

CHAPTER 23

SOCIAL ENVIRONMENT



BIRD IN HAND GOLD PROJECT

MINING LEASE PROPOSAL



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23 LOCAL COMMUNITY

The proposed ML is located within a rural industry area, zoned Watershed (Primary Production). The area has undergone significant change over the preceding 20 years. Once a valley predominately used for beef cattle grazing, dairy farming and potato growing, the Pfeiffer Road and Bird in Hand Road district now includes wineries and cellar doors (including events such as weddings and concerts), viticultural holdings, horticulture including strawberries, and apples. Other uses include military, landfills, quarries, mines¹, an airstrip and recreational facilities including Polo fields.

This chapter has been prepared by D4G Pty Ltd (Design for Growth) to independently provide an overview of the social environment.

23.1 APPLICABLE LEGISLATION AND STANDARDS

The relevant legislation regarding the social environment and the proposed Project emanates from the Mining Act 1971 (SA), and the associated determination developed for the Project by the Department of the Premier and Cabinet – *Determination for a Mining Proposal for the Bird in Hand Gold Project*, and was released in the South Australian Government Gazette on the 5th April 2017.

There is no specific legislation or standards relevant to social impacts. Terramin’s assessment methods are driven largely by best practice guidelines, which are explained in more detail below under community engagement.

23.1.1 COMMUNITY ENGAGEMENT GUIDELINES

Terramin’s community engagement is largely driven by the Community Engagement Plan (CEP) (Appendix C1). The legislative context for the CEP is described below:

Stakeholder consultation in relation to mining projects in South Australia is controlled by the Mining Act 1971 (SA) and the associated Mining Regulations 2011, regulated by the Department of the Premier and Cabinet (DPC).

Guidelines have been developed by the Government to assist with the regulations, and include, but are not limited to:

- MG4 Guidelines: landowner rights and access arrangements in relation to mineral exploration and mining in South Australia
- MG1 Guidelines for miners: mining approval processes in South Australia
- *Determination for a Mining Proposal for the Bird in Hand Gold Project* : Terramin has been provided with a bespoke Ministerial Determination which has taken into account the concerns of the community, which along with the minimum information required to be provided in a mining proposal or management plan for a mineral lease (ML) and any associated miscellaneous purposes licence (MPL) applications for metallic and industrial minerals (excluding extractive minerals, coal and uranium), requires Terramin to present specific details on hydrogeology and economic impact and benefits of the project.
- Ministerial determination 005: Minimum information required to be provided in a Program for Environment Protection and Rehabilitation (PEPR) for a mineral lease (ML) and any associated Miscellaneous Purposes Licence (MPL) for metallic and industrial minerals (excluding extractive minerals, coal and uranium)

¹ According to publicly available data, as at September 2017, there were 88 active mining licenses within a 20km radius of the BIHGP, of which 61 were operating

- MG2a Preparation of a mining proposal and/or management plan for metallic and industrial minerals (excluding coal and uranium) in South Australia
- MG2b Preparation of a program for environment protection and rehabilitation (PEPR) for metallic and industrial minerals (excluding coal and uranium) in South Australia

Terramin recognises that a key element of the South Australian government approach to community engagement is “Better Together”:

1. we know why we are engaging and we communicate this clearly
2. we know who to engage
3. we know the background and history
4. we begin early
5. we are genuine
6. we are creative, relevant and engaging.

Additionally, the South Australian Chamber of Mines and Energy have developed a Code of Practice for Community and Stakeholder Engagement, which outlines the foundational principles and responsibilities of the mining industry to the community in South Australia.

23.1.2 POLICIES RELEVANT TO THE APPLICATION AREA

Policies relevant to the existing socio-cultural environment include:

- Adelaide Hills Council Development Plan
- The 30_Year Plan for Greater Adelaide
- Adelaide and Mount Lofty Ranges Natural Resource Management Plan
- No Species Loss: A Nature Conservation Strategy for South Australia 2007 -2017
- Adelaide Hills Council Biodiversity Strategy
- Western and Eastern Adelaide and Mount Lofty Ranges Water Allocation Plans – Discussed in Chapter 10: Groundwater

23.1.2.1 ADELAIDE HILLS COUNCIL DEVELOPMENT PLAN (2017)

The project site is located within the Adelaide Hills Council (AHC) local government area. The Adelaide Hills Council Development Plan is a critically important document which provides guidance on land development and land use decisions for the community, the development sector, and for all spheres of Government.

