger rail services and as such, is primarily located near (or indeed through) local communities. Further to this, Mt Kynoch has been identified as a future growth area and although the proposed alignment will be in the tunnel at this point, there may be impacts to residential land and uses as a result of tunnel noise, construction, scenic amenity and the like. The draft EIS should consider the adverse impacts on communities which the proposed project may have	consideration of a proposed alignment that will essentially make the use of the Gowrie to Grandchester future state transport corridor for high-speed passenger trains impossible in the future (as previously discussed), or that the proponent finds it acceptable that the community may well be permanently adversely affected by large numbers of very long freight trains through their communities (which currently enjoy a scenic and quiet amenity).

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		through encroachment on both existing and planned communities and/or the proximity of the proposed alignment to these communities. TOR 5.1 requires the appropriate evaluation of environmental impacts, including the local community. As a result of the use of out-of-date studies to inform alignment location, and the lack of consideration regarding the appropriateness of using the Gowrie to Grandchester future state transport corridor for freight services, the draft EIS fails to meet the requirements of TOR 5.1.	
19	Project Description (Tunnel Infrastructure)	**Inappropriate Number of Emergency Exits:** the Executive Summary states that 'in the case of the train stopping in the tunnel due to fire or other emergency, the tunnel fire and life safety strategy requires a longitudinal egress passage (LEP) as a conventional evacuation passage for passengers, drivers and crew. The LEP would provide for egress every 240 m and communication facilities to contact the operator at the Network Control Centre.' 240 m is a substantial distance to be required to travel during an emergency event, in a low light environment in a sloped tunnel, and would be particularly difficult to achieve if evacuees had some pre-existing health condition or had sustained an injury as a result of the emergency which triggered the need for evacuation. The tunnel design should consider more appropriate distances between access points to the LEP. Further to this, there is no mention of this distance elsewhere in the document. It is not considered appropriate for the Executive Summary to mention planned emergency distances and not have them discussed further in the main body of the document, particularly the Project Description or Hazard and Risk Chapters. As a result, the draft EIS has failed to meet the requirements of the TOR's Objectives for Hazards, Health and Safety.	The draft EIS requires update to in order to meet the requirements of the OCG's TOR and to appropriately discuss distances evacuees would be expected to travel in a low light, sloped tunnel during an evacuation. Further, distances to LEP access should be shortened to a more reasonable length which most people (even those with pre-existing health conditions or injuries) would have a chance of achieving during an emergency situation. It is considered that more frequent access to the LEP would be more appropriate and should be seriously considered by the proponent.

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20	Project Description (Road Network Changes) Key Findings (Traffic, Transport and Access) Chapter 6 Section 6.6.16.4 (Roadworks) Chapter 8 Section 8.7.3.1 (Impacts on Public Road Network) Section 8.7.4 (Impacts on Services and Utilities) Chapter 19 Section 19.7.3.2 (Local Government Roads) Table 19.19 Section 19.8.1 (Changes to the Road Network) Figure 19.9	**Road Network Connectivity and Related Road Matters:** TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affected transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). The traffic volumes reported for a number of TRC roads in the Traffic Impact Assessment (TIA) are not consistent with TRC's traffic count data and/or current usage of those roads. While Council is supportive of the proposed realignment of Gowrie Junction Road onto a road-over-rail-over-watercourse bridge, and the extension of Morris Road westwards under the proposed bridge, Council is not supportive of any of the other proposed road network changes. In particular, the proposed closure of Morris Road (currently carrying over 3 500 vehicles per day (VPD)) would disrupt the existing road network connectivity between Gowrie Junction and Toowoomba, potentially bringing forward the need for the extension of Boundary Street to the north to serve the Northern Communities Growth Area. The proponent's suggested upgrade of one section of Hermitage Road creates a network that is less efficient and effective than currently exists and will increase traffic on the section of Hermitage Road east of Boundary Street which has a number of historical crest, sag, width and intersection turning movement safety concerns (an issue of significant concern to TRC which is also not addressed by the re-routing assumptions adopted in the proponent's Gowrie Junction Traffic Assessment Report).	The draft EIS requires updating to meet the requirements of the TOR's Transport Objectives (a) and (c) and to remove all references to proposed road closures and infrastructure realignments which will adversely impact the local TRC community. The draft EIS should also include a clear commitment by the proponent to bear the financial burden of all changes to all infrastructure, including, but not limited to, the extension of Boundary Street into Gowrie Junction and the Northern Communities, to ensure network connectivity is maintained. Further, given TRC's future planning for Gowrie Junction and the Northern Communities area, the draft EIS requires update to commit to a much longer and more appropriate design horizon (to 2050 as a minimum) in order to ensure network connectivity is maintained, growth is enabled and adverse impacts to local services are minimised. *TRC request the OCG impose the following conditions:* 'The proponent is required to consult with TRC regarding the provision of appropriate road network connectivity and road reserves for all impacted TRC local roads and impacted State-controlled roads and commit to delivering appropriate mitigation measures which address all identified road operation, road safety, services relocations, drainage and other issues and to reach written agreement with TRC in relation to all issues at least six months prior to the commencement of any construction activities.' and 'The proponent is required (at their cost) to design, develop and

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	Section 19.8.2.5 (Traffic Analysis) Table 19.25 Table 19.27 Section 19.8.2.6 (Pavement Impacts on Road Links) Table 19.29 Appendix C DR-2001 Sheet 1 DR-2002 Sheet 2 Appendix T (Gowrie Junction Traffic Assessment) Appendix U Section 3.3 (Road alterations)	The proponent's proposals for local road network connectivity are inadequate for future community needs and also inappropriate to service the two proposed laydown areas west of Gowrie Junction Road. Additionally, the proponent's proposed use of Boundary Street north of the Toowoomba Bypass would require the upgrading of this road given the nature and duration of project-related traffic associated with the construction of the entrance to the proposed western tunnel. Pavement impacts have also not been assessed on local government road links and would likely exceed the 5% comparison threshold based on the proponent's traffic analysis for increased traffic on local roads. The proponent claims that a section of Ganzer Morris Road is not required to maintain road network connectivity, but then proposes to install a water pipeline along this road reserve to service the proposed tunnel's fire management system. Council does not support the closure of any section of Ganzer Morris Road. The draft EIS acknowledges that pipelines will need to be relocated where they intersect the Project disturbance footprint but notes that land requirements for services relocations are not considered as part of the draft EIS, apparently leaving this responsibility to the asset owners. These parties invariably seek to use road reserves for this purpose, and the draft EIS and Appendix C drawings make no provision for services relocations and the associated land requirements within either new or existing road reserves. Further, the proponent has only adopted a ten (10) year development horizon for the design of the proposed project. TRC believes that the proponent's current short design horizon does not adequately cater for the planned future growth in the local area, nor does it allow TRC or the community sufficient confidence that the adverse impacts of the proposed project will be addressed with best-for-community or future-proofing	construct, in consultation with TRC, an extension to Boundary Street to Old Goombungee Road and to service Gowrie Junction and surrounds. This infrastructure is to include road-over-rail and road-over-watercourse bridges and is to be completed under written agreement with TRC at least six months prior to the commencement of any construction activities.' and 'The proponent is required to develop a design horizon (to 2050 as an absolute minimum) and to work with, and reach written agreement with, TRC to ensure TRC's network connectivity is maintained, growth is enables and adverse impacts to local services is minimised in a way which ensures there is no significant residual impact to the TRC Region or its community. The proponent is required to reach written agreement with TRC at least six months prior to the commencement of any construction activities.'

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		solutions and outcomes, particularly given that TRC's planning looks well beyond a ten-year timeframe.	
21	Project Description Fencing Chapter 6 Section 6.3.13 (Fencing) Chapter 10 Section 10.6.1.2 (Operational Phase) Appendix C (Design Drawings)	**Inappropriate Fencing:** the discussion regarding fencing of the proposed alignment noted that the purpose of the fencing was a barrier (primarily to grazing livestock) as the project is substantially located in rural agricultural grazing areas which will inform the standard of fencing. This is not the case. The project comes very close to rural residential areas which may well be future urban areas. This should be a consideration in the standard of fencing design. It is acknowledged that that there is some indication given that where the alignment is (currently) close to roads/community that a different fencing standard will be used, however all areas inside the urban footprint (SEQ Regional Plan) should receive an appropriate standard of fencing, not just current communities. Further to this, the 'indicative' fencing shown in Section 10.6.1.2 is a short, single strand barbed wire fence, which is not considered to be indicative of what should be erected, nor appropriate for the region. The standard fencing showing in Drawing Set K at Appendix C is 1.9 m high diamond mesh fencing. Section 6.2.9 also 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 increases the area of disturbance and is seemingly unnecessary.	The draft EIS requires update to provide accurate and detailed information regarding proposed fencing, including a commitment to appropriately 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. Appendix C should be updated to include designs for all fence types. The proponent should also commit to keeping fencing within the rail corridor to minimise the disturbance footprint. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC regarding all aspects of fencing design, construction and location, and to reach written agreement with TRC regarding the achievement of high-quality fencing outcomes at least six months prior to the commencement of construction activities.'
22	Land Resources Chapter 9 Section 9.6.6.1 (Topographical Setting) Table 9.15	**Regarding the Potential for Intercepting and Managing Contaminated Groundwater:** the potential risk for intercepting and managing contaminated groundwater was not adequately assessed by the draft EIS. This is a key project risk that could present potential for harm to human health or the environment and may present significant issues during both construction and operation.	The draft EIS must be updated to consider the potential for contaminated groundwater to occur which may be intercepted during both construction and operation. PFAS is just one contaminant, the draft EIS should identify all potential hazardous contaminants which could occur in groundwater from potential sources in the study area.

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	Table 9.16 Table 9.17 Chapter 14 Section 14.5.2.2 (Stage 2 – Geotechnical and Hydrogeological Investigations) Section 14.7.4.2 (Water Quality) Appendix N	An example of this is the potential for PFAS (Per- and poly-fluoroalkyl substances) impacted groundwater which occurs in the study area. PFAS compounds are persistent pollutants and can be distributed for many kilometres from the source in groundwater. It is possible that the proposed project could intercept PFAS impacted groundwater however this has not been identified in the draft EIS. Section 9.6.6.1 and Table 9.17 do not list PFAS as a contaminant of concern even though there are several potential sources in the study area (refer to Appendix B of PFAS National Environmental Management Plan 2.0 (2020) which is endorsed by the Queensland Government). PFAS can be released to the environment from several primary and secondary sources. Examples of key secondary sources of PFAS that occur in the study area include the following, which were determined from Table 9.15 and 9.16: - Toowoomba Waste Management Centre (TWMC) (landfill). - The former and current Wetalla Sewage Treatment Plant (wastewater treatment). Other potential sources include facilities in the Helidon Explosives Precinct where PFAS could have been released from firefighting. For this response, we have focussed on the TWMC and the potential for PFAS impact in groundwater to occur. However, we note that all potential PFAS sources and impacted environmental media should have been assessed by the proponent in the draft EIS. The proposed tunnel will be constructed 100 m below the TWMC (landfill). Landfills are known to be key secondary point sources for PFAS contamination, particularly from vertical migration of contaminated leachate to groundwater. Table 9.15 identified this as a high-risk location for contamination, but the Executive Summary and Section 9.6.6.1 suggest the risk of contaminated leachate from the TWMC was negligible. This is	Groundwater quality monitoring should then be undertaken that includes contaminants of concern such as PFAS and other relevant hazardous contaminants that may be present in the environment. The proposed management measures in the draft EIS for groundwater inflows to the tunnel during construction and operation should be informed, and where necessary, revised by the results of the further monitoring.

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		because the proponent states that groundwater monitoring by TRC showed no groundwater impact by landfill leachates and landfill cells were lined after 2000. However, the TWMC landfill was operational prior to 2000 and Condition TWM-WT13 of the Environmental Authority (EA EPPR00625013) for the TWMC does not include PFAS in the list of required groundwater parameters (see below which is an extract from Condition TWM-WT13 of EPPR00625013).	

Ammonia (as N)	pH
Bicarbonate(HCO3)	Manganese (dissolved)
Calcium	Potassium
Chloride	Sodium
Iron (total)	Sulphate
Zinc	specific conductance
Nitrate (as N)	Total Organic Carbon (TOC)

A single round of groundwater quality monitoring was undertaken by the proponent in 2018 but did not include PFAS (or any other hazardous contaminants save for a selection of dissolved metals/metalloids (Section 14.5.2.2).

PFAS is a potential groundwater contaminant in the study area, particularly near the tunnel however this was not identified by the draft EIS. The tunnel is expected to have groundwater inflows during both construction and operation. During operation, the water from the western end of the tunnel (closest to sources of highest PFAS risk) (estimated at 85 ML/year) is proposed to be released to the environment (Section 14.7.4.2). At the eastern entrance to the tunnel, water is proposed to undergo some form of treatment prior to release to the environment. It cannot be determined if this is appropriate, as the risk of existing groundwater contamination was not adequately assessed in the draft EIS.

The draft EIS did not meet the requirements of TOR 11.157 because it does not adequately identify known or potential contamination sources or contaminant types (e.g., PFAS). Furthermore, the preliminary assessment

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		did not meet the requirements of the Contaminated Land NEPM or PFAS NEMP which were relevant and current industry guidance documents endorsed by the Queensland Government at the time the draft EIS was prepared (as required by TOR 5.4). The draft EIS does not meet the TOR's Water Objectives as it is silent on potential groundwater contamination risks that may be present and how the proposed development may change the risk profile by possibly: - Creating connectivity between aquifers and allowing contaminated water to move between aquifers. - Increasing areas of groundwater impact at contaminated sites by changing the potentiometric surface due to dewatering which could allow off-site migration of contamination in groundwater which was previously subject to hydraulic containment. - Releasing contaminated water intercepted by the tunnel to surface waters. - Using contaminated groundwater from the tunnel for construction.	
23	Hydrology and Flooding Chapter 13 Section 13.6.2 (Hydrology and flooding) Table 13.6 Table 13-40 Figure 13.12a Appendix M (Appendix G Part	**Impacts of Flooding on Critical Infrastructure:** TOR 11.67 and TOR 11.68 require the draft EIS to assess how the project may change flooding characteristics and consider all infrastructure associated with the proposed project. TOR 11.71 requires the proponent to describe all proposed measures to avoid or minimise risks to life, property, infrastructure, community and the environment. The Gowrie Junction trunk sewer rising main pump station and associated switchboard is located proximate to the Gowrie Creek floodplain just upstream of the proposed embankment for the Gowrie Junction Road road-over-rail-over-watercourse bridge, and either has not been identified as a	The draft EIS requires update to meet the requirements of the OCG's TOR and to identify appropriate project hydraulic design criteria for critical community infrastructure, along with the detailing whether the existing TRC trunk sewer rising main pump station immediately upstream of the propose Gowrie Junction road-over-rail-over-watercourse bridge would be impacted by events greater than a 1% AEP as a result of the proposed project, and if so, how these impacts would be mitigated by the proponent and to Council's satisfaction.

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	2 (Flood Sensitive Receptors)) (Appendix H FSR ID 312 (Afflux at Flood Sensitive Receptors))	flood sensitive receptor or has otherwise been identified as an industrial receptor. The draft EIS indicates this critical infrastructure will not remain flood-free in events greater than a 1% AEP and identifies afflux at this location due to the proposed project.	
24	Hydrology and Flooding Chapter 6 Section 6.6.16.2 (Permanent Drainage Controls) Chapter 13 Section 13.9.2 (Hydrology and flooding) Table 13.32 Table 13.33 Table 13.36 Table 13.37 Figure 13.11a Appendix C DR-2001 Sheet 1 DR-2002 Sheet 2 Appendix M Part 1 Section 9.6	**Impacts of Flooding on Council Roads:** TOR 11.67 and TOR 11.68 require the draft EIS to assess how the project may change flooding characteristics and consider all infrastructure associated with the project. TOR 11.71 requires the proponent to describe all proposed measures to avoid or minimise risks to life, property, infrastructure, community and the environment. The draft EIS identifies that the project alignment near Gowrie Creek would result in changes to flows in the areas including East Paulsen Road and locations on the Western Line, with further discussions with Queensland Rail (QR) and TRC to be undertaken regarding the proposed alignment design and associated drainage structures. There has been no consultation to date between the proponent, QR and TRC regarding drainage structures, particularly where the two rail alignments and the Council roads which run parallel adjacent to each other to the east and west of Gowrie Junction Road (noting these locations generally also involve major Council and private utility pipelines). The Drawings and Appendices do not adequately detail the proposed size and location of culvert structures on Council roads nor the proposed location of longitudinal drainage, to allow independent assessment of the impacts of the project on Council roads and service utilities. Further, the draft EIS states that there would be an increase in the 1% AEP flood level of up to 650 mm on East Paulsens Road and 180 mm on Paulsens Road, along with increases in velocity, which is not acceptable to Council.	The draft EIS requires updating meet the requirements of the OCG's TOR, to identify and mitigate all direct and indirect impacts of the proposed project on local drainage flows and/or flow paths, and to provide appropriate mitigation measures to address these impacts to TRC's satisfaction and to ensure that there is no actionable nuisance affecting either private property owners or TRC road and drainage infrastructure. *TRC request the OCG impose the following conditions:* 'The proponent must implement all recommendations of the *Independent International Panel of Experts for Flood Studies of Inland rail in Queensland* review and be required to consult with TRC regarding the mitigation of all direct and indirect impacts from the proposed project on local drainage flows and/or flow paths and to reach written agreement with TRC in relation to this issue and at least six months prior to the commencement of any construction activities.' and 'The proponent is required to consult with TRC regarding the provision of appropriate drainage structures on Council roads and to reach written agreement with TRC in relation to the design and construction of drainage structures at least six

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	(Local Catchment Drainage) Appendix M Part 2, Appendix I (Local Drainage Structures and Impact Outcomes)		months prior to the commencement of any construction activities.'
25	Hydrology and Flooding Chapter 13 Section 13.8.2 (Hydrology and Flooding) Section 13.9.2 (Hydrology and Flooding) Table 13.33 Appendix M Section 9.6	**Hydraulic Design Criteria, Flood Impact Objectives, Assessment Methodology and Mitigation Measures – No Actionable Nuisance:** the draft EIS addresses only technical engineering design criteria and does not address the common law legal principle of *no actionable nuisance* in relation to any changes in drainage flows and/or flowpaths. The proponent's reference design will intercept, divert and concentrate upstream overland flows to locations higher within each catchment and potentially divert between catchments. These changes have the potential to affect private property owners and TRC's road and drainage infrastructure. The draft EIS contains only brief commentary about point source discharges of water, embankment drains, catch drains and discharges of water from the rail corridor, and states these will pass into a local water system with negligible impacts.	The draft EIS requires update to meet the requirements of TOR 5.1 and to identify and mitigate all direct and indirect impacts of the proposed project on local drainage flows and/or flowpaths to provide appropriate and real mitigation measures to address these impacts (to TRC's satisfaction and to ensure there is *no actionable nuisance* affecting private property owners or TRC's road and/or drainage infrastructure. *TRC request the OCG impose the following condition*: 'The proponent is required to consult with TRC regarding the identification, management and mitigation of all direct and indirect impacts from the proposed project on local drainage flows and/or flowpaths. This is to include, but not be limited to, the provision of appropriate and measurable mitigation measures in a way which will ensure that there is no actionable nuisance affecting private property owners or TRC's road and/or drainage infrastructure. The proponent is required to reach written agreement with TRC in relation to this matter at least six months prior to the commencement of construction activities.'

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26	Hydrology and Flooding Chapter 13 Section 13.8.2 (Hydrology and Flooding) Section 13.9.2 (Hydrology and flooding) Table 13.33 Appendix M Section 9.6	**Watercourse and Waterways, and Mitigation Measures – Impacts on Local Roads:** the flood modelling provided in the draft EIS is not sufficiently developed to allow TRC to assess the impacts of diversions or interceptions of overland flow in relation to proposed road diversions and new roads, particularly where the proposed alignment runs parallel to TRC roads. Further, the draft EIS also does not adequately demonstrate how these flows will be properly conveyed under TRC's roads, the proposed alignment and the adjacent QR alignment.	The draft EIS requires update to develop appropriate hydrologic and hydraulic models and mapping for all locations where overland flows will be intercepted and diverted by the project under TRC roads and to provide mitigation measures to address these impacts to TRC's satisfaction. *TRC request the OCG impose the following condition:* 'The proponent is required to develop appropriate hydrologic and hydraulic models and mapping for all locations where overland flows will be intercepted and diverted by the project under TRC roads in and to provide mitigation measures to address these impacts in consultation with TRC and to reach written agreement regarding the interception and diversion of overland flows created by the proposed project with TRC at least six months prior to the commencement of construction activities.'
27	Cumulative Impacts Chapter 19 Section.11 (Cumulative impacts) Table 19.35 Chapter 22 Section 22.6.12 (Traffic, Transport and Access)	**Cumulative Impacts on the Transport Network:** TOR 11.110 requires the proponent to provide sufficient information to allow an independent assessment of how existing and proposed transport infrastructure will be affected by project transport at the local and regional level. The draft EIS identifies that traffic, transport and access was considered to be of 'medium significance' due to the impacts of construction traffic on local traffic volumes and the extent to which adjoining properties may intensify these effects. The draft EIS also states that several of the projects included in the Cumulative Impact Assessment may also have overlapping construction	The draft EIS requires update to meet the requirements of the OCG's TOR and to provide appropriate and sufficient information for TRC to be able to independently assess the potential cumulative impacts on the transport network arising from the construction of the proposed project at the same time as the construction of the proposed B2G project. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC regarding the potential cumulative impacts on the transport network arising from the construction of the proposed Gowrie to Helidon Inland Rail project at the same time as the Border to Gowrie Inland

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		schedules, which is likely to lead to increased traffic congestion on certain roads within the traffic area of influence. The draft EIS further states that the proposed delivery approach for the proposed project will be considered collectively across other Inland Rail projects where applicable, and also makes reference to the adjoining B2G project (which joins the western limit of the G2H project) but makes no attempt to quantitatively assess such impacts.	Rail project, and to reach written agreement with TRC in relation to acceptable mitigation measures relating to the cumulative impacts to the transport network at least six months prior to the commencement of any construction activities.'
28	Concluding Statement	**Intergenerational Equity**: the concluding statement in the Executive Summary mentions Intergenerational Equity yet fails to make any mention of the potential for the project to facilitate high-speed passenger rail. The Principle of Intergenerational Equity states that '*the present generation has a moral obligation to manage the earth in a manner that will not jeopardize the aesthetic and economic welfare of the forthcoming generation*.' By definition, and when considering the anticipated (and underassessed) adverse impacts, the proposed project fails the Principle of Intergenerational Equity. Considering that the original purpose of the Gowrie to Grandchester future state transport corridor was to provide a dedicated high-speed passenger rail from Toowoomba to Brisbane, and the proposed location of the alignment in this corridor could well negate this possibility, the proponent has failed to meet the requirements of the Principle of Intergenerational Equity. Further, the document states that 'the principle of improved valuation, pricing and incentive mechanisms requires that environmental factors should be included in the valuation of assets and services. It is difficult to place a monetary value on the project's environmental impacts.' This can be considered to be particularly true when adverse environmental impacts have not been adequately identified, the proposed alignment location is in a corridor not designed to facilitate frequent and very long (up to 3.6 km) freight trains, the location of the proposed alignment has not been	As previously stated, the draft EIS requires update to updated currently underassessed adverse impacts, to appropriately consider alternate alignments that do not exclude future high-speed passenger rail services from the Gowrie to Grandchester future state transport corridor, and to meet the requirements of both the OCG's TOR and the Principle of Intergenerational Equity.

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		appropriately considered by the proponent, and technical assessments which should have been robustly completed, have either been completed based on 'identified gaps in desktop assessment' or mostly pushed back to detailed design and as a result, have either not been included, not appropriately considered, or in adequately assessed by the proponent.	
29	Concluding Statement	**Assumptive and Erroneous Statements:** the concluding statement of the Executive Summary makes a number of erroneous statements including, but not necessarily limited to: - 'Effective mitigation measures to address potential impacts of the project are detailed within the EIS. The measures will be further developed, implemented and maintained as the project progresses through future stages of development.' - 'Implementing recommended mitigation and management measures, and adopting each commitment made, will minimise environmental issues.' These statements cannot be considered accurate given that impacts have not been adequately recognised, having been either inappropriately assessed or pushed back to detailed design and as such, appropriate approvals and conditioning cannot be made, and commitments to mitigate and manage cannot be adequately identified. Further, the text goes on to state that 'the EIS demonstrates that the residual impacts and benefits can be appropriately managed…' simply stating this does not make it true, particularly when there has been no appropriate identification of impacts (residual or otherwise), and no clear commitment or mitigation developed and the OCG's TOR have not been met. The text goes on to state that '… the project should proceed, subject to reasonable and relevant conditions that reflect the proponents' commitments as listed in Appendix F: Proponent Commitments.' This	The draft EIS requires update 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 project locations including those outside the Gowrie to Grandchester future state transport corridor. This would include, but not be limited to, undertaking studies which will enable the proponent to further identify a project location which ensures the best possible solution for the community and its environment and to further refine this identified location through the completion of robust and appropriate field studies.

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		statement is assumptive and erroneous, particularly given that the lack of appropriate assessment has resulted in proponent commitments which lack detail, are not measurable, and are unable to be converted to regulatory commitments (as required by TOR 7.4).	
		Chapter 1: Introduction	
30	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 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.' 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.	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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		Chapter 2: Project Rationale	
31	Section 2.4.3 (Local Community Benefits)	**Local Projects Require Local Benefits:** TOR 5.1 requires that 'the objectives of the EIS are to ensure that all r*elevant* environmental, social and economic impacts of the project are identified and assessed…' The draft EIS does not meet the requirements of TOR 5.1 as 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: - The ability to provide high-speed passenger rail services either on the proposed alignment or co-located in the corridor (an issue which is of extreme 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 high-speed passenger rail and appears to exclude the provision of this service in a corridor originally set aside to provide the local community with high-speed passenger rail. - Minimal operational employment numbers and the transient nature of construction employment and subsequent adverse impacts resulting from an imported and transient workforce. - The assumption that the construction workforce will be sourced locally (highly unlikely given Toowoomba's exceptionally low employment figures (discussed elsewhere in further detail)). - The perceived benefits for local businesses are broad and non-committal, with Section 2.4.3 stating that the 'project's local supply	To be compliant with TOR 5.1, the draft EIS should discuss all *relevant* environmental, social and economic impacts as they relate *directly* to the proposed project (i.e., the G2H section of Inland Rail). 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 the proposed alignment traverses. This should include, but not be limited to, a discussion regarding how high-speed passenger rail to Brisbane 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 high-speed passenger rail alignment in the Gowrie to Grandchester future state transport corridor (which was originally set aside for this purpose), thereby creating real opportunities for local residents and ensuring the project leaves a positive legacy for the local community.

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		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.	
		Chapter 3: Project Approvals	
32	Section 3.4.10 (*Environmental Protection Act 1994*)	**Potential Damage to Utilities not Recognised:** damaged utilities resulting from proposed project activities can pose a high risk for environment harm (e.g., sewers) however the draft EIS has not recognised damage to utilities as an environmental risk.	The draft EIS requires updating to identify damage to utilities as an environmental Risk (sewer, gas etc.,) and to propose appropriate and clear mitigation measures to protect assets during construction. *TRC request the OCG impose the following condition:* **'**The proponent is required to develop and submit a safe construction work method statement to each the respective utility owner for review and approval prior to the commencement of construction activities near and adjacent to live utility infrastructure.'
33	Section 3.4.20.1 (Overview) Section 3.4.20.2 (Relevance to the Project) Section 3.5.2 (Planning Schemes) Chapter 8 Section 8.4	**Inappropriate Dismissal of Local Planning Schemes:** regarding the *Planning Act 2016*, the document cites Schedule 6, Part 5, Section 26 as identifying development that cannot be made assessable under a local government planning scheme…' Section 3.4.20.2 goes on to erroneously argue that the project is exempt from local government approval. Section 3.5.2 further claims that 'the provisions of these local government planning schemes do not apply to the project' and cites the Inland Rail Project being 'government supported transport infrastructure' as the 'reason' why the proponent considers that local government planning schemes do not apply.	The draft EIS requires update to appropriately consider and commit to meeting local government planning scheme requirements for all adverse impacts related to the proposed project, in order to meet the requirements of the OCG's TOR, to adequately address the proposed project (specifically in relation to the strategic outcomes of the Toowoomba Regional Planning Scheme, i.e., the Strategic Framework Elements (Part 3)), and to obtain relevant development approvals.

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	(Legislation, Policies, Standards and Guidelines) Section 8.6.4 (Land Tenure) Section 8.9 (Impact Assessment)	There are many activities which will be outside the proposed alignment which will require consideration and approval under TRC's local planning scheme including, but not limited to, office infrastructure, laydown areas, etc. The *TOR requires the consideration of local government 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 11.66, TOR 11.72(a), TOR 11.76, TOR 11.77 and TOR 11.141. - 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.' - 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 Toowoomba Regional Planning Scheme. 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: - Section 8.4, Table 8:2, where the discussion is limited to 'the zoning intent for the area' … 'has been taken into consideration'. - 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).	*TRC request the OCG impose the following condition:* 'The proponent is required to consider the local government planning schemes relevant to the project and to amend the project accordingly to take into consideration any changes which may be required to meet regulatory requirements contained in these planning schemes. The proponent is required to work with the TRC to identify required changes and to reach written agreement with TRC regarding these changes at least six months prior to the commencement of construction.'

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		- 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.	
34	Section 3.4.22 (*Public Health Act 2005*) Section 3.4.22.1 (Overview) 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…' 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. 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: - 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. - 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	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.' 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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		transmission in communities and can affect receptors within many kilometres of a transport corridor. 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.	
		Chapter 4: Assessment Methodology	
35	Section 4.2 (Approach) Appendix F (Proponent Commitments)	**Lack of Robust 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 (Appendix F) 'expand on those mitigation and management measures that have been proposed as part of the impact assessment process.' Appendix F is very light, having a distinct lack of detail primarily as a result of many assessments have been deferred to the detailed design phase and as such, the statement that Appendix F 'expands' on mitigation and management is erroneous. The section 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 also cannot be considered to be an accurate statement given the proposed alignment has not been appropriately assessed to consider changes since the 2003 study (as previously discussed), when study areas have not been appropriate, and when the document has relied on outdated guidelines and standards which allow for greater (and unacceptable) impact on the community and environment. The document then goes on to state that 'where environmental impacts have been identified through the assessment process, efforts have, in the first instance, been made, where practicable, to avoid or minimise impacts through	As previously discussed, the draft EIS requires update to include robust assessments, clear and measurable proponent commitments, and to meet the requirements of the OCG's TOR.

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		development of the design.' The impacts of the project cannot be accurately known and accounted for during the development of mitigation measures given the lack of robust assessment and the commitment 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 TOR 7.4.	
36	Section 4.3 (Study Area) Table 4.1 Table 4.2	**Inappropriate Study Corridor Width:** the draft EIS investigation corridor width is not considered appropriate to groundwater studies a wider study area is required due to the potential to adversely impact other aquifers which are outside the study area.	The draft EIS requires update to appropriately extend the groundwater impact assessment area to areas well beyond the proposed rail corridor footprint. The assessment should include a wide-spread study area which enables short-, medium- and long-term adverse impacts to be appropriately assessed. Given the lack of an appropriate study area width, the update should include, but not be limited to, the completion of a new groundwater assessment with an appropriate study area, which includes areas which encompass the adversely affected aquifer and any associated and connected aquifers, in order to correctly identify impacts to groundwater resources. Previous technical reports issued by the proponent have identified groundwater drawdown impacts for the wider area including Toowoomba drinking water bores. These reports stated that these issues will be addressed in the draft EIS. However, the groundwater assessment limits the study corridor and as a result, the assessment has not been extended to include possible adverse impacts to drinking water bores.
37	Section 4.3 (Study Area) Table 4.2	**Groundwater not Appropriately Assessed:** Table 4.2 of the draft EIS includes groundwater in the category of significance assessment under qualitative criteria.	The draft EIS requires the update of the groundwater assessment to cover both the qualitative and quantitative impacts to groundwater as a result of proposed project.

