Fraser Earthmoving Construction Pty Ltd

ABN: 84 476 527 814

Part 10
Visual Impact Statement

for the

Howlong Sand and Gravel Expansion Project

State Significant Development 17_8804

Prepared by

Advanced Environmental Systems Pty Ltd

March 2020

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Visual Impact Statement

Prepared for Fraser Earthmoving Construction Pty Ltd

Howlong Sand and Gravel Expansion Project

SSD 17_8804

4343 Riverina Highway

Howlong NSW 2643

2020

ADVANCED ENVIRONMENTAL SYSTEMS
CREATING A SUSTAINABLE FUTURE

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Client Details	
Name of business	Howlong Sand and Gravel
Address of site	4343 Riverina Highway, Howlong NSW 2643
Business owner, contact number and email	Mr Greg Fraser 0427 337 376 gregfraser@fraserearthmoving.com
Business owner postal address and ABN	Fraser Earthmoving Construction Pty Ltd 574 Kiewa Street, Albury NSW 2640 ABN: 84 476 527 814
Site manager, contact number and email	Andrew McKimmie 0417 883 576 andrewmckimmie@fraserearthmoving.com
Lot numbers listed in Extractive Industry Licence and Planning and Environment Secretary's Requirements	173/DP753744, 174/DP753744, 174A/DP753744, 231/DP753744, 1/DP1039973, 1/DP798291, 3/DP113703
Subject land (Activity footprint)	1/741037, 231/DP753744, 1/741037(Haul road)

Consultant/Assessor Details	
Name of investigating company	Advanced Environmental Systems Pty Ltd (AES)
Nominated individual/s	Mr Peter Clinnick (B. Ag. Sci. Hons. M. ASSSI.) Ms. Monique Aarts
Date of assessment commencement	1-01-2018
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Authors background

Peter Clinnick has a Degree in Agricultural Science with Honors and is recognised as an Environmental Scientist with over 30 years' experience in natural resource assessment and environmental sustainability. He has been engaged by CSIRO Forestry and Forest Products, industry and local government to work in, research, policy development and environmental investigations throughout Australia.

His experience in the rural sector encompasses an extensive background in a range of environmental assessment areas including visual assessment. Projects dating back to the late 1980s and include town entrances, numerous quarry developments and rehabilitation projects as well as subdivisions and post mining land use and landscape design.

Monique Aarts has been engaged by AES since 2001 in a range of environmental assessments relating to local government projects, farm planning, quarry rehabilitation and site planning for recreation and effluent disposal areas. Landscape design and visual assessment, incorporating habitat development has been a substantial part of her working brief.

Table of Contents

Figures

Plates

Visual Impact Statement

Howlong Sand and Gravel Quarry Expansion

1. ASSESSMENT OBJECTIVE

The objective of the assessment was to conduct a visual inspection of the locality around and within the Howlong Sand and Gravel Quarry (HSAG) site in relation to sensitive receptors on neighbouring properties, recreational receptors on the Murray River or where travelers on the Riverina Highway may perceive a visual impact. The potential impacts on visual amenity associated with the disturbed areas of the quarry were assessed, including the current and future quarry extraction area, stockpile storage and levee infrastructure. The assessment and findings are outlined in this report and supported by accompanying figures and photos.

Mitigation measures, such as revegetation of the final landform surface are outlined where required to ensure that potential future impacts on visual amenity are minimised.

2. SECRETARY'S ENVIRONMENTAL ASSESSMENT REQUIREMENTS

The Secretary's Environmental Assessment Requirements (SEARs) included a requirement for detailed assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to any new landforms, and to minimising the lighting impacts of the development.

3. METHODOLOGY

3.1. FIELD INVESTIGATION

- Visual assessment was firstly conducted from the property gate (4343 Riverina Highway) by assessing the general vista to the south toward the quarry and north (including 'Wyseworth' Homestead). A second visual assessment was conducted from the surrounds along the north side (towards the receptors) and south side of the development footprint, toward potential recreational receptors on the Murray River.
- The measurement by proportional sight estimation of tree heights in the area, in particular those within the vicinity of the Line of Sight (LoS) from residences to the current and future extraction, infrastructure area and levees.
- Photographs (from a digital SLR camera) were taken from the nearest possible locations to receptor residences looking towards the proposed quarry location. It should be noted that access to privately owned residences was restricted and photos were taken from the closest possible access points. The photos taken are presented in Section 4.4. It is noted that the profiles described in Section 4.5 however, were derived from the actual residence locations, made possible by available satellite imagery (Google Earth).

