Appendix D: Land Use Conflict Risk Assessment

472 Eddy Park Lane, Gum Flat NSW 2390

Land Use Conflict Risk Assessment

for the

ATJs Earthworks Gum Flat Quarry

November 2024

DOCUMENT CONTROL

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1. Introduction

This Land Use Conflict Risk Assessment (LUCRA) has been prepared as part of a Planning Secretary's Environmental Assessment Requirements (SEARs) for the Environmental Impact Statement (EIS) prepared for the ATJs Earthworks Gum Flat Quarry.

The NSW Department of Planning, Housing and Infrastructure (DPHI) has provided the SEARs for the EIS. The Department of Primary Industries and Regional Development has identified that a land use conflict risk assessment should be undertaken detailing any risk mitigation measures to be implemented for the operation of the Gum Flat Quarry.

1.1 Objectives

The objectives of this LUCRA are to:

a) Identify and assess potential land use conflicts that the proposed construction and operation of proposed development; and

b) Detail mitigation measures to minimise credible risks of land use conflicts to acceptable levels.

1.1 Site History

The ATJs Gum Flat Quarry has been operating since the mid-1970s. A review of historic imagery shows that the quarry operation has expanded over the past 50- years to its current footprint and operation.

The quarry site is adjoined on its southern boundary by an historic garbage disposal site operated by Inverell Shire Council, which has been rehabilitated and now holds a small reservoir of surface water. The quarry site is adjoined on its eastern boundary by another gravel quarry which has also been operating since the mid-1980s.

The residence neighbouring the ATJs Gum Flat quarry to the south has been there since before the quarry commenced operation. The residence immediately the west of the quarry was established sometime between 2010 and 2013.

2 Neighbouring Land Uses

The dominant landuse in the Gum Flat area is agricultural production. This involves stock grazing and cropping. Farm size is variable as the area includes hobby farm development as well as farms that appear to be of sufficient size to generate a suitable income from the property.

The village of Gum Flat is located approximately 700m southwest of the quarry. The village includes approximately seven (7) houses and the Gum Flat Primary School. Other community facilities include a Hall and sporting ground.

The area includes remnants of native woodland. These include remnants of the critically endangered ecological community (CEEC) White Box Yellow Box Blakely's Red Gum grassy woodland. These remnants are located on both private and Crown land. Other areas of woodland in the local area include Cypress, Blakely's Red Gum and Iron Bark.

The following figure 1 presents an aerial image showing the quarry location. Adjoining residences (receptors) are marked as R as a property identifier.

Figure 1: Aerial image showing quarry and adjoining residences.

