

Ref: P0009/WSP Wind Farm TIA Review



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For the attention of Mr Christo Bredenhann

Dear Sir

**INDEPENDENT PEER REVIEW
MARALLA EAST & WEST WIND FACILITY TRAFFIC IMPACT ASSESSMENT**

I hereby confirm that I have undertaken a comprehensive review of the above-mentioned Traffic Impact Assessment (TIA) (*Ver 1.2, Project no. 21102, dated November 2016*) as per the following terms of reference:

- Is the methodology clearly explained and acceptable;
- Evaluate the validity of the findings (review data evidence);
- Discuss the suitability of the mitigation measures and recommendations;
- Identify any short comings and mitigation measures to address the short comings;
- Evaluate the appropriateness of the reference literature;
- Indicate whether a site-inspection was carried out as part of the peer review; and
- Indicate whether the article is well-written and easy to understand.

Please note that this is a desk-top review and no site-inspection was made as part of this review. In addition, please note that this review was undertaken with limited understanding of the project and its context, other than what was written in the supplied TIA document.

My comments are as follows:

- P. 13 – The heavy / abnormal vehicle route is mentioned and it is stated that special permits will be required. You should probably go one step further and recommend that a separate heavy/abnormal vehicle route management plan will be required which assesses the route from the closest port to the site, checks that there are no bridges or obstructions along the route, determines hours of operation and speeds; and determines road widening / upgrades required etc.
- P. 15 – E80 Summary – I didn't really understand this section and I have a few questions:
 - Why are only the concrete and steel deliveries included in the calculation? Why not the mast components, rotor blades etc as well? These also arrive on heavy vehicles.

- When compared to the numbers in Table 6-2, I understand how the 14 000 concrete trips was calculated (7 000 trips in per facility), but how is the 420 steel trips calculated?
 - It is deemed that the E80 loading is 0.050 million and no mitigating measures are deemed necessary. What does this mean? How was it calculated? And what is the minimum threshold of E80's before mitigating measures are required?
 - Does the surfaced R354 road and the unsurfaced access roads have different thresholds of E80s before mitigation is required? I am not an expert in this, but I don't think the unsurfaced road will be able to take this kind of loading over 2 years without some sort of mitigation. (Maybe a road materials engineer should be consulted?)
- P. 15 – 6.4 Capacity Analysis. While I agree that from a traffic capacity analysis perspective, no upgrades are required, I am not so sure from a safety perspective. Upgrades of intersections in rural areas are mostly dictated by safety issues that arise due to large speed differentials. I assume The R354 has a speed limit of 100 or 120 km/h? In addition, the sight distance to the left when exiting both access roads onto the R354 doesn't look sufficient for the speed of the road (due to vertical and horizontal curvature). With an AADT of only 145, this development will more than double the AADT number during the construction phase, most of which will be heavy / abnormal vehicles. So, a heavy vehicle stopping to turn right off the R354 onto the unsurfaced roads, could potentially have a vehicle travelling at 120 km/h coming up behind it with poor sight distance. Under these circumstances, I think you may find that the Provincial Authorities would want these intersections upgraded to include a separate through-right or right-turn lane (as per the provincial design manual) on the R354 for safety reasons. This issue applies to both the Klein Roggeveld and Komsberg Accesses. I am not sure which one will be used, but I assume that only one route to the site will be designated. The existing yield at the Klein Roggeveld access should probably also be changed to a stop control to improve safety.
 - P. 21 Section 7.2: As discussed above, I think that the potential impact on traffic safety will be an issue. Road accidents and deaths on high speed rural roads is a major issue these days. I suggest you add this as a factor and propose the mitigation discussed in the point above. You may even need a warning sign on the R 354 south approaches due to the poor sight distance.
 - Is the possible deterioration and damage to the unsurfaced access road an impact that should be considered here (it is mentioned earlier in the report)? I am sure the mitigation will be that the Developer must possibly widen and regrade this road on a regular basis to keep it in acceptable condition, but a road materials engineer should probably be consulted in this regard.
 - P. 27 Cumulative Impact – I agree that there is not much you can assess here if you do not have any information, but there is a possibility that even more heavy vehicles will be using the R354 / Klein Roggeveld and Komsberg intersections, which makes the proposed intersection upgrades even more important.
 - Both the Esizayo and Maralla facilities will take access off the R354. Perhaps you should test the cumulative impact of both these developments?

- If an extreme accumulated worst-case scenario is required to be tested, then you could undertake a “what if” analysis assuming that at least one other development coincides with this one.

Please do not hesitate to contact me should you wish to discuss any of the above comments.

Yours faithfully
for UrbanEQ Consulting Engineers (Pty) Ltd

A handwritten signature in black ink, appearing to read 'A Bulman', is centered on the page. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

ANDREW BULMAN PrEng
Director