3.2. DESKTOP STUDY

The preparation of data supporting the assessment involved the following:

- Collation of all available digital data for the subject site and surrounding land using digital elevation collected from drone survey (CAF 2018).
- Creation of surface models of the existing landform and proposed quarry footprint. This formed the basis for the visual impact assessment analysis.
- The identified potentially visual sensitive residences were located on the model.
- The potential impact on visual amenity at the nearest sensitive residential locations was assessed by generating visual profiles from these residential locations to the current and future quarry footprint. These visual profiles were produced based on the prepared surface model. In each case (from each residence) the LoS to the subject site was analysed to ensure the worst-case viewpoints were portrayed.
- In addition to the visual profiles generated from each nearest sensitive residential location, profiles were also generated to assess the potential impact on visual amenity from the Riverina Highway, as well as the Murray River and vacant lands around the quarry location.

The use of photomontage images to represent visual areas of the Quarry was not considered necessary as the field investigations determined that it would be difficult to identify site components from residences and the Riverina Highway. As a result, photomontages would not provide a useful indication of visible areas of the Quarry Site.

4. IMPACT ASSESSMENT

4.1. EXISTING LAND USE

The site is currently utilised for cropping, cattle grazing, lucerne production and sand and gravel extraction.

4.2. ADJACENT LAND USE

North: Rural area including cattle grazing, cropping and transport corridor (Riverina Highway).

East: Rural area with agricultural production.

South: Murray River reserve, passive recreation (fishing, boating) and cattle grazing.

West: Specialist seed production and conservation areas.

4.3. NEARBY SENSITIVE RECEPTORS

During the field investigation, a total of four residences and a Scout camp were identified as potentially sensitive receptors with regards to visual amenity, as illustrated in **Figure 1**. "Morebringer" (R1) is located approximately 1,270 m to the north east, the Scout camp (R2) at 1,440 m, "Wyseworth" (R3) with two homes, at 1,666 m to the north, "Tarcoola" at 550 m and Heritage Seeds at 1,170 m to the northwest. There are no residences to the south or west within 2 km.