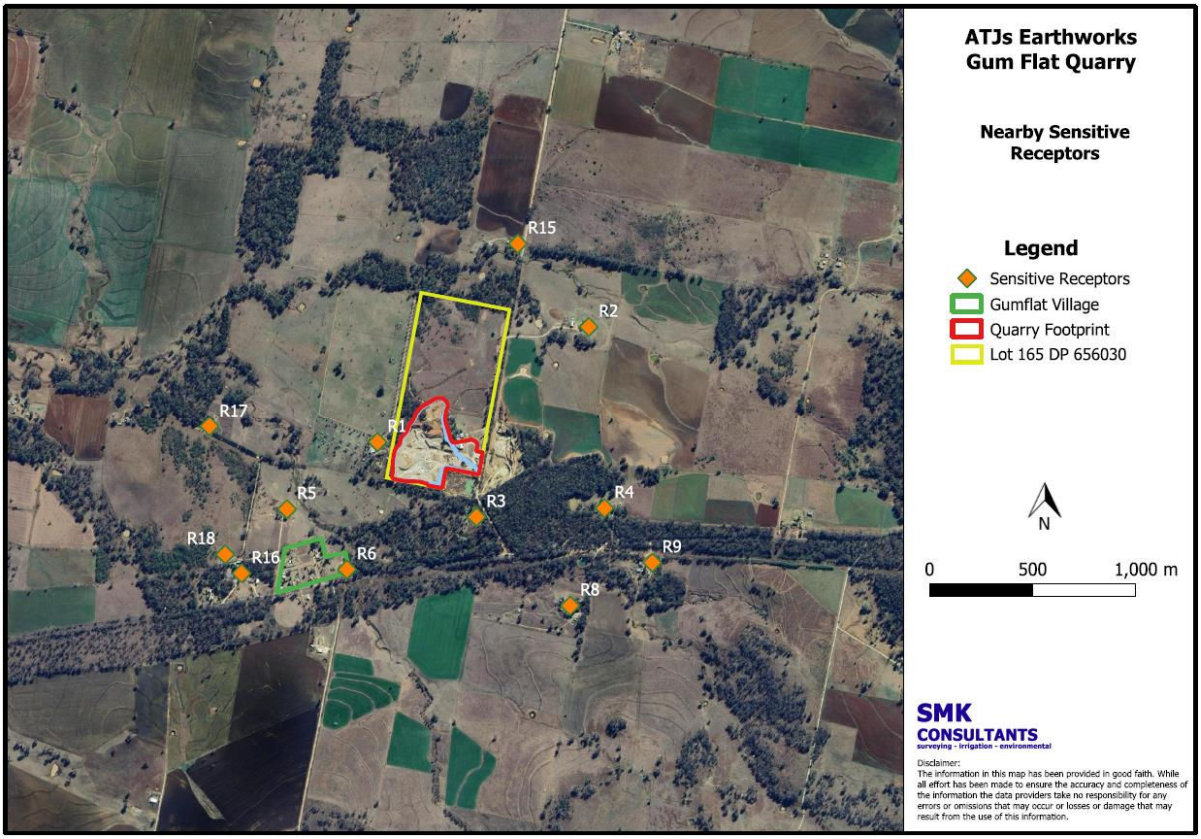

Table 1: Properties within 2 km of the site

Property Identifier	Property Address	Distance from site	Primary land use	Land Parcels
R1	384 Eddy Park Lane	Western Boundary Residence 75 m west	grazing, residence	104, 105, 114, 141 DP 754840 1, 2, 3 DP 153190
R2	401 Eddy Park Lane	Eastern boundary	Granite quarry, cropping/grazing	227 DP 754840
R3	492 Eddy Park Lane	70m from southern boundary	Residence, boarding kennels	179 DP 754840
R4	788 Eddy Park Lane	Property 100 m west residence 650 m west	Grazing / cropping, residence	178 DP 754840 1 DP 249097
R5	18 Houghs Lane	Southern boundary Residence 580 south west	grazing, residence	90 DP 754840
R6	Gum Flat village	400 m south west	Residential, sports ground	Various lots
R8	793 Copeton Dam Rd	Property 500 m south Residence 800 m	Grazing / cropping, residence	15, 172, 175, 221 DP 754840

Property Identifier	Property Address	Distance from site	Primary land use	Land Parcels
R9	767 Copeton Dam Road	Property 700 m SE Residence 960 m SE	Grazing / cropping, residence	176, 144 DP 754840
R15	356 Eddy Park Lane	Northern boundary Residence 840 m north	Grazing, residence	115, 116 DP754840
R16	Gum Flat School	800 m south west	Primary school	Various lots
R17	114 Houghs Lane	900 m west	Residence	1 DP 230729 1 DP 392413
R18	35 Houghs Lane	900 m south west	Residence	1 DP 665938
	Crown Reserve	300 m south	TSR	7301/1154677
Properties over 1 km from the quarry	115 Houghs Lane	Property 640 m west Residence 1.3 km west	Grazing, residence	1 DP 836199
	124 Thomas Lane	Property 920 m west Residence 1.8 km west	Grazing / cropping, residence	1 DP 335690 22, 31, 32, 225 DP 754840 1 DP 40281 10 DP 113492 9 DP 665069 1 DP 335691
	76 Thomas Lane	Property 1.4 km west Residence 1.8 km west	Grazing, residence	1 DP 611616
	3 Thomas Lane	Property 2.1 km west Residence 2.3 km west	Grazing, residence	123 DP 754840

The residence on 384 Eddy Park Lane is located approximately 60 m west of the boundary of the quarry and approximately 75 m from the outside toe of the noise barrier embankment which has been constructed along the western edge of the quarry. This residence is the closest residence to the quarry. As indicated above, the residence was built approximately 37-years after the quarry commenced operations.

The next closest residence is 200 m south east from the boundary of the subject lot. All other residences are approximately 500 m or more from the outside toe of the embankment surrounding the quarry.

2.1 Reserves and Conservation Areas

There are no nature reserves or conservation areas within the impact range of the ATJs quarry site. The nearest nature reserves and conservation areas are:

- Copeton Dam State Forest located 6.6 km to the south;
- Goonoowigal State Conservation Area located 13 km to the east;

- Goonoowigal State Conservation Area, located 15.4 km to the south west; and
- Baraymal National Park located 15 km to the east.