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		Chapter 5: Stakeholder Engagement	
38	Chapter 5 Appendix D (Community Consultation)	**Stakeholder Engagement:** TOR 10.11(b) requires a discussion of existing infrastructure and easements. Consultation with TRC has included discussions regarding only one proposed alignment. Further, the Interlink site's associated sewer relocation is not finalised due to conflicting information. In addition to this, TOR 10.11(d) requires the capacity of water supply, wastewater conveyance and treatment to be discussed in the draft EIS. The draft EIS listed the water supply and wastewater discharge options from the TRC network, however no details have been provided, discussed or agreed to date.	*TRC request the OCG impose the following conditions:* 'The proponent is to relocate all TRC utilities currently located within the proposed project corridor outside the corridor in consultation with TRC. Utilities which require to cross the corridor are to be relocated into an enveloper across the corridor. Maintenance access are to be provided for all relocated utilities for 24/7 access.' and 'The proponent is to provide plans of any TRC utility upgrades including, but not limited to, water supply connections from the TRC water supply network and wastewater discharge connections for the proposed project to TRC for approval at least six month prior to the commencement of any construction activities. This should include the consideration of any required system extensions/upgrades and any plans should not adversely impact existing customers. Water supply connections are to be limited to drinking water only.'
39	Section 5.7 (Consultation Outcomes) Table 5.9 Table 5.10 Appendix U Section 1.6.3 (Stakeholder consultation)	**Stakeholder Engagement for Traffic, Transport and Access:** TOR 11.113 requires the proponent to prepare mitigation strategies in close consultation with relevant transport authorities (including Local Government). The draft EIS proposes changes to the local road network and the proponent states that feedback from stakeholder consultation has been addressed within the draft EIS in developing road network solutions, including suitable road access alternatives for all formed roads impacts. While the draft EIS states the Traffic and Transport Impact Assessment was updated to address comments, the proponent has not adequately addressed a number of Council's requirements in relation to changes to the local road	*TRC request the OCG impose the following conditions:* 'The proponent is required to consult with TRC regarding the provision of appropriate road network connectivity for all impacted TRC local roads and commit to delivering appropriate mitigation measures which address all identified issues and to reach written agreement with TRC in relation to all identified issues at least six months prior to the commencement of any construction activities.' and 'The proponent is required to consult with TRC regarding access to proposed construction laydown areas in the vicinity of

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		network in the vicinity of Gowrie Junction, nor has the proponent adequately consulted with Council in relation to access to the proposed construction laydowns at the western entrance of the tunnel or in the vicinity of Gowrie Junction.	Gowrie Junction, including near the proposed western tunnel entrance, and to commit to delivering appropriate mitigation measures which address all issues identified by TRC and to reach written agreement with TRC in relation to all issues at least six months prior to the commencement of any construction activities.'
		Chapter 6: Project Description	
40	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 necessarily limited to: - 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'. - 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. - 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. 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.

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41	Section 6.2.1 (Project Alignment)	**Project Alignment Issues**: Section 6.2.1 states 'the project design has responded to key environmental features and community and land issues and has been developed considering with engineering constraints for a feasible rail design.' The italicised text does not make sense and the full statement is not backed up by the detail provided in the draft EIS, which proposes locating infrastructure primarily in areas which will either impact rural residential communities or areas of previously undisturbed areas of remnant vegetation. The draft EIS fails to meet the requirements of the OCG's TOR as it remains to be determined how the project design 'responded to key environmental features and community and land issues' when it is proposed to be primarily located in a pre-determined corridor initially intended for high-speed passenger rail use located in very close proximity to rural residential communities, or in areas where the proposed alignment diverts from this corridor, mostly through currently undisturbed areas of remnant vegetation.	The draft EIS requires update to meet the requirements of the OCG's TOR by appropriately considering alternate alignments and appropriately assessing adverse impacts.
42	Section 6.2.4 (Key Components) Table 6.1 Figure 6.4	**Crossing Loops**: Table 6.1 notes that 'three crossing loops, each a minimum of 2 200 m (2.2 km) in length' are proposed along the alignment. Table 6.1 is silent on the provision of a wider disturbance footprint for the future extension of the proposed crossing loops to facilitate the anticipated 3.6 km long trains. Figure 6.4 shows that these crossing loops coincide with wider disturbance footprints and in areas with higher numbers of sensitive receptors and/or greater ecological value with respect to other locations along the alignment. Crossing loops may be considered to be major components of the infrastructure of the proposed project, particularly given their length and apparent proposed locations close to communities or 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, nor has an appropriate	The draft EIS requires update to meet the requirements of the OCG's TOR and to justify the number and locations of rail crossing loops and provide alternate and more appropriate location options for crossing loops. Further, the draft EIS requires update to provide an appropriate level of discussion surrounding the proposed crossing loops including, but not limited to, detailing the proposed disturbance required to facilitate future 3.6 km long trains.

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		level of information been provided in the draft EIS in relation to crossing loops. Where possible, crossing loops should be placed in areas away from sensitive receptors and utilise areas of lower ecological value which can better support a wider footprint of disturbance. Further, the draft EIS proposes three Crossing Loops (2.2 km long each) within the 28 km long corridor. This is approximately one loop for every 6 km of track (taking the proposed tunnel into consideration). The draft EIS provides no detailed discussion regarding crossing loop locations (indicative on figures only and not included in detail drawings at all) and is silent regarding why there is a requirement for this many crossing loops and in their nominated locations. As such, the draft EIS fails to meet the requirements of TOR 5.1, 6.2, 6.3, 7.3 and 11.92.	
43	Section 6.2.4 (Key Components) Figure 6.4 Section 6.3.11 (Rail Maintenance Access Roads) Figure 6.13 Section 6.5.2.1 (Establishment of Access Tracks) Table 6.9	**Lack of Appropriate Consideration of RMAR Locations:** Section 6.3.11 of the draft EIS notes that RMARs are required to facilitate maintenance for the rail corridor and critical infrastructure. Figure 6.13 was provided to show a typical position of a formation level RMAR. The draft EIS does not include figures which clearly show the location of RMARs along the length of the proposed alignment. Subsequently, the draft EIS does not shown where RMARs may be located adjacent to existing roads or where access to local roads may be situated and as such, fails to meet the requirements of the OCG's TOR. Further, Section 6.5.2.1 discusses RMARs in relation to construction or temporary access tracks but does not clarify permanent locations of tracks during operational stages and Figure 6.4 does not clearly show the location of the RMARs. Further to this, vague statements such as that in Section 6.2.4, which states 'where required, these will be retained to serve as a rail maintenance access road…' are not considered appropriate by TRC. The draft EIS should categorically state which RMARs are permanent. This is required for	The draft EIS requires update to meet the requirements of the TOR, specifically 6.2, 6.3, 7.3 and 11.92. This should include, but is not necessarily limited to: - Figure 6.4 to clearly show the location of all RMARs. If required, this should include the creation of new figures at an appropriate scale to delineate where the access tracks will be located). - Update Table 6.9 to clearly identify which RMARs are permanent or temporary. - Update temporary and permanent disturbance footprint data in the document and drawings. *TRC request the OCG impose the following condition*: 'The proponent is required to consult with TRC regarding the

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		understanding temporary and permanent impacts (as required by TOR 6.2, 6.3, 7.3, and 11.92).	location and design of RMARs to identify appropriate sites for this infrastructure. At all times, all such infrastructure is to avoid the clearing of sensitive vegetation. Consultation with TRC is to include, but not be limited to, the provision of preliminary works and rehabilitation designs (developed by a suitably qualified and experienced person) and a clear commitment by the proponent to accept the financial responsibility of all construction and rehabilitation costs. Any agreement with TRC is to be reached in writing at least six months prior to the commencement of any construction activity.'
44	Section 6.2.9 (Land Requirements) Figure 6.4	**RMARS:** near Ch 18.5 km there is a section of track with seven (7) RMARs within an area of approximately 800 m of track length. It is not clear why this number of RMARs is required in this area. Further to this, the draft EIS does not discuss alternate locations for RMARs (or laydown pads) or justify RMAR (or laydown pad) locations other than providing a vague statement in Section 6.3.11 that 'RMAR's will be provided at frequent locations.'	As these sites are areas of increased disturbance, the draft EIS requires update to include a definitive discussion of the proposed locations of RMARs (and laydown areas), an assessment of alternate locations, justification for the number of RMARs and confirmation of proposed permanent locations in order to meet the requirements of TOR 6.2, 6.3, 7.3, and 11.92. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC regarding the location and design of RMARs to identify appropriate sites for this infrastructure. At all times, all such infrastructure is to avoid the clearing of sensitive vegetation. Consultation with TRC is to include, but not be limited to, the provision of preliminary works and rehabilitation designs (developed by a suitably qualified and experienced person) and a clear commitment by the proponent to accept the financial responsibility of all construction and rehabilitation costs. Any agreement with TRC is to be reached in writing at least six months prior to the commencement of any construction activity.'

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45	Section 6.2.9 (Land Requirements) Figure 6.4	**Laydown Pads:** there is a very large laydown area proposed near Ch 11 km. The area comprises highly variable topography and comprises ecologically significant vegetation and known koala habitat. The width of proposed clearing in this area ('EIS disturbance footprint') appears to be close to 400 m. There are areas within 400 m of this location and near the proposed western tunnel entrance that could support a laydown pad that would not require the clearing of sensitive vegetation. The draft EIS does not demonstrate how areas for laydown pads have been selected to avoid and minimise impacts.	The draft EIS requires update to meet the requirements of TOR 6.2, 6.3, 7.3, and 11.92 and to remove all references to locating laydown pads (and other such infrastructure) in areas which require the clearing of sensitive vegetation. The proponent should prioritise the use of existing disturbed areas to avoid and minimise impacts to ecological values. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC regarding the location and design of laydown pads (and other associated infrastructure) and to identify appropriate sites for this infrastructure. At all times, all such infrastructure is to avoid the clearing of sensitive vegetation and any areas of known koala habitat. Consultation with TRC is to include, but not be limited to, the provision of preliminary works and rehabilitation designs (developed by a suitably qualified and experienced person) and a clear commitment by the proponent to accept the financial responsibility of all construction and rehabilitation costs. Any agreement with TRC is to be reached in writing at least six months prior to the commencement of any construction activity.'
46	Section 6.3.4 (Tunnel Infrastructure)	**Lack of Detailed Information:** the draft EIS does not appear to estimate the electricity required for the operation of the tunnel, signals, water treatment plant, etc. Further, Section 6.3.4 states that Ergon Energy have been consulted regarding the necessary power supply however there is no discussion regarding the use of renewable energy.	The draft EIS should undertake detailed investigations into the opportunity to utilise renewable energy for tunnel operations, signals, water treatment plant, etc.
47	Section 6.3.5 (Project	**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	The draft EIS requires update to meet the requirements of the OCG's TOR and appropriately assess the adverse impacts

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	Disturbance Footprint)	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.'	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.
48	Section 6.3.13 (Fencing) Chapter 11 Section 11.5.8 (Precautionary Principle) Section 11.8.1 (Design Considerations) Appendix C (Design Drawings)	**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 fences 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 fences and passages aren't contained in Appendix C such as rail civil plan and profile or environmental design matters. 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 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.' 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 draft EIS requires update to identify and describe proposed fauna fencing and passage locations and incorporate 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. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC regarding all aspects of fauna fencing design, construction and location, and to reach written agreement with TRC regarding the achievement of high-quality and effective fauna fencing outcomes at least six months prior to the commencement of construction activities.'
49	Section 6.6 (Construction Activities)	**Lack of Detailed Information:** Section 6.6 appears to be a very limited effort in relation to the provision of information regarding proposed construction activities. This section provides only a token statement for each activity. The presentation of this information in this format results in no clear	The draft EIS requires updating to meet the requirements of the OCG's TOR including, but not limited to, the provision of clear detail and commitment regarding the correct treatment and disposal of waste, both solid and liquid, the provision of water

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		commitment or detail provided in relation to construction activities and their potential impact on the community and surrounding environment and is not considered sufficient to meet the requirements of the OCG's TOR.	supply, and utilising the waste products (where possible). The draft EIS should also include a discussion around both work camps and both permanent and temporary site offices when providing information relating to construction activities.
50	Section 6.6 (Construction Activities) Chapter 16 (Social) Section 16.11.7 (Housing and Accommodation)	**Lack of Identification of Appropriate Workforce Accommodation:** as per the B2G and Helidon to Calvert (H2C) EISs, there are issues associated within the draft EIS regarding temporary workforce accommodation. The housing and accommodation market in the TRC area has changed significantly since the analysis conducted for the draft EIS. Data published by SQM Research showed a rental residential vacancy rate in Toowoomba for August 2021 of 0.4%. Anecdotal evidence and commentary in local media indicates that the housing for sale in the TRC area is both reduced in availability and sale times are quite short. In addition, Section 6.6 states that there will be no need for an accommodation camp, which is not the case in the current market. Section 16.11.7 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 TRC area, however, current data would suggest that this is unlikely. While the draft EIS acknowledges the current record-low vacancy rate in the TRC area and the cumulative effects of other major construction projects in the area, it proposes that workforce share housing and that short-term accommodation will be sufficient however this is highly likely to further exacerbate the accommodation issues that the TRC area is currently experiencing. As such, the draft EIS needs to reconsider temporary construction workforce accommodation arrangements based on contemporary data and market conditions to meet the requirements of the OCG's TOR.	The analysis of short-term accommodation requirements and impacts on social infrastructure and the property market in the draft EIS needs to be reviewed to address the current housing availability situation in the Toowoomba region. This should include, but not limited to, consideration of: - The potential impact of the temporary construction workforce on residential accommodation (given current high demand and low rental vacancy rates). - How the low property vacancy rates in the TRC area will be considered and managed in a way which ensures the local community won't be adversely impacted. - The use of accommodation camp/s to reduce impacts on the local property market and residential property availability for member of the community. For example, whether it would be possible to use the proposed 1 000 bed 'COVID 19 Quarantine Facility' at the Wellcamp Airport to house the 264-personnel construction workforce (obviously pending the status of the COVID-19 pandemic at the time of construction). - The construction of permanent housing accommodation by the proponent for use during project construction and to be made available to the community once construction is complete.

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51	Section 6.6.4 (Hours of Work)	**Inappropriate Construction 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, based on other sections of the Inland Rail project and similar infrastructure projects of this scale, general construction hours are more likely to be 6.30am to 6pm Monday to Saturday and 6.30am to 6pm on Sundays and public holidays when there is likely no/minimal impact on sensitive receivers.	The draft EIS should update working hours to be more reflective of the likely construction hours. Construction contractors (particularly those with a large proportion of workers from outside the area) are highly 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. Further, the draft EIS needs to include a commitment to consult with TRC should construction hours be extended to 24/7 operations (as has been the case with other tunnel construction projects in Queensland). *TRC request the OCG impose the following condition:* 'Prior to the commencement of any change in construction work hours (from those defined in Section 6.6.4 of the draft EIS for the G2H section of Inland Rail), or the adoption of 24/7 work days, the proponent is required to consult with TRC regarding the change to work hours and to reach written agreement with TRC regarding the proposed change.'
52	Section 6.6.6 (Construction Water)	**Lack of Appropriate Identification of Construction Water Sources:** Section 6.6.6 nominates Cooby and Perseverance Dams as potential sources of supply for construction water, despite TRC advising the proponent on many occasions that this is town water and will not be available to the proponent for construction. In addition, the draft EIS states that a concrete batching plant will be located near the entrance to the western tunnel, and that potable water will be	The draft EIS requires amendment to meet the requirements of the OCG's TOR by accurately identifying construction water requirements and sources. The proponent's construction water supply strategy must remove reference to access and use of any TRC water resources as this will not be permitted by TRC.

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		sourced from a proposed new water pipeline along Ganzer Morris Road which will connect to the TRC water network. TRC prioritises town water supply above any proposed project and the proposal to use any of these water sources for construction water purposes is not acceptable to TRC. This has already been discussed by TRC with the proponent's project team on several occasions. *At no time has the proponent made an agreement with TRC to access and use TRC water sources*. As such, the draft EIS fails to meet the requirements of TOR 5.1 as construction water sources have not been accurately identified or assessed.	*TRC request the OCG impose the following condition*: 'The proponent is required to identify and utilise water sources which are not associated with TRC town supply for use for the construction of the proposed project. At no time is the proponent (or its construction contractor) to access TRC's town water supply for use during construction activities.'
53	Section 6.6.7 (Laydown, Stockpile and Storage Areas)	**Laydown Areas:** Section 6.6.7 identifies a number of laydown areas for construction of the proposed project however the locations of these sites have not been included on any corresponding figure. In addition, it appears that the majority of these sites are located on private property. From a review of Chapter 16 (Social), it is not apparent that any consultation has occurred with private owners of land where the draft EIS proposes to construct laydown areas and as a result, the document fails to meet the requirements of the OCG's TOR. Such consultation could result in a number of sites becoming unavailable or possibly shifted to a different location and therefore needs to be completed by the proponent.	The draft EIS requires updating to meet the requirements of the OCG's TOR and to commit to appropriate consultation with the landholders where private land is proposed to be used for laydown areas should occur as a matter of priority. Laydown areas should also be appropriately identified on a map in the draft EIS to provide context and transparency. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with landholders and TRC regarding the location and design of laydown pads (and other associated infrastructure) and to identify appropriate sites for this infrastructure. At all times, all such infrastructure is to avoid the clearing of sensitive vegetation. Consultation with TRC is to include, but not be limited to, the provision of preliminary works and rehabilitation designs (developed by a suitably qualified and experienced person) and a clear commitment by the proponent to accept the financial responsibility of all construction and rehabilitation costs. Any agreement with TRC

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			is to be reached in writing at least six months prior to the commencement of any construction activity.'
54	Section 6.6.7 (Laydown, Stockpile and Storage Areas) Table 6.14 Section 6.6.8 (Fuel and Hazardous Material) Table 6.15	**Impacts of Flooding on Proposed Laydown Areas:** TOR 11.67 and TOR 11.68 requires the draft EIS to assess how the project may change flooding characteristics and consider all infrastructure associated with the project. TOR 11.71 requires the proponent to describe all proposed measures to avoid or minimise risks to life, property, infrastructure, community and the environment. The two laydown areas proposed for Krienke Road appear to be located within an overland flowpath between Gowrie Junction Road and the QR West Moreton rail line, potentially with fuel storage located at one of these laydown areas. This is not acceptable to TRC.	The draft EIS requires updating to meet the requirements of the OCG's TOR and to appropriately consider the locations of the two Krienke Road laydown areas and their potential impact from, and the risk associated with, the potential of these areas to be adversely affected by overland flows.
55	Section 6.6.7 (Laydown, Stockpile and Storage Areas) Chapter 21 Section 21.7.1.1 (Spoil Management Strategy) Appendix P (Operational Railway Noise and Vibration)	**Proposed Permanent Stockpile:** Section 6.6.7 states that a proposed large laydown will be developed near the western entrance to the tunnel to support tunnelling activities, including a permanent stockpile area. The section goes on to state that the stockpile will aim to mitigate noise and visual impacts during construction and operation but provides no detail regarding how this is expected to occur. Section 21.7.1.1 identifies a number of spoil reuse options with noise attenuation mounds and/or landscaping mounds being one of eleven options. Appendix P notes that predicted noise levels would be above assessment criteria at 32 sensitive residential receptors and Gowrie State School by 2040 and goes on to say that even with at property controls, noise criteria would be exceeded at exterior areas of these receivers. Our review of the noise assessment suggests that the noise impacts have been **grossly**	Stockpiling spoil is not an acceptable outcome with respect to visual amenity and presents a missed opportunity for reuse for other purposes. The draft EIS requires update to meet the requirements of TOR 5.1 and to include detailed investigations into better use of project spoil, such as earthen mounds for noise management for example. TRC will not accept stockpiling spoil by the proponent for any reason or at any time. *TRC request the OCG impose the following condition:* 'The permanent stockpiling of spoil by the proponent (or its construction contractor) is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes including but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the

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		underestimated and that the numbers of receptors that will experience sleep disturbance are greater than 600. The proposed permanent stockpile presents significant visual amenity impact and also a missed opportunity by the proponent to utilise this material to assist with noise mitigation along the corridor. TRC do not consider a permanent spoil stockpile to be an acceptable outcome.	use of spoil at least six months prior to the commencement of construction activities.'
56	Section 6.6.7 (Laydown, Stockpile and Storage Areas) Appendix T Section 3.2 (Tunnel Spoil Stockpile)	**Permanent Stockpile Location:** TOR 10.11(p) requires the proponent to describe the landscaping and the rehabilitation of affected areas after construction. The draft EIS proposes a permanent stockpile approximately 600m x 200m and up to 6-7 m high of compacted tunnel spoil at the large laydown area (G2H-LDN003) at the western entrance to the tunnel. This stockpile is proposed to be located on land of interest to Council for the future extension of Boundary Street to serve its developing Northern Communities, and as such, may potentially hinder and/or increase the cost of delivering that project in the future, and/or providing an opportunity to re-use material suitable for roadworks in that future project.	The draft EIS requires update to meet the requirements of the OCG's TOR and to ensure that spoil stockpiles do not impact on potential future road corridors, and to appropriately consider how spoil can be utilised in ways which benefit the community, for example, using appropriate spoil to provide noise mitigation to local sensitive receptors or appropriately managing materials suitable for future re-use in road or other projects. At all times, high quality landscape outcomes are required and TRC will not accept the proponent permanently stockpiling spoil. *TRC request the OCG impose the following conditions*: 'The proponent is required to consult with TRC regarding preserving Council's ability to deliver the future extension of Boundary Street, and to reach written agreement with TRC in relation to all issues at least six months prior to the commencement of any construction activities.' and 'The permanent stockpiling of spoil by the proponent (or its construction contractor) is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is

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			required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'
57	Section 6.6.14 (Construction Traffic) Appendix T Section 4.1 (Haul Routes)	**Haul Routes and Proposed Closure of Morris Road:** TOR 11.110 requires the proponent to provide sufficient information to allow an independent assessment of how existing and proposed transport infrastructure will be affected by project transport at the local and regional level. The draft EIS proposed to use Morris Road as a mass haul route in the vicinity of the western entrance to the tunnel. However, the document also proposes to close Morris Road and take over the alignment for construction of its proposed project.	The draft EIS requires updating to meet the requirements of TOR 11.110 and to clarify haul routes in the vicinity of the western tunnel given the proponent's proposal to close Morris Road and other local roads.
58	Section 6.6.15.3 (Erosion and Sediment Control Basins) Table 6.18 Chapter 13 Section 13.9.1 (Surface Water Quality) Table 13.31 Appendix C (Design Drawings) Drawing Set C (Environmental Design Matters)	**Location of Proposed Erosion and Sediment Control Basins:** TOR 11.48 requires the proponent to describe appropriate management and mitigation strategies and provide contingency plans for stormwater run-off from project facilities and associated infrastructure during construction and operation, including the use of best practice erosion and sediment control practices. The draft EIS proposes three sediment basins on drainage lines discharging directly into Gowrie Creek. From Appendix C, the proposed basin at Ch 1.0 km would be impractical because there is no land available between the QR alignment and Gowrie Creek to site this basin. The siting of the proposed basin on the major flow path at Ch 3.7 km is not specified but it would not seem to be best practice to locate a sediment basin on such a major flow path due to the risk of frequent flow events damaging the basin and/or removing sediments from the basin (if basins are located on drainage lines as proposed). As a result, the draft EIS fails to meet the requirements of TOR 11.48.	The draft EIS must be revised and updated to meet the requirements of TOR 11.48 and to clearly demonstrate that the proposed locations of erosion and sediment control basins are achievable in practice and that they represent best erosion and sediment control practice. Any erosion and sediment control basins required to manage adverse impacts to land or water from the proposed project should consider visual amenity and include landscaping. At all times, high quality landscape outcomes are required. *TRC requests the OCG impose the following condition:* 'The proponent is required to work in consultation with TRC regarding the use and location of any proposed erosion and sediment control basins required to facilitate the minimisation of adverse impacts to land or water as a result of the proposed project. All changes to the landscape as a result of such infrastructure is required to take into consideration visual and

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	DR-1001 Sheet 1 DR-1002 Sheet 2		landscape amenity. The proponent is required to reach written agreement with TRC regarding the construction, location, and landscaping of all proposed erosion and sediment control basins at least six months prior to the commencement of construction activities.'
59	Section 6.6.16 (Civil Works)	**Lack of Detailed Information:** 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 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, including, but not limited to, transport routes etc.
60	Section 6.8.1 (Design Criteria) Section 6.9.3 (Train Operations)	**Incomplete Impact Assessment:** 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). Section 6.9.3 states that it is anticipated that an average of 33 trains per day will travel through the TRC area commencing in 2026. This will increase to an average of 47 services per day in 2040. 47 double stacked trains at 3.6 km long through rural and residential areas such Cotswold Hills, Torrington North, Charlton and Gowrie will have a significant impact on the environmental, social and amenity values of these areas. As such, the document fails to meet the requirements of TOR 5.1 as the assessment of proposed services and changes to the community in 2040 has not been appropriately assessed.	Further detailed investigation into the social and amenity impacts of the Inland Rail project on rural and residential areas such as Cotswold Hills, Torrington North, Charlton and Gowrie is required to ensure the balance between social and amenity impacts on rural residential areas has been achieved and in order to meet the requirements of the OCG's TOR.
61	Section 6.10 (Waste Disposal) Chapter 23 Appendix T (Spoil Management)	**Profiling and Vegetating of Excessive Spoil:** TOR 11.166 requires the draft EIS to 'describe potential spoil disposal sites and their ability to service the project.' The draft EIS outlines how spoil stockpiles to be located on a large area of land to the north-west of western tunnel entrance and that all useable rock and rubble to be utilised in the construction of the proposed project or other nearby developments. The document then proposes that remaining spoil will be left on site and profiled and revegetated.	The draft EIS requires update to meet the requirements of the TOR and to commit to using the spoil in a beneficial way. At all times, high quality landscape outcomes are required. TRC will not accept the proponent permanently stockpiling spoil for any reason or at any time.

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		Appendix T states that 'the stockpile is estimated to be 600 m x 200 m, and up to 6 m high. The stockpile will be profiled and vegetated for the purposes of soil/material stabilisation and to mitigate amenity impacts (e.g., noise and scenic amenity) during construction and operations.' The proposed stockpile size represents a large surface area of earthworks which may remain exposed until revegetation has stabilised the material (note, elsewhere in the document, the height is stated to be up to 7 m). This creates a potential dust risk and surface erosion of loose spoil fines in storm events. Such an extensive stockpile represents a significant visual impact in a rural setting. Further, the revegetation of such a highly disturbed and potentially unsuitable soil profile will be difficult and plant growth is likely to fail or be retarded. As a result, the draft EIS fails to meet the requirements of TOR 11.166 (in that it fails to describe the ability of the spoil stockpile to service the project) and TOR 5.1, which requires the document to 'recommend mitigation measures to avoid or minimise adverse impacts.'	*TRC request the OCG impose the following condition:* 'In relation to spoil, the proponent is required (in consultation with TRC) to identify appropriate sites in the TRC region where such spoil may be used (including, but not limited to, areas in the TRC region which may require rehabilitation and areas which may require abatement of adverse impacts directly related to the proposed project). This should include, but not be limited to, the provision for preliminary works and high-quality rehabilitation designs (to be completed by a suitably qualified and experienced person) and a clear commitment by the proponent to accept the financial responsibility of all construction and rehabilitation costs, including the appropriate use of excess spoil. Any agreement with TRC is to be provided in writing at least six months prior to commencement of construction activities.' and 'The permanent stockpiling of spoil is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'

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		Chapter 7: Sustainability	
62	Section 7.5 (ARTC Policy and Commitments) Table 7.3	**Future proofing:** the TOR Transport Objective (c) requires the proponent to ensure any required works are compatible with existing infrastructure and future transport corridors. The proponent's draft commitments to future-proofing the proposed project in the long term and incorporate future demand requirements only acknowledges future increased demand for rail freight. It is in the public interest that the draft EIS consider that the G2H section of Inland Rail remove a critical bottleneck in the long-distance rail network, not just for freight rail but for *all* rail requirements. The original alignment of rail which crosses the Great Dividing Range at Toowoomba causes significant delays which make current high-speed passenger rail uncompetitive. With a major project business case underway for a faster Toowoomba to Brisbane	The draft EIS requires update to meet the requirements of TOR Transport Objective (c) by appropriately considering the future proofing for sustainability in the category of 'excellence' would include considering high-speed passenger rail access in the vicinity of the western tunnel entrance. Considering the growth in Toowoomba's urban areas closest to the proposed project's Gowrie termination, there may be a future requirement for passenger access to the rail infrastructure. This would advance both local and regional economic and social benefits. The draft EIS should also be updated to give appropriate consideration to future access to the rail at Charlton/Gowrie as adjacent land use also includes a regional passenger airport.

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		rail connection and the Inland Rail project removing a rail bottleneck, the draft EIS has missed an opportunity to value-add for local and regional communities and therefore fails to meet the requirements of Transport Objective (c). Furthermore, the proponent proposes to use the Gowrie to Grandchester futures state transport corridor which was set aside for future high-speed passenger rail use. In addition to this, the proponent has only adopted a ten (10) year development horizon for the design of the proposed project. TRC believes that the proponent's current short design horizon does not adequately cater for the planned future growth in the local area, nor does it allow TRC or the community sufficient confidence that the adverse impacts of the proposed project will be addressed with best-for-community or future-proofing solutions and outcomes, particularly given that TRC's planning looks well beyond a ten-year timeframe.	Further, given TRC's future planning for Gowrie Junction and the Northern Communities area, the draft EIS requires update to commit to a much longer and more appropriate design horizon (to 2050 as a minimum) in order to ensure network connectivity is maintained, growth is enabled and adverse impacts to local services are minimised. 'The proponent is required to develop a design horizon (to 2050 as an absolute minimum) and to work with, and reach written agreement with, TRC to ensure TRC's network connectivity is maintained, growth is enables and adverse impacts to local services is minimised in a way which ensures there is no significant residual impact to the TRC Region or its community. The proponent is required to reach written agreement with TRC at least six months prior to the commencement of any construction activities.'
63	Section 7.1 (Summary)	**ISRS Rating:** TOR 5.1 states that 'The EIS should demonstrate that the project is based on sound environmental principles and practices'. The Principle of Sustainability is a key principle in consideration of environmental, social, economic and governance matters. The draft EIS claims that 'during the development of the design, a broad range of sustainability initiatives have been identified and incorporated into the project. These opportunities and initiatives will contribute towards achieving an infrastructure Sustainability (IS) rating…' and … 'will contribute to the Inland Rail Program's target of achieving an 'excellent' rating.'. This is a middle rating on a scale of 'Commended, Excellent, Leading'. If seeking to demonstrate sustainability leadership, the target should be for a rating of 'Leading'.	The draft EIS should be amended to meet the requirements of TOR 5.1 through the provision of a clear commitment to a 'role in demonstrating sustainability *excellence*' in keeping with the rating target and to reflect the level of consideration given to sustainability matters in the draft EIS at the planning stage (in line with the current Infrastructure Sustainability Council of Australia's (ISCA) Rating System (ISRS)). It is in the public interest that the draft EIS be amended to provide more robust sustainability commitments including considering the more up to date ISRS Version 2.0 as a better fit for major and complex projects with many phases of development (such as the proposed project).

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		Further, the draft EIS uses Version 1.2 of the ISRS, rather than the current Version 2.0 that has been available since July 2018 and includes the opportunity to rate the planning phase of the proposed project.	*TRC request the OCG impose the following condition*: 'The proponent is required to aim for a sustainability target of 'Gold' as defined in Version 2.0 of the ISCA ISRS.'
64	Section 7.5 (ARTC Policy and Commitments) Section 7.7 (Sustainability in Design) Section 7.8 (Future Sustainability Opportunities) Section 7.9 (Conclusion)	**Vague Sustainability Commitments:** commitments provided in Section 7.7 and 7.8 to reduce greenhouse gas emissions (along with other adverse environmental impacts) are framed in vague and general terms i.e., statements such as 'seeking opportunities to reduce…' As a result, the draft EIS fails to meet the requirements of TOR 7.4, which requires commitments to be 'able to be carried over into the approval conditions…' Section 7.9 should also reiterate an absolute commitment to responding to the impacts of climate change and an overriding imperative to reduce greenhouse emission in both construction and operational activities.	The draft EIS requires update to meet the requirements of TOR 7.4 and to strongly recognise and commit the proposed project to strive for zero net emissions in all aspects of construction and management activities and to minimise embodied carbon in materials used e.g., concrete and steel to *as low as reasonably practicable*. Commitments should be clear, real and appropriate to ensuring the effective reduction in climate change effects and greenhouse gas emissions.
65	Section 7.7 (Sustainability in Design)	**Future proofing:** Table 7.4 of the draft EIS references the consideration of future asset requirements to 'not preclude opportunities for adjacent land use or business to access the Inland Rail corridor in the future'. It is not clear whether this includes future requirements for the rail infrastructure beyond the design for freight movement to consider future high-speed passenger rail requirements. Review of the document gives the reader the clear impression that not only will high-speed passenger rail effectively be precluded from using the proposed alignment (through the lack of appropriate consideration of the ability to provide infrastructure to service high-speed passenger rail on the alignment), but that it will no longer be possible to co-locate high-speed passenger rail in the Gowrie to Grandchester future state transport corridor. As a result, the draft EIS fails to meet the requirements of the TOR's Transport Objective (c) which requires the draft EIS to 'ensure any required works are compatible with	The draft EIS requires update to meet the requirements of the OCG's TOR through the consideration that future proofing for sustainability in the category of 'excellence' would include considering access to high-speed passenger rail in some form, and specifically, before the western entrance to the proposed tunnel. Considering the growth in Toowoomba's urban areas are closest Gowrie, there is a future requirement for passenger access to the rail infrastructure. The consideration of high-speed passenger rail on the proposed alignment would advance both local and regional economic and social benefits. The draft EIS should also give consideration to future access to the rail at Charlton / Gowrie as adjacent land use also includes a regional passenger airport.