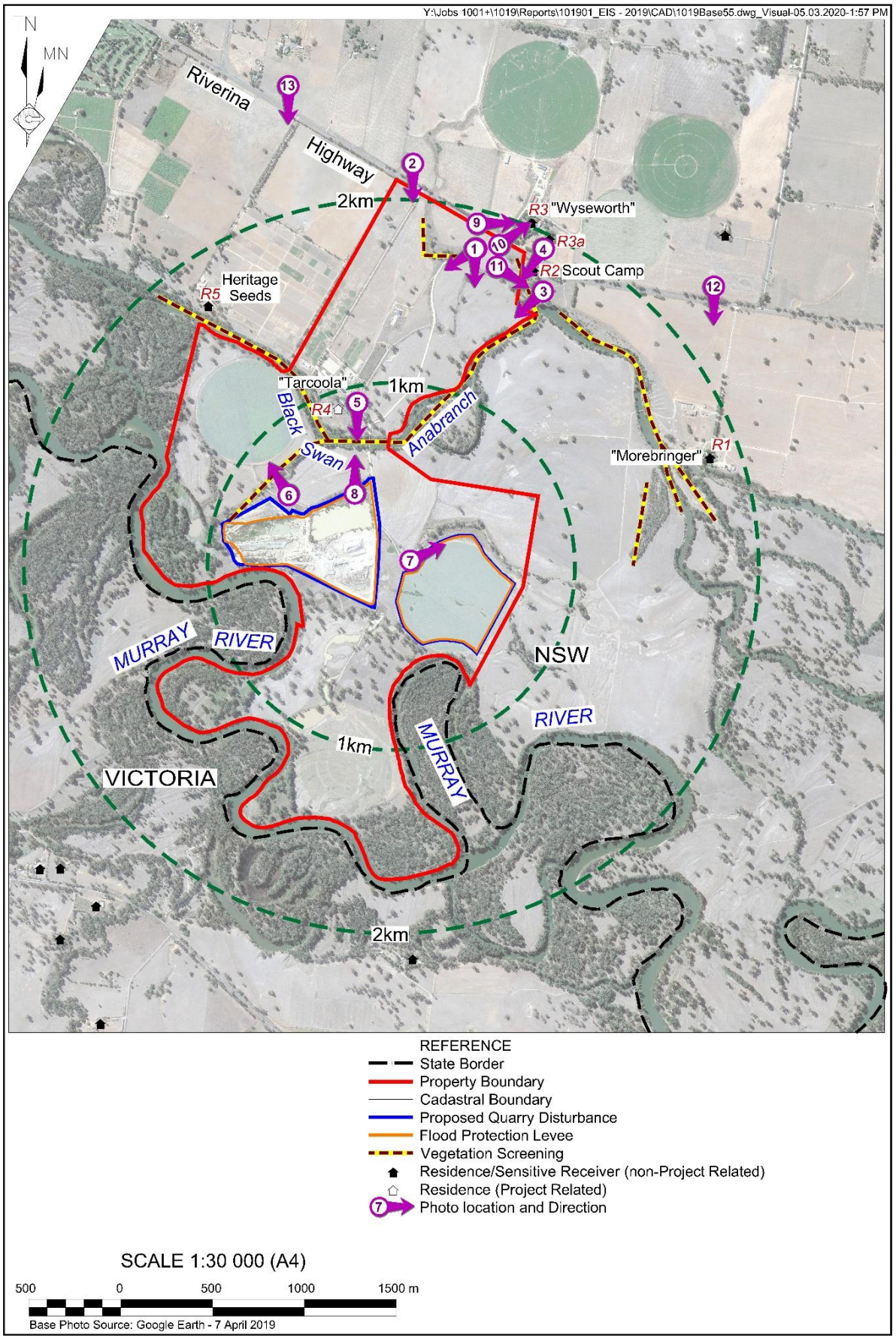

Figure 1 Locality overview with receptors numbered

R1, R3, R4 and R5 are farmhouses, R2 is a Scout camp
(Adapted from Corowa LEP Heritage Map and NSW Government Six Maps)

Section 4.5 provides visual profiles with LoS from residential vantage points to the northwest, northeast and north of the quarry site to illustrate the visibility of the extraction area and quarry related activities from these locations. These profiles illustrate the effectiveness of natural topography, siting, distance, levees and vegetation in screening of the quarry operations and stockpiles from neighbouring properties, the Riverina Highway and the Murray River.

Visual profiles were generated from the five properties (**Figures 3 to 6** in Section 4.5). A further three profiles were generated to enable assessment of the potential visual impacts from the Riverina Highway (**Figure 7** in Section 4.5), as well as adjacent lands and the Murray River (**Figures 8** and **9**).

Using aerial photography analysis, as well as results from the field investigation, existing vegetation was placed on the profiles. The LoS was then projected from each residence or receptor location to the proposed quarry extraction area, taking the tree canopy into consideration, as shown on **Figure 2**. Field investigations also revealed the average height of the tree canopy to be 18 m. Tree heights are a crucial element in this assessment given the visual barrier that they provide. The profiles are presented with a compressed horizontal scale.

The visual profiles and assessment results are discussed further below. The visual assessment (**Figures 3 to 9**) found that the combined influence of landform, distance and existing vegetation will screen the majority of views from residences in the surrounding area. The proposed extension to the extraction area could be completed with minimal additional impact on the visibility of the quarry site from key vantage points.

No concerns regarding visual amenity were raised by the public during community consultation sessions or on social media.