As identified in the Council Development Plan, the Bird In Hand Gold Project site is within the Adelaide Hills Council Development Plan’s Onkaparinga Valley Policy Area. The land is zoned Watershed (Primary Production): Rural Development.

The zone’s objectives and principles of development control aim to prevent development that may lead to deterioration in the quality of surface or underground water within the Mount Lofty Ranges Watershed and also maintain land in primary production.

Onkaparinga Valley Policy Area objective specifically states:

The retention of the existing rural character by ensuring the continuation of farming and horticultural activities and excluding rural living or other uses which would require division of land into smaller holdings.

The proposed project does not seek to divide the land into smaller holdings and the recommendations for retention of the rural landscape character are discussed within this plan.

The Adelaide Hills Council Development Plan also includes six specific objectives relating to Council-wide mineral extraction activity including:

1. Development of mining activities in a way that contributes to the sustainable growth of the industry.
2. Protection of mineral deposits against intrusion by inappropriate forms of development.
3. Areas with scenic or conservation significance protected from undue damage arising from mining operations.
4. Mining operations undertaken with minimal adverse impacts on the environment and on the health and amenity of adjacent land uses.
5. Minimisation of the impacts from mining activities upon the existing groundwater level and the quality of groundwater resources.
6. Mining operations that make adequate provision for site rehabilitation

As part of the Mining Lease Application (MLA) Terramin have undertaken an extensive and comprehensive consultative process, which has had access to a range of experts to ensure the community and business are well informed about the scope and scale of the proposed Bird in Hand gold mine project.

All planning and investigation undertaken to date ensures that Terramin can meet clear Outcomes which align to the Adelaide Hills Council Development Plan objectives. Terramin have consulted widely on the proposed visual impact of the Project. This has been included in Chapter 9: Visual Amenity.

Further the Mining Act 1971 (SA) requires a comprehensive Mine Closure Plan, including future land use, to be submitted and approved through the MLP and PEPR approval process, prior to the construction of the Project. Mine Closure concepts have been included in Chapter 3 and the completed Mine Closure Plan will be developed and approved through the PEPR approval process.

23.1.2.2 THE 30-YEAR PLAN FOR GREATER ADELAIDE (UPDATED 2017)

The 30-Year Plan for Greater Adelaide (first prepared in 2010) is the strategic land-use plan that guides the long-term growth of the city and its surrounds. It describes the State Governments plan for how Greater Adelaide should grow to become more liveable, competitive and sustainable.

Objectives relevant to mining and resources include;

- **Protect existing mineral resource operations by: preserving adequate separation distances between mining activities, housing and other incompatible development**
- **ensuring buffers are contained within mine sites wherever possible**
- **mitigating potential interface issues**
- **maintaining access to freight networks.**

23.1.2.3 AMLR NRM PLAN

The Adelaide and Mount Lofty Ranges (AMLR) Natural Resources Management Plan looks at how best to protect the AMLR region, home to 1.3 million people over a ten year timeframe through to 2023. The NRM plan takes an integrated but practical approach to sustaining the region. It has been created in consultation with the community with the board's vision summing this up: 'Thriving communities caring for hills, plains and seas'. Its strategies and recommendations are based on the most up-to-date

information available. Under the Natural Resources Management Act 2004, the plan must be reviewed at least once every 10 years.

The Project falls into the Central Hills subregion.

A set of priorities for the future for the Central Hills subregion has been developed based on the information in this section:

- Protect and improve the integrity of the shrubby forest and woodland dominated landscapes found along the spine of the range (from Scott Creek to Black Hill)
- Restore and reinstate grassy ecosystems where this will help stem biodiversity declines (along both the western and eastern flanks of the range); this requires improved technical knowledge, community recognition and sustainable use
- Take action to address historic impacts, manage current threats, and facilitate population increases to reverse species and ecological community declines
- Better understand land use and land use change in a highly diverse landscape to support better development planning and management of land use conflict
- Support agriculture to adapt to climate change or transition to alternative business models
- Promote sustainable land management practices in a diverse land use and ownership environment
- Manage the allocation and use of water resources to provide water for the environment and for sustainable use by industry (quantity)
- Protect water resources for aquatic health and agricultural use (quality)
- Protect and restore riparian landscapes in the Torrens and Onkaparinga rivers to improve water quality and protect habitats
- Facilitate integrated climate change adaptation of people and the landscape
- Protect priority primary production areas from inappropriate development to maintain industry and business viability
- Encourage increased demand and supply of alternative water sources for fit-for-purpose uses (stormwater and recycled water)
- Monitor for, and control, pests that have not yet become established in the region or in the Central Hills subregion.