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		existing infrastructure and future transport corridors.' Compatibility should not be limited to locating a freight alignment in a corridor originally set aside for high-speed passenger rail services. In addition, the proposed project fails to enable passenger services on the freight alignment and therefore potentially precludes the future provision of passenger services in the corridor. It is in the public interest that the draft EIS appropriately consider the proposed project in a way which removes a critical bottleneck in the long-distance rail network, not just for freight rail but for *all* rail requirements. The original alignment of rail which crosses the Great Dividing Range at Toowoomba causes significant delays which (in line with the draft EIS argument against using the original alignment for freight), make current high-speed passenger rail on the original alignment impossible. With a major project business case underway for a faster Toowoomba to Brisbane high-speed passenger rail connection (fully supported by both the State and Federal governments) and the Inland Rail project removing the rail bottleneck, the proponent has missed an opportunity to value-add for local and regional communities.	In addition to this, the draft EIS should be amended to appropriately consider the relationship to other major projects such as the Federal Government's 'Toowoomba to Brisbane Passenger Rail Business Case' and that the design and construction of the proposed project link (spur line) should not preclude future capacity for passenger movements on rail, including, but not necessarily limited to, the safe travel of passengers through the tunnel (either on the proposed alignment or through the provision of enough space through the tunnel to enable the co-location of a passenger alignment in the tunnel). The design of the tunnel should not otherwise interfere with the proposed tunnel also being used in the future to facilitate high-speed passenger rail movement (e.g., via the co-location of a high-speed passenger rail alignment in the proposed tunnel).
66	Section 7.7 (Sustainability in Design)	**Incomplete Consideration of Climate Impacts:** Table 7.4 of the draft EIS fails to mention heat wave as another potential climate risk and as a result, fails to meet the requirements of TOR 11.164. Studies have shown a higher risk in TRC from heat wave due to the heat island effect on the bare agricultural plains that the proposed rail infrastructure proposes to traverse. Experience in Victoria has shown that heat waves have a moderate to high impact on rail infrastructure compared to road infrastructure. Further, the document also fails to consider major storm, cyclone or Probable Maximum Flood (PMF) events.	The draft EIS requires amendment to include a discussion regarding the appropriate consideration of the likelihood and impact of heat waves on the sustainability of the proposed rail infrastructure and the safety of rail operations during heat waves. The document also requires update to include discussions surrounding major storm events, cyclones or PMF events, in order to meet the requirements of TOR 11.164.

#	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?*
		Chapter 8: Land Use and Tenure	
67	Chapter 8 Figure 8.1 Section 8.2 (Scope of Chapter) Section 8.6.1 (Land Tenure) Figure 8.3 a-e Appendix V (Impacted Properties)	**Lack of Appropriate Identification of Freehold Land:** freehold land is not illustrated on Figure 8.1 or indeed on any map in the draft EIS. The only indication residents may have of whether their property will be affected is to go to Appendix V and then try to find their property amongst the many Lot on Plan numbers. Obviously, residents will need Lot on Plan details in order to do this. Some (such as rental property residents) may not have this information and are therefore unable to identify whether or not their property will be affected. This is not considered to be appropriate. Further, 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 clearly illustrate adverse impacts to freehold properties. Section 8.6.1 states the proposed alignment will be located 'predominantly freehold ~81%' … and that … 'tenure, *other than freehold*, within the land use study area is depicted on Figure 8.3a-e.' The draft EIS is upfront about the exclusion of freehold tenures from these figures but provides no reason as to why this has occurred. At no time does TRC consider it appropriate to exclude the illustration of this information from the figures contained in this chapter. As a result of this exclusion, 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 explicit detail on land tenure that can be readily understood by the general public. The document should also be updated to detail consultation with individual landowners (and residents) who will be impacted by the proposed project, including the provision of specific outcomes in relation to this consultation.
68	Section 8.7.2.2 (Notable Land Use) Table 8.31	**Lack of Identification of Water Supply and Use:** being a market garden (Birdsong Market Garden, Lot 1 on SP140208), it is possible that their supply of water is sourced from more than just tanks as they do not have a mains supply connection. If it is a bore, it may not have required being registered at the time of construction. The draft EIS should include a discussion regarding how this bore will be impacted by the tunnel and how the potential loss of water will be managed by the proponent.	The draft EIS requires update to consider how landholder bores will be impacted by the tunnel, and to include the details of all consultation with landholders regarding water supply and remediation measures. This should also include the provision of clear and defined commitments regarding the protection of landholder's water supply.

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69	Section 8.8.4 (Impacts on Services and Utilities)	**Lack of Consideration of Impacts from Proposed Project on Existing Infrastructure:** to meet the requirements of TOR 5.1, the draft EIS should consider potential impacts to the Millmerran water pipeline from Wetalla to the Millmerran Power Station, and all TRC water and wastewater infrastructure. There is more TRC water and wastewater infrastructure which will potentially be affected by the proposed project than just a sewer rising main. The Inland Rail Phase 2 – Gowrie to Helidon Feasibility Design Report (Future Freight, 2020) identifies 204 utility impact locations, 31 of those are TRC assets.	The draft EIS requires update to meet the requirements of TOR 5.1 and to consider all infrastructure which will potentially be impacted by proposed project activities. The proponent should consult with asset owners and include in the draft EIS: - All infrastructure utility impact locations in Section 8.8.4 (and elsewhere in the document as appropriate). - The outcomes of all consultation with utility owners. - Clear and defined commitments to mitigate proposed impacts to existing infrastructure to ensure there will be *no significant residual impact* as a result of the proposed project.
70	Section 8.9.1 (State Planning Policy) Section 8.9.3 (*ShapingSEQ* South East Queensland Regional Plan 2017) Chapter 16 Table 16.2 Table 16.15 Section 16.14.1 (Distributional Equity)	**Provision for Future Railway Stations:** the draft EIS fails to meet the requirements of the following: TOR11.138(c), 11.141, 11.144, 11.145(g), 11.146(e). The planning policies and strategies cited in Table 16.2 of the draft EIS call for: - Facilitating Public Transport Infrastructure - *SPP 2017 (Qld).* - Focusing growth in areas with … access to public transport - *SEQ Regional Plan 2017.* - Connectivity; Infrastructure supporting connectivity – *RDA Darling Downs South West Roadmap.* - An integrated passenger transport system… - *Our Community Vision – Toowoomba Regional Community Plan (TRC 2014b).* Although the TOR does not require the clear inclusion of proposed railway stations or passenger services, nevertheless positive provision should be made for the opportunity to provide future railway stations in the vicinity of Gowrie Junction and an extension to Boundary Street (as previously discussed) in order to be consistent with the intent of the cited strategies to	The draft EIS requires updating to ensure provision is made for future passenger railway services, including high-speed passenger rail to Brisbane by committing to: - Land acquisition and allocation as sites for potential railway stations and all associated infrastructure (such as car parks and pedestrian and vehicular access). - Design of the railway corridor to provide adequate and suitable areas for railway stations, including car parking and rail access to Wellcamp Airport. - Design of the track layout to allow for potential passenger trains to access such future railway stations. - Provisions for the road network to access these areas. Provision of this information will ensure the draft EIS adequately addresses the OCG's TOR regarding future passenger rail services.

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	Chapter 22 (Cumulative Impacts)	facilitate public transport infrastructure and to meet the requirements of the OCG's TOR. A Boundary Road extension station would provide access to for residents north and west of Toowoomba to potential future high-speed passenger rail to Brisbane. A Gowrie Junction Railway Station would provide current and future residents of the surrounding area with access to high-speed passenger rail to Brisbane, and a future inter-urban passenger rail (using the existing QR alignment) to potentially provide passenger rail services connecting other outlying towns including Kingsthorpe, Oakey, and even Dalby, to the Toowoomba CBD, and to any proposed high-speed Toowoomba-Brisbane service. Both stations should also provide for access to any future passenger service to Wellcamp Airport through the utilisation of the proposed Inland Rail alignment. The potential for future passenger rail services could be seen as a positive residual impact of the proposed project, offsetting some of the less benign aspects and provide the community with some certainty regarding the proponent's consideration of appropriate mitigation, commitments and community consultation.	Further, Section 16.14.1 of the draft EIS should be updated to include opportunities for future passenger rail services, including high-speed passenger rail to Brisbane. The draft EIS should adjust the statement …'does not preclude a high-speed passenger service at a future date.' to '…enhances the opportunity for high-speed and other passenger services at a future date' by providing capacity for future railway stations' and the draft EIS amended elsewhere accordingly.
		Chapter 9: Land Resources	
71	Chapter 9 Section 9.7.1 (Permanent Change to Landform and Topography) Table 9.25	**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 proposed project is 28 km of new rail from Gowrie to Helidon. About 5 km of the new rail will run parallel to the existing QR West Moreton Rail System. Most of the alignment (some 23 km including 6.4 km of tunnel) will not be near any existing rail infrastructure. As a result, the proposed project will require significant earthworks and changes to the landform and topography (refer Section 9.7.1). However, Table 9.25 states	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. At all times, high quality landscape outcomes are required by TRC.

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	Section 9.11 (Conclusions) Appendix T (Spoil Management Plan)	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 that '…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 of the tunnel (about 5 km) and does not reconnect to this corridor or any other existing rail network. These statements/descriptions about the proposed project are incorrect, potentially misleading and conflict with other related parts of the draft EIS. Table 9.25 also states that the quantity of spoil has been reduced to achieve as close to a net balance as is practicable. Section 2 of Appendix T states that the proposal is estimated to generate 3.1 million cubic metres of spoil, of which there will be an excess of 1 million cubic metres. More than 30% of the spoil is not proposed to be reused. Throughout the draft EIS it is stated that most of the spoil will be generated by the tunnel, and it is proposed to be placed into a permanent stockpile near the western entrance to the tunnel. The wording in Table 9.25 is potentially misleading by suggesting the design has come close to achieving a net cut/fill balance and does not accurately describe the potential impacts of the project in relation to spoil and its management.	*TRC request the OCG impose the following condition*: 'The permanent stockpiling of spoil is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'
72	Chapter 9 Table 9.21 Table 9.25 Table 9.26 Table 9.27 Chapter 14 (Groundwater) Section 14.7.4	**Inadequate Assessment and Mitigation Measures for Risk of Soil Salinity Impacts:** changes to landscape salt mass balances and movement from the project could 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 include deep cuttings, removal of vegetation, altering	The OCG should request that the proponent complete a more detailed salinity risk assessment 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.

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	(Operational Phase Potential Impacts)	waterways and their hydrologic regimes, lowering and raising groundwater levels. The overall salinity hazard for the proposed project was rated as *medium* to *high* in Table 9.21. However, the impact risk assessment in 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*). The initial mitigation measures provided 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 in Chapter 9). Table 9.26 included subsequent mitigation measures *that will be determined during detailed design* 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 and as a result, the draft EIS fails to meet the requirements of TOR 5.1. For example, the salinity assessment and mitigation measures provided in Chapter 9 do not address: - Risk of raised groundwater levels in shallow, compressible alluvial soils from embankments and constructions near Gowrie, Oaky, Rocky, Six Mile and Lockyer Creeks (Section 14.7.4). 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. - Changes to hydrological regimes of watercourse through dewatering of cuttings and the tunnel. Discharge from the tunnel will be directed to Rocky Creek (eastern end) and Gowrie Creek (western end) turning them from ephemeral to perennial streams. Table 9.26 states that avoiding alteration to waterways is a proposed salinity risk mitigation	

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		measure. However, Chapter 9 does not address the salinity risk presented by the proposed hydrologic changes to impacted creeks. How the change from occasional to permanent water flow in creeks may affect salinity movement is unaddressed. Like the effects of stream sediment loading described by Shaw (2008) this increased wetted area and hydraulic pressure in the creeks may cause a reduced hydraulic gradient and allow groundwater levels to increase through reduced inflows/discharge to creeks. Additionally, leakage into local groundwater systems through the creeks could further increase groundwater levels.	
73	Chapter 9 Table 9.26 Chapter 10 Table 10.60 Appendix F (Proponent Commitments) Appendix H (Landscape and Visual Impact Assessment) Appendix T (Spoil Management Plan)	**Permanent Spoil Stockpile:** the spoil from the tunnel is estimated to be 730 000 m^3. It is proposed to be placed into permanent stockpile near the western entrance to the tunnel. The estimated dimensions are 600 m x 200 m and up to 7 m tall. The stockpile will cover an area of more than 15 football fields and be about 2 storeys tall. This will be significant new visual feature in the existing landscape. However, the mitigation measures in Table 9.26 of Chapter 9 state that volume, characteristics, and fate of spoil from the tunnel cannot be estimated with accuracy due to the variable nature of geological conditions. It then suggests that the final volume of spoil to be placed in the permanent stockpile may only be known during construction and based on an assessment of the material that is excavated at the time. As there is no accuracy to the current estimate, it is possible that the volume of material placed in the permanent stockpile could be much greater or much less. The landscape visual amenity impact of the proposed permanent stockpile cannot be accurately assessed given the lack of confidence in the current estimate of the spoil volume. Furthermore, Table 9.26, Table 10.60 and Appendix F make no commitments explicitly in relation to the permanent stockpile and how it will be managed to reduce visual amenity impacts.	The landscape and visual amenity section of the draft EIS needs to be reviewed and updated to meet the OCG's requirements and to provide further detail regarding the potential visual impacts of the permanent spoil stockpile and the proposed mitigation measures to reduce those impacts. At all times, high quality landscape outcomes are required by TRC. *TRC request the OCG impose the following conditions*: 'The permanent stockpiling spoil of is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'

#	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?*
		Chapter 10 includes statements such as '…it is expected that the mound would be shaped to suit the landscape and vegetated.' Neither Chapter 10 or Appendix H include any meaningful visualisations or descriptions of proposed mitigation measures. The potential landscape amenity impacts of the permanent spoil stockpile have not been adequately assessed in the draft EIS and therefore the document fails to meet the requirements of TOR 5.1 as the final size of the stockpile is unknown, the lack of confidence in current estimates, the lack of robust commitment regarding the mitigation measures that will be implemented to reduce the potential impacts from this stockpile. This is not considered to be acceptable by TRC.	
		Chapter 10: Landscape and Visual Amenity	
74	Chapter 10 Chapter 11	**Significant, Permanent and Unacceptable Adverse Impacts (Landscaping and Rehabilitation):** TOR 10.11 requires detail regarding the landscaping and the rehabilitation of affected areas after construction and during operation while TOR 11.93 requires the inclusion of measures to avoid, minimise or mitigate potential impacts in natural values. If the proposed project is completed in its current form, three areas of land will be significantly and permanently changed with regard to the visual and actual impact of new infrastructure and residual isolated pockets of public land namely: 1. A triangle at the junction of the B2G and G2H projects at the junction of the proposed Inland Rail alignment with the QR alignment. There is a complex interaction in this location including: - Gowrie Creek, which is subject to regular flooding.	The draft EIS requires update to meet the requirements of the OCG's TOR and to include an outline of proposed rehabilitation, landscaping, and measures to avoid, minimise and mitigate impacts on natural values for: 1. The area encompassing the junction of the proposed B2G and G2H projects and the junction with the QR corridor. 2. The area of land along Gowrie Creek at Gowrie Junction that will become isolated by the proposed grade separated Gowrie Junction Road bridge-over-rail-road-waterway (Gowrie Creek). 3. The triangle of land proposed to be bounded by the QR alignment, the proposed project alignment and the spur line connection to the west of the proposed tunnel entrance.

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		- An existing grade separated crossing of Gowrie Creek and a local road (beside the QR alignment). - Unsealed and unformed roads. - Degraded and eroded riverine landscapes. Some thought and design should go into providing appropriate rehabilitation and development of this area in order to meet the requirements of TOR 10.11 and TOR 11.93, including, but not necessarily limited to, traffic interaction with the two alignments. 2. An area of land along Gowrie Creek at Gowrie Junction that will become isolated by the proposed grade separated Gowrie Junction road-over-rail-over Gowrie Creek bridge. This area has potential to become public parkland or be replanted as a bushland reserve along the Gowrie Creek and should be considered an opportunity to provide the local community with greenspace. 3. A triangle of land between the existing QR rail corridor and the proposed alignment (approaching the tunnel), and the proposed spur connecting the tunnel to the existing line. Any proposed landscaping visual and flora features of this area should be considered and described within the draft EIS as it has potential to be planted to native species that could nurture fauna species including Koalas.	For all areas and at all times, high quality landscape outcomes are required by TRC. *TRC request the OCG impose the following condition*: 'The proponent is required to work with TRC to reach agreement regarding the rehabilitation, landscape, and future use of: 1. The area encompassing the junction of the proposed B2G and G2H projects and the junction with the QR corridor. 2. The area of land along Gowrie Creek at Gowrie Junction that will become isolated by the proposed grade separated Gowrie Junction Road bridge-over-rail-road-waterway (Gowrie Creek). 3. The triangle of land proposed to be bounded by the QR alignment, the proposed project alignment and the spur line connection to the west of the proposed tunnel entrance. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'
75	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.

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76	Section 10.3 (Policies, Standards and Guidelines) Table 10.2	**Out of Date Australian Standard:** TOR 5.4 require the draft EIS is to be generally in accordance with relevant policies, standards and guidelines.' Table 10.2 references an outdated Australian standard for obtrusive light and requires amendment. There have been significant changes to the new edition of this standard. 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 this EIS) are: - The 1997 edition is a guidance document whereas the 2019 edition specifies requirements. - Classification of environmental areas has been expanded to include environmentally sensitive areas and better align the categories to international standards. - 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. To meet this requirement, AS/NZS 4282 requires updating. The contents of this new standard may necessitate revision of the Lighting Impact Assessment and methodology.	The draft EIS requires update to appropriately consider the use of AS/NZS 4282:2019 for obtrusive light and to meet the requirements of TOR 5.4. This may require a revision of the lighting impact assessment, including the methodology, mitigation measures and proponent commitments.
77	Section 10.4 (Methodology) Table 10.3	**Inappropriate Assessment of Obtrusive Light:** 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 described in Section 10.4 does not address the full impact of obtrusive light at night and does not	In order to meet the requirement of TOR 11.82 and to properly consider the effects of obtrusive light at night, the lighting assessment methodology requires update to include consideration of all potential instances of direct view of light sources (obtrusive light), particularly to the private viewpoints

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		adequately include critical private viewpoints that are most sensitive to this issue. From the draft EIS, the lighting assessment was carried out based on analysis of representative viewpoints identified through visual assessment' … and… 'the significance of lighting impact in each representative viewpoint was then made…' 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). 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.	from residences adjacent to the project during construction and operation.
78	Section 10.4.2 (Significance Assessment Criteria) Section 10.6.3.3 (Lighting Impact Assessment) Table 10.4	**Underestimation of Lighting Impacts at Critical Viewpoints:** 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'. 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. 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	The lighting impact assessment requires reassessment to comply with the requirements of TOR 11.82 and Section 10.4.2 (significance assessment criteria) by re-evaluating the sensitivity and magnitude of change for critical viewpoints.

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		(typically less than 200 m) to the light source' which describes private residences close to the proposed rail alignment. However, in its assessment of Viewpoints 4 and 5 (where there are residences within 200 m of operational light sources, namely train headlights) the sensitivity is described as moderate and low (respectively) using the daytime assessment criteria. These are not correctly assigned according to the methodology provided in Section 10.4 and will alter the overall evaluation of the significance of the effect. For Viewpoint 6, there are residences within 500 m of operational light sources, which would suggest that they should be considered moderate sensitivity but again they are considered low as per the daytime consideration. 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 set forth in Table 10.4. This is especially significant for Viewpoints 4, 5 and 6 as it is acknowledged that these viewpoints are near a crossing loop and may be subject to impacts from light at night due to stationary trains using the crossing loop. It is specifically mentioned that residences near Viewpoint 4 will have 'transient light due to vehicle headlights which will be highly evident to residential properties situated in close proximity to the Gowrie Junction Road bridge'. However, all three viewpoints are assessed as having low magnitude of change in lighting assessment. 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 intended service, obtrusive light	

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		due to direct line of sight of train headlight must be investigated for residences near the rail line. 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. 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 (< 200 m away) light sources passing frequently.	
79	Section 10.6 (Potential Impacts) Table 10.10 Table 10.11 Appendix H (Landscape and Visual Assessment Technical Report)	**Visual Impact of the Alignment, inc. Bridges, Ventilation Building, Vent, Spoil Stockpile:** Table 10.10 states that stockpiles created from material from site will be 'stored prior to use, re-use or disposal' including the spoil from the tunnel. However, Table 10.11 identifies that the spoil stockpile will be permanent. The text also states that the stockpile will be used to mitigate noise and visual impacts, but at 6-7 m high and with no designated width or length provided (in Table 10.11), it is uncertain how this will be achieved. Densely vegetating with native trees, shrubs and groundcover would reduce the visual impact, however this is not shown on the visualisation in Table 10.11 (which shows a very small pile of soil and cannot be considered to be indicative of the proposed stockpile which as discussed in other chapters of the document, will be approximately 600 m x 200 m). Language around the creation of the spoil stockpile is vague. Given the proposed magnitude and the significant impact which this proposed stockpile will have on the shape of the landscape and the claims that it will create a 'visual and noise amenity buffer', there needs to be more detail provided to meet the requirements of TOR 11.78 and TOR 11.84. Further, the document has not provided the ventilation building size or height. The indicative images shown in Appendix H show a large-format	The draft EIS requires update to appropriately and accurately show the proposed project impacts on landscape and visual amenity currently enjoyed by the local community, and in order to meet the requirements of the OCG's TOR. At all times, high quality landscape outcomes are required by TRC. At no time is will the permanent stockpiling of spoil be approved by TRC. *TRC request the OCG impose the following conditions*: 'The proponent is required to ensure high quality landscape outcomes are achieved for every aspect of the proposed project and specifically with regards to the visual impact of the proposed alignment, bridges, ventilation building and vent, spoil stockpile and tunnel entrances. The proponent is required to work closely with TRC and to reach written agreement with TRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction. and 'The permanent stockpiling of spoil is not approved for any

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		unarticulated building that does not fit into the landscape and therefore can only be considered to be inaccurate and not an appropriate visual representation of the ventilation building. In addition to this, these inappropriate visual representations are not included in the main document, thereby failing the requirements of TOR 12.2, which states that 'no significant issue or matter be mentioned for the first time in an appendix'. The draft EIS also fails to meet the requirements of TOR 11.82 which states that views should be 'representative'.	reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'
80	Section 10.6.3 (Visual Impact Assessment) Table 10.22 Appendix H (Landscape and Visual Impact Assessment Technical Report) Figure 23	**Inadequate Photomontage Imagery:** the draft EIS fails to meet the requirements of TOR 11.82 and TOR 11.85 as the visualisation of the proposed Gowrie Junction Road Bridge is not representative of a public or private viewshed. The photomontage image provided in Table 10.22 is generated from a poorly sited location which downplays the visual impact of this large overpass crossing (approx.400 m long plus embankments) of the proposed project alignment and Gowrie Creek. This proposed structure will have a major negative effect on the visual amenity of the attractive landscape setting around the old Gowrie Junction railway station site. In addition, this creek crossing is one of the few in the surrounding area which comprise established trees and undergrowth, which construction the proposed overpass will require to be completely removed. The proposed works also include the resumption of a rural property and removal of an existing residence on Paulsens Road to construct the bridge. Table 10.22 does not provide the reader with a true representation of the visual impact for residents in nearby McMahon Road and Daniel Street or for approaches from Old Homebush Road and Gowrie Junction Road and will also obscure views of Gowrie Mountain to the west (an iconic Toowoomba landmark). Figure 23 of Appendix H also downplays the visual impact of the overpass on the surrounding community.	The draft EIS requires update to include a more suitable viewpoint visualisation of the proposed Gowrie Junction Road overpass/bridge and to meet the requirements of the OCG's TOR. This should include detailed elevations to illustrate a much clearer representation of the form and context of the overpass structures, and a discussion regarding potential options for finishes, the detailing of the structures, and landscape treatments (including, but not limited to) buffers and revegetation to effectively mitigate the reduced visual amenity. At all times, high quality landscape outcomes are required by TRC and as such, the draft EIS should describe how this will be achieved.

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		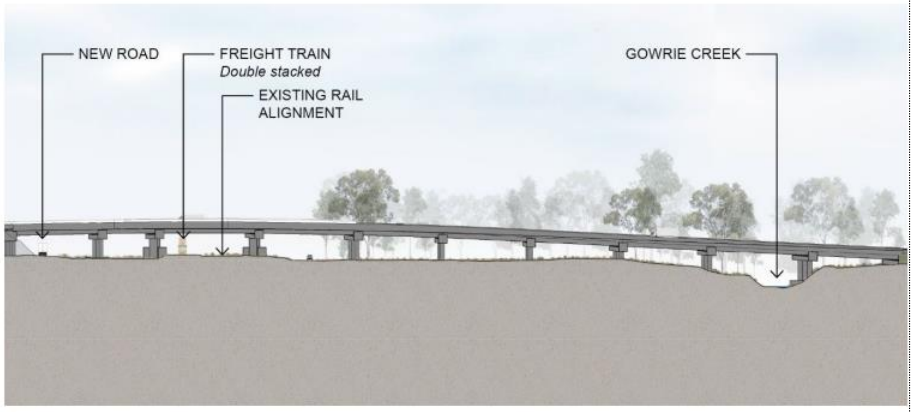 ***Figure 23: Gowrie Junction Road bridge indicative elevation***	
81	Section 10.6.3 (Visual Impact Assessment) Table 10.28 Section 10.6.3.3 (Viewpoints 10,11) Chapter 12	**Lack of Robust Assessment of Tunnel Ventilation Shaft:** the draft EIS fails to meet the requirements of TOR 5.1 as the potential impact from the proposed location of the intermediate tunnel ventilation shaft has not been appropriately assessed. A greater level of assessment of this infrastructure should have been completed (and included in Chapter 2, Chapter 6, Chapter 10 and Chapter 12). Further, Section 10.6.3 states that '…it is considered that impact of the Toowoomba Range Tunnel intermediate ventilation shaft location and associated infrastructure, including potential smoke (during emergency situations) represents a 'noticeable change''. However, the magnitude of change has been categorised as 'low'. Section 10.6.3.3 (Viewpoints 10, 11) also notes that the intermediate ventilation shaft will be lit with security lighting during construction and operation. This section goes on to state that the lit ventilation shaft and associated infrastructure '...will 'blend somewhat' into the existing setting'.	The draft EIS requires update to meet the requirements of TOR 5.1 by appropriately discussing the details of the intermediate ventilation shaft site and to provide a more accurate assessment of the potential visual impacts and proposed mitigation measures. At all times, high quality landscape outcomes are required by TRC and as such, the draft EIS should describe how this will be achieved. *TRC request the OCG impose the following condition*: 'The proponent is required to work closely with TRC in relation to the architectural design of the tunnel ventilation design. This includes, but is not limited to, providing detailed and inclusive architectural design to TRC at least six months prior to the commencement of construction and to receive written

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		The proposed ventilation shaft is a structural element proposed to be located within a generally natural setting. The visual impact assessment rating of the ventilation shaft seems to underestimate the intrusiveness of this proposed infrastructure in the local landscape.	agreement from TRC regarding the appropriateness of such design for the surrounding landscape.'
82	Section 10.7.1 (Initial Mitigation – Design Measures)	**Failure to Appropriately Mitigate Light Impacts:** TOR 11.84 requires the draft EIS to 'describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity'. No specific design measures are proposed for mitigating the visual impacts of lighting during the construction or operational phases of the proposed project. Section 10.7.1 provides a statement suggesting that any operational impacts due to lighting will be reviewed again at the detailed design phase. This is not considered appropriate as this is not a mitigation strategy, and no reference is made to any adherence to any standards which could mitigate impacts. In general, there are no mitigation strategies proposed that relate to operational lighting, although there are noted possible changes to permanent lighting (streetlighting) on new roads that 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. The mitigation strategies for construction lighting included in the draft EIS 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 (and 'in discussion with potentially affected residents'). This statement does not include reference to adherence to any standards which could mitigate impact or suggest any actual attenuation measures that would be forthcoming. Other than minimising unavoidable out-of-hours works, which may be unachievable, there are no mitigation strategies related to minimising the	The draft EIS requires update to include specific mitigation strategies to reduce the impact of light at night both during the construction and the operational phases of the proposed project (in order to meet the requirements of TOR 11.84).

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		impact of lighting at night due to construction activities. This is not acceptable to TRC, and it is considered essential that this issue be appropriately addressed.	
		Chapter 11: Flora and Fauna	
83	Section 11.1 (Summary) Section 11.5.5 (Field Methodology) Figure 11.2 a-c (Location of Areas) Section 11.8.2 (Proposed Mitigation Measures) Table 11.27 Table 11.33 Section 11.14 (Conclusions) Chapter 22	**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 at any time. The field survey locations shown in Figures 11.2a-c are located on the preferred rail alignment or where bridges are proposed to be constructed. 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. Further to this, there were no surveys completed at the laydown pad located near Ch 11 km and no surveys completed near the RMAR sites near Ch 18 km. 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 alignment. A further 11 were undertaken in areas outside this alignment. This poses serious doubt over whether the summary provided in Section 11.1 accurately represents the potential adverse impacts on threatened species and ecological communities within the proposed footprint of disturbance. Further doubt is cast over survey results when:	By failing to robustly complete flora and fauna surveys on the complete length of the preferred alignment and by not including survey for alternate alignments, the draft EIS has not met the following TOR or been able to definitively state whether impacts are deleterious to the environment: - TOR 6.2 requires that the draft EIS assesses 'both the short term and long term and state whether any relevant impacts are likely to be irreversible.' - TOR 6.2 requires that the draft EIS discusses 'scenarios of known and unpredictable impacts.' - TOR 6.3 requires that the draft EIS 'provide all available baseline information relevant to the environmental values of the project, including seasonal variations.' - TOR 6.7 requires that the draft EIS 'present feasible alternatives of the project's configuration (including individual elements) that may improve environmental outcomes.' - 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

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		- Section 11.8.2 makes statements such as: 'in addition, it is recognised that targeted surveys for most threatened flora and fauna species have not been undertaken within the project disturbance footprint…' - Table 11.27 states that 'fauna fencing opportunities will be further assessed…' - Table 11.33 states that 'project design to consider further incorporating fauna crossing structures to allow fauna movement across alignment.' - Section 11.14 concludes that '…sensitive environmental receptors identified during the EIS will be subject to further investigation, in order to more accurately determine the magnitude of the significant adverse impacts on the identified environmental receptors.' (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.' 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.	statutory assessment processes for which information is publicly available.' - TOR 7.3 requires that the draft EIS 'propose means to suitably address predicted cumulative impacts.' - TOR 10.11(e) requires that the draft EIS describe proposed construction and operations, including 'any infrastructure alternatives, justified in terms of ecologically sustainable development.' - TOR 10.11(p) requires that the draft EIS describe 'landscaping and the rehabilitation of affected areas after construction and during operation.' - TOR 11.18 requires that the draft EIS provide 'sufficient detail to make clear why any alternative or option is preferred to another.' - TOR 11.19 requires that the draft EIS discuss 'short-, medium- and long-term advantages and disadvantages of the alternatives or options.' - 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.' - TOR 11.99 requires that the draft EIS 'provide information on the current distribution of animal pests and weeds on the preferred alignment.' - TOR 11.101 requires that the draft EIS 'describe the impact 'the project's construction and operation will have on the

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			spread of pest animals and weed species along the preferred alignment and into adjoining properties.' 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.
84	Section 11.4 (Legislation, Policies and Guidelines)	**Excluded Guideline:** TOR 5.4 requires the draft 'EIS is to be generally in accordance with relevant policies, standards and guidelines.' Given this, Section 11.4 of the draft EIS should include reference to the 'National Light Pollution Guidelines for Wildlife' (January 2020). It is considered appropriate that the draft EIS use this document as a guideline for developing mitigation strategies for the impact of light at night on flora and fauna.	The draft EIS requires update in order to meet the requirements of TOR 5.4 and to consider the impacts of light at night on Australian wildlife, and best-practice mitigation measures, through the inclusion of the requirements of the Guideline available at: (https://www.environment.gov.au/biodiversity/publications/national-light-pollution-guidelines-wildlife).
85	Section 11.5.2 (Sensitive Environmental Receptors)	**Lack of Robust Ecological Assessment:** Council completed an MLES study in 2020 that has not been considered in the draft EIS. The MLES report lists locally significant species that have been recorded within the ecology study area as well as mapping outputs of areas of significance which are identified within the ecology study area. As a result, the draft EIS fails to meet the requirements of TOR 11.92.	The draft EIS requires update in order to meet the requirements of TOR 11.92. This should include, but not necessarily be limited to, inclusion of the findings of TRC's MLES study. The document should also provide an overview of the expected impacts consistent with the sections relating to MSES and MNES and provide appropriate, real and measurable mitigation strategies, offsets and management plans in order to appropriately address proposed impacts to MLES.
86	Section 11.5 (Methodology) Section 11.8.2 (Proposed Mitigation Measures) Section 11.8.3	**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: - Proposed locations of all fauna exclusionary and movement instruments.	The draft EIS requires update to provide the necessary information to robustly 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.