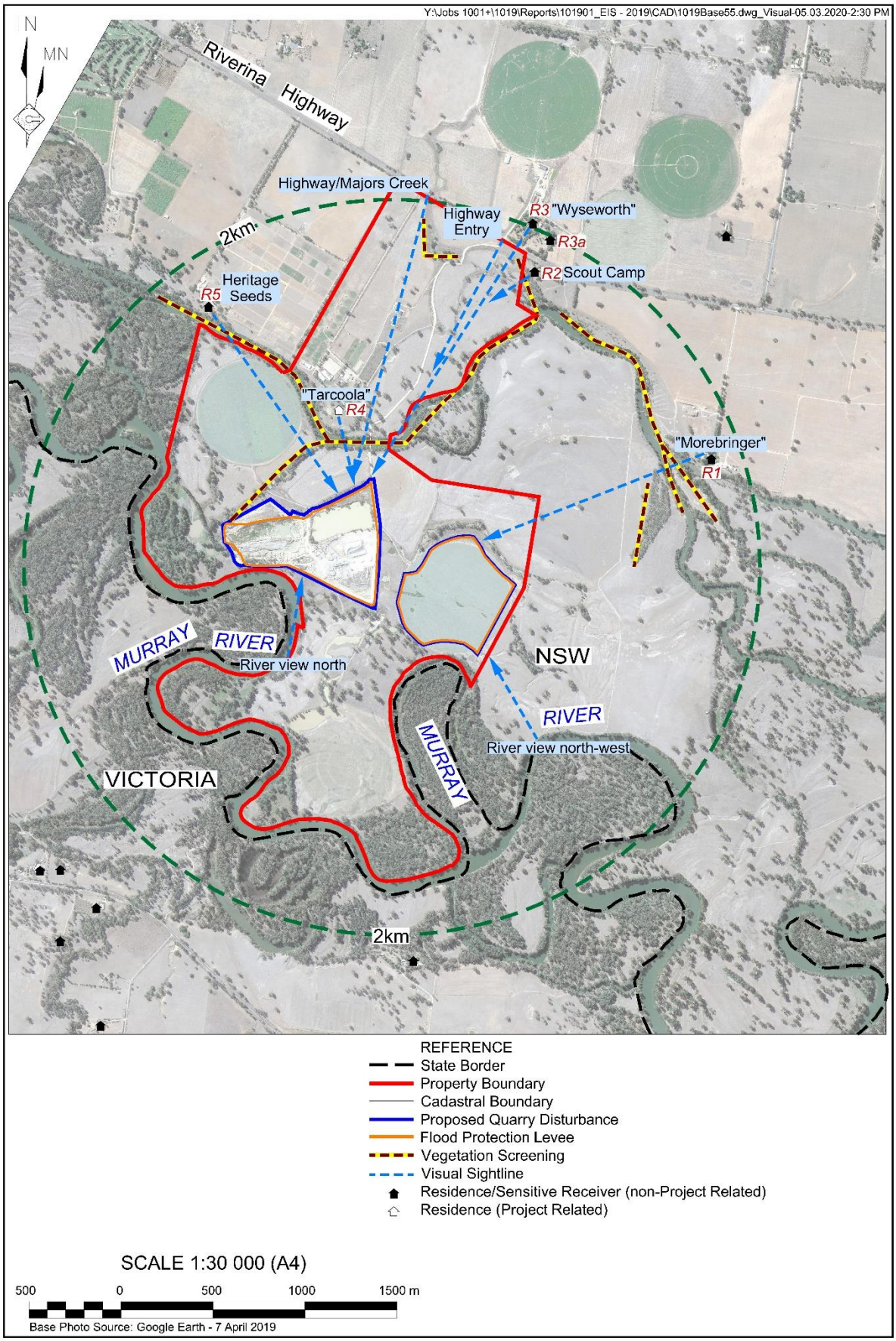

Figure 2 Overview sightlines from key vantage points within a 2 km radius from the subject site

4.4. PHOTOS TAKEN DURING THE SITE INSPECTIONS

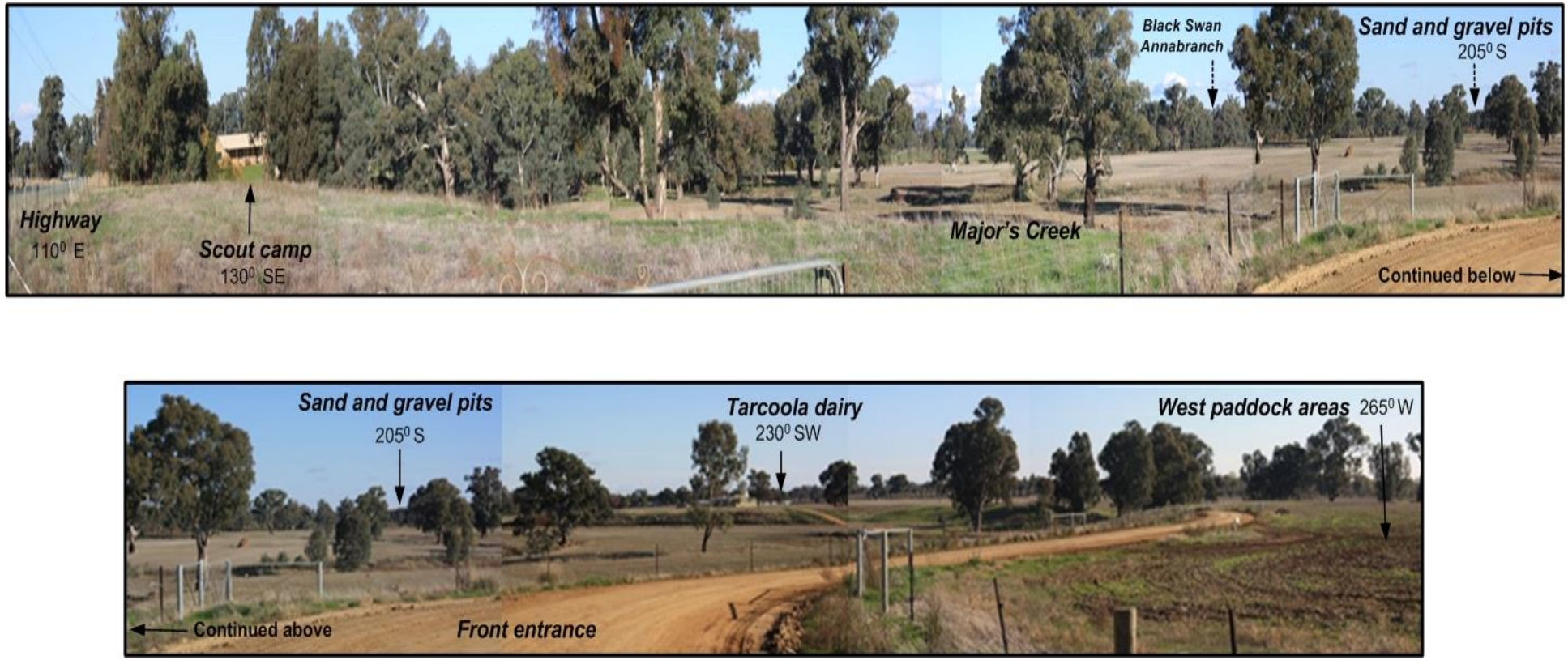

Plate 1 Panorama from main gate - Riverina Highway

Plate 2 Major's Creek , view south east from Riverina Highway to the subject site

