***<https://vitrinite.com.au/wp-content/uploads/2022/02/EA-Amendment-Application_Supp-Info-doc_Appendix-4_Transport-Impact-Assessment.pdf>***

Year 1 Construction (Establishment Works) 2021 Year 2 Operations 2022 Year 3 Construction (Additional Infrastructure) & Operations 2023 Year 4 Operations 2024 Year 5 Operations 2025 Year 6 Decommission 2026

Construction of the mining infrastructure is planned to be completed in 2021 (aligning with on-road infrastructure upgrades of Saraji Road) and haulage associated with the Bulk Sample Project. Mining operations for the Project will commence in 2022 and have an operations cycle of 4 years. The second year of operations (Project year 3) will align with construction of additional infrastructure to support the VCM, including a CHPP, TLO and a dedicated Rail Loop

Heavy Vehicle Traffic Generation Vitrinite has provided estimates of heavy vehicle movements for each year of the Project. The anticipated origins / destinations of heavy vehicles during year 2 and year 3 are an off-site CHPP, Mackay and Moranbah (as per the 2020 TIA). Following completion of construction of the on-site CHPP, TLO, and rail loop in year 3, heavy vehicle movements will no longer access the off-site CHPP. A summary of the anticipated peak daily vehicle demand is provided in Table 8. Table 8: Peak Daily Project Heavy Vehicle Demand

In line with the 2020 TIA, the assumed haul routes for all heavy vehicle movements are Saraji Road, Peak Downs Mine Road and the Peak Downs Highway. It has been assumed that heavy vehicle traffic generation associated with the Project operations haulage (i.e. class 12 vehicles) will occur steadily over a 24-hour workday, with other heavy vehicle movements (typically relating to deliveries) arriving steadily over a 10-hour workday and conservatively assumed to arrive and depart in the same peak period.

**State Controlled Roads**

This assessment has been prepared in accordance with the principles outlined in the GTIA which defines the impact assessment area to be: “All road links where the development traffic exceeds 5% of the base traffic in either direction on the link’ s annual average daily traffic (AADT) in the year of opening of each stage”

On the basis of the summary provided in Table 11, the impact of forecast Project traffic exceeds 5% of the forecast AADT for road segments of Peak Downs Highway (road section 33A) during Year 2 and Year 3 Technical Note: Vulcan Coal Mine – Transport Impact Assessment ID: 211118-301401475- vulcan\_coal\_mine\_technical\_note\_FINAL.docx 11 between the Peak Downs Mine Road turnoff and the Peak Downs Mine CHPP turnoff. As a result, the Project impact on SCRs warrants further analysis. Based on a peak-to-daily ratio of 15% for background traffic, the Peak Downs Highway experiences a single direction peak hour flow of approximately up to 350 vehicles per hour. These volumes are significantly below the typical midblock capacity for a single lane of 900 vehicles per hour as described in Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (2017). As such, the increased vehicle demand as a result of the Project is expected to be accommodated by existing capacity provided on these road segments. On this basis, it is not expected that road impact mitigation works as a direct result of the Project is required.

**Council Controlled Roads**

Table 12 summarises the comparison of expected peak daily Project traffic against baseline AADT traffic on Council controlled roads, to determine expected traffic impacts resulting from the Project.

On the basis of the summary provided in Table 12, during Project Year 2 and Project Year 3 the forecast Project traffic is expected to result in an increase of the forecast AADT for Saraji Road (north of the site access) in the order of up to 8% , for Peak Downs Mine Road in the order of up to 6%, and for Saraji Road (south of the site access) in the order of up to 2%. During Project Year 4 and Project Year 5, impacts to Council controlled road sections of Saraji Road (north and south of the site access) and Peak Downs Mine Road are expected to be in the order of 1%. Further analysis of the Project impact on council-controlled roads has been undertaken to confirm their capacity to accommodate peak hour vehicle demands. Based on a peak-to-daily ratio of 15% and 90% directional demand during peak hours for background traffic, Saraji Road and Peak Downs Mine Road experience a single direction peak hour flow of approximately 370 and 520 vehicles per hour, respectively. These volumes are significantly below the typical midblock capacity for a single lane of 900 vehicles per hour as described in Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (2017). As such, the increased vehicle demand as a result of the Project is expected to be accommodated by existing capacity provided on these road segments