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	(Impact Mitigation)	- 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. 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 appropriate or consistent with TOR 11.92.	- 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 proposed project. - The location and details of the strategies for rehabilitation/reinstatement/stabilisation of disturbed areas from the construction of the proposed project.
87	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. Firstly, the ecology study area in TRC Region spans approximately 2 500 – 3 000 ha in area and yet only 18 combined aquatic (3) and terrestrial (15) targeted surveys were completed. These surveys have not covered large areas of mapped or areas known to contain species of MNES, MSES and MLES and defers instead 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 completed during an extreme dry	In order to meet the requirements of the OCG's TOR and to appropriately demonstrate reliability in the data, additional surveys need to be completed for 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 and during suitable seasons. Where potential habitats exist that aren't mapped as being environmentally significant (such as open agricultural fields), surveys should be undertaken by habitat type. In order to ensure the results are reliable and 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.

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		period which is considered to be inappropriate as it does not represent the dynamic changes in flora and fauna abundance and diversity that occur in the wetter periods.	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.
88	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 document has not confirmed whether 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.
89	Section 11.5.7 (Stakeholder Engagement)	**Inappropriate Community Engagement:** the method of community engagement provided in Section 11.5.7 lacks transparency and accessibility. Directing people to Wildnet with species recordings cannot be considered 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. 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 in relation to understanding the ratio and the reason why some records were successful and why others were unsuccessful. Additionally, some people may not have been able to attend the workshop or have access to Wildnet; thereby people's ability to be provide feedback is further reduced. 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 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.

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90	Section 11.7.9 (Potential Impacts)	**Lack of Appropriate Assessment for Gowrie Creek:** literature shows that anthropogenic sound and vibration disrupts aquatic fauna ecology (including communication, breeding and orientation). It is expected that vibrations caused by the movement of trains through the environment will permanently alter the natural ecology of Gowrie Creek 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 therefore be discussed in the draft EIS in order to meet these TOR.	The draft EIS requires update to meet the requirements of TOR 11.11 and TOR 11.92 and to describe the likely impact of vibration from the operation of the proposed project on significant aquatic fauna and the overall ecology of Gowrie Creek. 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 management plans must also be updated to consider the impact of vibration and propose any additional mitigation strategies and on-going monitoring requirements in order to ensure adverse impacts on aquatic fauna ecology is minimised in a way which ensures there is *no significant residual impact* from the operational activities of the proposed project.
91	Section 11.7.9 (Noise, Dust and Light Impacts)	**Lack of Mitigation for Light Impacts to Flora and Fauna at Night:** 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.' There are no clear mitigation strategies provided to address the impact on flora and fauna of light at night during construction and operation phases of the proposed project. Section 11.7.9 acknowledges the potential impacts of lighting however following text states that the proposed project will result in 'minor light spill (i.e., 'warm light' at level crossings and around the tunnel entrances)' at construction and operation phases. The text acknowledges impacts related to changes in predation and altered foraging or habituation but dismisses	The draft EIS requires update to provide clear and measurable mitigation strategies for the impact of light at night on flora and fauna during both construction and operation of the proposed project in order to meet the requirements of TOR 11.93.

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		the construction phase as temporary and the operation phase light spill as only transient in nature. This is not an appropriate assessment of the situation, and in particular: - 'Warm white' is not a comprehensive specification. - There appear to be no new level crossings in this region. - Spill from light at tunnel entrances is not minor in its impact to fauna at the entrances. - This tunnel entrance lighting is not transient during operation and therefore, how its impacts will be mitigated should be discussed. 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, the draft Environmental Management Plan (Chapter 23) does not include any mitigation measures related to lighting in Table 11.27. There is some permanent lighting to be expected (at the entrances to the tunnel), along with other permanent changes to streetlighting, but no specifications have been provided regarding how impacts to flora and fauna from permanent lighting will be mitigated. It is critical that mitigation measures are included to reduce impacts of lighting on flora and fauna during construction and operation of the Project. Guidance on such measures is available from the National Light Pollution Guideline for Wildlife (as previously discussed).	
92	Section 11.7.11 (Aquatic Degradation)	**Lack of Appropriate Assessment for Gowrie Creek:** the draft EIS states that the proposed tunnel's impact to groundwater is expected to have flow-on effects on the hydrology of Gowrie Creek. During operations, the water from the western end of the tunnel (estimated at 85 ML/year) is proposed to be released to an ephemeral tributary of Gowrie Creek. This will change	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 Gowrie Creek and surrounding environment from the permanent lowering of surrounding groundwater reservoirs and

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		the watercourse 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 an assessment of the aquatic ecological impacts of these proposed hydrologic regime changes. The potential impact this will have on the ecology of the creek and surrounding environment must be addressed with the draft EIS in order to meet the requirements of TOR 11.11 and TOR 11.14.	constant discharge of groundwater from the western entrance to the tunnel to an ephemeral tributary of Gowrie Creek. To support this, aquatic and riparian surveys must be conducted that provides a current representation of the existing environment of Gowrie Creek.
93	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. Section 11.8.2 includes mitigation measures and states that the proponent is committed to undertaking additional ecological surveys post draft 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: - TOR 6.3 requires that the draft EIS 'provide all available baseline information relevant to the environmental values of the project, including seasonal variations.' - TOR 7.3 requires that the draft EIS assess cumulative impacts 'over time and in combination with impacts created by the activities of other	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 the document should not be approved until all detailed survey work is complete and definitive impacts are clearly known.

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		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.' - TOR 7.3 requires that the draft EIS 'propose means to suitably address predicted cumulative impacts.' - 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.' - TOR 11.99 requires that the draft EIS 'provide information on the current distribution of animal pests and weeds on the preferred alignment.' - 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.'	
		Chapter 12: Air Quality	
94	Chapter 12 Chapter 20	**Microbiological Emissions to Air:** the draft EIS does not meet TOR 11.128 or TOR 11.150 as 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. Q-fever is an infectious disease spread from animals (mainly cattle, sheep and goats) to humans by a bacterial called (*Coxiella burnettii*). TOR 11.128 requires assessment of *all contaminants and materials* that may be released from the project. TOR 11.150 requires the draft EIS to describe potential risks to	The draft EIS requires update to meet TOR 11.1128 and Tor 11.150. More, specifically, the air quality assessment (Chapter 12) and hazard and risk assessment (Chapter 20) need to be revised and updated to include an assessment of the potential risks of Q-fever from livestock trains to human health. 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

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		people, with specific consideration to be given to airborne contaminants. The draft EIS does not meet either of these requirements of the TOR. Queensland Health provide extensive information about Q-fever which is summarised here: (https://www.worksafe.qld.gov.au/safety-and-prevention/hazards/hazardous-exposures/biological-hazards/diseases-from-animals/q-fever). 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: - Q-fever is very infectious, and people can become infected from inhaling just a few bacteria. - Large numbers of bacteria are shed by infected animals. - The bacteria can survive in the environment for long periods, tolerate harsh conditions and spread in the air. 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 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. Based on this information, the livestock trains present a health 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 in nearby urban areas is very significant but wholly unaccounted for in the draft EIS.	to adequately assess the hazards and risks to public health from the project with regards to Q-fever.

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95	Chapter 12 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 proposed project (anticipated to be 2027), with volumes projected to increase in the future operational years. There is no information provided regarding how weekly train volume estimates have been determined for the opening year, or for future operational years. 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 reader to appreciate and understand the significance of selecting the 2040 year as the assessment year. Further, 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. 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, and to meet the requirements of the OCG's TOR, specifically, but not necessarily limited to, TOR 5.1.	The draft EIS requires update to meet the requirements of the OCG's TOR and to provide additional information regarding: - Selection and justification of the 2040 year as the assessment year. - Weekly typical and peak train movement estimates.
96	Chapter 12 Appendix K Section 4 (Existing Environment)	**Inappropriate Characterisation of the Existing Environment:** TORs 11.124 through 11.127 outline the requirements for a detailed characterisation of the existing environment. Review of Appendix K has identified several limitations regarding quantifying/characterising the existing quality levels. Some of the key limitations are listed below:	While it is acknowledged that there will be some lessening of adverse impacts to air quality due to the use of the proposed tunnel, the proposed alignment still traverses communities and can still result in adverse impacts to air quality. Given this, Appendix K requires revision to appropriately address limitations regarding characterisation of the existing air quality

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		- Section 5.3.1.7 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 three (3) crossing loops. There is no mention of sources corresponding to the Toowoomba Bypass. - Section 7.1.3 discusses incremental impacts predicted due to the project at a particular receptor (receptor R_1924), which is in reasonable proximity to the Harlaxton Quarry. Though the reasoning for not including the quarry operations for the cumulative assessment may seem reasonable, what cannot be determined is the extent of emissions released to air from the quarry operations. If the quarry were to be a major contributor of dust emissions, which is not established in Appendix K, even a minimal contribution from the project could result in exceedances of the environmental values at that particular receptor. Additional information is needed to clearly understand the contribution from the quarry operations. - No consideration of NOx emissions from the Baillie Henderson hospital. The hospital is approximately 1 km from the western entrance of the proposed tunnel. Although it is not a major source of NOx emissions as per the NPI estimates, it is worth understanding the impacts from the NOx sources specific to the hospital. This would include emissions from sources such as back-up electricity supply and steam generation. The assessment mentions that the background concentrations measured at	levels and to meet the requirements of TOR 11.124 to TOR 11.127.

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		the Mutdapilly station would accurately capture the contribution from the hospital, but there is no supporting information provided to this observation, particularly considering that the station is approximately 60 km from the project location. - Similarly, no consideration has been given to NOx emissions released from the existing asphalt plants, which are some 4 km from the western entrance to the proposed tunnel. It is again mentioned in the assessment that emissions from the asphalt plants will be represented by assumed background concentration. This observation may hold its ground for particulates but not for NOx emissions as the background concentrations are from a station which is 60 km away. - 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.	
97	Chapter 12 Appendix K Section 4.7 (Selection of Sensitive Receptors)	**Future Sensitive Receptors:** Appendix K takes into consideration existing sensitive receptors surrounding the rail alignment but does not make any mention regarding potential future sensitive receptors that would also be impacted by train movements. This is a major limitation with the assessment, considering that the assessment year is 2040 which is almost 20 years after the release of the draft EIS. There can be an argument from the authors that concentration isopleths would provide relevant information on any future residential development, however, notwithstanding the above, separate section in the assessment providing technical commentary on impacts on future residential development would be considered to be beneficial. As a result, the draft EIS fails to meet the requirements of TOR 11.127.	Appendix K requires update to appropriately address 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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98	Chapter 12 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 on 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.	The draft EIS requires update to appropriately present CALMET mixing height and stability parameters for a typical El-Nino / LA-Nina year for at least one (1) CALMET modelling domain.
99	Chapter 12 Appendix K Section 7.2 (Impacts to Tank Water Quality)	**Impacts to Tank Water Quality:** 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 requires amendment such that the predicted concentrations (mg/L) are compared against the guidelines published in the most recent versions. Section 7.2 notes that the worst affected receptor for impacts to tank water quality is located near the western entrance of the tunnel. While the Appendix states that pollutant concentrations will be compliant with guidelines, this remains to be determined given the guideline used is out of date.	The assessment is to be revised to reflect the updated guidelines published in the most recent versions of the Drinking Water Guidelines and to appropriately consider impacts to farmers in the Gowrie Creek basin.
100	Chapter 12 Appendix K Section 7.3 (Assessment of Impacts to Ecological Receptors)	**Inappropriate Assessment of Impacts to Ecological Receptors:** Section 7.3 of Appendix K determines impacts from the project on ecological receptors. The key pollutant for consideration is the annual average NO_2 ground level concentration of 33 mg/m^3. 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 previously discussed, there is no clear information	Appendix K requires revision to meet the requirements of TOR 5.1 through appropriately providing additional information with regards to adverse impacts to ecological receptors.

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		regarding the modelling of emissions from the Toowoomba Bypass. As-such, there is a level of uncertainty associated with the impacts predicted at the ecological receptors. Further to this, the draft EIS fails to meet the requirements of TOR 5.1 as there is no discussion on mitigating the exceedances predicted to the ecological receptors (although the exceedance is restricted to limited areas outside the proposed permanent disturbance footprint).	
101	Chapter 12 Appendix K Section 7.5 (Agricultural Train Odour Impacts)	**Agricultural Train Odour Impacts:** Section 7.5 of Appendix K 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 where '*…odour could be of high intensity and offensiveness'*. Assessment of odours has been conducted using the FIDOL factors. Table 7.8 makes a note that the odour intensity from livestock freight trains is expected to range from strong to very strong. The draft EIS identified no significant impacts to amenity due to odour from livestock trains because: - The livestock train pass by events would be infrequent and would be no more than 1-hour in duration. - Residents and visitors would have a higher tolerance to intermittent odour from agricultural sources because of the rural setting. 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. In other jurisdictions such as NSW and Victoria, odours are assessed on a sub-hourly time scale 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.	While it is acknowledged that there will be some lessening of adverse impacts to air quality due to the use of the proposed tunnel, the proposed alignment still traverses communities and can still result in adverse impacts to air quality. Given this, a revised approach is needed for the quantitative assessment of agricultural/freight train odour impacts and to meet the requirements of TOR 11.131.

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		The assessment of odour impacts does not meet TOR 11.131 as the assessment does not: - Consider that the potentially affected localities are mainly within urban areas and *not rural areas* under the SEQ Regional Plan. Therefore, the premise that such odours are expected by the community is factually incorrect. - 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. - Furthermore, the assessment does not take into consideration the assimilative capacity with regards to livestock odours. - It is assumed that the six (6) livestock trains would be spread over a 1-week period, resulting in an average of less than one (1) train per day. However, there is no additional discussion regarding the likelihood of two (2) trains running 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. - Additional analysis is also warranted regarding the estimated duration of a livestock train pass by which may be up to one (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 significant proposed length of the trains). - Commentary would also be required on how the scale of livestock numbers on a livestock train compare to livestock numbers on a cattle truck. Presumably, a livestock train will be a more significant odour	

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		source than existing modes of livestock transport given the significant difference in size between trucks and trains.	
102	Chapter 12 Appendix K Section 8 (Cumulative Impact Assessment)	**Assessment of Cumulative Impacts**: Table 8.3 of Appendix K lists at least three (3) facilities that are operational namely Wellcamp Business Park, Witmack Industry Park and the Harlaxton Quarry. Without providing any detailed information about these sources, the impact significance is categorised *low* and therefore, a detailed cumulative impact assessment has not been conducted and the draft EIS has not meet the requirements of TOR 7.3.	While it is acknowledged that there will be some lessening of adverse impacts to air quality due to the use of the proposed tunnel, the proposed alignment still traverses communities and can still result in adverse impacts to air quality. Given this, the Air Quality Technical Report should be revised to meet the requirements of TOR 7.3 and provide additional information regarding emissions released to air from these facilities, instead of a qualitative assessment.
103	Chapter 12 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 Appendix K 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 to be best practice. There is no comparison of the mitigation measures with other similar projects, and as such, the assessment lacks detailed information regarding whether the management and mitigation measures are truly best practice measures and therefore fails to meet the requirements of TOR 11.133.	Appendix K requires revision to address TOR 11.133 corresponding to mitigation measures being considered best practice.
104	Chapter 12 Appendix K (Air Quality) Section 2.3	**Coal Dust:** Table 2.3 of Appendix K 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., either 1.8 km or 3.6 km long). Table 6.2 of the draft EIS suggests longer trains could be used based on customer requirements within the	The assessment of coal dust emissions does not meet 11.132 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 OCG require the proponent to update the air quality impact assessment to

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	(Operation) Table 2.3	maximum train length which is potentially up to 3.6 km. The draft EIS does not consider the effect of train lengths up to 3.6 km on air quality from coal dust emissions. Table 4.17 and Section 4.4.3.1 of the main document 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. It can be assumed, though it is not stated, that coal trains will be limited to single wagons and not double stacked. If this is incorrect, the draft EIS does not consider the effect of double stacked train heights on air quality from coal dust emissions. Appendix K and Table 6.2 in Chapter 6 suggest that the maximum coal train speed will be 80 km/hr based on 25 tonne 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%.	include the following to better estimate the potential impact of coal dust emissions at sensitive receptors: - Clarify the limit of rollingstock sizes. - Assess impacts for all train sizes potentially used. - Consider train speeds of 80 km/hr with an appropriate allowance for local winds on coal dust lift off. - Consider train speeds of 115 km/h with an appropriate allowance for local winds on coal dust lift off. In addition to this, the proponent should include a clear commitment to requiring coal trains using the proposed alignment to have coal wagon veneering.

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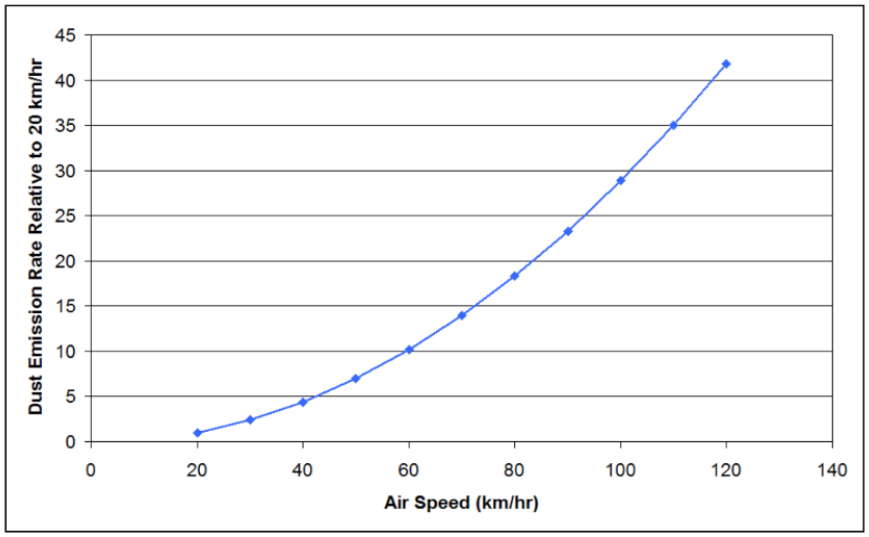

Also, Table 6.2 of the draft EIS indicates that future proofing works will include structures and formation that can allow higher speeds for heavier axle loads (30 TAL). This suggests that coal trains may be able to travel at higher speeds in the future, but this is not clearly defined in the draft EIS 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%.

The draft EIS notes that plumes of coal dust could be visible at the entrances to the tunnel but this was not assessed as it was assumed that coal wagon veneering would be applied.

The assessment of coal dust emissions does not meet the requirements of TOR 11.132 because the assessment does not accurately estimate the rate

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		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.	
105	Chapter 12 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 proposed alignment will apply veneering to coal wagons. 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 draft EIS to ensure that it can achieve a reduction in coal dust emissions by at least 75%. *TRC request the OCG impose the following conditions*: 'The proponent is required to ensure that the surface of all coal wagons are veneered to minimise coal dust emissions. The veneering must be adequate to achieve a reduction in coal dust emissions of at least 75%.'
		Chapter 13: Surface Water and Hydrology	
106	Chapter 13	**Flood Study Update Required:** the *Draft Report on Review of Gowrie to Helidon Section (Inland Rail Project)* by the Independent International Panel of Experts for Flood Studies has recently been released and should be reviewed by the proponent and the draft EIS updated to include all considerations and recommendations provided in the draft report.	Chapter 13 requires update to appropriately consider the findings of the Independent International Panel of Experts for Flood Studies as provided in the Panel's Draft Report, and to also include TRC's recommendations which directly relate to the findings of the Draft Report. The draft EIS requires updating meet the requirements of the OCG's TOR, to identify and mitigate all direct and indirect impacts of the proposed project on local drainage flows and/or flow paths, and to provide appropriate mitigation measures which will address these impacts to TRC's satisfaction and to

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			ensure that there is no actionable nuisance affecting either private property owners or TRC road and drainage infrastructure. *TRC request the OCG impose the following conditions*: 'The proponent must implement all recommendations of the *Independent International Panel of Experts for Flood Studies of Inland rail in Queensland* review and be required to consult with TRC regarding the mitigation of all direct and indirect impacts from the proposed project on local drainage flows and/or flow paths and to reach written agreement with TRC in relation to this issue at least six months prior to the commencement of any construction activities.' and 'The proponent is required to consult with TRC regarding the provision of appropriate drainage structures on TRC roads and to reach written agreement with TRC in relation to the design and construction of drainage structures at least six months prior to the commencement of any construction activities.'
107	Chapter 13	**Lack of Appropriate Consideration of Flood Impacts on Existing Infrastructure:** in relation to potential flood impact on the existing Sewage Pumping Station and associated switchboard, the draft EIS provides no information regarding what the expected increase in water level is or consider different velocities under the various scenarios.	The draft EIS requires update to identify how existing Council infrastructure will be modified to cater for the increase in peak water levels resulting from changed surface water hydrology. It should be noted by the proponent that impacts on existing TRC infrastructure needs to be approved by TRC, particularly relating to water and wastewater infrastructure.

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108	Section 13.1 (Surface Water Summary)	**Use of Undrained Tunnel Terminology:** it is noted that the term 'undrained tunnel' has been used throughout the draft EIS. There has been no definition of what this term refers to. This definition could affect how the draft EIS is being considered. 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 amount of 1 700 ML from the town water aquifer, but that once constructed, the tunnel will continue to experience ingress from the town water supply aquifer of 85 ML/year (from between the tunnel wall and the tunnel lining). This water is proposed to be released to Gowrie Creek. 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 and yet openly discusses a potential and consistent water loss from an aquifer which provides TRC with town water.	The draft EIS requires update to meet the requirements of the OCG's TOR and to include a clear description of the term undrained tunnel and how it will interact with groundwater that can be understood by the general public. *TRC request the OCG impose the following conditions*: 'The proponent is required to consult with TRC regarding methods for the capture, treatment and reuse of drained aquifer water both during construction and operation of the tunnel. The proponent is required to reach written agreement with TRC in relation to the management of water which will be drained from the tunnel as a result of the proposed project at least six months prior to the commencement of any construction activities.'
109	Section 13.6.1.1 (Assessment Methodology) Figure 13.1	**Missing Field Sampling Locations:** with regards to field sampling locations, there should also be a site at the extremity of the western edge of the proposed project (i.e., close to chainage '0'). This would be particularly useful for monitoring long term water quality impacts for the full extent of the western section.	The draft EIS requires update to include a clear commitment to undertake a water quality testing regime and to ensure test results and long-term monitoring at this location is also included for the B2G section of the proposed alignment.
110	Section 13.6.2.2 (Flood Impact Objectives) Table 13.17	**Out-of-date Data:** the data provided in Table 13.17 is greater than two years old. Additional sampling for longer term results should be undertaken. This can be used for future cross checking during and after construction. There is also insufficient comment provided of any impact of various water contributors such as Wetalla and/or various local creeks.	The draft EIS should be updated after additional sampling for longer term cross checking is undertaken results included in the relevant reports. The draft EIS should also provide comment of any impact of various water contributors such as Wetalla and/or various creeks.

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111	Section 13.7.1.1 (Climate) Section 14.6.1 (Climate)	**Incorrect Climate Data:** Section 13.7.1.1 of the draft EIS provides data for Toowoomba Airport which does not appear to be correct. Traditionally, August is the driest month, not April. Further to this, Section 14.6.1 uses Helidon Post Office BoM data while Section 13.7.1.1 uses Gatton University. There is no explanation regarding the inconsistent use of BoM stations for climate data.	The draft EIS requires checking to confirm the driest month. The document should also be updated to provide graphs and tables to back up the claim that April is the driest month. The draft EIS requires update to provide clarification regarding use of data and data availability and to adequately explain how the use of different data sets impacts the findings of the draft EIS.
112	Section 13.7.1.4 (Surface Water Resources and Use)	**Lack of Commitment to Consultation:** water discharged to Gowrie Creek from the Wetalla Wastewater Treatment Plant is not owned by downstream irrigators or graziers. Direct usage of this water before it enters Gowrie Creek is via agreement with TRC. A large proportion of this water is obtained from east of the Great Dividing Range and provides unnatural flows in Gowrie Creek.	The draft EIS should be updated to include a clear commitment to consult with and reach agreement with TRC for the usage of Wetalla discharge water for construction purposes.
113	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.
114	Section 13.7.3 Historic Surface Water Quality Condition Appendix L (Surface Water Technical Report)	**Lack of Clarity for Water Quality Parameters:** Section 13.7.3 would benefit from the inclusion of graphs which would assist in the understanding of the water quality parameters at each of the four gauging stations. This should include details regarding the length of time that data has been recorded and accuracy. Some of this data is available in Appendix L (and as such, the draft EIS fails to meet the requirements of TOR 12.2) and should be included in Chapter 13.	The draft EIS requires update to include appropriate graphs and data provided in Appendix L into Chapter 13 in order to meet the requirements of TOR 12.2.

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115	Section 13.7.3 Historic Surface Water Quality Condition) Table 13.20 Appendix L (Surface Water Technical Report)	**Inconsistent Data:** the distance upstream or downstream provided in Table 13.20 should match Table 5.2 from Appendix L. Data should be consistent and taken at the same time as the source of both tables varies. As a result of these inconsistencies, the draft EIS fails to meet the requirements of TOR 12.2	The draft EIS requires the update of Table 13.20 and Table 5.2 of Appendix L for consistency and accuracy and to meet the requirements of TOR 12.2. Source information should also be included and difference between data explained where required.
116	Section 13.7.6.2 (Existing Case Results) Table 13.23 (Gowrie Creek)	**Inappropriate Flood Study Area:** it is understood the proposed project boundary starts at Gowrie Creek (west of Draper Road) and extends towards the east. The existing flood extent does not however include Draper Road or the TRC Infrastructure in the vicinity. It is noted that the Draper Road flood scenario has been included in B2G draft EIS however, while this information is not provided in the G2H draft EIS, the document fails to meet the requirements of TOR 5.1.	The draft EIS requires updating to meet the requirements of TOR 5.1 and to incorporate existing TRC sewerage infrastructure (including Draper Road and Gowrie Junction pumping stations and other non-TRC utilities in the vicinity) into the draft EIS flood assessment (specifically when considering existing flood scenarios vs. proposed project impacts). Further, the TRC sewerage pumping station are separately licenced under ERA 63 -as a condition of that licence requirement, critical components of the pumping station are to be located above Q100 flood levels. These are to be assessed in the flood assessment to confirm that there will be no increase in flood impact as part of the proposed project. Also, the same requirement is applicable for TRC pumping station and infrastructure at Gowrie Junction, East Paulsens Road, McMahons Road, Old Homebush Road, Morris Road and Ganzer Road.
117	Section 13.7.6.2 (Existing Case	**Conflict of Disturbance Footprints:** there is a conflict of draft EIS disturbance footprint of flood maps within the Interlink development area.	The flood maps of the draft EIS requires update to appropriately consider and address the fact that the proposed project

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	Results) Figure 13.6a		footprint is overlapping the proposed Interlink service relocation corridor.
118	Section 13.8.2 (Hydrology and Flooding)	**Surface Water Quality Impacts – Construction Phase:** Section 13.8.2 identified approximately 114 L/s for a period of two weeks of groundwater release to the Gowrie Creek tributary at western entrance to the proposed tunnel and its cumulative impacts on all faces are not addressed adequately. Details provided are very generic in nature.	The draft EIS requires update to appropriately consider and address with more specific details (including groundwater drawdown impacts, surface water flow, quality impacts and specific mitigation measures). This should include, but not necessarily be limited to, discussions relating directly to specific water quality monitoring stations, existing baseline data including existing groundwater levels etc., and a commitment to include a comparison with proposed project impacts at a future date. Further, the Gowrie Creek tributaries morphological changes associated with sedimentation impacts as a result of proposed project should also be addressed.
119	Section 13.8.2 (Hydrology and Flooding)	**Surface Water Quality Impacts – Operational Phase:** the draft EIS has not provided any specific details regarding the proposed supply of fire management water from the Toowoomba network. At the time of writing, there has been no discussion or agreement made with TRC regarding accessing the Toowoomba water supply for project use. Consultation is required to appropriately assess the specific flow and pressure requirements and to evaluate the capability of TRC water supply network to serve tunnel fire-fighting capacity while not impacting existing customers connected to the system. Further, the cumulative impacts to TRC's water supply network requires consideration on all levels including, but not necessarily limited to, potential continual groundwater drawdown, Toowoomba City drinking water supply from City bores, expected fire flow requirements to the proposed tunnel and potable water requirement for workers camps in other locations etc., in detail. These cumulative impacts are not covered in draft EIS and 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. *TRC request the OCG impose the following conditions*: 'The proponent is required to consult with TRC regarding the use of TRC's water supply for operational activities. At no time is the proponent approved to use TRC town water supplies for construction activities. Further, the proponent is required to reach written agreement with TRC in relation to access to the town water supply for operational activities at least six months prior to the commencement of any construction activities.'