Plate 3 Scout camp boundary -View southwest towards the subject site

Plate 4 a View south form "Wyseworth" gate towards the subject site

Plate 4 b View south from "Wyseworth' towards the subject site

Plate 5 View from "Tarcoola" eastern boundary, south towards the subject site

Plate 6 View north west to Heritage Seeds from the subject site

Plate 7 View north east to "Morebringer" from the subject site

Plate 8 View north to "Tarcoola" from the subject site

Plate 9 View north east to "Wyseworth" from the quarry site entry gate

Plate 10 View east to Scout camp from subject site entry gate

Plate 11 "Wyseworth "entry – view north from Riverina Highway

Plate 12 "Morebringer" view south, entry at Riverina Highway

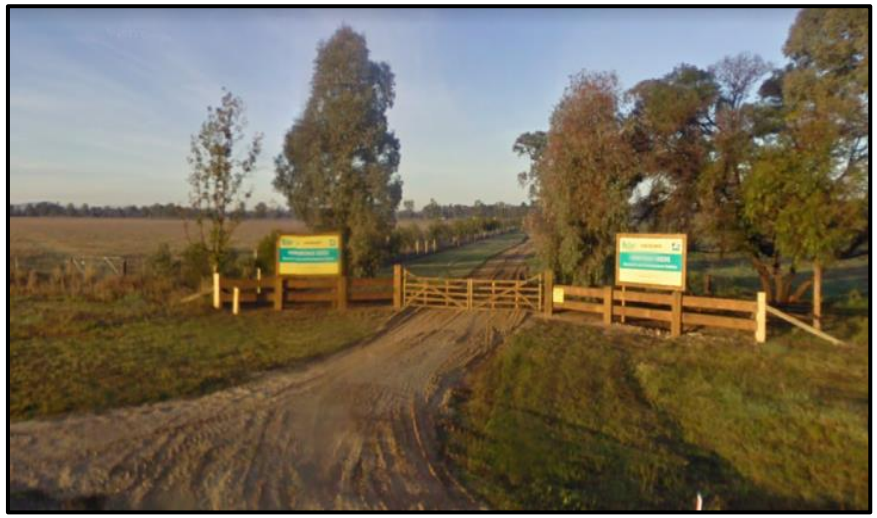

Plate 13 Heritage Seeds view southeast from Riverina Highway

4.5. VISUAL PROFILE WITH LINE OF SIGHT FROM KEY VANTAGE POINTS

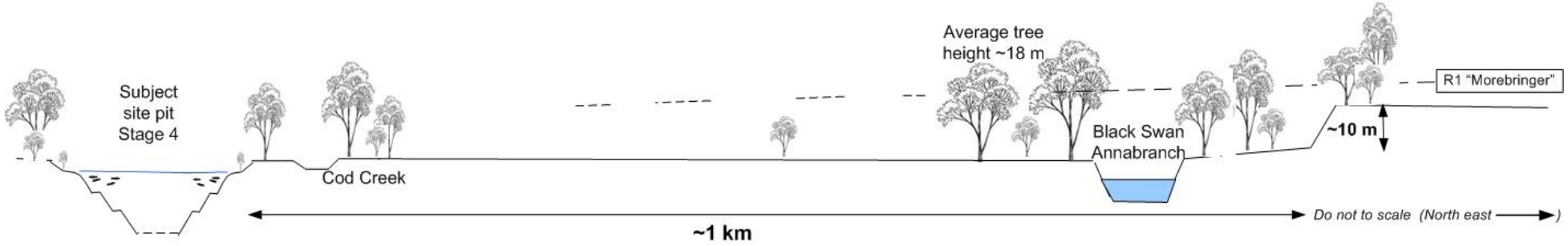

Figure 3 LoS, R1 ("Morebringer")

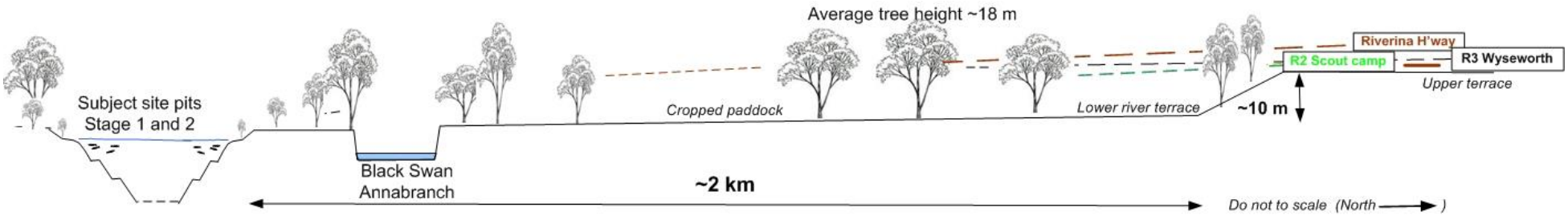

Figure 4 LoS, R2 (Scout camp) R3 ("Wyseworth")