23.1.2.4 NO SPECIES LOSS - A NATURE CONSERVATION STRATEGY FOR SOUTH AUSTRALIA 2007 - 2017

No Species Loss sets objectives and targets for the conservation and management of the state's biodiversity and provides guidelines on how these can be met.

The aim of the No Species Loss Strategy is to lose no more species in South Australia, whether they be on land, in rivers, creeks, lakes and estuaries or in the sea. The document enunciates the South Australian Government's policy through to 2017 for reversing the decline in terrestrial, aquatic and marine biodiversity.

Terramin has consistently applied policies, procedures and actions to support this objective. This is specifically detailed in Chapter 18 and highlighted by support of the installation of bird boxes, planting of native species and harvesting of orchard seeds in conjunction with the SA botanic gardens.

23.1.2.5 ADELAIDE HILLS COUNCIL BIODIVERSITY STRATEGY (2013)

The Adelaide Hills Council district itself is located within the Mount Lofty Ranges, an Australian Government biodiversity hotspot, where a high variety of locally native flora and fauna species continue to survive since European settlement. Due to the vast changes to the Australian landscape brought

about by development and agriculture post-settlement, there are comparatively few areas in the country which are so rich and diverse in native plants and wildlife. The areas that are left are precious and in varying conditions, but the general trend is one of decline. The ongoing pressure on these habitats due to changes in climate and landscape as a result of human activity continue to threaten their condition with further degradation. If too degraded, they cannot continue to function and provide the services that natural systems by default do – such as air and water filtration, soil fertility and pollination of our crops and plants. All life depends upon these services that natural systems provide. It is possible to halt and reverse the decline of biodiversity in the Mount Lofty Ranges, but it requires strategic and active management.

Priority actions from the strategy that have been adopted for the project include:

- Identify and map areas which form linkages to connect and expand habitat within the district to inform decision making and policy
- Develop a Woody Weed Control program to reduce fuel load while improving habitat quality
- Develop best practice bushfire management procedures in sites with remnant or listed vegetation
- Review and map sites to determine condition and prioritise weed treatment
- Seek input from local community in biodiversity and habitat planning through Strategy and implementation of site action or management plans.
- Liaise with DEW to identify areas of high conservation value for consideration of entering into Heritage Agreements
- Develop best-practice procedures for staff and contractors for works in environmentally sensitive areas in liaison with experienced groups and organisations
- Prepare a Strategy Action Plan that identifies resources necessary to undertake the high priority biodiversity activities.
- Investigate opportunities for additional resources for on-ground ongoing management of biodiversity
- Development of management/action plans

23.2 ASSESSMENT METHOD

When entering a region to explore for minerals, Terramin undertakes to firstly understand the community in which it will be working and identifies the community stakeholders that will be impacted by or have an interest in the project. Consultation will continue for the life of the Project. It occurs alongside initial mine exploration and planning stages and is continually updated during exploration, mining and mine closure phases.

Terramin has developed and adheres to the following engagement objectives, which support the efficient development, smooth operation and closure of the Bird in Hand Gold Project (BIHGP):

- To inform stakeholders of the nature of the Project in a timely way;
- To promote community confidence by ensuring open and transparent discussion;
- To develop effective relationships with the community and key stakeholders;
- To ensure local community knowledge, views and concerns can be identified and addressed;
- To ensure regulatory requirements and expectations are met.