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120	Section 13.8.2 (Hydrology and Flooding)	**Surface Water Quality Impacts – Operational Phase:** the draft EIS makes assumptions regarding groundwater infiltration between the MRV and Koukandowie Formations. The draft EIS fails to provide any discussions around the probability of groundwater transmitting between two formations and infiltration either into the eastern or western entrances to the tunnel, or indeed through the tunnel itself.	The draft EIS requires update to address groundwater infiltration between aquifers in detail, and to describe what method will be adopted if the groundwater modelling assumptions are found not to be accurate. This should include, but not be limited to, a discussion regarding the cumulative impacts for the region, including the Murray Darling Basin.
121	Section 13.9 (Mitigation) Table 13.31 Section 13.9.1.3 (Management Framework)	**Generic Mitigation Measures:** the mitigation measures listed in Section 13.9 are very generic in nature and not specific to the proposed project footprint. As a result, the draft EIS has not addressed the requirements of TOR 5.1 for the proposed project.	The draft EIS requires update to identify measures to identify project specific locations for monitoring stations along with current base line data and to present with modelled data for the proposed project. This would be beneficial to monitor during construction stages where lack of compliance with modelled results can be easily identified and mitigation measures adjusted to suit.
122	Section 13.9.1.1 (Design Considerations)	**Proposed Tunnel Groundwater Infiltration Not Appropriately Addressed**: the aquifers and watercourses proposed to be intersected by the proposed project (and tunnel) are all hydrologically connected. However, the document has failed to discuss this issue and to consider potential reuse or treatment of captured groundwater prior to discharge to surface water.	Given that the watercourses and aquifers proposed to be intersected by the tunnel are all hydrologically connected, the draft EIS requires update to discuss the monitoring of groundwater drawdown levels and these impacts to the aquifers, including, but not limited to, the extent of the drawdown. *TRC request the OCG impose the following conditions*: 'The proponent is required to consult with TRC regarding methods for the capture, treatment and reuse of drained aquifer water both during construction and operation of the tunnel. The proponent is required to reach written agreement with TRC in relation to the management of water which will be drained from the tunnel as a result of the proposed project at

#	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?*
			least six months prior to the commencement of any construction activities.'
123	Section 13.10.2 (Hydrology and Flooding) Table 13.35	**Rail Drainage Infrastructure and Locations:** Table 13.35 listed proposed rail drainage structures and locations. It is assumed that these drainage structures are proposed based on flood models. However, it appears that most proposed drainage structures will be located upstream of existing QR drainage structures and sizes are approximate to the QR structures. Given that lands south of the QR alignment (e.g., Interlink) are to be developed and the landscape will be changed dramatically by designing cut and fill to suit these southern developments. proposed drainage structures, locations/sizes will require adjustment to suit. Further, Interlink is proposing to alter the drainage path at Ch 1.76. In addition to this the southern hilly topography around chainages Ch 0.25 and Ch 0.11 will also be changed as part of the Interlink project.	The draft EIS requires update to further consider, review and incorporate these changes into the flood models as appropriate. This should include, but not be limited to, committing to clear and appropriate mitigation measures to ensure that the risk of increased flood events as a result of the proposed project is minimised to ensure that there is no significant residual flood impact as a result of the proposed alignment location.
124	Section 13.10.2 (Hydrology and Flooding) Table 13.37	**Proposed Changes to Peak Water Levels for Gowrie Creek:** the draft EIS proposes a change in peak water levels outside the flood impact objectives at Ch 1.76 km and East Paulsens Road will experience an increase of peak water levels.	The draft EIS requires update to assess TRC utility infrastructure including, but not necessarily limited to, the sewerage pumping station and surface fittings. This should include, but not be limited to, a consideration of impacts to surface fittings (such as air valves, scour valves etc.,) of the sewer rising main.
125	Section 13.12.1 (Surface Water Quality)	**Inadequate Project Specific Details:** the draft EIS fails to include appropriate 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.	The draft EIS requires update to include appropriate and clear mitigation for water quality impacts as part of designs and during constructions. *TRC request the OCG impose the following condition:* 'The proponent is required to monitor surface water quality impacts during operational face and take appropriate actions

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			where necessary to ensure that there is no significant impact to surface water quality as a result of the proposed project.'
		Chapter 14: Groundwater	
126	Chapter 14	**Limited Study Area:** the groundwater assessment only considers the proposed project's footprint which is not enough to appropriately address the groundwater impacts from the proposed project. As a result, TOR 11.54, 11.55, 11.59 and 11.62 have not been sufficiently addressed.	The draft EIS requires update to meet the requirements of the OCG's TOR and to include appropriate modelling to reflect the changes over time and space using specific selected existing ground water bores. Further, the 70% Feasibility Design Stage Report submitted by Inland Rail (2019) identified impacts for TRC City Water supply bores as a result of groundwater drawdown due to the proposed tunnel. These concerns are also not addressed in the draft EIS. Further, the draft EIS has inappropriately narrowed down the assessment footprint.
127	Chapter 14	**Failure to meet TOR requirements:** TOR 11.56 and 11.57 require the consideration of potable water demand, which has not been adequately addressed information by the draft EIS.	The draft EIS requires update to include the assessment of impacts to potable water demand as a result of proposed project activities and in order to meet the requirements of TOR 11.56 and TOR 11.57.
128	Chapter 14 Chapter 23 Section 23.15.6 (Surface Water and Hydrology) Section 23.15.6.3 Proposed Mitigation Measures) Table 23.11	**Insufficient Assessment of Groundwater Impacts:** the proposed mitigation measures for surface water quality associated with groundwater inflow at the western entrance to the tunnel and the proposed water treatment plant (to treat up to 82 ML/annum) is insufficient as impact to Toowoomba City drinking water bores as a result of associated groundwater drawdown has not been assessed. Further, proposed mitigation measures listed are in general nature which is inadequate for groundwater users both within the project study area and beyond. In addition to this, Appendix N covers the impacts of groundwater drawdown within the project footprint and covering a study area which is inappropriate for groundwater assessment. However, it is understandable	The draft EIS requires update given that there is a high level of risk of impacting Toowoomba City drinking water supply (both criteria in quantity and quality wise) due to the associated drawdown of groundwater levels in both the east and western tunnel entrances. This drawdown needs to be investigated, documented and mitigation measures developed accordingly. This assessment should be extended outside the proposed project study area and proposed monitoring and mitigation measures should be discussed in detail given the impacts to the community will be very high due to the associated risk of loss of drinking water supply.

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	Appendix N	the impacts of groundwater drawdown will be widespread more than 1 km of the proposed project footprint. Even though Table 23.11 included mitigation measures, the underlying detailed assessments are not discussed within Chapter 14.	
129	Chapter 14 Appendix N	**Existing Groundwater Allocations Not Recognised:** 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, TOR 11.58 or TOR 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 be 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.
130	Chapter 14 Appendix N	**TOR 11.54 Not Met:** the groundwater flow model presented in the draft EIS is considered inadequate to 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.
131	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:	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

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		- Geological variability especially with respect to potentially high permeability structures and the presence/absence of aquitards. - Temporal water level monitoring across at least one full year. - Water quality analysis, including seasonal variation. - Sufficient monitoring bores to provide understanding of aquifer interconnectivity. - Hydraulic conductivity representative of the fracture network in the MRV. - Vertical hydraulic conductivities. - Storage coefficients. 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, 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.	adequately assessed and to meet the requirements of TOR 11.55.
132	Chapter 14 Appendix N Section 3.2.4 Section 9.3.1	**Incorrect Modelling**: Section 3.2.4 of Appendix N discusses an optimum model grid spacing of 35 m, yet Section 9.3.1 identifies grid spacings from 65 x 65 m down to 18 x 21 m.	The model grid spacing should be clarified in a revised draft EIS and appropriate model grid applied.
133	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.

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			Should the tunnel alignment be altered, it must be ensured that adequate investigation of the alternative alignment is undertaken to quantify this issue.
134	Chapter 14 Appendix N	**G2H Volume 1: Feasibility Design Report (02-0001-320PEN-10-RP-0001, Rev0) Section 10.3.9 – Desktop groundwater assessment:** the available groundwater quality results are found to generally meet the EPP Water 2009 Basin No. 143 WWQ (DNRM, 2020) discharge criteria, but there could be some exceedances of salinity and nutrients for discharge to streams. The draft EIS provides very little detail on the proposed management of the release of groundwater from the tunnel to Gowrie Creek.	The draft EIS requires update to: - Clearly specify discharge water quality criteria for groundwater that will be released to Gowrie Creek. - Identify how tunnel inflow water quality will be monitored in real time. - State how the water will be managed or treated prior to discharge if it doesn't meet the discharge water quality criteria.
135	Chapter 14 Appendix N	**G2H Volume 1: Feasibility Design Report (02-0001-320PEN-10-RP-0001, Rev0) Section 10.3.9 – Desktop groundwater assessment:** Hydrogeological modelling predicts that a long-term inflow of approximately 77.5 and 10.5 L/s can be expected under drained conditions for the tunnel and intermediate shaft respectively. The undrained tunnel design criteria are 0.3L/s and 0.0062 L/s respectively. It is agreed that the undrained tunnel option is the most appropriate option to mitigate the potential long-term inflows. However, it is considered that the assessment of the potential impacts associated with the undrained tunnel were improperly made in the draft EIS as insufficient site-specific investigation was undertaken and the groundwater modelling did not adequately address the conceptual hydrogeological model and the degree of uncertainty in the model parameterisation.	The site-specific investigations and revised modelling indicated throughout the draft EIS must be undertaken and quantitatively incorporated into a revised draft EIS.

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136	Chapter 14 Appendix N	**G2H Volume 1: Feasibility Design Report (02-0001-320PEN-10-RP-0001, Rev0) Section 10.3.9 – Desktop groundwater assessment:** The need for site specific investigations before Phase 3 Detailed Design and construction is identified. The requirements for these investigations included: - Installation of piezometers in identified geological structures. - Borehole permeability testing. - A minimum of 3 aquifer pumping tests following detailed investigations to target identified geological structures. - Continuous recording of groundwater levels and assessment of recharge from water level records of several larger rainfall events and chloride concentrations in groundwater. - Site-specific installation of monitoring bores and groundwater sampling for water quality analysis. - Conduct a pumping test(s) with the MRV basalt aquifers and the Koukandowie Formation to determine the connectivity between units and aquifer characteristics.	The proponent should ensure that all of the identified investigations are completed, and the findings are incorporated into the groundwater model for a revised draft EIS.
137	Chapter 14 Appendix N Section 2.3.2.3	**No Unallocated Water**: the draft EIS identifies that there is no unallocated water, including State reserve available from the Main Range Volcanics (MRV) aquifer. The draft EIS identifies that the Toowoomba City Basalts (TCB) is an aquifer of primary relevance to the proposed project. The TCB is part of the MRV. The draft EIS does not meet TOR 11.52 as it does not describe what allocation would be needed under the *Water Act 2000*. This is critical given that there is no unallocated water available from the MRV.	The draft EIS should be revised to 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 the MRV.
138	Chapter 14	**MRV Groundwater Use Limitations**: the draft EIS identifies that there are limitations on use from the MRV, including restricted timing (Monday, Tuesday, Wednesday and Friday from 7pm to 3am) for licensed extraction.	Should a means of obtaining an allocation be identified, the draft EIS should identify how the proposed project will manage

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	Appendix N Section 2.3.2.3	However, the tunnel will draw down on groundwater continuously during both construction and operation. The draft EIS does not address how any future impacts to groundwater by the tunnel will affect licensed extraction of groundwater from the MRV which has restricted timing conditions imposed on it. The draft EIS does not meet TOR 11.59 as it does not clearly describe how the continuous tunnel drawdown will affect other groundwater users and MRV allocations.	tunnel inflows in accordance with the limitations identified and how this may affect licensed groundwater extraction.
139	Chapter 14 Appendix N Section 3.3.1	**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. For example, drawdown due to tunnel inflows may result in temporary (<12 months) or short term (12-24 months) reduction in capacity of a town water, industrial, irrigation or domestic supply. This has the potential to cause significant impact to the city/town, industry or landholder. Also, it assumes ecological resilience, i.e., that ecosystem function will not be harmed by a short duration impact. However, for example, if a Groundwater Dependent Ecosystem (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.
140	Chapter 14 Appendix N Section 3.4	**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 stock and domestic use 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.

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141	Chapter 14 Appendix N Section 4.4.2	**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.	The draft EIS requires update to correct the y-axis labels so data is presented accurately for interpretation by the reader.
142	Chapter 14 Appendix N Section 5 Table 5.1	**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 (VWP) and a very limited (less than one year) period of water level monitoring. Additional 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*). 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 of Appendix N) and only the VWP is constructed in the 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 construction of a VWP in the MRV negates the ability to collect groundwater samples, therefore there is no site-specific information regarding the water quality that may flow into the tunnel and the implications of that water quality for material selection and water management. As a result, the investigations reported in the draft EIS do not address TOR 11.38.	Sufficient investigation of the site-specific hydrogeological characteristics is required to make an accurate assessment of potential groundwater impacts by 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.

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143	Chapter 14 Appendix N Section 5.4 Figure 5.2 through Figure 5.8	**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 of Appendix N should be regenerated at an appropriate vertical scale such that any temporal trends can be observed.
144	Chapter 14 Appendix N Section 4.3 Section 4.4.2 Figure 4.4 Section 5.4	**Lack of Robust Assessment:** the period of groundwater level monitoring is insufficient to appropriately understand seasonal water level trends and therefore does not meet the requirements of 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 of Appendix N). This may be related to the recent years of below average rainfall (refer Section 4.4.2 and Figure 4.4 of Appendix N) 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.
145	Chapter 14 Appendix N Section 5.5 Table 5.1	**Missing Data**: the draft EIS states that groundwater quality data is presented in Table 5.1 of Appendix N, however Table 5.1 does not include this data.	Groundwater quality data should be presented in a revised draft EIS.
146	Chapter 14 Appendix N Section 6.1.3.1	**Lack of Robust Assessment:** the draft EIS discusses the potential for feeder dykes in the vicinity of the tunnel and states …'the dykes are anticipated to allow migration of the groundwater to the tunnel level…' Similarly, Section 6.1.3.1 identifies that the tunnel will likely intersect one to two northwest trending regional structures in the western portion of the tunnel.	The hydrogeological implications of feeder dykes (Ch 8.8-9.2km and possibly Ch 5.5-6km) and regional structures have not been described in the groundwater model. The draft EIS should clarify whether these have been incorporated in the model, and if so, how they were parameterised.

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147	Chapter 14 Appendix N Section 3.2.4 Section 9.3.1 Figure 9.3	**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 of Appendix N 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.
148	Chapter 14 Appendix N Section 9.3.3	**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: - Identification of the monitored unit of the calibration target; and - Explicit (tabulated) identification of the relationship between the observed and modelled water levels.
149	Chapter 14 Appendix N Section 9.3.3 section 9.3.6.1	**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 of Appendix N) 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.
150	Chapter 14 Appendix N Section 9.3.3	**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. 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	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.

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		completed for the draft EIS to meet TOR 11.38 and develop an accurate and detailed understanding of hydrogeological conditions.	
151	Chapter 14 Appendix N 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. 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 MRV and hence the prediction of potential impacts to the TRC water supplies.	It is recommended that pumping tests are undertaken at relevant locations and incorporating nested monitoring bores to assess field scale hydraulic conductivities.
152	Chapter 14 Appendix N Section 7.4.2 Section 9.3.4	**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. There is no discussion of vertical hydraulic conductivity in the draft EIS prior to this section. Importantly columnar jointed basalt (Section 7.4.2 of Appendix N) will result in a much higher Kv than Kh therefore the ratio's employed may significantly underestimated the potential drawdown in the MRV.	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 (laboratory tests will not account for the fractures/joints).
153	Chapter 14 Appendix N Section 7.1 Section 9.2 Section 9.3.4	**Incorrect Yield**: specific yield is a storage coefficient for an unconfined aquifer. It is not related to bore yield (Section 7.1 of Appendix N) and it is dimensionless, not measured in L/s. The specific yield values for the MRV layers (0.1) are unrealistically high for a fractured rock aquifer. This is attested to in the rapid response of the aquifer to recharge and extracted described by DNRME (2018) *Upper Condamine*	The following recommendations are made: - The units of specific yield should be corrected (Table 9.3 and Table 9.4) and their source should be identified. - The specific storage/storativities for each layer should be identified and justified.

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	Table 9.3 Table 9.4	*Basalts Groundwater Background Paper* identifies the basaltic aquifers '*exhibit relatively dynamic and rapid water level variations in response to rainfall recharge, pumping events and natural depletion*'. With respect to storage coefficients, the specific storage and/or storativity of each layer (for confined storage) has not been identified. The values used will likely have a significant influence on the estimated inflow rates and the expansion of the cones of depression. Section 9.2 of Appendix N (Conceptual groundwater models) identifies the shallow MRV as a confining layer, thus, by definition the lower MRV will be a confined aquifer, with a storativity rather than a specific yield as the storage coefficient.	- Sensitivity of the model predictions to storage coefficient must be performed.
154	Chapter 14 Appendix N Section 9.3.6.1	**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 are for construction activities, therefore the estimates are not conservative based on these 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.
155	Chapter 14 Appendix N Section 9.3.6.2 Table 10.1	**Incorrect Maximum Drawdown**: while not stated in this section, Table 10.1 of Appendix N indicates a maximum water column height above the tunnel of 100 m. 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 ~50 m, 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.

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156	Chapter 14 Appendix N Section 9.3.7 Section 9.3.8	**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. The sensitivity analysis should also include: - The presence/absence of feeder dykes and/or regional structure. - The absence of the low conductivity confining layer in the MRV, as identified as a limitation in Section 9.3.8 of Appendix N.
157	Chapter 14 Appendix N Section 9.3.7 Table 9.9 Table 9.10	**Incorrect Predicted Drawdown**: notwithstanding the tabulated inflow rates (Table 9.9 and Table 9.10 of Appendix N) – 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 against the greatest magnitude and extent of predicted groundwater drawdown.
158	Chapter 14 Appendix N Section 9.5	**Inappropriate Modelling:** Section 9.5 of Appendix N 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'. TRC's expert assessment 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.	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. The groundwater assessment in the draft EIS needs to be revised based on further detailed field studies and improved predictive modelling to meet the requirements of the OCG's TOR.

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		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.	
159	Chapter 14 Appendix N Section 10.1.5	**Tunnel Construction**: the draft EIS 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.
160	Chapter 14 Appendix N Section 10.1.5	**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.
161	Chapter 14 Appendix N Section 10.2.1.1 Figure 10.5 Figure 10.6	**Inappropriate Modelling:** Figure 10.5 and Figure 10.6 of Appendix N show 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.

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162	Chapter 14 Appendix N Section 10.2.1.1 Figure 10.5 Figure 10.6	**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.
163	Chapter 14 Appendix N Section 10.2.1.1	**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.
164	Chapter 14 Appendix N Section 10.2.1.1	**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 1 m) to enable mitigation measures to be adequately assessed and implemented.
165	Chapter 14 Appendix N Section 10.3.1.2	**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.
166	Chapter 14 Appendix N Section 11.1 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. 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.

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167	Chapter 14 Appendix N Section 11.2 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.
168	Chapter 14 Appendix N Section 11.2 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. The refinement or reconstruction of the groundwater model is considered essential prior to the finalisation of the draft EIS as the current modelling is considered flawed.	Refinement of the model should include (but not be limited to): - Review of the model domain. - Reconsideration of the assumptions of homogeneity and isotropy. - 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 implications of these features with respect to predicted drawdown should be explored in parallel models as part of the sensitivity analysis. - Reconsideration of vertical hydraulic conductivity values, particularly for the MRV. - Review and assessment of the modelling of the MRV as a confined aquifer.
169	Chapter 14 Appendix N Section 11.3	**Misleading Data:** while the draft EIS provides an indicative minimum monitoring network, it is tabulated only and is difficult to compare against	The final EIS should include a map that identifies the proposed monitoring bore locations and their primary purposes for inclusion in the monitoring network.

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		the conceptual model and numerical model predictions. The network will be revised after completion of the revised model.	
170	Chapter 14 Appendix N Section 11.3.2	**Lack of Robust Assessment**: the suite of analysis is generally considered appropriate for establishing a general baseline water quality for a linear infrastructure construction project. However, as identified earlier, the tunnel passes near areas that present a potential groundwater contamination risk and this has not been adequately assessed by the draft EIS.	Since the proposed project traverses a range of different land-uses, some of which present a potential groundwater contamination risk, it is recommended that baseline and any ongoing future sampling of groundwater and surface water include relevant hazardous contaminants to ensure that proposed water management options do not result in a secondary contamination issue.
171	Section 14.1 (Summary)	**Inappropriate Groundwater Assessment Results:** the 'moderate' residual risk identified as a result of proposed project activities is incorrect due to the impacts from the proposed tunnel (and other works).	The draft EIS requires update to appropriately assess the impacts for Toowoomba drink water supply bores and the wider groundwater aquifer area to reflect the short, medium- and long-term impacts to water supplies and to meet the requirements of the OCG's TOR.
172	Section14.5.1 (Groundwater Study Area) Appendix N Groundwater Technical Report Section 3.1	**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, TOR 11.38 and TOR 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.
173	Section 14.5.2.2 (Stage 2 – Geotechnical and Hydrogeological Investigations)	**Lack of Robust Assessment:** the proponent has committed to refinement of the numerical groundwater flow model and predictions and will be included in the final EIS. By the making this comment the proponent appears to admit that the groundwater information supplied in the draft EIS is not a	It is considered critical that these refinements are undertaken for a revised draft EIS and must include the findings of the additional site-specific investigations. The model should be refined, and the extent of the groundwater study area should be defined based on the

#	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?*
	Appendix N Section 3.2.3	complete assessment of the hydrogeological issues associated with the project. This is not appropriate for such a significant issue. All necessary, current, and accurate information regarding groundwater impacts by the project should have been supplied in the draft EIS for consideration by the public and OCG. How can any party reviewing the draft EIS be expected to have an informed understanding of groundwater impacts if further works to refine the numerical groundwater flow model and predictions are required?	maximum extent of predicted drawdown, including the outcomes of the sensitivity analysis. The draft EIS needs to be revised to include all necessary, current, and accurate information regarding groundwater impacts by the project. The revised draft EIS should also be made available for further public consultation.
174	Section 14.5.2.2 (Stage 2 – Geotechnical and Hydrogeological Investigations)	**Insufficient Long-term Monitoring:** the draft EIS provides insufficient long-term monitoring of impact on the MRV.	*TRC request that the OCG impose the following condition:* The proponent is required to install at least two real time groundwater level measurement stations into the MRV to be handed over to DRDMW as per DRDMW requirements. Data is to be made available on QLDGlobe. Locations are to be determined in consultation with DRDMW to cover the length of the tunnel. Further, additional monitoring equipment should be installed into other aquifers if deemed appropriate by DRDMW.
175	Section 14.5.4 (Groundwater Impact Assessment) Appendix N Section 9.3.4	**Incorrect Modelling**: Section 14.5.4 of the draft EIS states that: - Steady-state followed by transient model calibration was performed. This was not described – only steady-state calibration was performed. - 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.** - 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.

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176	Section 14.6.3 (Geology and Hydro-stratigraphy) Table 14.4 Figure 14.4	**Missing Chainage References:** in order to appropriately support Figure 14.4, approximate chainage of the intersection of each of the aquifers along the proposed route should be included.	The draft EIS requires updating to provide appropriate chainage measurements along the proposed project of the intersection with the various aquifers.
177	Section 14.6.4 (Groundwater Quality)	**Lack of Commitment for Groundwater Quality Monitoring:** the draft EIS is silent on how groundwater quality will be monitored long term and how rectification will be managed should water quality issues be found.	*TRC request the OCG impose the following condition:* Prior to the commencement of construction activities, the proponent is required to develop an appropriate program for water quality monitoring post construction and to develop appropriate mitigation measures if there is a long-term impact on water quality as a result of project activities.
178	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.
179	Section 14.6.5 (Groundwater Yields) Appendix N Section 9.3.2	**Lack of Appropriate Justification**: the two MRV layers were modelled as unconfined '*…to receive most inflow from rainfall recharge*.' The low hydraulic conductivity of the *confining* (upper) layer may result in unit acting as a confined unit (despite being in outcrop), while the lower MRV will be confined by the overlying *low conductivity confining layer.* Although the layers may allow diffuse recharge to enter, they may not act in the same manner during drainage/pumping. *Background Paper* identifies the basaltic aquifers "*exhibit relatively dynamic and rapid water level variations in response to rainfall recharge, pumping events and natural depletion*". This is indicative of a formation of low storage (storativity rather than specific yield). This is confirmed in the discussion in Section 14.6.5 where confined conditions were identified	The use of unconfined storage values for the MRV needs to be justified. It is recommended that site-specific field tests at appropriate locations along the tunnel alignment are performed. The sensitivity of the predictions to the various assumed storage coefficient must be tested.

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		through test pumping undertaken as part of the additional investigations (values for the storage coefficient are not identified). The assumption of unconfined storage is considered likely to be incorrect. Parameterisation as an unconfined aquifer would significantly reduce the magnitude of the predicted drawdowns. This lack of clear justification for the adopted aquifer conditions may reflect the very limited groundwater field studies completed for the draft EIS that should have been completed to develop an accurate and detailed understanding of hydrogeological conditions.	
180	Section 14.6.6 Groundwater Levels and Flow Patterns) Table 14.10	**Ground Elevations Missing:** Table 14.10 requires the inclusion of ground elevation at the various locations. This may support the discussion that is related to the information provided in the table.	The draft EIS requires update to provide ground elevations in Table 14.10 and to include relevant details relating to the same in the discussion following the table.
181	Section 14.6.8.1 (Registered Bores) Appendix N Section 7.5.1	**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. 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.
182	Section 14.6.8.2 (Groundwater Entitlements) Appendix N Section 7.5.2	**Lack of Robust Assessment:** the draft EIS only includes those entitlements within 1 km of the alignment, however the predicted drawdown extends beyond the study area. 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.

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183	Section 14.6.8.2 (Groundwater Entitlements)	**Lack of Detail Regarding Groundwater Entitlements:** details of existing entitlements have been mentioned, however there is no indication of what entitlements the proposed project will require, both during and long term and what has been investigated in obtaining these.	The draft EIS requires update to appropriately address the entitlement needs for the proposed project, both during and after project construction.
184	Chapter 14.6.9.1 (Potential Aquatic Groundwater Dependent Ecosystems)	**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. *TRC 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 TRC 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.
185	Section 14.6.10 (Groundwater Environmental Values) Appendix N Section 5.5 Section 7.3.8	**Lack of Robust Assessment:** Table 8.2 of Appendix N identifies 6 Environmental Values (EVs) of relevance to the proposal. However, groundwater quality data (not presented) was only compared with drinking water and livestock guideline values only. No consideration was given to criteria (which do exist) for protection of other EVs such as irrigation and aquatic ecosystem protection (one of the most stringent criteria). The draft EIS does not meet TOR 11.37 as it does not use criteria that are appropriate to all EVs of waters.	Groundwater quality data should be compared with all relevant water quality objectives for the identified environmental values. This is required to inform the feasibility and understanding of impacts by the proposed discharge of groundwater intercepted by the tunnel to surface waters.

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186	Section 14.6.10 (Groundwater Environmental Values) Table 14.15 Appendix N Section 8.1	**Lack of Robust Assessment**: the draft EIS identifies that there is existing groundwater use for industrial purposes and industrial use is a recognised EV for MRV aquifers under the Water EPP. However, the draft EIS explicitly excludes industrial use from the assessment by stating that is not a relevant EV for the proposed project. Excluding the industrial use EV effectively enables the proposed project to have what would otherwise be an unacceptable impact.	The EIS should include groundwater use for industrial purposes as an EV to ensure that Water Objective (d) of the TOR is met.
187	Section 14.6.11 (Conceptual Hydrogeologic Model)	**Required Update of Modelling:** there has been a commitment made in Section 14.6.11 to update the conceptual hydrogeologic model. This should be undertaken to ensure accuracy.	*TRC request the OCG impose the following condition*: The proponent is required to update the conceptual hydrogeologic model used to inform the draft EIS and report results to DES and TRC at least six months prior to the commencement of construction activities.
188	Section 14.7.1 (Construction Methodology) Table 14.16	**Proposed Draining of Community Water Aquifer:** the draft EIS states that the eastern section of the tunnel will be drained until lining is installed by the Tunnel Boring Machine (TBM). As the aquifer system is already fully allocated (and is used for TRC's town water supply), the draft EIS needs to discuss exactly how the proponent intends to obtain the water entitlement.	The draft EIS requires update to provide an adequate explanation of how the proponent intends to obtain an agreement/entitlement to groundwater which is proposed to be drained during tunnel construction. This should include both temporary and permanent entitlements and the volumes required. *TRC request the OCG impose the following condition*: 'The proponent is required to provide TRC with an explanation in writing detailing how the proponent intends to obtain groundwater entitlements for the town water which will be drained both during construction and operation as a result of proposed project activities, and to receive approval from TRC in relation to groundwater entitlements, at least six months prior to commencement of construction of the project.'

#	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?*
189	Section 14.7.2.1 (Toowoomba Range Tunnel) Appendix N Section 9.3.6.1	**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.
190	Section 14.7.2.1 (Toowoomba Range Tunnel)	**Revised Modelling Required:** the draft EIS states that measures will be examined to reduce the inflow at the western entrance to the tunnel (as it is currently designed to be drained), including tanking below the water table or using an undrained design.	These mitigation options should be explicitly assessed in revised modelling to understand the potential benefits in terms of water licensing for the proposed project.
191	Section 14.7.2.1 (Toowoomba Range Tunnel) Appendix N	**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. 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.
192	Section 14.7.2.1 (Toowoomba Range Tunnel) Appendix N Section 9.3.6.2	**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.

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193	Section 14.7.2.1 (Toowoomba Range Tunnel) Table 14.16 Table 14.17	**Lack of Appropriate Modelling of Tunnel Impacts:** Table 14.16 discusses the impacts of the Toowoomba Range Tunnel. The last 700 m of the eastern section of the tunnel should also be modelled and results provided. Further, the length of the cut and cover is stated to be 105 m. Table 14.16 could be interpreted to read that the last 700 m is cut and cover. This needs to be clarified.	The draft EIS should be updated to include additional modelling to determine the impact, to clarify lengths of cut and cover provided in Tables 14.16 and 14.17. to provide detailed results and to propose and commit to appropriate remediation measures.
194	Section 14.7.2.1 (Toowoomba Range Tunnel)	**Groundwater Inflow during Operations:** the draft EIS fails to provide detail regarding what is proposed to occur with the water that drains to the eastern entrance to the tunnel once it has been captured.	The draft EIS requires update to provide further explanation of how the water is proposed to be collected, treated and disposed of while meeting all legal requirements.
195	Section 14.7.2.1 (Toowoomba Range Tunnel)	**Groundwater Level Drawdown:** it is noted that further modelling of the aquifers will be undertaken as construction progresses, however there is no indication provided in the draft EIS of the commitment for rectification if initial modelling has underestimated drawdown levels. Further, the discussion states that the maximum predicted drawdown of 10 m is expected during operations. This is in the shallow section of the MRV. Modelling results in the figures shown drawdown levels of over 40 m. As such, the document fails to meet the requirements of TOR 5.1.	The draft EIS requires update to include appropriate and clear commitments regarding rectification and to include clarification around the maximum predicted drawdown in the shallow section of the MRV. *TRC request the OCG impose the following condition*: 'The proponent is required to manage groundwater drawdown in consultation with TRC during all stages of construction and during operations. If adverse impacts to groundwater levels after construction are worse than predicted by the draft EIS, the proponent is required to undertake further rectification works in consultation with TRC and to TRC's satisfaction.'
196	Section 14.7.2.2 (Refinement of the Predictive Model)	**Inadequate Groundwater Assessment:** the predictive model for groundwater is limited to the project area which does not cover the impacts to groundwater aquifers and TRC drinking water supply bores.	The draft EIS is incomplete as modelling is not complete and still in the data acquisition stage.

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197	Section 14.7.3.1 (Water Resources) Appendix N Section 10.2.1.1 Table 10.5	**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.
198	Section 14.7.4.2 (Toowoomba Range Tunnel)	**No Consideration of Water Use from Western Tunnel Entrance:** the draft EIS states throughout Chapters 13, 14 and the supporting technical appendices that during operations, groundwater that is intercepted by the tunnel will be discharged to an ephemeral tributary of Gowrie Creek. The EIS gives no consideration to a beneficial use of this water which will be generated from the Main Range Volcanic aquifer which is a potable water resource. 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 western entrance to the tunnel to ensure they can meet the objectives for water in the TOR. The current approach of disposal to Gowrie Creek is unsustainable and does not comply with QLD regulatory frameworks as no consideration was given to options other than disposal. *TRC request the OCG impose the following condition*: 'The proponent is required to consult with TRC regarding reuse opportunities for water from the western entrance to the tunnel at least six months prior to commencement of construction of the project.'

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		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 disposal of water from the western entrance to the tunnel to Gowrie Creek is the least preferred management option under Queensland law. In a drying climate it is not acceptable to TRC 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 a potable water aquifer.	