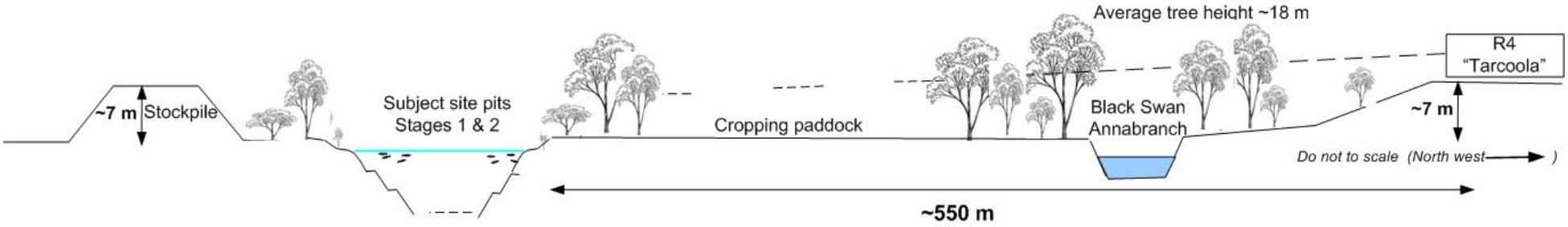

Figure 5 LoS, R4 ("Tarcoola")

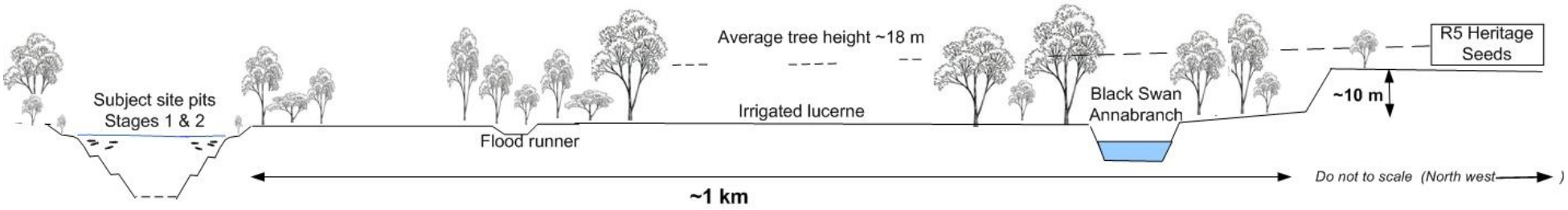

Figure 6 LoS, R5 (Heritage Seeds)