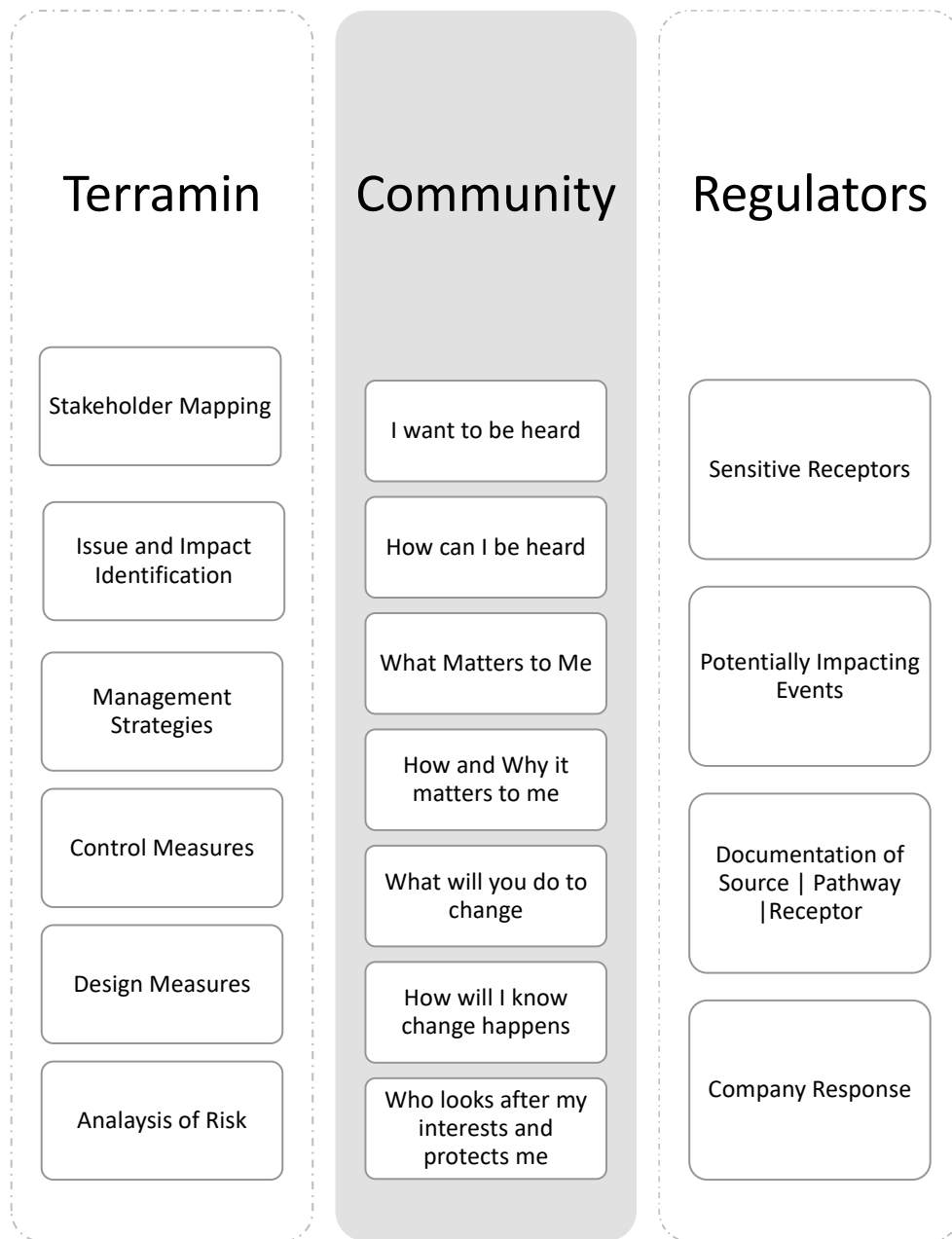
These objectives will continue to apply in the development of the project and informing the Project, and subsequent Project PEPR, if approval is given.

The Community Engagement Plan which was developed for the Project is in Appendix C1.



Terramin recognises that the engagement process can seem to many in the community to be onerous, overwhelming and at times irrelevant, but at its most fundamental should be assurance that each individual has had a chance to have an opinion be heard and where appropriate the potentially impacting event and proponent has responded in a way which assures me that what is being proposed does not adversely affect me beyond what is legal and acceptable.

The following figure reflects this journey for the community with Terramin and the regulators. Terramin has engaged with the community since 2014 and continues to address community concerns within the planning of the BIHGP.



23.2.1 PROFILING THE EXISTING SOCIAL ENVIRONMENT

The profile of the existing social environment was prepared through a desktop study using information available from various local, state and federal government data. This included:

- Analysis of quantitative data from the Australian Bureau of Statistics (ABS) and government departments of the study area
- Review of community reports, agency plans and planning documents focussed on the socio-cultural environment of the study area
- Review of various external reports on the social environment in the study area, including the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Regional Development Australia (RDA) and any other social research undertaken in the study area.

23.2.2 ENGAGEMENT AND INFORMATION COLLECTING TOOLS AND ACTIVITIES

A range of engagement tools and activities have been utilised to date to communicate and engage with stakeholders, and include the methods described below in Table 23-1.