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		The proposed management of water from the tunnel does not meet any of the TOR's Objectives for Water (see below). **Water** **Objective** Development is planned, designed, constructed and operated to protect environmental values of Queensland waters and supports the achievement of water quality objectives. The construction and operation of the project should aim to meet the following objectives: (a) equitable, sustainable and efficient use of water resources (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 (c) the condition and natural functions of water bodies, lakes, springs and watercourses are maintained—including the stability of beds and banks of watercourses (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	
199	Section 14.8.2 (Proposed Mitigation Measures)	**Groundwater Inflows to Tunnel:** the draft EIS recognises the potential to tank the entrance to the western tunnel. This will likely significantly reduce groundwater inflows during construction and operation and therefore provides the most robust means of mitigating potential drawdown impacts.	In accordance with TOR 11.56 it is recommended that the proponent tank the entrance to the western tunnel. The tanking level (height) should be determined on site specific water level data.
200	Section 14.8.2 (Proposed Mitigation Measures) Table 14.29	**Sourcing of Construction Water:** consideration may also be given to recycled water from the WTP at the western entrance of the tunnel, Wetalla, (Oakey Army Base and Council - cleansed PFAS water from Oakey).	The draft EIS requires update to appropriately consider alternate water sources for construction water use, including using recycled water.
201	Section 14.8.2 (Proposed	**Impacts to Bores:** the draft EIS fails to consider vibration impacts to bores over the long term, both from construction and operation activities.	The draft EIS requires update to provide additional information addressing issues created by vibration on existing bores during

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	Mitigation Measures) Table 14.29		both construction and operation activities. Vibration impacts should also be addressed to cover other infrastructure in the area such as water mains, reservoirs etc.
202	Section 14.8.2 (Proposed Mitigation Measures) Appendix N Section 11.2 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.
203	Section 14.8.2 (Proposed Mitigation Measures) Appendix N Section 11.2 Table 11	**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.	*TRC request the OCG impose the following condition*: '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 Groundwater Management and Monitoring Programs (GMMP). This calibrated model should be used to inform future make good, water licensing requirements and updates to the GMMP.'
204	Section 14.8.2.1 (Groundwater Bore Impairment)	**Inappropriate Proponent Commitments:** the draft EIS indicates that the proponent will adopt some of the make-good obligations described in the *Water Act 2000.* It is indicated that the measures will be on a case-by-case basis. The proponent proposes to use the *Water Act 2000* trigger thresholds of 5m for a consolidated aquifer and 2 m for an unconsolidated aquifer. While the adoption of the make-good measures is recommended, the use of the Water Act trigger thresholds may result in greater than 50% of the available drawdown in TRC bores being exceeded.	Since TRC's water security position may be impacted, it is recommended that all active TRC water supply bores are baselined by the proponent prior to the commencement of any construction or any other activities that may interfere with groundwater.

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205	Section 14.8.2.1 (Groundwater Bore Impairment)	**Lack of Commitment to Complete Appropriate Survey:** the draft EIS should include the undertaking of a landholder bore survey and make good measures prior to the commencement of construction and finalised after construction activities are complete, in order to identify if there are any additional changes to landholder bores as a result of construction activities.	*TRC request the OCG impose the following condition*: The proponent is required to complete a landholder bore survey both at the pre-design phase and after construction activities are complete, and to make good any adverse impacts to landholder bores in consultation and agreeance with bore owners.
206	Section 14.8.2.1 (Groundwater Bore Impairment)	**Inadequate Groundwater Assessment:** groundwater bore impairment has not been assessed adequately and therefore the draft EIS fails to meet the requirements of TOR 11.63.	The draft EIS requires update to discuss whether this includes the TRC drinking water supply, and if it does, to discuss the impacts for TRC water Supply and provide appropriate mitigation measures to supply the water for impacted drinking water supply.
207	Section 14.8.2.1 (Groundwater Bore Impairment) Appendix N Section 11.2 Table 11	**Inappropriate Baseline Assessment:** the proponent proposes to undertake a bore baseline assessment. 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. Given the inherent uncertainties in the geology and thus the residual uncertainty in any groundwater modelling, and the importance of the town water supply bores to the community, the proponent should be conditioned to undertake baseline assessments of all town water supply bores in the maximum extent of predicted drawdown (including all sensitivity analyses).
208	Section 14.8.3 (Baseline Groundwater Management and	**Misleading Data:** 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.

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	Monitoring Program) Table 14.30 Appendix N Section 11.3 Table 11.3		
209	Section 14.8.3 (Baseline Groundwater Management and Monitoring Program) Appendix N Section 11.3	**Inappropriate Mitigation:** the primary proposed mitigation measure during operations is monitoring. This is not considered a mitigation measure, rather an indicator of management action performance.	Given the significant uncertainties relating to model predictions, the proponent should be conditioned by the OCG to: - Undertake a bore baseline assessment of town supply bores prior to the commencement of construction activities. - Enter into a make good agreement with the TRC and all other potentially affected bore owners prior to the commencement of construction or any other activities that may interfere with groundwater. - Implement a monitoring program to include a series of bores along the tunnel alignment and between the tunnel and the Toowoomba City water supply bores to provide an early warning system of potential impacts to the town water supply. The monitoring network must be developed in consultation with TRC. - A trigger response system that will ensure the proponent implements mitigation measures prior to potential drawdown impacts being realised at the town supply bores. The proponent must be conditioned to obtain

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			written agreement of the trigger response system from TRC. - Telemeter water level sensors make the live monitoring data publicly available (on the internet) in both a graphical and raw (data) format. - Make publicly available (on the internet) any water quality data collected under the Groundwater Management and Monitoring Programs (GMMPs) within 1 month of the laboratory reporting date.
210	Section 14.8.3.1 (Baseline Groundwater Management and Monitoring Program)	**Lack of Commitment to Transparency:** water level monitoring recorded as part of the proposed project should be made available to public. This should include both temporary and long-term monitoring bores.	The draft EIS requires update to include a clear commitment to make water level monitoring records available to the public. *TRC request the OCG impose the following condition*: The proponent is required to record all data from both temporary and long-term monitoring bores placed on QLDGlobe for public access.
211	Section 14.8.3.1 (Baseline Groundwater Management and Monitoring Program) Appendix N Section 11.3.1 Section 11.3.2	**Baseline not Quantified:** 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 draft EIS should state the minimum duration of baseline monitoring. It is recommended that this is a minimum of one year to ensure that a wet season and dry season are included.
212	Section 14.9 (Impact	**Revised Groundwater Modelling Required:** the draft EIS identifies the residual significance of reduced groundwater levels affecting groundwater	In accordance with the proponent's commitments throughout the draft EIS, the groundwater modelling should be updated in

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	Assessment) Table 14.31	users due to the Toowoomba Range Tunnel as moderate for both construction and operations. The groundwater assessment and modelling undertaken for the draft EIS is considered insufficiently robust to reduce the significance of any predicted impacts. TRC'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.	a revised draft EIS. It is recommended that revised modelling include: - Incorporation of all the comments and recommendations provided in TRC's response that relate to groundwater. - A base case scenario incorporating those mitigation measures to which the proponent has committed to incorporating in the design and construction. - Additional scenarios that are modelled to incorporate the proposed (but uncommitted) mitigation measures to assess the reduction in potential impact.
		Chapter 15: Noise and Vibration	
213	Chapter 15 Appendix F (Proponent Commitments)	**Lack of Commitment to Accept Responsibility of Adverse Noise Impacts:** the proponent 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. 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: - Minimum 10.38 mm laminated glass with acoustic seals for small windows. - Minimum 14.38 mm laminated glass or double-glazing with acoustic seals for large windows and sliding doors. - Double brick walls.	The noise assessment for the draft EIS requires update to meet the requirements of the OCG's TOR through the use of appropriate noise criteria and guidelines and the provision of clear commitments to mitigation for adverse noise impacts as a result of proposed project activities (both for construction and operation). Noise mitigation measures should not be limited by feasibility where an adverse impact is unacceptable.

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		- Insulated roof with sarking. 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 mandates 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 discussed in the comments below, recommend 44 dB(A) Lnight as the limit to mitigate sleep disturbance. 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 the noise assessment. These dwellings will have varying noise impacts but will not receive any mitigation. Over 600 sensitive receptors in the TRC study area fall into this category. Further, Appendix F, Table F5.1 doesn't state that the proponent will commit to implementing noise mitigation measures. It only says that that they will investigate reasonable and practicable (or feasible) mitigation measures. The mitigation measures may be limited to what the proponent deems to be 'feasible'. The General Environmental Duty under the *Environmental Protection Act 1994* refers to taking *all reasonable and practicable measures to prevent or minimise environmental harm*, it does not refer to the term feasible. The TOR 5.1 for the proposed project state 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.' Based on the points raised here, it is concluded that the draft EIS does not satisfy the fundamental	

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		objective described in TOR 5.1 and grossly underestimates the noise impacts.	
214	Chapter 15 Appendix F (Proponent Commitments) Appendix O (Construction Noise and Vibration Technical Report) Appendix P (Operational Railway Noise and Vibration Technical Report)	**No Clear Commitment to Implementing Vibration Mitigation Measures:** Table 15.11.1 states that during construction, additional vibration mitigation measures will be investigated and implemented where it is found impacts are above acceptable levels. It is not clear what the term 'acceptable levels' actually means, or which criteria would be referred to for triggering mitigation measures. During operations however, the proponent makes no reference or commitment in Table 15.11.1 to implementing mitigation measures for vibration. Presumably this was because no vibration impacts were predicted for the operational phase, however this is not obvious to the reader. The proponent's commitment to implementing vibration mitigation measures during construction and operations is equally unclear in Tables F3, F4 and F5 in Appendix F. Tables F3 and F4 include reference to further vibration assessment and monitoring but make no clear commitment to implementing vibration mitigation measures for construction or operations where it is found impacts are above acceptable levels. Further, Table F5 states that the proponent *will investigate reasonable and practicable (or feasible) mitigation measures* where monitored vibration levels are above operational noise design criteria. There are several issues with this, firstly there are no vibration criteria provided for triggering implementation of vibration controls (only noise criteria are provided at Annexure A). Secondly, Table F5 doesn't state that the proponent will commit to implementing vibration mitigation measures. It only says that that they will <u>investigate</u> *reasonable and practicable (or feasible) mitigation measures.* Thirdly, the mitigation measures may be limited to what the proponent deems feasible. The General Environmental Duty under the *Environmental Protection Act 1994* refers to taking all *reasonable and*	The draft EIS requires update to meet the requirements of the OCG's TOR and to clearly define the criteria that will be used to define an unacceptable vibration impact. The proponent also needs to include clear and unambiguous commitments to investigating and implementing all reasonable and practicable vibration mitigation measures when an unacceptable vibration impact occurs. Vibration mitigation measures should not be limited by feasibility where an adverse impact is unacceptable.

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		practicable measures to prevent or minimise environmental harm, it does not refer to the term feasible. Appendix O and Appendix P also fail to include any clear reference or commitment to vibration mitigation measures. As a result, the draft EIS does not meet TOR 6.4, TOR 6.5, TOR 11.122 or TOR 11.123. This is because the draft EIS states that further assessment of vibration impacts will be required during the detailed design and monitoring will be undertaken during operations. However, the draft EIS does not clearly define what an unacceptable vibration impact is, and the proponent fails to make any clear commitment to mitigating any unacceptable vibration impacts.	
215	Chapter 15 Appendix O Section 4.3 (Construction Blasting Criteria)	**Missed Potential to Further Mitigate Blasting Impacts**: Section 4.3 of Appendix O addresses blasting impacts and the possible effect on human comfort and building damage with respect to both vibration and air overpressure. The guideline values used are consistent with that commonly applied for other projects. While the limits used are conservative and generally apply to longer term projects like quarries, the values are protective of both amenity and the protection of buildings. Higher limits could equally apply and may allow for overall reduced impact by decreasing the number of blasts and excavation time for a particular area.	Section 4.3 of Appendix O requires update to consider the potential adoption of higher limits for blasting, which would in turn reduce overall impact to the community and environment by decreasing the number of blasts and excavation time.
216	Chapter 15 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).	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.

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		While it would be more appropriate to use a relationship better correlated to the rock mass for the tunnel entrances 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. 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...'	
217	Chapter 15 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 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.	The draft EIS requires update to appropriately assess adverse noise and 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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		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 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...'	
218	Chapter 15 Appendix O 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. 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.
219	Chapter 15 Appendix O 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.	The draft EIS requires update in order to meet the requirements of TOR 5.1 and TOR 6.3. This should include, but not be limited to, the provision of infrastructure to 'hood' the entrances to the tunnel and mitigate adverse noise and dust impacts from both trains in the tunnel, and trains waiting to use the tunnel. *TRC request the OCG impose the following condition:* 'The proponent is required to include, at both tunnel entrances, built infrastructure to hood the tunnel entrances and to mitigate adverse impacts from noise and dust on the

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		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.	community and surrounding environment. This should be large enough to shelter (and mitigate noise and dust from) trains waiting to use the tunnel. The proponent is required to reach written agreement with TRC regarding the structure at the western entrance to the tunnel and to gain written approval at least six months prior to the commencement of construction activities.'
220	Chapter 15 Appendix O Section 6.1.1.3 (Identification of Receptors)	**Difficult Identification of Receptors:** receptors are identified for assessment of tunnel infrastructure noise, with RES0697 and RES1848 identified as residential receptors at the western and intermediate tunnel entrances respectively. Section 6.1.1.3 of Appendix O states that the receptors are shown in Appendix F, and it is noted that receiver locations are shown in Appendix B, however it is unclear where the receptors are 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. As a result, the draft EIS fails to meet the requirements of TOR 11.115 which requires mapping at a suitable scale.	The draft EIS requires update to meet the requirements of the OCG's TOR and to specify the locations of receptors on a map for the fixed infrastructure receptors which includes maps with searchable text which shows receptors on and in the vicinity of the entire project corridor.
221	Section 15.4 (Legislation, Policies, Standards and Guidelines) Table 15.3	**Inappropriate Guidelines**: 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 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.' The WHO published a relevant updated guideline in 2018. The proponent has discussed and ultimately dismissed the older guideline, yet stayed completely silent on the newer, current guideline. The 2018 guidelines	The draft EIS requires update to meet the requirements of the OCG's TOR and to demonstrate how the assessment criteria used to inform the noise assessment can protect the ability to sleep at sensitive dwellings. If this cannot be accurately and effectively demonstrated, then the criteria and assessment need to be revised.

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		strongly recommends a night time outdoor noise limit of 44 dBA Leq,night (external façade level), yet the proponent has adopted trigger levels of 55 dBA Leq,night and 80dBA Lmax, both of which appear to have no connection to any credible guidance regarding the mitigation of sleep disturbance. As it stands, 608 out of the approximately 3 750 sensitive receptors in the TRC study area have predicted night time noise levels of ≥ 44 dB(A) Leq,night, which will adversely impact sensitive receptors, but are below the adopted criteria for mitigation. As a result, these 608 receptors 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, which is clearly unacceptable. Figure 24 from Appendix P (below) shows the dwellings that exceed WHO noise guidelines but do not trigger the proponent's mitigation process (as indicated by the red box). 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. The proponent does not provide any suitable justification for ignoring this guidance. As a result, the draft EIS fails to meet the requirements of TOR 5.1, TOR 5.4 and the TOR's Noise and Vibration Objective.	

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		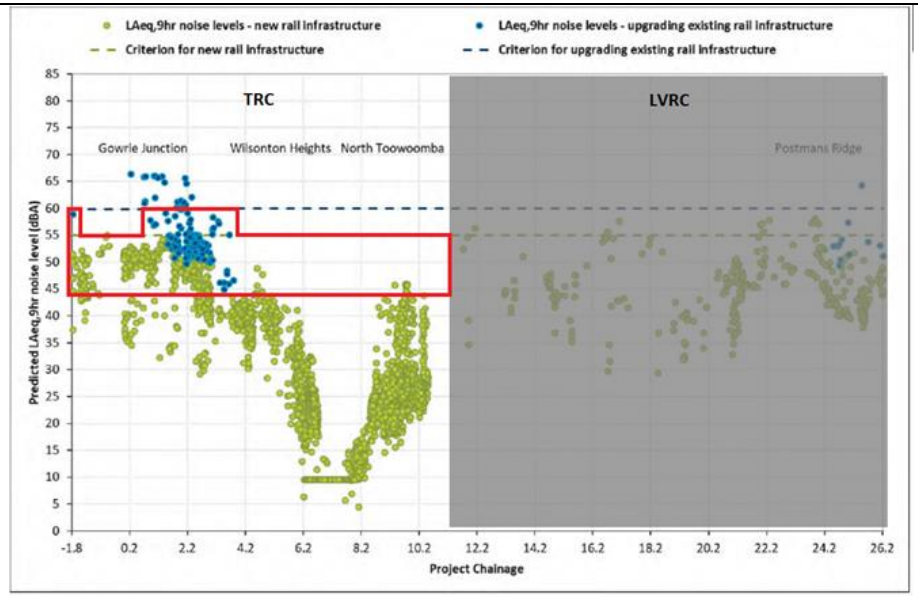	
222	Section 15.8.1 (Airborne Construction Noise Impacts)	**Inappropriate Construction Noise Assessment**: a significant number of dwellings and critical facilities are predicted to receive construction noise levels above criteria limits. The document states that 'the assessment has identified that measures to reduce and control construction noise will need to be developed and implemented…' yet fails to provide a firm commitment regarding how this will occur. As a result, the document fails to meet the requirements of TOR 5.1 and the TOR's Noise and Vibration Objective.	The draft EIS requires update to meet the requirements of the OCG's TOR and to appropriately commit to ensuring adverse construction noise impacts are mitigated in a way which ensures that there will be *no significant residual impact.* This should include, but not be limited to, the inclusion of the adoption of and commitment to, the use of appropriate Queensland policies for noise mitigation and the provision of infrastructure to 'hood' the entrances to the tunnel and mitigate adverse noise and dust impacts from both trains in the tunnel, and trains waiting to use the tunnel. Further, the draft EIS requires update to meet the requirements of the OCG's TOR and to specify the locations of receptors on a

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			map for the fixed infrastructure receptors which includes maps with searchable text which shows receptors on and in the vicinity of the entire project corridor. *TRC request the OCG impose the following conditions*: 'The proponent is required to include, at both tunnel entrances, built infrastructure to hood the tunnel entrances and to mitigate adverse impacts from noise and dust on the community and surrounding environment. This should be large enough to shelter (and mitigate noise and dust from) trains waiting to use the tunnel. The proponent is required to reach written agreement with TRC regarding the structure at the western entrance to the tunnel and to gain written approval at least six months prior to the commencement of construction activities.' and 'The proponent is required to consult with TRC regarding the appropriate development and implementation of construction noise management plans, and to gain approval in writing from TRC regarding the content of such plans, at least six months prior to the commencement of construction activities.
223	Section 15.8.3 (Construction Vibration Impacts) Section 15.8.3.1 Underground Infrastructure	**Failure to Appropriately Assess Construction Vibration Impacts**: the draft EIS has not assessed adverse vibrational impacts to existing underground infrastructure in the proximity of the project as a result of construction activities. This includes, but is not necessarily limited to: - Sewer Rising mains and associated pumping stations. - Mt Kynoch Water Treatment plant.	The draft EIS requires update to assess the impacts to underground infrastructure such as utilities and other important infrastructure for vibration impacts during construction of the proposed project construction in order to meet the TOR for the project. Provided that Mt Kynoch water treatment plant includes large groundwater reservoirs in the premises, the impact assessment is required to include these vital community infrastructures.

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		- Water reservoirs and associated pipelines in and around the proposed project vicinity. As a result, the draft EIS fails to meet the requirements of TOR 5.1.	This needs to include the development of monitoring plans prior to construction of the tunnel including, but not limited to, Dilapidation Survey.
224	Section 15.8.9.4 (Potential for Sleep Disturbance from Railway Operations)	**Lack of Clarity Regarding Noise Impacts:** Section 15.8.9.4 states that 'the adopted LAmax noise trigger accounts for the highest level of noise during train pass-bys and the number of pass-by events in the night-time.' However, it is not made 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.	The draft EIS requires update to correct for clarity and accuracy.
225	Section 15.8.9.4 (Potential for Sleep Disturbance from Railway Operations)	**Incomplete Assessment of Noise Impacts:** Section 15.8.9.4 proposes that LAmax noise levels are well below the adopted criteria at receptors that are > 500 m 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. As a result, the draft EIS fails to meet the requirements of TOR 5.1 and the TOR's Noise and Vibration Objective.	The draft EIS requires update to meet the requirements of the TOR and to quantify the number of dwellings that may experience sleep disturbance and the real extent of those impacts. The assessment should be made according to the most recent WHO guideline and to ensure that adverse impacts to sensitive dwellings from train activities are minimised to a level which ensures that there is *no significant residual impact*.
226	Section 15.8.9.4 (Potential for Sleep Disturbance from Railway Operations)	**Inappropriate Noise Modelling:** Section 15.8.9.4 references the *WHO Night Noise Guidelines for Europe 2009* and accepts that an external level of LAmax 49 dB(A) is the trigger for sleep disturbance, assuming opened windows. The section goes on to state 'noise modelling indicates that predicted noise levels from rollingstock could be above LAmax 49 dBA within approximately 1 km of the rail corridor.' The document further states 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.' The 1 km distance is a grossly	The draft EIS requires update to meet the requirements of the OCG's TOR and to quantify the number of dwellings that may experience sleep disturbance and the real extent of those impacts. The assessment should be made according to the most recent WHO guideline regarding rail noise and sleep disturbance. Further, the document requires update to meet the requirements of the OCG's TOR and to appropriately commit to ensuring adverse construction noise and vibration impacts are mitigated in a way which ensures that there will be *no significant residual impact.* This should include, but not be

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		underestimated guide. 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 314239 is approximately 1.6 km from the track and is predicted to experience 68 dBA Lmax. The impacts of sleep disturbance are widely reported and are 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 potential for sleep disturbance and its associated health impacts appears to be underestimated and ultimately dismissed and as a result, the draft EIS fails to meet the requirements of TOR 5.1 and the TOR's Noise and Vibration Objective.	limited to, the inclusion of the adoption of and commitment to, the use of appropriate Queensland policies for noise mitigation and the provision of infrastructure to 'hood' the entrances to the tunnel and mitigate adverse noise and dust impacts from both trains in the tunnel, and trains waiting to use the tunnel. In addition to this, the draft EIS requires update to meet the requirements of the OCG's TOR and to specify the locations of receptors on a map for the fixed infrastructure receptors which includes maps with searchable text which shows receptors on and in the vicinity of the entire project corridor. *TRC request the OCG impose the following conditions*: 'The proponent is required to commit to providing noise mitigation measures at properties which experience adverse noise impacts as a result of the proposed project for any property which experiences noise above the WHO Guideline's external level of LAmax 49 dB(A) (the trigger for sleep disturbance). The proponent is required to work with the property owner to ensure mitigation is managed to a suitable and acceptable level and in a way which ensures there is no significant residual impact as a result of noise from the proposed project (both during construction and operation). and 'The proponent is required to consult with TRC regarding the appropriate development and implementation of construction noise management plans, and to gain approval in writing from TRC regarding the content of such plans, at least six months prior to the commencement of construction activities.'

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227	Section 15.8.9.4 (Potential for Sleep Disturbance from Railway Operations)	**Dismissal of Impacts on Sensitive Dwellings:** Section 15.8.9.4 states '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.' This section does not elaborate on factors that do influence tolerance to noise, nor does it 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, which is not acceptable. 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 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. As a result, the draft EIS fails to meet the requirements of TOR 5.1 and the TOR's Noise and Vibration Objective.	The draft EIS requires update to meet the requirements of the OCG's TOR and to quantify the number of dwellings that may experience sleep disturbance and the real extent of those impacts. The assessment should be made according to the most recent WHO guideline and to ensure that adverse impacts to sensitive dwellings from train activities are minimised to a level which ensures that there is *no significant residual impact*. *TRC request the OCG impose the following conditions*: 'The proponent is required to commit to providing noise mitigation measures at properties which experience adverse noise impacts as a result of the proposed project for any property which experiences noise above the WHO Guideline's external level of LAmax 49 dB(A) (the trigger for sleep disturbance). The proponent is required to work with the property owner to ensure mitigation is managed to a suitable and acceptable level and in a way which ensures there is no significant residual impact as a result of noise from the proposed project (both during construction and operation). and 'The proponent is required to consult with TRC regarding the appropriate development and implementation of construction noise management plans, and to gain approval in writing from TRC regarding the content of such plans, at least six months prior to the commencement of construction activities.'
228	Section 15.11.3 (Operational Railway Noise	**Dismissal of Comprehensive Noise Mitigation Measures:** Section 15.11.3 presents examples of at-premises noise mitigation 'such as increased glazing or façade constructions.' It is not expected that this is intended to limit the possible mitigation options, but it is unclear, nonetheless. The word 'or'	The draft EIS requires update to provide clarity regarding noise mitigation commitments.

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	and Vibration Mitigation)	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.	*TRC request the OCG impose the following conditions*: 'The proponent is required to commit to providing noise mitigation measures at properties which experience adverse noise impacts as a result of the proposed project for any property which experiences noise above the WHO Guideline's external level of LAmax 49 dB(A) (the trigger for sleep disturbance). The proponent is required to work with the property owner to ensure mitigation is managed to a suitable and acceptable level and in a way which ensures there is no significant residual impact as a result of noise from the proposed project (both during construction and operation). and 'The proponent is required to consult with TRC regarding the appropriate development and implementation of construction noise management plans, and to gain approval in writing from TRC regarding the content of such plans, at least six months prior to the commencement of construction activities.'
229	Section 15.11.3 (Operational Railway Noise and Vibration Mitigation) Table 15.51	**Inappropriate Consideration of Property Noise Mitigation Options:** 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. 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 and as a result, the draft EIS fails to meet the requirements of the OCG's TOR Noise and Vibration Objective. Informally, imagine trying to entertain in your BBQ area with 2 freight trains passing each hour at noise levels up to 91 dB(A).	The draft EIS requires update to meet the OCG's TOR and to appropriately consider private open spaces as living areas and provide specific mitigation options for these spaces. *TRC request the OCG impose the following condition*: 'The proponent is required to commit to providing noise mitigation measures at properties which experience adverse noise impacts as a result of the proposed project for any property which experiences noise above the WHO Guideline's external level of LAmax 49 dB(A) (the trigger for sleep disturbance). The proponent is required to work with the property owner to ensure mitigation is managed to a suitable

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			and acceptable level and in a way which ensures there is no significant residual impact as a result of noise from the proposed project (both during construction and operation).
230	Section 15.12.7 (Operational Tunnel Infrastructure Noise) Appendix O (Section 6.1 Operational Fixed Infrastructure)	**Underassessment of Operational Tunnel Noise:** 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* (AQO), 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 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. The predicted tunnel infrastructure noise levels at the closest residential receptors to the western tunnel entrance and the tunnel ventilation shaft are 21 dB(A) and 36 dB(A) respectively. The background level nearby is 36 – 37 dB(A) based on measurement locations G2H_03 and G2H_04. The different criteria is therefore unlikely to change the outcome in this case, however the ongoing requirement to comply with the EP Act is worth noting.	The draft EIS requires update to appropriately consider criteria for fixed infrastructure based on the EP Act criteria Certification measurements of fixed plant noise should be undertaken to ensure expectations are met, especially at the intermediate ventilation shaft where the predicted level is just 1 dB(A) below the adopted criteria.
		Chapter 16: Social	
231	Chapter 16	**Placemaking Initiatives:** Chapter 16 mentions placemaking several times. While the idea of placemaking initiatives is a welcome inclusion in the draft EIS, there is little substance is provided in terms of actual examples of what the proponent proposes to achieve. As a result, the requirements of TOR 11.138, TOR 11.143 and TOR 11.147 have not been met.	The draft EIS requires update to elaborate on placemaking initiatives by providing more detail on actual locations and potential design outcomes, thereby meeting the requirements of TOR 11.138, TOR 11.143 and TOR 11.147. This may be targeted at the major impact sites including, but not limited to, the Kingsthorpe and Gowrie communities, the Gowrie Junction

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			overpass, the western tunnel entrance and the ventilation shaft building.
232	Section 16.8.7.1 (Regional Skills Investment Strategy) Appendix Q (Social Impact Assessment Technical Report) Section 7.2.3	**Out of Date Assessment Data:** Section 16.8.7.1 refers to Regional Skills Investment Strategy (RSIS) projects in Toowoomba and Lockyer Valley LGAs being able to contribute towards identification of skills shortages and supporting skills development. Section 7.2.3 of Appendix Q also refers to Regional Skills Investment Strategy projects in Toowoomba and Lockyer Valley LGAs being able to contribute towards identification of skills shortages and supporting skills development. Both RSIS projects were concluded in early 2021 and therefore have no capacity to support skills required for the proposed project.	The draft EIS requires update to remove all references to the now concluded RSIS.
233	Section 16.11 (Social Impact Management Plan) Table 16.15 Section 16.11.6 (Workforce Management)	**Aboriginal and Torres Strait Islander Engagement:** the draft EIS proposes plans for Training and Development and Indigenous Employment and for engagement with Traditional Owner groups. In order to accurately and effectively meeting the requirements of TOR 11.142 and 11.145(b), there needs to be acknowledgement and awareness that Traditional Owner Groups, while the correct agents to consult about Native Title and Cultural Heritage, are not necessarily representative of the Indigenous demographic in the region, many of whom have traditional links to other places, or have had links severed as a result of past Government policies.	The draft EIS requires update to include a commitment to consult and connect with the wider Indigenous demographic specifically in relation to projected employment, economic, business and social opportunities and to more appropriately meet the requirements of TOR 11.142 and TOR 11.145(b).
		Chapter 17: Economics	
234	Section 17.5.1.4 (Labour Force) Section 17.6.5.3 (Regional	**Labour Force:** the labour force characteristics provided in Section 17.5.1.4 are out of date (Sept 2020 quarter) and latest figure (March 2021 quarter)	TRC supports local employment opportunities but recognises the impact on already tight labour market. The draft EIS requires update to ensure the assumptions made around local availability of skills reflect the tighter employment market and

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	Economic Impact Analysis Results) Appendix R (Economic Impact Assessment Technical Report) Section 5.2	demonstrates a significantly lower unemployment rate for Toowoomba LGA (6.7% vs current figure of 5.0%). Further to this, the labour and construction sector assumptions provided in Section 17.6.5.3 are out of date and not reflective of current situation and local employment assumptions in Appendix R are based on outdated unemployment data which has reduced from 7.2% at the time of drafting the report (Sept 2020) to 3.5% in July 2021.	current data. The draft EIS should also clearly describe how the labour force for the proposed project will be sourced locally at the time of construction, when rates may be even tighter and sourcing an appropriate workforce locally will likely be next to impossible. Further, the document should also detail proposed actions should a local labour force be unable to be sourced. This should include, but not be limited to, provisions for an imported labour force, such as accommodation camps and skills development in the region especially for youth and migrant people.
235	Section 17.5.1.6 (Youth Labour Force)	**Missing Reference:** the draft EIS fails to provide a reference for the source of youth labour force data.	The draft EIS requires update to provide a reference for the youth labour force data.
236	Section 17.6.2 (Workforce)	**Lack of Consideration of Regional Unemployment Rate:** the draft EIS states that the construction workforce is expected to be sourced from communities 'within a safe driving distance (less than 1 hour) of the proposed project'. However, existing unemployment rate and anecdotal evidence of sustained skilled worker shortages indicates that there is very limited availability of labour within close proximity of the proposed project. Given this, it is not considered that the draft EIS has effectively addressed the topic of the potential social impacts or considered mitigation measures which would be appropriate to the adverse social impacts which can be reasonably expected to be experienced as a result of the labour force for the project having to be sourced from areas outside the TRC and LVRC regions. As a result, when considering the OCG's requirements for the Social Impact Assessment (SIA), the draft EIS fails to meet the requirements of TOR 11.145 (a)(b)(c)(d)(e) and TOR 11.146 (a)-(e).	The draft EIS requires update to meet TOR 11.145 and TOR 11.146 in relation to sourcing the proposed project workforce and its subsequent impact on the local TRC and LVRC regions. The proponent should consider the opportunity to provide a lasting and positive legacy for these local regions. *TRC request the OCG impose the following condition:* 'When recruiting the construction workforce for the proposed project, the proponent is required to: 1. Continue to prioritise local employment for local communities. 2. Ensure any workforce brought in from areas outside the TRC and LVRC regional areas (i.e., non-residents) are provided with appropriate resources, including, but not necessarily

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			limited to, the construction of permanent housing accommodation at the proponent's expense for use during project construction and to be made available to the community once construction is complete.'
237	Section 17.6.2.2 (Changes to Housing and Accommodation)	**Lack of Consideration of Regional Housing Shortage:** Section 17.6.2.2 also assumes that the majority of workforce will be drawn from the local region and therefore will already be residing in existing housing. However, evidence suggests this will not be the case and workers will be brought into the region and therefore will require temporary housing provided by the proponent in order to avoid exacerbating the already existing housing shortages in the TRC region. As such, the draft EIS fails to meet the requirements of TOR 11.145 and 11.146 as the social impact of an increased demand in housing has not been appropriately addressed. A recent study by TRC (by TRC's Planning and Development Committee) has identified that TRC has sufficient short term land supply but fails to consider that any introduction of a non-local workforce will impact the ability of TRC to provide appropriate housing and accommodation choices. This finding clearly indicates that TRC's current housing choices and availability will not be solved in the near future, and current housing rates (0.4% vacancy) cannot cater to increased demand which the proposed project will create.	The draft EIS requires update to cater for a non-resident workforce and discuss the necessity for providing all associated infrastructure, including, but not limited to, accommodation requirements. This should include any approvals required, including those required under the local planning schemes for both the TRC and LVRC regions. The proponent should consider the opportunity to provide a lasting and positive legacy for these local regions. *TRC request the OCG impose the following condition*: When recruiting the construction workforce for the proposed project, the proponent is required to: 1. Continue to prioritise local employment for local communities. 2. Ensure any workforce brought in from areas outside the TRC and LVRC regional areas (i.e., non-residents) are provided with appropriate resources, including, but not necessarily limited to, the construction of permanent housing accommodation at the proponent's expense for use during project construction and to be made available to the community once construction is complete.'