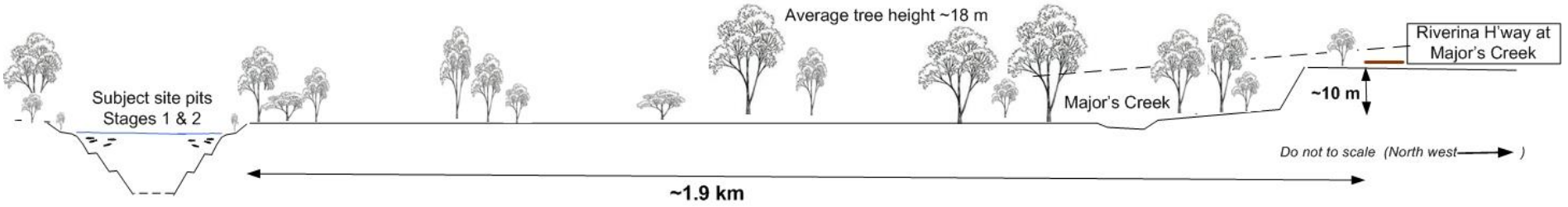

Figure 7 LoS, Riverina Highway at Major's Creek

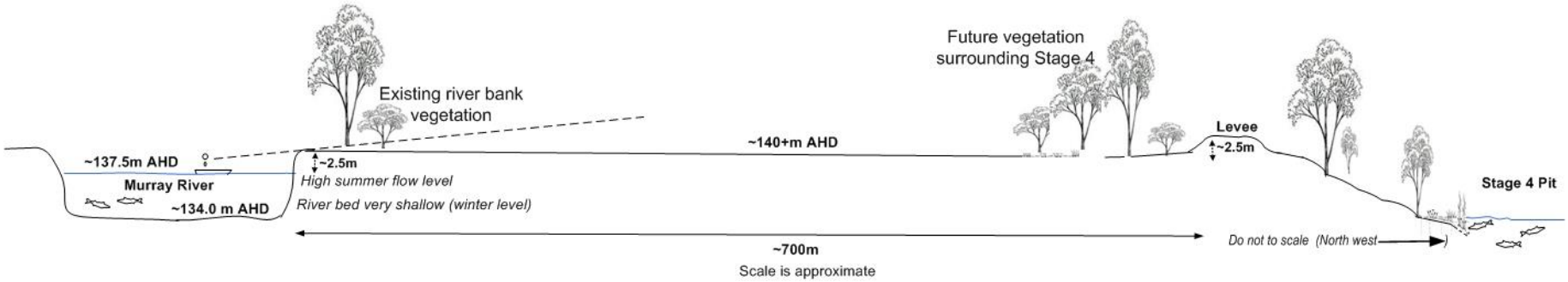

Figure 8 LoS, river view

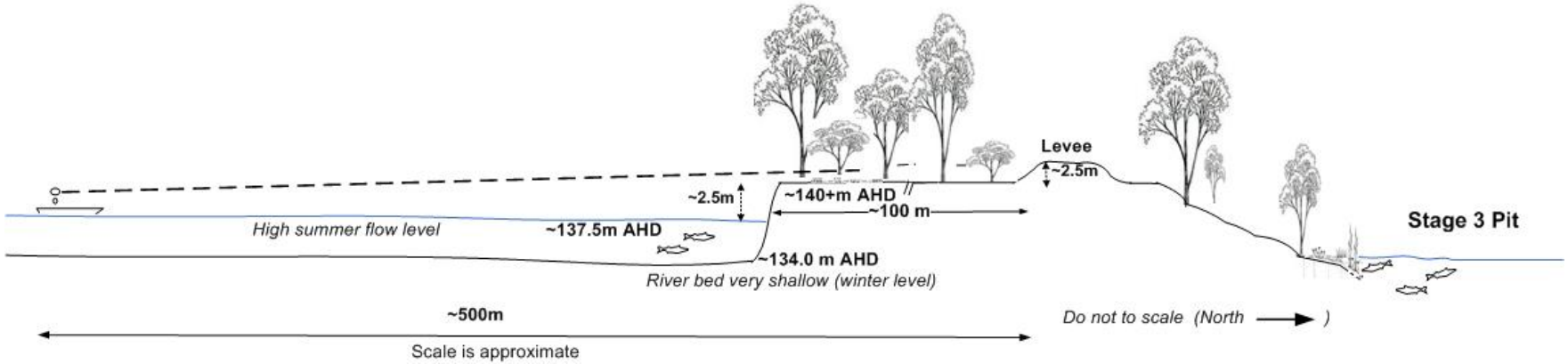

Figure 9 LoS, river view north

As illustrated on **Figures 3 to 6**, from the five residences and the scout camp assessed, it was found that only "Tarcoola", the residence of the landholder and stakeholder of the HSAG quarry may be have interspersed view of the quarry during winter.

Vegetation clearing (two Red Gums) will only occur of an area smaller than 1 ha on the northern section of the Stage 2 extraction area, which is not visible from any of the receptors or the Highway. Revegetation works that are currently being conducted, will further reduce the visibility of the pits whilst in operation and following closure. The views from the remaining identified residences and the Scout camp will be screened by topography and existing vegetation. The results of each of the visual profiles generated from the four residences and the scout camp are described further in Section 5.2.

In addition, visual analysis was undertaken of potential impacts relating to the infrastructure area, with views analysed from each of the identified residences. Realignment of access roads will not decrease visual amenity because it presents a remote view from the Highway and is not visible from the residences. There will be no utility realignment. Pre-determined heights of stockpiles, infrastructure and existing bands of vegetation were factored into the analysis, and it was found that existing trees, distance, siting and topography outside the quarry area would act as a visual barrier between all of the residences and the quarry infrastructure including the stockpile site.

Outside the levee banks surrounding the pits, the landform across the Murray River floodplain will retain the existing topographic features. That is, with the exception of operations (deep ripping and cultivation) required for revegetation, the area will remain undisturbed and maintained in its current state with gentle slopes of 1 to 2 %. Levees that are to be elevated will have a trapezoidal shape with 3:1 gentle sloping sides. The levees will be revegetated with native grasses and extensive areas of indigenous trees at their base . The height and form of the levees will be such that they do not intrude on the landscape view of the floodplain and therefore the quarry operations will not be visible to recreational receptors on the Murray River.

Dust clouds are commonplace due to agricultural operations on farmland, but there is no impact from truck and machinery operations as dust suppression is continually used. Blasting is not part of the quarry activities on the subject site.

The HSAG quarry is expected to operate at normal working hours being 7:00am – 5:00pm, Monday to Friday with the possibility of work on Saturdays depending on demand and any emergency requirements. There is external general movement sensored utility lighting on the staff facilities for safety purposes and is not used in operations, as the quarry is basically a daytime operation, it is anticipated that the utility lighting will cause no significant adverse impact on private landowners, agricultural operations, wildlife and heritage items in the vicinity of the development or key vantage points in the public domain.

5. VISUAL IMPACT ASSESSMENT

5.1. RESIDENTIAL RECEPTORS

Receptor 1 (Figure 3)

Located off the Riverina Highway on the southern side, the "Morebringer" (R1) farming property is approximately 1.3 km from the currently undeveloped Stage 4 of the quarry. Based on satellite imagery this residence appears to have a clump of trees screening the house and this provides a substantial visual screen. A bank of riparian vegetation coverage is located 100 m to 300 m from the residence along the Black Swan Anabranch and this will provide a secondary visual barrier. The visual profile shows the trees would obscure any view of the closest part of the Quarry.