3 Land Use Conflict Risk Assessment (LUCRA)

3.1 LUCRA Process

The LUCRA is based on the "Living and Working in Rural Areas" Handbook (Learmonth et al. 2007). The NSW Department of Primary Industries and Regional Development has developed a guide based on this Handbook, which suggests four key steps be undertaken:

1. **Information Gathering** - The project details including site geophysical characteristics, the nature of the development proposed and the surrounding land uses are described.
2. **Risk Level Evaluation** - Each proposed activity is recorded, and the potential land use conflict level is assessed and assigned a risk level.
3. **Identification of Risk Mitigation Strategies** - Management strategies are identified for project activities to lower the risk of potential conflict. The higher the risk level, the more mitigation will be required.
4. **Record Results** - Key Issues, risk levels and recommended management strategies are recorded and summarised.

3.2 Risk Ranking Matrix

A LUCRA matrix has been applied to estimate the probability and consequence of potential conflicts (Table 2**Error! Reference source not found.**). Detailed descriptions for the levels of probability and consequence in the matrix are listed in Table 3 and Table 4.

Table 2: LUCRA matrix

PROBABILITY / Consequence	A	B	C	D	E
1	25	24	22	19	15
2	23	21	18	14	10
3	20	17	13	9	6
4	16	12	8	5	3
5	11	7	4	2	1

Table 3: Probability table from NSW DPI LUCRA guideline

Level	Descriptor	Description
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur, or 'it has happened'.
C	Possible	Could occur, or 'I've heard of it happening
D	Unlikely	Could occur in some circumstances, but not likely to occur
E	Rare	Practically impossible

Table 4: Measures of Consequence Description

Level	Descriptor	Description
1	Severe	• Severe and/or permanent damage to the environment/ public health and/ or amenity • Irreversible • Severe impact on the community • Neighbours are in prolonged dispute, and legal action involved
2	Major	• Serious and/or long-term impact on the environment • Long-term management implications • Serious impact on the community • Neighbours are in serious dispute
3	Moderate	• Moderate and/or medium-term impact on the environment and community • Some ongoing management Implications • Neighbour disputes occur
4	Minor	• Minor and/or short-term impact on the environment and/ or community • Can be effectively managed as a part of normal operations • Infrequent disputes between neighbours
5	Negligible	• Very minor impact to the environment and/ or community • Can be effectively managed as a part of normal operations • Neighbour disputes unlikely

3.3 Identified Potential Land Use Conflict Risks

Table 5: Identified Potential Land Use Conflict Risks

Potential Land Use Conflict	Potentially impacted land users	Risk Causes/Considerations	Risk Rating	Is this risk credible?
Noise: Generated by vehicle movements, machinery and equipment.	Nearby residential receptors.	The nearest residential receptor is 85 m from the top of embankment surrounding the quarry. Corridors of woodland border the quarry and are located on adjacent parcels of land.	20	Yes
	Adjacent TSRs and Road Reserves.		13	Yes
Reduced air quality: Dust from quarry operations and heavy vehicle traffic impacting surrounding land users	Nearby residents. Adjacent TSRs and Road Reserves. Road users	The nearest residential receptor is 85 m from the top of embankment surrounding the quarry. Corridors of woodland border the quarry and are located on adjacent parcels of land and along Eddy Park Lane and Copeton Dam Rd.	17 12 13	Yes Yes Yes
Erosion and sedimentation generated by quarry operations	Adjacent landholders.	An embankment isolates adjacent landholders from any direct impacts of erosion/sedimentation from the quarry pit. The embankment itself may generate localized minor erosion/sedimentation. Sedimentation ponds to be developed for workshop areas for above ground activity. Quarry is below ground and therefore no offsite runoff.	9	No
Traffic – heavy vehicle movements on Eddy Park Lane and Copeton Dam Rd causing road surface damage and harm to other road users	Other Road users	Heavy vehicle traffic may pose a hazard to other road users and cause damage to roads.	14	Yes
Biosecurity: soil disturbance and earthworks may exacerbate the spread weeds, pests and diseases to surrounding land.	Adjacent TSRs and Road Reserves. Surrounding grazing and cropping land.	Trucks returning from project sites may bring weed seed. Part of the quarry operation includes active land management, weed suppression activities and revegetation to minimize the proliferation of weeds	5 5	No No