TABLE 23-1 | STAKEHOLDER ENGAGEMENT TOOLS AND ACTIVITIES

Engagement Activity	Description	Approach
Advertising	Advertising will promote key events and invite participation.	Inform
Articles	Articles and press releases to inform on key issues, specific events and programs and invite feedback.	Inform
Brochures: discussion papers	Terramin communicate the progress of the project, and advertise events via brochures and discussion papers.	Inform
Community information sessions (Inc. Open Days)	This format of community events can include; Town Hall Meetings; Drop-In Days; Listening Posts and Focus Groups to provide access to specialist information and opportunities for interactive Q and A forums, which may be attended by expert consultants.	Inform Consult Involve
(Woodside) Community Consultative Committee	A formal committee established to allow for regular discussion between Terramin and the community about the Project. Whilst not a decision-making body, it is a forum for the community to present and resolve issues and be regularly informed about the project.	Inform Consult Involve Collaborate
Correspondence (inc.emails)	Terramin regularly receive and respond to stakeholders in writing. Terramin maintains a stakeholder database and uses emails to address specific groups of stakeholders on issues of interest.	Inform
Focus Groups (inc. technical workshops)	Focus groups and workshops facilitate conversations and range of opinions on a particular topic/issue.	Inform Consult Involve
Newsletters; Community Letters & Updates	Newsletters include project updates and FAQs. Newsletters are delivered via Australia Post and included at community locations (i.e.: library and shops).	Inform
One on one meetings	Meetings held between the company and individuals from the community to discuss aspects of the project.	Inform Consult
Focus Group Meetings	Focus group meetings allowed for informal and frank discussion amongst invitees who included, planning bodies, commercial interests, strategic thinkers and decision makers.	Inform Consult
Public Submissions	Written correspondence received from the community (usually addressed to government) following the announcement of a project or a release of information.	Inform Involve
Questionnaires/surveys	Online or paper based questionnaire-requesting feedback on a specific issue or project.	Inform Consult
Site tours	Community tours of the Bird in Hand Project to provide an understanding of the size and layout of the project.	Inform Involve
Speaking Engagements	On invitation Terramin staff are available to present and speak about the project development and operations to community and business groups.	Inform Involve
Sponsorship & Community partnerships Stronger Communities	Collaborations between Terramin and the community to enable a shared goal. The establishment of a formal sponsorship program provides a transparent method for community support initiatives.	Inform Involve
Website	Online resource for communities to access information about the project at any time. FAQs, discussion papers, presentations and approval documentation are published on-line.	Inform

Terramin's engagement approach aims to build enduring relationships with our neighbours that are built on mutual respect, active partnership and long-term commitment. Terramin draw on a spectrum of Inform, Consult, Involve, Collaborate and Empower, which has been informed by DPC guidelines, ministerial determinations, government frameworks and policies, SACOME guidelines, and best practice guidance.

23.2.3 STAKEHOLDER IDENTIFICATION AND ANALYSIS

Stakeholder mapping has been undertaken iteratively throughout the pre-lodgement, noting that groups change, as does the type and level of impact.

Stakeholders are broadly defined as groups or individuals that can be reasonably expected to be affected by the Project's activities, or whose actions can reasonably be expected to affect the Project's ability to successfully implement its strategies and achieve its objectives.

Primary questions asked through the initial phases of stakeholder identification and analysis include:

- Is consultation with the individual or group **mandated by law**?
- Is the individual or group a potentially **directly or indirectly affected** party?
- Does the individual or group **perceive itself** to be an affected party?
- Is the individual or group an **interested party**?
- Is the individual or group **influential** over either local communities, government or other stakeholders?
- Does the individual or group **strongly support** the changes that the Project will bring? Could this individual or group be supportive towards the mine?
- Does the individual or group **strongly oppose** the changes that the Project will bring? Could this group be detrimental to the mine?
- Does Terramin wish to **initiate or maintain a constructive relationship** with the individual or group?
- Does Terramin **wish to pursue partnerships** with this particular individual or group?
- Is this individual or group a **primary decision maker** about the Project as a whole (e.g. various government departments), or about one or other aspect of the Project (e.g. a local government authority about some local aspect of the project)

Along with the questions raised above, additional questions are continually considered, including:

- Do we know our stakeholders?
- How do we know if we are meeting with people that "matter" or only those who are easy to reach?
- Do we have a good picture of who has influence over others?
- Do we know relationships stakeholders have between each other?
- How can we engage with 'difficult to reach' people?
- How can we engage with sceptics and critics?