**Pavement Impact Assessment**

 The GTIA describes key impact years which would ordinarily form part of a TIA. GTIA defined design horizons for the road link capacity is summarised in Table 10. Table 15: GTIA Specified Design Horizons for Assessment – Pavement Impacts

Taking into consideration the Project schedule, the years are of relevance to the assessment of the site access and intersection assessments are **Project Year 2 (Operations - 2022), Project Year 3 (Operations and Construction - 2023), Project Year 4 (Operations - 2024), and Project Year 5 (Operations - 2025**).

 Introduction Identification of pavement impacts to SCRs was prepared in accordance with TMR’s GTIA Practice Note for Pavement Impact Assessments (PIA) (December 2018). This process was supplemented with Marginal Cost spreadsheets, provided by TMR for the Peak Downs Highway in November 2021. The PIA methodology compares the baseline heavy vehicle Standard Axle Repetitions (SARs**) with Project generated heavy vehicle SARs for each year of the Project**.

Any identified Project increases of **greater than 5% per year generally requires some level of contribution to offset Project impacts**. Mitigation of pavement impacts occurs for a period of 20 years after the opening of the final stage.

For this Project, heavy vehicle movements associated with the construction and establishment works (Project Year 1) and decommissioning (Project Year 6) have not altered from the 2020 TIA have therefore not been reassessed. It is noted that the heavy vehicle demand associated with the construction and establishment works and decommissioning do not result in any pavement impacts which exceed the 5% threshold and therefore do not correspond to any associated monetary contribution requirements. For assessment of SCRs, this assessment has covered the entire length of the Peak Downs Highway. This is the only SCR that is expected to carry heavy vehicle movements and is therefore considered a suitable scope for the assessment.

For consideration of pavement contributions for Council controlled roads, **it is understood that a separate agreement is to be formalised between Vitrinite and Isaac Regional Council**. SAR Conversion Factors SAR conversion factors have been provided in TMR’s GTIA and the PIA Practice Note. Vitrinite has indicated that the haulage will be completed by an AB Triple Road Train with a maximum haulage of 70 tonnes. Based on the **maximum haulage indicated of 70 tonnes**, the loaded and unloaded SAR conversion factors have been recalculated for this assessment. The adopted SAR4 conversion factors for impact identification are as detailed in Table 16

**Impact Identification**

As per the PIA methodology, the baseline heavy vehicle SARs were compared with Project generated heavy vehicle SARs for each year of the Project. Results of this comparison are detailed in Table 23. The results of the PIA indicate that the additional expected SAR4 loading resulting from Project related heavy vehicle movements is anticipated to exceed 5% of the baseline SAR4 for Year 2 and Year 3, when an off-site CHPP is in use.

**A pavement impact is expected for council-controlled roads for the Saraji Road and Peak Downs Mine Road**. ***It is expected that a separate agreement will be formed between Council and Vitrinite for the mitigation of these expected pavement impacts***.

A pavement impact is also identified for the SCR of Peak Downs Highway Section 33A between gazettal chainages 89.1 to 90.4, 90.4 to 101.8 and 101.8 to 112, and Peak Downs Highway Section 33B between gazettal chainages 62.0 to 76.0. As this projected loading exceeds the threshold as detailed in TMR’s GTIA, monetary contributions may be required for identified impacts as outlined below.

The pavement impact assessment has a calculated value for the monetary contributions based on

assumptions presented herein of $**393,959** for the life of the project. A summary of pavement contribution by road section is provided in Attachment B

Based on the calculated development SAR’s pavement impacts of greater than 5% have been identified for a number of road links on the Peak Downs Highway. A monetary contribution will likely be required to ameliorate the impact. The results of this assessment indicate that the impact correlates to a monetary contribution for state-controlled roads of **$393,959** as per GTIA methodology**. It is expected that an agreement will be formed between Council and Vitrinite for the mitigation of expected pavement loading on Council controlled roads.**