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238	Section 17.7 (Cumulative Impacts)	**Incorrect Consideration of Cumulative Impacts:** Section 17.7 of the draft EIS refers to Defence Housing Australia (DHA)as having potential for cumulative impact on the Project. The DHA project has been withdrawn and will not go ahead.	The draft EIS requires update to remove any consideration of the DHA project.
239	Section 17.8 (Impact Management) Table 17.14	**Inappropriate Terminology:** the project employment section of Table 17.14 states that contractors/operators will be required to 'seek' local workers.	Given the current labour shortage in the region, Table 17.14 requires update to state that contractors/operators will be required to 'preference' local workers.
240	Section 17.8 (Impact Management) Table 17.15	**Incorrect Terminology:** the tourism section of Table 17.15 erroneously refers to the Toowoomba and Surat Basin Enterprise (TSBE) in relation to tourism promotion and marketing. TSBE not a tourism entity.	The draft EIS requires update to remove references to the TSBE and replace with Southern Queensland Country Tourism.
		Chapter 18: Cultural Heritage	
241	Section 18.5.1 (Methodology) Figure 18.1	**Inappropriate Indigenous Cultural Heritage Commitments:** Section 18.5.1 states that indigenous cultural heritage was assessed and states that Cultural Heritage Management Plans (CHMPs) have been developed in 2018 with the Yuggera Ugarapul People and the Western Wakka Wakka People. This process is now three years out of date and should have been undertaken again prior to lodgement of the draft EIS. Further to this, the cultural heritage study area is shown as exceptionally narrow, being within the rail corridor only, and doesn't take into account the wider scope of the impact of the proposed project on the area surrounding the rail corridor. TOR 11.173 states the draft EIS should provide details of the CHMP and 'any associated agreements that has been developed or reached.' Based on the contents of the draft EIS, the proposed alignment will cause disruption to	The draft EIS requires update to include a commitment to update the CHMPs prior to the commencement of construction and to incorporate a study area which includes the wider scope of the impact the proposed project will have on cultural heritage issues in order to meet the TOR objective for cultural heritage.

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		some areas of indigenous cultural heritage which are outside the study area, and as such, it is unclear whether the CHMPs will achieve the TOR objective for cultural heritage which requires that 'the project does not compromise the cultural heritage significance of a heritage place or heritage area.'	
		Chapter 19: Traffic, Transport and Access	
242	Section 19.5 (Transport, Traffic and Access Study Area) Figure 19.4a	**Proposed Construction Transport Routes:** Figure 19.4a shows proposed construction routes using major heavily used transport routes through Toowoomba City. How will this impact not only on day-to-day functioning of the road system but also peak demand tourist periods like Carnival of Flowers, has not been appropriately discussed in the draft EIS. TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affect transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). The draft EIS has failed to comprehensively consider the impact of using major and heavily used transport routes through Toowoomba City and whether or not the use of such routes is appropriate given the significant increase in adverse impacts to both traffic and safety. As such, the document fails to meet TOR Transport Objectives (a) and (c) and TOR 11.113. TRC wants to ensure that the local road network supports the existing State-controlled network (including the Toowoomba Bypass and the New England Highway), thereby ensuring a whole-of-network outcome. TRC, with the support of the DTMR, therefore recommends that (as previously discussed) west-facing ramps be constructed by the proponent to connect Boundary Street to the Toowoomba Bypass to facilitate this. The construction of the	The draft EIS requires update to meet the requirements of the OCG's TOR and to remove all references to using major and heavily used transport routes through Toowoomba City for construction traffic. TRC do not consider the use of such routes appropriate given the significant increase in adverse impacts to both transport and safety as a result of such a proposal. As previously discussed, the draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass. *TRC request the OCG impose the following conditions:* 'The proponent is required to design and construct two ramps on the western side of the Toowoomba Bypass to connect the Bypass to Boundary Street, at the proponent's cost. The proponent is required to undertake these works in consultation with TRC and to reach written agreement with TRC regarding design and construction of the ramps, at least six months prior to the commencement of any construction activities. Further, the ramps are required to be constructed prior to the commencement of any construction activities on the proposed alignment (including the western tunnel entrance) in order to enable the proponent to have use of these ramps during construction and for construction traffic.'

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		western ramps by the proponent prior to the commencement of construction of the proposed alignment or the western tunnel entrance will facilitate the use of the ramps by project construction traffic, which would then ensure this traffic is not adversely impacting Toowoomba's roads, and Toowoomba City itself (which the draft EIS is currently proposing to do and which TRC do not agree with.	and 'The proponent is required to consult with TRC regarding proposed transport routes for construction vehicles and to meet written agreement with TRC regarding transport routes for construction vehicles at least six months prior to the commencement of construction activities.'
243	Section 19.5.1.2 (Construction Transport Routes) Figure 19.4a Section 19.6.1.2 (Project-related traffic) Table 19.8 Section 19.7.3.2 Table 19.20 Appendix U Section 1.5.2 (Primary Construction Transport Routes) Figure 1.4b Section 2.2.1 (Local Government Roads) Table 2.4 Section 5.3.5 (Construction	**Proposed Construction Transport Routes:** TOR 11.110 requires the proponent to provide sufficient information to allow an independent assessment of how existing and proposed transport infrastructure will be affected by project transport at the local and regional level. The draft EIS proposes a number of construction traffic routes that would not be acceptable to Council (such as routes to/from Cooby Dam that would not be required as Council will not supply raw water to the project; and the QR rail low clearance bridge on North Street which will impede access) and others (Hermitage Road, Boundary Street north of the Second Range Crossing) that would require upgrading in one form or another given the nature and duration of activities proposed at the western entrance of the tunnel. The draft EIS proposes the carting of spoil, tunnel waste, quarry materials and sleepers using B-Double semi-trailers. However, many of these proposed roads (including Gowrie Junction Road, Hermitage Road, Boundary Street north of the Second Range Crossing) are not approved B-Double routes. For example, the draft EIS proposes a total heavy vehicle loads per year of nearly 20 000 and increases of between 10% and 60% on Highfields Road through Highfields township, Klein Road and Kleinton School Road, Cooby Dam Road, Meringandan Road and other roads (assumed for raw water cartage which the proposed project will not have access to), 15 000 per year (30%) on Boundary Street north of the Second Range Crossing, and nearly 7	The draft EIS requires update to provide sufficient information to meet the requirements of TOR 11.110 and to appropriately consider the suitability of local roads for the uses proposed, including, but not limited to, whether heavy vehicles are able to access these roads, and whether their presence on the roads mentioned is suitable, or authorised by TRC. Should any proposed route be able to be vetoed by the provision of western ramps on the Toowoomba Bypass from Boundary Street, the draft EIS requires update to amend proposed routes and to commit to the provision of these ramps (as previously discussed). *TRC request that the OCG impose the following conditions:* 'The proponent is required to consult with TRC regarding construction traffic routes for all impacted TRC local roads and commit to delivering appropriate mitigation measures which address all identified issues and to reach written agreement with TRC in relation to all issues at least six months prior to the commencement of any construction activities.' and 'The proponent is required to ensure that the construction contractor consult with TRC regarding the use of local roads for the mass haulage of construction material (including, but not

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	Water Requirements) Section 5.6.1 (Access Tracks and Haul Routes) Table 5.7 Section 5.7.10 (Road Network and Restrictions on Vehicle Size) Section 5.10 (Traffic Generation by Activity) Table 5.16 Table 5.18 Section 6.2.1 (5% Traffic Comparison on Links) Table 6.2 Appendix C (Road Hierarchy) Appendices C1 and C2 Appendix M (Water Construction Traffic Routes) Appendices M1 to M3	000 (50%) on Hermitage Road between Gowrie Junction Road and Boundary Street (purpose not clear), for periods of at least two years and more. Road Hierarchy data presented in Appendix C of the TIA is not consistent with Council's adopted Road Hierarchy. The traffic volumes reported for a number of TRC roads in the TIA is not consistent with Council's traffic count data and/or current usage of those roads.	limited to, commitments to conduct road dilapidation surveys prior to the commencement of construction, an appropriate maintenance program during construction, and rehabilitation to original condition or better after construction activities have ceased) and to reach written agreement with TRC in relation to this issue at least six months prior to the commencement of any construction activities.' and 'The proponent is required to design and construct two ramps on the western side of the Toowoomba Bypass to connect the Bypass to Boundary Street, at the proponent's cost. The proponent is required to undertake these works in consultation with TRC and to reach written agreement with TRC regarding design and construction of the ramps, at least six months prior to the commencement of any construction activities. Further, the ramps are required to be constructed prior to the commencement of any construction activities on the proposed alignment (including the western tunnel entrance) in order to enable the proponent to have use of these ramps during construction and for construction traffic.' and 'The proponent is required to consult with TRC regarding proposed transport routes for construction vehicles and to meet written agreement with TRC regarding transport routes for construction vehicles at least six months prior to the commencement of construction activities.'

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	Appendix O (Multi-Combination Heavy Vehicle Routes)		
244	Section 19.5.1.3 (Construction Activity)	**Lack of Appropriate Consideration of Accommodation Requirements:** TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). The draft EIS indicates that accommodation facilities will not be required given proximity to Toowoomba and adjoining population centres. How has peak demand times like the Carnival of Flowers been accounted for in this assessment when demand for accommodation is extremely high.	The draft EIS requires update to meet the requirements of TOR 11.113 and to include a discussion regarding how have peak event periods been considered, and to include specific detail directly relating to the impact on housing affordability given the housing market, and in particular, the rental market is already exceptionally tight.
245	Section 19.6 (Methodology) Table 19.5	**Underassessment of Impacts from Increases in Heavy Vehicle Movements:** TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affect transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). The draft EIS fails to meet the requirements of the TOR Transport Objectives (a) and (c) and TOR 11.113 as Table 19.5 erroneously indicates that there will be no impact on active transport from either construction or operational activities despite there being significant increases in heavy vehicle movements.	The draft EIS requires update to appropriately address the proposed and significant increases in heavy vehicle movements on TRC roads and to meet the requirements of the OCG's TOR for traffic.
246	Section 19.6 (Methodology) Section 19.6.1	**Lack of Transparency for Traffic Data:** TOR 11.110 requires the proponent to provide sufficient information to allow an independent assessment of	The draft EIS requires update to include detail specific to what active transport data has been utilised in the assessment in order to meet the requirements of TOR 11.113.

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	(Data Collection and Analysis)	how existing and proposed transport infrastructure will be affected by project transport at the local and regional level. Section 19.6.1 fails to discuss how the traffic data was used to identify the impact analysis accounted for people walking and cycling. This is not considered to be an appropriate methodology for the analysis of impacts on active transport and as a result, the requirements of TOR 11.110 have not been met.	
247	Section 19.7.2 (Public Transport Networks) Section 19.8.2 (Construction) Section 19.8.2.7 (Impacts on Emergency Services)	**Lack of Appropriate Consideration of Traffic Impacts:** TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affect transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). The rationale used in Section 19.7.2 in relation to impacts on public transport services is that because of their 'low frequency', public transport services would not be substantially impacted by construction traffic routes through Toowoomba City. However, the section does not go on to provide any insight into what impacts there might be on the current services that are operating as a result of additional traffic congestion and potential delays in the network as a direct result of the proposed and substantial increase in traffic. Public transport patronage is already low due to the low frequency of services. Any further disruption caused by congestion and delays to services could further erode what little patronage there is and lead to further congestion on the roads and as such, should be addressed by the draft EIS in order to meet the requirements of the OCG's TOR.	The draft EIS requires update to meet the requirements of the TOR Transport Objectives (a) and (c) and TOR 11.113 and to remove all references to using major and heavily used transport routes through Toowoomba City for construction traffic. TRC do not consider the use of such routes appropriate given the significant increase in adverse impacts to both transport and safety as a result of such a proposal. As previously discussed, the draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass. *TRC request the OCG impose the following conditions:* 'The proponent is required to design and construct two ramps on the western side of the Toowoomba Bypass to connect the Bypass to Boundary Street, at the proponent's cost. The proponent is required to undertake these works in consultation with TRC and to reach written agreement with TRC regarding design and construction of the ramps, at least six months prior to the commencement of any construction activities. Further, the ramps are required to be constructed prior to the commencement of any construction activities on the proposed alignment (including the western tunnel entrance) in order to

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		Further, Section 19.8.2 state that potential impacts from this proposed increase in traffic numbers includes increased congestion and driver frustration Section 19.8.2.7 indicates that the proposed project has the potential to result in the following impacts to emergency services as a result of the proposed construction traffic route through the Toowoomba City: - Increased journey times on road linkages used by construction traffic. - Increased waiting time at intersections used by construction traffic. - Temporary altered driving conditions in proximity to construction areas, such as reduced speed limits, mobile traffic lights and lane reconfigurations.	enable the proponent to have use of these ramps during construction and for construction traffic.' and 'The proponent is required to consult with TRC regarding proposed transport routes for construction vehicles and to meet written agreement with TRC regarding transport routes for construction vehicles at least six months prior to the commencement of construction activities.'
248	Section 19.8.2 (Construction)	**Conflicting Traffic Impact Claims:** TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affect transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). The impacts cited in Section 19.8.2 do not align with assertions made in previous sections regarding the public and active transport network in regard to there being no or low impacts on these modes.	The draft EIS requires update to meet the requirements of the OCG's TOR. The document also requires update to remove all references to using major and heavily used transport routes through Toowoomba City for construction traffic. TRC do not consider the use of such routes appropriate given the significant increase in adverse impacts to both transport and safety as a result of such a proposal. As previously discussed, the draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass.
249	Section 19.8.2.4 (Active Transport) Section 19.13 (Conclusion)	**Inappropriate Active Transport Assessment:** TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affect transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government).	The draft EIS requires update to give appropriate and serious consideration to the very real adverse impacts on pedestrians and cyclists as a result of these proposed significant increases to heavy vehicle movements. Further, the draft EIS also needs to reflect the aims and intent of the *Queensland Walking Strategy 2019-2029* and the *Queensland Cycling Strategy 2017-2027*. TRC strongly recommend the proponent have a discussion with

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		The draft EIS notes that the proposed construction routes traverse through areas with moderate to high pedestrian activity and acknowledges that significant increases in heavy vehicle movements may adversely impact pedestrian movements. However, the draft EIS concludes that because these routes already facilitate a high proportion of heavy vehicle movements, that any additional construction traffic to these routes is unlikely to result in a significant increase in risk to pedestrians. It is unclear how significant increases in heavy vehicle movements will not **significantly** increase risk to people walking and cycling. Beyond the physical risk there is also the issue of deterring people from walking and cycling both now and in the future. Section 19.13 includes an assertion that cycling routes will not be adversely affected by additional heavy vehicles resulting from construction activities because there are already heavy vehicle movements on these routes. TRC absolutely reject this statement as it is exceptionally misleading and should therefore be removed. Further, the second last paragraph of the conclusion asserts the project will maintain the safety and efficiency of **all** potentially affected transport modes despite documenting that there will be significantly increased volumes of heavy vehicles causing disruptions and delays in the transport network. This assertion is also not accepted by TRC as the draft EIS has absolutely failed to appropriately consider the adverse impact the proposed activities will have on the community and appropriately meet the requirements of TOR 11.113.	TMR's Cycling and Walking Team to ensure people's ability to walk and cycle are not unduly impacted during both construction and operation of the proposed project and to meet the requirements of TOR 11.113. The draft EIS requires update to remove all references to using major and heavily used transport routes through Toowoomba City for construction traffic. TRC do not consider the use of such routes appropriate given the significant increase in adverse impacts to both transport and safety as a result of such a proposal. As previously discussed, the draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass.
250	Section 19.9.2 (Design Considerations and Initial Mitigation)	**Inaccurate Assumption of Effects of Adverse Impacts:** the draft EIS erroneously states that there will be no impact on the public and active transport networks as a directly result of the proposed significant increases in heavy vehicle movements during construction of the proposed project. TRC do not agree with this assumption and asserts that there must be specific consideration given to active and public transport requirements in	The draft EIS requires update to meet the requirements of the OCG's TOR and to appropriately consider impacts on public and active transport networks as a result of proposed project activities and to remove all references to using major and heavily used transport routes through Toowoomba City for construction traffic. TRC do not consider the use of such routes

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		order to meet the requirements of TOR Transport Objectives (a) and (c) and TOR 11.113 (which requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government)).	appropriate given the significant increase in adverse impacts to both transport and safety as a result of such a proposal. As previously discussed, the draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass. *TRC request that the OCG impose the following condition*: The proponent is required to consult with TRC specifically on design considerations and mitigation measures in relation to active and public transport at least six months prior to construction activities. Further, the proponent is required to reach written agreement with TRC in relation to these design consideration and mitigation measures in order to ensure there is no significant residual impact on public and active transport networks as a result of proposed project activities.'
251	Section 19.9.3 (Proposed Mitigation)	**Lack of Consideration for Walking and Cycling:** TOR Transport Objectives (a) and (c) require the proponent to maintain the safety and efficiency of all affect transport modes for transport system users, and to ensure any required works are compatible with existing infrastructure and future transport corridors. TOR 11.113 requires mitigation strategies to be prepared in close consultation with relevant transport authorities (including Local Government). Section 19.9.3 does not give any **specific consideration** to be given to walking and cycling in any mitigation measures undertaken and in road safety audits.	The draft EIS requires update to include appropriate mitigation measures for walking and cycling, and to expand the scope of Road Safety Audits beyond the consideration of level crossings only, and to include the extent of all roads impacted, including, but not limited to, specific consideration given to walking and cycling, and to remove all references to using major and heavily used transport routes through Toowoomba City for construction traffic. TRC do not consider the use of such routes appropriate given the significant increase in adverse impacts to both transport and safety as a result of such a proposal. As previously discussed, the draft EIS requires update to discuss (and commit to) the construction of western ramps to connect Boundary Street to the Toowoomba Bypass.

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			TRC request the OCG impose the following condition: 'The proponent is required to include the consideration of residents who walk and cycle when completing Road Safety Audits for the proposed project. The rights of people walking and cycling must be recognised by construction workers and these modes must not be marginalised when considering traffic management and road safety requirements.'
		Chapter 20: Hazard and Risk	
252	Chapter 20	**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.' <u>Rail Safety</u> The proposed and inappropriate use of the Gowrie to Grandchester future state transport corridor significantly increases the risk to the community from potential rail accidents, including, but not limited to, derailment, given the corridor is located primarily located in built up areas (as the intent of the corridor is to provide the community with easy access to high-speed passenger rail). 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 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 draft EIS is based on historic derailment data from 2016 to 2020. It is not clear from the document whether the predicted derailment incident rate statistics have	The draft EIS requires update to meet the requirements of the OCG's TOR and appropriately commit to ensuring community health and safety is appropriately managed at all stages of the proposed project. Further, the possibility of train derailments should be properly assessed, including the appropriate assessment of the planned significant increase in train length and numbers on an alignment originally intended to provide high-speed passenger rail. *Any* risk to the community from train derailment is considered to be too high. *TRC request the OCG impose the following condition:* 'The proponent is required to review the hazards and risks of the project to the community to: - Provide a project specific assessment of derailment risk that accounts for unique elements of the proposal which increase the potential for derailments.

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		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 Rail System. A project specific estimated derailment rate is not provided in the draft EIS even though the document acknowledges that there are project specific factors which increase the risk of derailment. 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. 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. 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 TRC. 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 and urban area. Even though the draft 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.	- Provide an accurate assessment of sleep disturbance impacts from noise emissions and the associated health risks. - Provide an assessment of the risk of Q-fever to the community associated with livestock trains.'

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		Air and Noise The project poses potential health risks to the community from noise and air emissions, but these lack any form of meaningful assessment in the draft EIS. TRC's assessment of the draft EIS found that sleep disturbance may be experienced at more than 600 dwellings, but the draft EIS suggests that only 23 dwellings may be impacted. 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 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. Table 20.11 at Chapter 20 rates the residual risk of noise impact from rail operations as low. TRC oppose this finding as the assessment of noise is 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 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 TRC residents that the proponent has failed to recognise or demonstrate how they will accept responsibility for preventing these impacts.	

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		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 rates the residual risk of air emission impacts from rail operations as low. TRC opposes this finding as the assessment of air emissions is flawed (as demonstrated in detail 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 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 significant but wholly unaccounted for in the draft EIS. 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 public health risks associated with the project.	

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253	Section 20.6.1.1 (Existing Natural Hazards) Section 20.7.2 (Project Hazards)	**Inappropriate Assessment of Flood Hazards**: the western tunnel entrance and cut area is affected by the Flood Hazard Overlay (FR1-FR4). The impacts of the watercourse, overland flow and potential redirection of flood waters into the tunnel has not been discussed in Chapter 20. Section 20.6.1.1 discusses information provided by DES but provides no actual discussion of the potential impacts of the flooding hazard created by the proposed location of the western tunnel entrance (information which is available through TRC's readily available Planning Scheme and Flood Studies). The discussion of hazards resulting from the tunnel provided in Section 20.7.2 mentions 'flooding' but is silent on the provision of any further information and fails to mention the potential release of hazardous materials to the environment as a result of a flood event. Further, there is no discussion regarding bushfires or land slips. As a result, the draft EIS fails to meet TOR 11.151, which requires the document to 'describe the measures required to ensure that the project avoids the release of hazardous materials to the environment, including as a result of a natural event.'	The draft EIS requires update to meet the requirements of TOR 11.151 by appropriately detailing how the release of hazardous materials to the environment will be appropriately managed at the western tunnel entrance during flood, bushfire or land slip events.
254	Section 20.8.2 (Proposed Mitigation Measures) Table 20.10	**Lack of Consultation for Flooding Hazards:** Table 20.10 states that the proponent will work with local councils and local flood specialists to inform and refine assessments and design relating to flooding. This hasn't occurred to date and should have occurred before the proposed alignment was chosen by the proponent, as the impacts on flood areas are not known and have not been modelled. TOR 11.64 requires 'a desktop assessment of rail lines and surrounding catchments must be undertaken and potential for flooding qualitatively described.' TOR 11.65 requires 'a flood study must be included in EIS'TOR 11.66 requires 'the flood study should address any requirements of local or regional planning scheme and current accepted practice and statutory	The draft EIS requires update in order to meet the requirements of the OCG's TOR as they relate to flood studies.

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		requirements in relation to flood plain management.' TOR 11.70 requires 'reference must be made to all relevant studies published by local governments.'	
		Chapter 21: Waste and Resource Management	
255	Chapter 21	The draft EIS fails to provide appropriate access for garbage collection trucks and safe turn-around for heavy vehicles at the end of Draper Road Charlton. Further, the proposed permanent closure of Morris Road, Gowrie Junction at two locations will impact residents in the same manner. It is not appropriate for the proposed project to prioritise facilitating the proposed tunnel entrance and spur line over existing community services without providing an appropriate solution The adverse impact of permanently impeding access for garbage collection trucks to service residential properties and the lack of consideration regarding facilitating a safe turn-around for heavy collection trucks is inappropriate and as a result, TOR 5.1 and Transport Objectives (a) – (c) have not been met.	At each point of road closure, a cul-de-sac turn around area with minimum radius suitable for safely turning a waste collection truck will be required. The draft EIS requires updating to include a clear commitment from the proponent to provide such facilities and in order to meet the requirements of the OCG's TOR.
256	Section 21.5.3 (Licensed Waste Management Facilities) Table 21.4	**Inappropriate Identification of Landfill Sites:** Table 21.4 of the draft EIS does not include Jondaryan landfill. The discussed landfill sites of Yarraman, Greenmount, Millmerran and Pittsworth will become transfer station Waste Management Facilities (WMFs) by the time the proposed project is delivered.	The draft EIS requires update of Table 21.4 to identify appropriate landfill areas in the TRC region.
257	Section 21.6.4 (Waste Storage Areas) Section 21.7 (Spoil Production)	**Inappropriate Spoil Reuse and Disposal Locations:** Section 21.7 identifies a potential quantity of one million cubic metres of spoil requiring disposal (which is contrary to amounts quoted elsewhere in the draft EIS). A list of potential reuse options for the spoil is presented, some within the scope of	The draft EIS requires update to include a clear commitment to fund the associated costs of developing beneficial re-use opportunities for spoil created as a result of the proposed project, and to working directly with Council regarding any proposed beneficial re-use which involves Council

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	Section 21.8 (Potential Impacts)	the project and a number which are outside the scope of the project, such as: - Rehabilitating existing quarries within the area. - Daily cover for waste management facilities (e.g., Toowoomba Waste Management Centre). - Profiling and capping soils for waste management facilities. - Fill material for other projects, such as the TRC's Charlton Sports Precinct development. In order for spoil material from the proposed project to be utilised on Council projects or operations (including rehabilitation and new construction) consultation with Council, significant studies, planning, design, material specification and testing will be required which will involve substantial resourcing and cost. However, the draft EIS fails to provide any detail in relation to any of these matters.	infrastructure, projects, or operations. At all times, high quality landscape outcomes are required and TRC will not accept the proponent permanently stockpiling spoil for any reason or at any time. Further, the draft EIS should include the acknowledgement that the quantity of spoil may not be accepted at TRC landfills as clean fill or cover material due to the impact on prematurely reducing the planned operational life of the existing landfills. *TRC request the OCG impose the following conditions*: 'The proponent is required to work with Council regarding any proposed beneficial reuse of tunnel (and other) spoil, particularly in instances which involve TRC infrastructure, projects or operations. Further, the proponent is required to find alternate uses for the spoil, such as landscape amenity and noise impact abatement in consultation with TRC and to reach agreement with TRC regarding the use of the spoil, at least six months prior to the commencement of construction. and 'The permanent stockpiling of spoil by the proponent (or its construction contractor) is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'

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258	Section 21.6.4 (Waste Storage Areas) Section 21.7 (Spoil Production) Section 21.8 (Potential Impacts) Appendix T (Spoil Management Strategy)	**Inappropriate Spoil Reuse and Disposal Locations:** the draft EIS proposes disposal of unsuitable excess spoil from the proposed tunnel as: - Day cover at Toowoomba Waste Management Centre. - Profile and capping soils for future landfill closure sites. - Disposal at designated waste facilities. The potential impacts resulting from the proposed use of unsuitable excess soil are: - The spoil does not have the required properties for the proposed uses and may not meet the required quality specifications. - The timing of the proposed tunnel construction does not fit into the timing for rehabilitation of landfill sites. - The rehabilitation of old landfill sites requires appropriate preparation and design work that is not allowed for in the Council budget in the proposed construction timeframe. The proposed supply of an excess of cover material at Toowoomba Waste Management Centre (TWMC) has the potential to reduce the total design life of the landfill and as such, has adverse impacts on the community.	The draft EIS requires updating in order to meet the requirements of the OCG's TOR, particularly the Spoil Management Strategy and Waste Management Plan for the proposed project require amendment. This should be undertaken and developed in consultation with TRC to appropriately identify actual sites where spoil may be used and that may require rehabilitation, rather than discussing conjectured sites which are highly likely to be inappropriate for the proposed use. This should also include a clear commitment from the proponent for: - The provision for preliminary works and rehabilitation designs by a competent and experienced party in consultation with TRC. - A provision for construction and rehabilitation costs. At all times, high quality landscape outcomes are required and TRC will not accept the proponent permanently stockpiling spoil for any reason or at any time. *TRC request the OCG impose the following conditions:* 'In relation to excess spoil, the proponent is required (in consultation with TRC) to identify appropriate sites in the TRC region where such spoil may be used (including, but not limited to, areas in the TRC region which may require rehabilitation and areas which may require abatement of adverse impacts directly related to the proposed project). This should include, but not be limited to, the provision for preliminary works and rehabilitation designs to be completed by a suitably qualified

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			and experienced person and a clear commitment by the proponent to accept the financial responsibility of all construction and rehabilitation costs, including the appropriate disposal/use of excess spoil. Any agreement with TRC is to be provided in writing at least six months prior to commencement of construction activities.' and 'The permanent stockpiling of spoil by the proponent (or its construction contractor) is not approved for any reason or at any time. The proponent is required to work with TRC to reach agreement regarding the re-use of spoil for purposes such as but not limited to, limiting adverse impacts from project noise, amenity, or changes to flood regimes. The proponent is required to reach written agreement with TRC regarding the use of spoil at least six months prior to the commencement of construction activities.'
259	Section 21.11 (Conclusion)	**Inappropriate Haul Routes:** the draft EIS proposes the use of the TWMC as the primary facility to receive excess spoil from construction of the tunnel (and other infrastructure). Access to the TWMC from the entrance of the western tunnel, which would likely be via Morris Road, Gowrie Junction Road, Hermitage Road and East Hermitage Road. The proposed large amount of heavy traffic on these secondary roads, combined with interaction with local traffic and an exit from the Toowoomba Bypass at the Mort Street interchange is unacceptable for TRC as the increase in congestion will likely result in adverse impacts to TRC's community and infrastructure.	The draft EIS requires update to include a clear commitment from the proponent to fund the (already planned) second access to TWMC via Morris Rd and Willims Road, including the provision of a second weighbridge and gatehouse. The result of this commitment would be the provision of efficiencies and cost savings for the proposed project, as well as a significant benefit for the wider traffic network as a result of reduced degradation, less impact on service levels and the avoidance of increased waiting times for the public. *TRC request the OCG impose the following condition:* 'The proponent is required to fund the construction of the already planned second access to the Toowoomba Waste

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			Management Centre via Morris Road and Willims Road, including weighbridge and gatehouse.'
		Chapter 22: Cumulative Impacts	
260	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 Toowoomba 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.
261	Chapter 22	**Potential Barrier for Essential Infrastructure:** as a result of proposed project, there will be a future barrier for essential utility infrastructure to service the undeveloped lands on both sides of the proposed corridor.	*TRC request the OCG impose the following condition*: 'The proponent is not to refuse essential utility crossings across the proposed corridor at any time in the future.'
262	Chapter 22 Section 22.5 (Assessable Projects) Table 22.7 Section 22.6.7 (Groundwater) Table 22.17	**Underassessment of Impacts:** Chapter 22 fails to include a number of projects in the cumulative impact assessment which should have been considered, including, but not necessarily limited to: - Sewer RM replacement by Interlink as part of proposed project. - Cooby and Cressbrook dams Spillway Upgrading Projects. - Mt Kynoch water treatment Plant Upgrade Project.	The draft EIS requires updating to consider that these projects will contribute to the cumulative impacts of the proposed project and to meet the requirements of TOR 11.41, TOR 11.44, TOR 11.47, TOR 11.48, TOR 11.52, TOR 11.54, TOR 11.55, TOR 11.56, TOR 11.57, TOR 11.58, TOR 11.59, TOR 11.62 and TOR 11.63.

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		- Trunk water pipeline replacement projects around Mt Kynoch and Weale Street area. - Sewer RM diversion project to bypass Kooringa Valley pumping station. - Stage 3 of the New Acland Coal Mine (currently on hold pending State Government Approval, which has been held up by legal processes. New Acland Coal Mine operations will be suspended, and the site will be in Care and Maintenance with minimal staff by November 2021). - Cumulative groundwater impacts have been identified as 'low' which is not correct given that the proposed affected aquifer provides Toowoomba's town water supply, and the groundwater assessment has been underassessed.	
263	Section 22.6 (Summary of Cumulative Impacts and Mitigation Measures) Section 22.6.3 (Landscape and Visual Amenity) Table 22.12	**Lack of Appropriate Consideration of Cumulative Impacts from Light:** 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. 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: - There will be night lighting associated with construction activities (e.g., 24/7 activities and on-site security floodlighting) that were assessed up to moderate impact (Viewpoint 8) and should be considered, although their significance may be low-medium due to their relatively low duration of impact. - There will be some impact from permanent changes to streetlighting and tunnel lighting during operation of the Project.	The draft EIS requires update to appropriately assess the cumulative impacts of lighting over time and in combination with impacts created by other activities, and to propose appropriate mitigation measures to reduce cumulative impacts to ensure there is *no significant residual impact* and the requirements of TOR 7.3 are met.