Potential Land Use Conflict	Potentially impacted land users	Risk Causes/Considerations	Risk Rating	Is this risk credible?
Reduced visual amenity due to quarry operations.	Nearby residents.	The development does not propose any change to the visual amenity of the area. Vegetation buffers to be retained between adjoining residences and quarry activities.	5	No
Quarry operations perceived to reduce local water table and impact water availability for other users.	Nearby groundwater users (via water bores)	Quarry extractions may intersect standing water table in the quarry pit, leading to a reduction in surrounding water table.	13	Yes
Quarry operations perceived to have caused groundwater contamination or instigated movement of contaminated groundwater.	Nearby groundwater users (via water bores)	Any perceived or actual changes in bore standing water levels and/or yield may be attributed by nearby users to the quarry operations. Quarry to ensure it does not impact groundwater depths or contamination.	18	Yes
Offsite water discharge to local waterways	Surrounding grazing and cropping land and residences.	Discharges to local waterways could impact local water quality, property access and other activities on any impacted lands. Quarry operations to include controlled drainage areas to manage stormwater.	17	Yes
Operating hours – outside of normal accepted operating hours, (i.e. before 7 am and after 5 pm)	Nearby residents.	Quarry operations generating offsite impacts (e.g. noise, dust) outside of normal accepted operating hours, particularly in a rural environment when background noise levels can very low.	12	Yes

3.5 Management Strategies to Reduce Credible Risks

Table 6 lists identified credible risks from Table 5, including proposed risk reduction management strategies and revised risk ratings.

Table 6: Management Strategies and Revised Risk Ratings for Credible Risks

Credible Potential Land Use Conflicts	Potentially impacted land users	Initial Risk Rating	Mitigation Measures (Risk Reduction Management Strategies)	EIS Reference Document	Revised Risk Rating	Is this risk still credible?

Noise: Generated by vehicle movements, machinery and equipment.	Nearby residential receptors.	20
		
		13
			• Maintain the existing noise berm surrounding most of the quarry pit, which reduces direct line of travel for noise emissions to adjoining residences.
			• Maintain and regularly service all quarry machinery.
			• Update machinery to lower noise emitting models.
			• Maintain internal roads in smooth condition to reduce vehicle noise.
			• Reversing beepers on plant and vehicles are replaced with alternative alarm systems that conform with the recommendations of "Review of alternatives to 'beeper' alarms for construction equipment" (NSW DECC 2009).
			• Establish transport route plans that minimize disturbance to surrounding residences.
			• Develop a Traffic Management Plan that ensures vehicles:
			  ○ Remain below sign-posted speed limits;
			  ○ Maintain and operate vehicles in a manner that does not generate excessive noise;
			  ○ Schedule haulage to maximise periods of respite;
			  ○ Adhere to the plan.
			  ○ Includes a complaint handling procedure.
			• Confine quarry operating hours to between 7 am and 5 pm Monday to Friday.
			• Establish a formal complaints mechanism for local residents and a response procedure in an Operational Environment Management Plan.
				Noise Assessment	12	Yes

	Adjacent TSRs and Road Reserves.				8	No

Credible Potential Land Use Conflicts	Potentially impacted land users	Initial Risk Rating	Mitigation Measures (Risk Reduction Management Strategies)	EIS Reference Document	Revised Risk Rating	Is this risk still credible?
Reduced air quality: Dust from quarry operations and heavy vehicle traffic impacting surrounding land users	Nearby residents.	17	• Increase road wetting frequency, as required, to further repress dust generation on internal roads and on Eddy Park Lane (e.g. apply water sprays greater than 2L/m2/h to trafficable areas during haulage to reduce air emissions associated with truck movements. • Covered loads when transporting gravel from the site. • Establish onsite speed limit for all vehicles and machinery (recommended 15km/h). • Establish well-defined haul routes to minimise area of disturbance. • Minimise areas of disturbance within the quarry (e.g. extraction areas and stockpiles. • Implement progressive rehabilitation to minimise exposed soil/gravel. • Monitor meteorological conditions and cease quarrying activities on dry windy days over an established wind cutoff threshold. • In the event of increased dust production, increased dust suppression management measures, including increased watering rates, decreasing processing rates, slowing truck speeds. • Initiate Shut down procedures during periods of excessive dust generation or upon receipt of complaint and investigate and initiate additional controls. • Establish a formal complaints mechanism for local residents and a response procedure in an Operational Environment Management Plan	Air Quality Assessment	13	Yes
	Adjacent TSRs and Road Reserves.	12			8	No
	Road users	13			5	No
Traffic – heavy vehicle movements on Eddy Park Lane and Copeton Dam Rd causing road surface damage and harm to other road users	Other Road users	14	• Maintain and regularly service all transport vehicles. • Update trucks to improve suspension. • Ensure axle loads and net vehicle loads are less than limits imposed by Council. • Advise Council of any sections of road which require maintenance. • Include a drive to conditions statement in a truck drivers code of conduct.	Traffic Impact Assessment	8	No