Receptor 2 and 3 (Figure 4)

The Scout camp (R2) is located about 1,440 m from the quarry site and opposite "Wyseworth" along the southern side of the Riverina Highway. Only the access road to the Quarry site is visible at the camp. The existing and proposed works are obscured by topography and vegetation.

"Wyseworth" (R3) is located approximately 1,666 m to the north of the quarry site and located on the northern side of the Riverina Highway. It has two homes about 100 m apart and 100 m north of the Highway. The existing and proposed works at the Quarry will not impact on the 'Wyseworth' homestead, garden and outbuildings as the Quarry is not visible from the Riverina Highway due to vegetation screening, distance, siting and topography.

Receptor 4 (Figure 5)

"Tarcoola" (R4) is located 550 km north of the quarry site and is the closest residential receptor. This residence may be able to see distant and interspersed views of the extraction area during winter when deciduous trees are bare. However, the owner of this residence has a commercial agreement with the operator of the Quarry and is aware of the operation and implications of the Quarry's further development.

Receptor 5 (Figure 6)

Heritage Seeds is a farming property located off the Riverina Highway on the southern side, 1,170 m to the northwest of the quarry. The residence is located along the Black Swan Anabranch. The riparian vegetation and other remnant paddock trees provide visual screening of the quarry operations.

5.2. RIVERINA HIGHWAY

This profile commences at the Riverine Highway (**Figure 7**), at a point on the highway directly north of both the existing quarry, and the future extraction area. As is evident from the visual profile and **Plate 2**, the quarry footprint is not visible from this location on the highway. The subject site is not in the LoS, as it is behind the existing vegetation.

5.3. OTHER ADJACENT LANDS AND THE MURRAY RIVER RESERVE

Figure 8 (visual profile) illustrates the LoS from the vacant lands to the southeast and southwest of the subject site (Stage 3, north of the Murray River). As can be seen in the LoS diagram, the voids of the Quarry and stockpiles to the north are obscured, due to the flat topography and location of the existing and future extraction area, the quarry will not be seen from this location.

Figure 9 illustrates the height and form of the levees (Stage 4) on the southern side of the quarry along the riparian corridor of the Murray River. Their height and distance from the viewer will be such that they do not intrude on the landscape view of the floodplain. Due to the height of the riverbank as well as the existing and future riparian and floodplain vegetation, the quarry operations will not be visible to recreational receptors on the Murray River.

6. MITIGATION MEASURES

The increased extraction volume and further development of the HSAG site is anticipated to have no or a low visual impact on people residing in the area, with the majority of the surrounding area found to be screened by topography and existing vegetation. Views from five of the six properties identified as being potentially visual sensitive receptors will be screened by the combined influence of topography and vegetation.

However, to ensure that any potential visual impact associated with the extraction area of the quarry is minimised, extensive areas of trees will be planted as soon as practical beside and on the outer faces of the levees surrounding the Quarry site. With regards to the infrastructure and stockpile area, the visual impact assessment indicates that this area would be screened by existing vegetation and topography. “Tarcoola” may have distant and interspersed views of the quarry. However given the distance from the subject site, the visual impact is anticipated to be low, especially in summer due to the cover of deciduous trees. As mentioned previously, planting of trees as soon as practically possible will further ensure that any potential visual impacts are appropriately mitigated.

Views from the Riverina Highway will also be shielded by the combined influence of topography and vegetation. The infrastructure area (located on the north east section of the Stage 2 site) will include a weighbridge, the site office and amenities for the quarry, as well as the sorting equipment (located on Stage 3). This infrastructure is well screened topographically and by vegetation. It is anticipated that the extraction area and stockpile area will be well screened from surrounding land by revegetation.

7. CONCLUSION

The purpose of the assessment was to establish if the existing and proposed gravel extraction activities would impact on permanent or transitory sensitive receptors. The assessment of visual impacts has identified that residential receivers will have largely obscured views of the quarry site due to vegetation, topography including current and future landforms and the diminishing effect of distance. The existing and proposed works at the Howlong Sand and Gravel Quarry will not impact on the ‘Wyseworth’ homestead, garden and outbuildings as the quarry is not visible from its location north of the Riverina Highway due to vegetation screening, distance, siting and topography. Similarly the activity area is obscured from neighbouring farm properties, the Scout camp, the public realm and the Murray River for the same reasons.

On the basis that the proposed increase in extraction rate and development of Stage 3 and 4 would be unlikely to result in major changes to the visibility of the Quarry from surrounding vantage points, the management of visibility is nonetheless considered important and will be enhanced further by revegetation of areas surrounding the subject site.

8. REFERENCES

CAF consulting (2018), Drone Survey of the Howlong Sand and Gravel Area (unpublished data)

State of New South Wales through Department of Trade and Investment, Regional Infrastructure and Services (2012), Agriculture Issues for Extractive Industry Development

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