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		Dismissing the impacts from lighting entirely means that no actual mitigation measures are recorded to be recommended in the event of such impacts. These impacts should be recorded here, and mitigation measures listed. As a result, the cumulative impacts arising from temporary and permanent lighting are inappropriately dismissed and the draft EIS fails to meet the requirements of TOR 7.3.	
264	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 by TRC. *TRC request the OCG impose the following conditions*: '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.' and 'The proponent is required to work closely with TRC and to reach written agreement with TRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.'
265	Chapter 22 Section 22.6.7 (Groundwater)	**Underassessment of Impacts:** Section 22.6.7 incorrectly claims no 'possible impacts' including groundwater drawdown and possible drought-associated drinking water quality and quantity issues as a result of the proposed project.	The draft EIS requires update to address these impacts and the cumulative impact assessment revised accordingly.

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266	Section 22.6.8.2 (Operational Cumulative Impact)	**Lack of Consideration of Noise Impacts from the 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. The lack of detailed assessment of the cumulative noise impacts from the proposed project and the Toowoomba Bypass means that the draft EIS fails to meet the requirements of TOR 5.1 and TOR 7.3.	The draft EIS requires update to meet the requirements of the OCG's TOR through the appropriate assessment of cumulative noise impacts from the operation of the proposed project and the Toowoomba Bypass. Further, the document requires update to meet the requirements of the OCG's TOR and to appropriately commit to ensuring adverse construction noise and vibration impacts are mitigated in a way which ensures that there will be *no significant residual impact.* This should include, but not be limited to, the consideration of cumulative impacts, specifically, but not limited to, cumulative impacts from the proposed project and the Toowoomba Bypass, and the inclusion of the adoption of and commitment to, the use of appropriate Queensland policies for noise mitigation and the provision of infrastructure to 'hood' the entrances to the tunnel and mitigate adverse noise and dust impacts from both trains in the tunnel, and trains waiting to use the tunnel. *TRC request the OCG impose the following condition:* 'The proponent is required to consult with TRC regarding the appropriate development and implementation of construction noise management plans, to ensure cumulative impacts from the Toowoomba Bypass are appropriately considered, and to gain approval in writing from TRC regarding the content of such plans, at least six months prior to the commencement of construction activities.'
267	Section 22.6.14 (Waste and	**Inappropriate Characterisation of Waste:** Table 22.27 assigns the impact characteristics of waste management a relevance factor of 1 for both the	The draft EIS requires updating to quantify the waste expected to be presented to the TWMC and the timeframe over which

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	Resource Management) Table 22.27	'magnitude/intensity of the impact', and the 'duration of the Impact'. However, the impact associated with waste management is currently undetermined and wholly dependent on the volume of material proposed to be presented at the TWMC and the period of the total projected project duration over which material would be presented.	such waste will be presented more accurately before a low magnitude, impact or duration can be claimed. The draft EIS also needs to define the framework against which the impacts are defined (i.e., the proposed project's budget or TRC's Waste Management operations and capital budgets). When framed against the Waste Services budgets and normal annual resource consumption, the adverse impacts that waste generated by the proposed project may be significant.
		Chapter 23: Draft Outline Environmental Management Plan	
268	Section 23.3.3.4 (Works that are not Part of Project Works)	**Utility Relocation:** Section 23.3.3.4 should include commitments to relocate utilities to the satisfaction of the utility owners and at the proponent's expense.	*TRC request the OCG impose the following condition:* The proponent is required to relocate any impacted utilities in consultation with and to the owner's satisfaction, and at the proponent's expense.
269	Section 23.8 (Incidents, Notifications and Emergencies)	**Environmental Harm:** potential to adversely impact the environment as a result of damage to TRC owned infrastructure utilities has not been appropriately assessed by the draft EIS.	*TRC request the OCG impose the following condition:* 'The proponent is required to obtain prior approval from TRC at least three months prior to commencing construction prior to working adjacent/near sewerage and water infrastructure utilities owned and operated by TRC, and to provide safe work method statements to TRC for review and comment, and to ensure service interruptions and environmental harm from sewerage spills/release to the environment does not occur as a result of project activities.'
270	Section 23.15.3.1 (Environmental Outcomes)	**Environmental Outcomes:** Section 23.15.3.1 downplays the required rehabilitation of all affected waterways in particular Gowrie Creek and associated creek crossings along this section to the western tunnel entrance by stating that:	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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		- '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 landscape, topography and landform, to the greatest extent possible, while complying with engineering design standards and legislative requirements.' - '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…' as appropriate commitments to rehabilitation and revegetation have not been made and requirements have been downplayed.	This will require significant site preparation beyond the immediate disturbed areas, treatment and then ongoing maintenance and monitoring for a successful revegetation outcome. 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.). 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 in key areas along Gowrie Creek which is in poor condition due to lack of canopy vegetation. At all times, high quality landscape outcomes are required by TRC and the draft EIS requires update to reflect this requirement.

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271	Section 23.15.3 (Landscape and Visual Amenity)	**Lack of Commitment to Monitoring Lighting Impacts:** Section 23.15.3.4 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., refer Section 23.15.5.4). Specific reference should be made to what type of monitoring will be conducted (and if lighting monitoring or audit is included) in management of landscape and visual amenity. It is currently not clear what monitoring will be conducted related to permanently installed lighting, and as a result, the draft EIS fails to meet the requirements of TOR 6.5.	The draft EIS requires update to meet the requirements of TOR 6.5 and to include a clear commitment to conduct environmental monitoring which includes light monitoring and/or audits.

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272	Section 23.15.3 (Landscape and Visual Amenity) Table 23.7	**No Specific Measures for Mitigating Visual Impacts of Lighting:** TOR 11.84 requires the draft EIS 'describe any proposed measures to avoid, minimise or mitigate potential impacts on landscape character and visual amenity.' Table 23.7 lists proposed mitigation measures related to visual amenity for the draft Environmental Management Plan. There are two (2) lighting-relevant measures listed: 1) 'During detailed design, review assessment of the potential for operational light impacts to residents and identify if/where attenuation measures are required.' This statement seems to suggest an assessment has already been conducted (although this is not documented). This statement also lacks detail on the impacts it is addressing (which elsewhere have been dismissed) and specifics on the attenuation measures that may be required. 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.' This statement acknowledges the impacts that may occur in this phase of the project. It is useful to recommend reducing night-time operation as a mitigation strategy. Other specific strategies could reference AS/NZS 4282:2019. These statements should be made more specific with respect to mitigation measures and could include examples of localised attenuation measures for lighting impacts, particularly as they appear nowhere else in the list of mitigation measures in Chapter 10. No specific measures are proposed for	The draft EIS requires update to meet the requirements of TOR 11.84 and to provide detail on lighting impacts and specifics regarding required attenuation measures and mitigation measures, with particular reference to AS/NZS 4282:2019.

#	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?*
		mitigating the visual impacts of lighting during the construction or operational phase.	
273	Section 23.15.4 (Flora and Fauna) Table 23.8	**Lack of Commitment to Mitigate Impacts of Lighting 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' … 'in particular, address measures to protect or preserve any threatened or near-threatened species.' Table 23.8 fails to provide any mitigation measures to minimise the impacts of lighting to fauna during construction or operation of the proposed project. It is critical that mitigation measures are included to reduce impacts of lighting on flora and fauna. Guidance on such measures is available from the National Light Pollution Guideline for Wildlife (as previously discussed).	The draft EIS requires update to meet the requirements of TOR 11.93 and appropriately include measures to mitigate lighting impacts on fauna during both construction and operation of the proposed project.
274	23.15.6 Surface Water and Hydrology Section 23.15.6.2 (Performance Criteria)	**Adverse Flooding Impacts:** Section 23.15.6 states that proposed project works will 'not cause adverse flooding impacts.' It is noted that flood impacts have not considered nearby sewerage pumping stations at Draper Road and Old Homebush Road at Gowrie Junction. Also, it is not considered adequate to assess only for 1% AEP flood event.	The draft EIS requires updating to assess flood impacts for sewerage pumping stations as well as adjacent infrastructure (in addition to roads) for all flood scenarios to check whether there are flood impacts as a result of proposed project.
275	Section 23.15.7 (Groundwater) Table 23.12 (Mitigation Measures – Groundwater)	**Incomplete Groundwater Assessment:** the assessments details for groundwater impacts are incomplete and do not support the development of appropriate mitigation measures. There is no consideration/discussion regarding the adverse impacts to Toowoomba City water supply as a result of the groundwater drawdown estimated to occur as a result of the proposed project. Further to this, the information provided regarding the sourcing of construction water is also inadequate to appropriately inform the draft EIS.	The draft EIS requires update to include further investigation of groundwater impacts using groundwater modelling for a wider (and more appropriate) area. Further, the performances/monitoring program of Toowoomba City bores in the short-, medium- and long-terms also require inclusion. Mitigation measures are also required to be identify and commit to how the proponent will reinstate the Toowoomba City water supply system if adversely impacted by proposed project activities.

#	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?*
276	Section 23.15.7.2 (Performance Criteria)	**Generic Performance Criteria:** Section 23.15.7.2 provides performance criteria for groundwater drawdown and associated risk which is very generic in nature.	The draft EIS requires update to include appropriate and detailed performance criteria for groundwater drawdown and associated risk including the identification of measurable mitigation measures. Performance criteria should be clear, measurable and provide certainty.
		Chapter 24 - Conclusions	
277	Chapter 24	**Lack of Consideration of Collective 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 proposed 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 provided below (this is by no means an exhaustive list). Groundwater that enters the tunnel during operations is proposed to be discharged to the Gowrie Creek catchment. This will turn the receiving ephemeral watercourse (only flows after rainfall) into a permanently flowing watercourse. However, this significant action which is described in Chapter 14 is barely considered in the following chapters: - 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. - 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	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.

#	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?*
		ecology and aquatic ecosystems and wet weather releases of water are preferred. 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. - 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. Section 11.7.11 refers to impacts to Murray Cod 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. 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.	
		Appendix C: Design Drawings	
278	Appendix C Appendix L (Surface Water)	**Monitoring Station Locations: g**iven that water quality impacts are high, the draft EIS should include a commitment to set up permanent sites at strategic locations to monitor water quality trends over the project life span. It should be considered necessary to set up monitoring stations along Gowrie Creek to gather baseline data which reflect the existing conditions of the creek. Modelled data should then reflect the impacts at each monitoring station and mitigation measures applied to the model to lower the impacts to an acceptable level and present the details in the draft EIS for each station. During the project phase, these sites, water quality parameters	The draft EIS requires update to appropriately assess surface water impacts from the proposed project.

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		could be monitored against set values and adjusted mitigation measures as necessary and as a part of reporting requirements.	
		Appendix F: Proponent Commitments	
279	Appendix F	**Inappropriate Proponent Commitments:** Appendix F is problematic and generally 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.' Firstly, it is apparent from the Appendix that 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 only and lack any real measurable structure or statement. In their current form, they are unable to be used for regulatory conditioning. Most of the 'commitments' provided in Table F2.1 are 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 corridor and land required to facilitate the project works and operations, including maintenance') and as a result are not considered to be robust or indicative of a commitment to best practice.	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.
280	Appendix F Section A.1.3 (Project Operational Noise Design Criteria)	**Failure to Provide Appropriate Commitments for Noise Mitigation:** commitments relating to operational noise criteria provide monitoring and verification of noise levels within six (6) months post-commencement of rail operations. The section does not however provide any detail regarding on the scope of the monitoring or verification that is expected. As a result, the document fails to meet the requirements of TOR 5.1 and TOR 7.4.	The draft EIS requires update to meet the requirements of the OCG's TOR by specifying the extent of noise monitoring that will be undertaken and to including monitoring and reporting commitments for noise complaints.

#	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?*
281	Appendix F 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 by TRC. *TRC request the OCG impose the following conditions:* '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.' and 'The proponent is required to work closely with TRC and to reach written agreement with TRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.'
282	Appendix F Section F3 (Detailed Design Phase) Table F3.1, ID D18	**Lack of Commitment to Mitigate 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' and TOR 11.93 requires that 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 proponent commitment wording does not comprehensively address obtrusive light issues.	The draft EIS requires update to meet the requirements of the OCG's TOR and to appropriately assess obtrusive lighting concerns, including proponent commitments.

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		Addressing commitments related to landscape and visual amenity, item D18 in Table F3.1 states that the Project landscape design will develop treatments, landscaping and stabilisation at 'key view-points identified in the EIS.' As outlined 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. Design actions related to obtrusive light concerns should be included in proponent commitments.	
		Appendix H: Landscape and Visual Assessment Technical Report	
283	Appendix H	**Lighting Impact Assessment Requires Update:** TOR 11.82 requires the draft EIS describe and illustrate the visual impact of the construction and operation of the project' and that 'views should be representative of public and private viewpoints, including places of residence, Appendix H requires update specifically: - The qualitative lighting impact assessment is based on an outdated Australian standard for obtrusive light. This methodology should be reviewed with reference to the new, significantly updated edition. - Visual receptors for lighting impact assessment are assumed to be the same as those identified in the visual impact assessment, which will not allow for proper consideration of obtrusive light for sensitive receptors (at private residences). - The statement relating to the judgement of visual sensitivity to lighting defines the sensitivity of viewpoints to lighting, these definitions are not consistent with the actual sensitivities used in the lighting impact	The lighting impact assessment methodology requires significant substantial review in order to meet the requirements of TOR 11.82.

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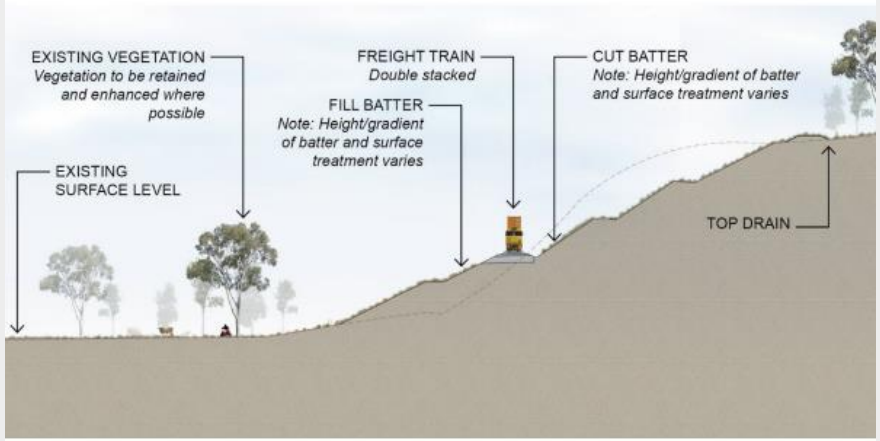
		assessment in Chapter 10. Instead, daytime sensitivities were used, which underestimates the impacts of lighting. - The magnitude of change to lighting amenity table (Table 14) is generally used to evaluate changes to overall ambient light at night (sky glow). This is useful for changes observed at a distance (> 1 km) but will underestimate any impacts of obtrusive light from nearby sources. Using this estimate to assess magnitude of change will minimise the impacts of obtrusive light at night, particularly from nearby sources. - Table 73 dismisses the cumulative impacts of night lighting, although general lighting impacts are noted explicitly in other sections (up to moderate impact from Viewpoint 8 during construction). - Table 75 proposed mitigation measures for lighting lack detail. The summary of lighting impacts specifically concludes that the Project and associated infrastructure are unlikely to create any significant obtrusive lighting, however this assessment has not been conducted in a way that can support that conclusion. The selection of viewpoints, assignment of sensitivity of receptors, and estimation of magnitude of change have all been conducted in a way to minimise the risk and significance of obtrusive light impacts.	
284	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).	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 by TRC. *TRC request the OCG impose the following conditions:* 'The proponent is required to ensure high quality landscape

#	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?*
		 ***Figure 15: Typical cut/fill batter***	outcomes are achieved for every aspect of the proposed project and specifically with buffer planting and the minimisation of adverse impacts to sensitive receptors.' and 'The proponent is required to work closely with TRC and to reach written agreement with TRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.'
285	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 TRC no less than six months prior to the commencement of construction activities. This should also include coordination with TRC for works within road corridors associated with all proposed bridges and adjacent to existing roads (i.e., including, but not limited to, Gowrie Junction Road, Old Homebush Road, Krienkes Road, Paulsens Road, Morris Road, Draper Road.) At all times, high quality landscape outcomes are required by TRC. *TRC request the OCG impose the following conditions:* 'The proponent is required to consult with TRC regarding the development of a Reinstatement and Rehabilitation Management Plan, including coordinating with TRC regarding

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			works within road corridors associated with all proposed bridges and adjacent to existing roads. The proponent is required to reach written agreement with TRC regarding the contents and implementation of the plan at least six months prior to the commencement of construction activities.' and '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.' and 'The proponent is required to work closely with TRC and to reach written agreement with TRC in relation to visual amenity and landscape design at least six months prior to the commencement of construction.'
		Appendix L: Surface Water Technical Report	
286	Appendix L Appendix M (Hydrology and Flooding)	**Appendix L and M:** the technical reports for surface water and hydrology and flooding have not adequately addressed the requirements of TOR 10.6 and 10.11.	The draft EIS requires update in order to meet the requirements of the OCG's TOR.
		Appendix M: Hydrology and Flooding Technical Report	
287	Appendix M Appendix F (Gowrie Creek Hydraulic Results at Structures)	**Lack of Appropriate Consideration of Impacts to Structures:** impacts to structures on or near Gowrie Creek appears to only address infrastructure in the creek. Infrastructure outside of the creek should also be considered, including infrastructure on or near tributaries (including, but not limited to,	The draft EIS requires update to provide additional impacts on other infrastructure, including structures on or near Gowrie Creek, its tributaries, and drainage lines. The document should also commit to obtaining approval from TRC for impact on water and wastewater infrastructure.

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		drainage lines), specifically with regard to structures such as sewage pumping stations (which are ERAs).	*TRC request that the OCG impose the following condition:* The proponent is required to obtain approval from TRC for any impact on existing water and wastewater infrastructure as a result of the proposed project at least six months prior to the commencement of any construction activities.
		Appendix N: Groundwater Technical Report	
288	Appendix N	**Insufficient Entitlement Information**: there is insufficient information addressing the impact to water entitlements, nor are entitlement requirements assessed across the proposed project.	The draft EIS requires update to provide specifics regarding how entitlements will be impacted as the project progresses.
289	Appendix N	**Incomplete Groundwater Assessment**: the groundwater technical report and associated modelling does not include the overall impacts from the proposed drawdown of groundwater as a result of the proposed tunnel. The groundwater modelling does not complete with baseline data and predicted impacts covering the wider groundwater network and has only considered a few bores within the project footprint which is inadequate to predict and monitor the possible short-, medium- and long-term impacts from the proposed tunnel. Further, proposed mitigation methods are very generic and do not identify the associated risk to Toowoomba water supply.	Appendix N requires update to include complete details sufficient to capture groundwater impacts (i.e., further than the current 1 Km study area) including, but not limited to, the development of an appropriate management and monitoring plan. *TRC request the OCG impose the following condition:* 'The proponent is required to develop and adopt an appropriate monitoring programme for existing bores for short, medium and long terms basis and if impacted for existing ground water bores as part of drinking water, written agreement with TRC is to be met and, if appropriate, compensation is to be agreed. This should include, but is not limited to, measures to rectify any impairments to existing bores due to the proposed project.'

#	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?*
290	Appendix N Section 3.2.1 (Stage 2 – Geotechnical and Hydrogeological Investigations) Section 5.4 (Groundwater Level Monitoring)	**Underassessment of Groundwater Impacts:** the draft EIS provides groundwater level monitoring for a period from May to November 2018, which is extremely limited and out-of-date. The draft EIS should include a justification as to why such a short period of monitoring data has been used. It is not considered that such a short timeframe could possibly provide a satisfactory calibration of the model. Further, there is no information regarding where this data is located in relation to the proposed alignment, or whether there were sufficient bore holes used to provide a region-wide assessment of impact on the aquifers, particularly in relation to the depth.	The draft EIS requires update to provide a region-wide assessment, an appropriate data set, details of the locations of the monitoring bores and to include clarity on the sufficiency of the number of monitoring bores.
291	Appendix N Section 7 (Hydrogeology)	**Aquifer Interaction and Recharge:** the draft EIS fails to address whether the interaction from aquifer to aquifer been considered, how deeper aquifers are recharged, or how the permanent cut into the aquifer at the eastern end of the proposes tunnel will impact the various aquifers. The document also fails to provide appropriate mitigation measures for avoiding or reducing this impact.	The draft EIS requires update to provide clarification of the interaction between aquifers and how the eastern entrance to the proposed tunnel will interfere with this interaction, and what mitigation measures will be used to avoid or reduce these impacts.
292	Appendix N Section 7 (Hydrogeology)	**Aquifer Recharge:** the draft EIS fails to give any consideration of where the various aquifers recharge and if any of the proposed project interferes with this e.g., stockpile areas, hard surfaces created at work sites and work camps.	The draft EIS requires update to provide an appropriate analysis on aquifer recharge and how aquifer recharge will be impacted by the proposed project. This should also include, but not be limited to, appropriate mitigation measures and commitments to account for the impacts.
293	Appendix N Section 7 (Hydrogeology)	**Underassessment of Adverse Impacts to Bores and Aquifer:** there are bores and aquifers that will experience both short- and long-term impacts as a result of proposed project activities. However, the draft EIS fails to list these bores and their expected drawdown at the various stages of the proposed project. The draft EIS should discuss the impact on yield caused by the proposed drawdown and what remediation measures will be undertaken for	The draft EIS requires update to provide impacts on all register bores, both short and long term and at various stages of the proposed project, with detail on the possible yield change. This should include the provision of clear and appropriate mitigation measures to address all changes, particularly those that are long term, and take into account the fact that there could be impacts to TRC's town water supply.

#	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?*
		both short- and long-term supplies (noting that TRC utilises the MRV for town water supply).	
294	Appendix N Section 7.4 (Surface Water – Groundwater Interaction)	**Inappropriate Assessment:** Section 7.4 states that the groundwater bore survey will be completed during the detailed design phase. This is not appropriate as this survey should have been completed in order to meet the requirements of the OCG's TOR and to inform the draft EIS.	The draft EIS requires update to appropriately include groundwater bore surveys and to meet the requirements of the OCG's TOR.
295	Appendix N Section 9.3.3 (Model Calibration) Figure 9.8	**Lack of Reference Points:** Figure 9.8 and other figures in Appendix N fail to provide reference points such as road networks.	The draft EIS requires update to include reference points to allow readers to determine locations of measurements.
296	Appendix N Section 9.3.3 (Model Calibration)	**Inappropriate Aquifer Calibration and Modelling:** Section 9.3.3 states a calibration of more than 20 m difference yet fails to include a justification of why more than 20 m difference is considered to be a good calibration. This is particularly of concern when at the end of the proposed project, the expected impact in most areas is to be less than 1 m on the water table. Further, the MRV is a fractured aquifer. It is concerning that the accuracy of such a difficult to model aquifer has not been further investigated and as much data obtained as possible, including but not limited to, investigations by other organisations that have an interest in the aquifer.	The draft EIS requires update to provide a clear explanation of what and how the various head differences are considered accurate, particularly in a fractured aquifer such as the MRV. This should include, but not be limited to, providing additional model inputs for improved accuracy.
297	Appendix N Section 11.2 (Proposed Mitigation	**Pre-construction Decommissioning of Bores:** the draft EIS states that it is likely that all 16 registered bores plus unregistered bores are to be decommissioned. Although this may appear the best option for the proposed project, there is no discussion around the purpose of these existing bores. This needs to be further considered rather than just providing a blanket statement to decommission. In some cases, these bores	The draft EIS requires update to meet the requirements of TOR 5.1 and to include a survey and review of all existing bores, their locations and purpose. Further, the draft EIS requires amendment to remove the proposal to decommission all bores and to include suitable and appropriate mitigation measures in relation to the impact on the register and unregistered bores.

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	Measures) Table 11.2	are essential for businesses and for monitoring groundwater and it is not appropriate to simply propose decommissioning these bores. Further, no suitable mitigation measures are provided for the affected bores, which is also inappropriate. As a result, the draft EIS fails to meet the requirements of TOR 5.1.	particularly if it is found that a bore should be decommissioned. A justification for decommissioning any bore should also be included.
298	Appendix N Section 11.2 (Proposed Mitigation Measures) Table 11.2	**Impacts on Groundwater Levels:** the draft EIS has not addressed, both short and long term (post construction) impacts on the groundwater levels in each of the aquifers.	The draft EIS requires update to include modelling of short- and long-term impacts on groundwater levels in each of the aquifers and to provide results of the same.
299	Appendix N Section 11.3.4 (Summary) Table 11.4	**Regulatory Requirements:** the draft EIS provides only token comments regarding the requirements of DRDMW/DES etc. Operation should also include long term. Some aspects of monitoring could be handed over to DRDMW for an independent reviewer.	The draft EIS requires updating to include a clear commitment to confirm with DRDMW/DES their requirements.
		Appendix Q: Social Impact Assessment Technical Report	
300	Appendix Q Section 6.3.1 (Community Survey)	**Social Impacts:** Gowrie Junction will experience major adverse impacts as a result of the proposed project. Section 6.3.1 of Appendix Q correctly identifies community concerns regarding likely impacts, including: damage to the scenic amenity and character and visitor appeal'. The draft EIS fails to address some of the more important cultural heritage impacts which tend to be somewhat ephemeral due to the lack of site evidence. The proposed Gowrie Junction overpass will have a major impact on the former Gowrie Junction railway station site. The site of the proposed overpass was the junction of the Western and Southern railway lines which provided vital transport links in the Region and a small community	The draft EIS requires update to include references to a design process which engages the local community and incorporates cultural history elements to satisfy the 'placemaking initiatives mentioned in Appendix Q. This will ensure the document meets the requirements of the TOR and will also provide a basis for community pride and potential visitor interest.

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		developed nearby. As a result, fails to meet the requirements of TOR 11.140, TOR 11.141 and TOR 11.147.	
301	Appendix Q Section 7.3.4.2 (Temporary Relocation)	**Underassessment of Relocation Impacts:** Section 7.3.4.2 discusses accommodation options for adversely affected residents, which appear to be limited to moving into hotel/motel/serviced apartments. Given that these properties may contain families with children and pets, the nominated options may not be suitable at all, and certainly not for the suggested period of up to one (1) month. While it is noted that the Executive Summary and Chapter 16 briefly mentions the topic, Chapter 16 fails to discuss temporary relocation in any detail and as a result, the draft EIS fails to meet the requirements of TOR 12.2.	The draft EIS requires update to consider a range of options to be offered that most appropriately replicate the affected quality of life associated with the property they are moving from and a clear and appropriate commitment to work with adversely affected residents in a reasonable way which considers the resident's concerns and requirements for temporary accommodation.
302	Appendix Q Section 8.4.4 (Accommodation Management Plan)	**Underassessment of Impacts to Accommodation Availability:** the Accommodation Management Plan does not stipulate that construction subcontractors will be required to avoid utilising rental properties (where the vacancy rate is currently lower than 3%) and adversely affecting the local community. This stipulation exists for the use of caravan parks/cabins. As a result, the document fails to meet the requirements of TOR 5.1 (as all adverse impacts have not been discussed, nor appropriate mitigation measures proposed and committed to). Further, Chapter 16 fails to provide any detailed information regarding the Accommodation Management Plan and as such, the draft EIS fails to meet the requirements of TOR 12.2.	The draft EIS should be amended to meet the requirements of TOR 12.2 and to stipulate that all project workforce (including subcontractors) will be required to avoid utilising rental properties and to provide a clear and appropriate commitment that it will be communicated to the construction workforce (including subcontractors) that the use of such rental properties is not acceptable at any time or for any reason. The draft EIS should also be amended to include a clear and appropriate commitment from the proponent to provide both TRC and LVRC the opportunity to receive outcomes of the monitoring process within one month of any monitoring activity, but most particularly during peak employment periods. *TRC request that the OCG impose the following conditions:* 'The proponent is required to ensure that all construction

#	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?*
			workforce (including subcontractors) avoid utilising rental properties at all times. This includes, but is not limited to, the use of caravan parks and cabins. In addition to this, the proponent is required to ensure that impacts on local housing availability to local residents is not impacted in an adverse way at all times.' and 'The proponent is required to provide TRC and LVRC with the findings of all monitoring activities in relation to the Accommodation Management Plan on a regular basis (specifically, in line with the monitoring schedule but at the minimum, every three months, and particularly during peak employment periods).' and 'The proponent is required to ensure that any workforce brought in from areas outside the TRC and LVRC regional areas (i.e., non-residents) are provided with permanent housing accommodation (constructed at the proponent's expense) for use during project construction and to be made available to the community once construction is complete.'
303	Appendix Q Section 8.6.4 (Local Supply Opportunities)	**Failure to Commit to Local Supply Opportunities:** Section 8.6.4 of the Social Impact Assessment fails to articulate any local content target for the proposed project. Given that this section discusses 'Local Supply Opportunities', it is considered appropriate that local content targets be included in order to ensure that there the document provides a real and measurable commitment to providing local supply opportunities.	The draft EIS requires amendment to nominate an overall measurable target for local content and to provide a real, measurable commitment to ensure such opportunities are made available to the local region.

#	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?*
		Appendix R: Economic Impact Assessment Technical Report	
304	Appendix R	**Inappropriate Name Referencing:** Appendix R consistently refers to the Toowoomba Enterprise Hub, which is now known as Toowoomba Trade Gateway.	Appendix R requires update to correctly reference the Toowoomba Trade Gateway.
		Appendix T: Spoil Management Strategy	
305	Appendix R Section 1.2 (Objectives) Figure 3.1	**Inappropriate Haul Routes:** the proposed haul route between the eastern entrance of the tunnel and the spoil stockpile on the corner of Morris Rd and Boundary Rd appears to be via the Old Range Crossing, James St, Hume St, Chalk Drive, Ruthven St to Griffiths St and onto the Toowoomba Bypass at the Mort St interchange. The impact from this proposed route is a high number of heavy trucks, semi-trailers or truck and dog combinations passing through densely urban areas which already experience high levels of traffic and is unacceptable. As a result, the draft EIS fails to meet the requirements of TOR 5.1, which requires the document to minimise adverse impacts.	The draft EIS requires update to meet the requirements of the OCG's TOR and to include a much safer and less disruptive alternative route (namely travelling via the Toowoomba Bypass). Although this route may be a little longer, the operational cost for the proposed project would be lower due to the higher travel speeds possible in both directions and the consequent reductions in total trip time and operational costs. Further to this, avoiding dense urban areas will reduce adverse risks to the community.
306	Appendix R Section 4.1 (Haul Routes)	**Inappropriate Haul Routes:** Section 4.1 of Appendix T proposes 'excavated material from the construction of the intermediate ventilation shaft at Cranley will be transported to the laydown area…' The potential impact from this proposed activity is a high volume of heavy transport on secondary Council owned roads and at busy Toowoomba Bypass interchanges. As a result, the draft EIS fails to meet the requirements of TOR 5.1, which requires the document to minimise adverse impacts.	The draft EIS requires update to clearly commit to an appropriate alternative option for transporting bulk soil from the intermediate ventilation shaft site to the stockpile at the corner of Morris Rd and Boundary St, specifically utilising access through the TWMC via East Hermitage Road, Bedford Street North and Willims Road. As previously discussed, this access has already been designed but requires construction (from the corner of Willims Road and Pinnacle Court through to the corner of Bedford Street and East Hermitage Road).

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			The advantage for the proposed project will be an unimpeded, shorter and much safer route for heavy haulage project vehicles. Further, as the haul road may also be used for bringing material from the proposed project into TWMC for disposal, a weighbridge would also be required at the Willims Road entrance to complement the existing weighbridge at the East Hermitage Road entrance. Given this, the draft EIS requires update to provide a clear commitment to fund the (already planned) second access to TWMC via Morris Rd and Willims Road, including the provision of a second weighbridge and gatehouse. *TRC request the OCG impose the following condition:* 'The proponent is required to fund the construction of the already planned second access to the Toowoomba Waste Management Centre via Morris Road and Willims Road, including weighbridge and gatehouse.'