Credible Potential Land Use Conflicts	Potentially impacted land users	Initial Risk Rating	Mitigation Measures (Risk Reduction Management Strategies)	EIS Reference Document	Revised Risk Rating	Is this risk still credible?
Quarry operations perceived to reduce local water table and impact water availability for other users.	Nearby groundwater users (via water bores)	13	• Monitoring of quarry pit for evidence of groundwater ingress. • Establish groundwater monitoring piezometers around the quarry to monitor any impacts upon groundwater. • Make monitoring results publicly available. • Cease excavations if groundwater encountered in the floor of the quarry.	EIS section 5.9	9	No
Quarry operations perceived to have caused groundwater contamination or instigated movement of contaminated groundwater.	Nearby groundwater users (via water bores)	18	• Monitoring of quarry pit for evidence of groundwater ingress. • Ensure that no contaminants are present in the quarry; • If a spill occurs, immediately undertake a clean-up and remediation of the contamination.	EIS section 5.9	9	No
Offsite water discharge to local waterways	Surrounding grazing and cropping land and residences.	17	• Minimising the disturbed area by working in sections to reduce the exposure area and stabilising disturbed land as soon as possible to minimise erosion; • Maintain perimeter embankment to ensure quarry remains internally draining. • Provide internal runoff holding pond within the existing quarry footprint of 3.4 ML minimum capacity to retain runoff in a 90% percentile wet year. • Use drains, diversion banks or bund walls to safely direct runoff within the quarry to the internal runoff holding pond. • Establish an irrigation area on the property with maintained contour banks and drainage channels to ensure best practice irrigation methods are implemented with no discharge runoff or sediment from the quarry leaving the property; • Ensure that the storage and use of hazardous and dangerous materials occurs in accordance with relevant legislation, and ensuring spillages are contained;	Water Balance	5	No

Credible Potential Land Use Conflicts	Potentially impacted land users	Initial Risk Rating	Mitigation Measures (Risk Reduction Management Strategies)	EIS Reference Document	Revised Risk Rating	Is this risk still credible?
			• Implement best practice sediment control within the quarry such as hay bales, silt fences or other suitable control devices in drainage lines. • Establish controlled drainage areas and detention ponds for workshop area.			
Operating hours – outside of normal accepted operating hours, (i.e. before 7 am and after 5 pm)	Nearby residents.	12	• Confine quarry operating hours to between 7 am and 5 pm Monday to Friday	EIS section 2.4	9	No

3.6 Limitations and Assumptions

The mitigation measures proposed in this assessment are also based on the project information available to date and assume there are no specific or unknown factors that would require higher risk ratings for potential land use conflicts.

4 Conclusion

As the proposed development seeks approval for the existing operation of the ATJs Gum Flat quarry and does not propose an increase in existing production or a change in land use, the credible land use conflict risks identified for the operation are known and established. These include potential noise impacts during operation on nearby residences, potential dust on nearby residences and ecological communities during operations.

With adoption of mitigation measures, as contained in ATJs Gum Flat quarry EIS and Appendices, in particular active monitoring and responses to dust and noise generation, the residual risk for all identified potential land use conflicts will be low to negligible.

There is no increased risk of land use conflict with adjoining properties introduced by the proposed development.

5 References

Learmonth, R., Whitehead, R., Boyd, B., & Fletcher, S. (2007), Living and Working in Rural Areas. A handbook for managing land use conflict issues on the NSW Northwest slopes, Agricultural Landscapes.

NSW Department of Planning, Industry and Environment (2011), Land Use Conflict Risk Assessment Guide 2011 (LUCRA Guide, 2011), Fact sheet

Interim Construction Noise Guidelines (2009). Department of Environment & Climate Change NSW.