This stakeholder mapping and analysis allows Terramin to develop broad strategies at both the CEP and community information-gathering levels. Stakeholder analysis and engagement is iterative, Terramin is regularly undertaking stakeholder engagement activities focused on a range of aspects of the Project (ie: water and land access), as well as maintaining a holistic view.

23.2.4 WOODSIDE COMMUNITY CONSULTATION COMMITTEE ASSESSMENT METHOD

Formal consultation and engagement processes allow those affected by or interested in the project to build their knowledge base about the project, and to provide feedback to the company based on that knowledge.

A community consultative committee is not mandated, but Terramin believes it will assist in better informing and engaging the community. While Terramin began the process of establishing the Woodside Community Consultative Committee, the company was committed to a process of moving from an entirely Terramin led engagement process to a collaborative approach where the community and the WCCC are part of the engagement strategy. The WCCC facilitates other stakeholders like government agencies to present to, and receive feedback from, sections of the community on matters of common interest.

In March 2017, a steering group was formed, with an interim independent chair to facilitate the process to establish the WCCC. Terramin hosted an Information Session on the role and responsibilities of a Community Consultative Committee and actively invited members of the community to nominate to participate as a member of the committee. At the establishment meeting eighteen nominations were received. The first Public Meeting was held 3rd July 2017 and at this time, a total of twenty-eight nominations had been received. A seven-member governance sub-committee was formed with responsibility for drafting and reviewing the Terms of Reference, which would be reviewed and adopted by all members.

The Terms of Reference (ToR) were adopted by the WCCC at their meeting. The ToR sets out the objectives, expected outcomes, operation and reporting mechanism for the committee. The WCCC will;

- facilitate open communication;
- create a forum to raise issues - acting as a “structured” communication link between Terramin, the community and other stakeholders;
- provide an opportunity to influence operations - assisting in identifying and addressing local issues and concerns relating to the Project and its neighbours;
- provide an effective vehicle to communicate important information regarding Bird in Hand Gold project operations;
- be aware of and support the management of the Community Issues;
- identify opportunities to partner with Terramin on community projects; and
- exist for the life of the project.

The governance subcommittee selected an ongoing Independent Chair, who was formally appointed at the WCCC meeting on the 13th September 2017.

Eighteen nominations were initially received at time of the Establishment Meeting (5th June 2017). Shortly after at the first Public Meeting (3rd July 2017) a number of other nominations had been receiving bringing the total to twenty-eight nominations had been received. Nineteen (interim) members completed a Declaration form. Several of these members notified resignation of their membership, by the October 2017 meeting. As at April 2019, there were fourteen members of the WCCC.

The WCCC have met at regular intervals (roughly monthly) and will continue to meet throughout the project development, construction, operations and closure phases.

Terramin recognises the importance of stakeholder engagement to the sustainable development of its business and the role that community consultative committee can play as a vehicle for two-way communication between all stakeholders.

Since August 2017, the WCCC has met monthly and has been considering each topic area, with a focus on ensuring all issues and concerns are captured, management plans are shared and the proposed outcome statements reflect community input.

In July 2017, in response to high levels of interest, a special Technical Water Consultative meeting was held under the general auspice of the WCCC process. Around 60 people attended.

The WCCC has undertaken a methodical Issue identification and verification process to assure themselves they have captured and are aware of all community concerns. Consideration was then given to the Outcome Statements developed by Terramin including the measurements and assessments applied to each of these. Implicit within this process was a consideration of Risk.

The WCCC maintained an Action List and summary table of Issues and Concerns, detailing when each matter was reviewed by the WCCC and material presented by Terramin and/or their expert advisors.

Terramin staff and or their consultants contribute technical information and reports to guide and inform WCCC discussion

All meetings are publicly advertised and open for anyone interested to attend. From late 2017 to May 2019, gallery attendance has been modest.

The WCCC Terms of Reference are included in Appendix C2.

23.2.5 STAKEHOLDER INFORMATION RECORDS

As effective community engagement is an ongoing and continuous process, the CEP is reviewed and revised as community information, feedback and understanding is enhanced. The CEP evolution process is outlined below in Figure 23-1, and further in Figure 23-2, which outlines how community input has been incorporated into the MLP.



FIGURE 23-1 | ENGAGEMENT WITH COMMUNITY AND CEP



FIGURE 23-2 | STAKEHOLDER CONSULTATION INPUTS AND THE MLP

Terramin have developed an array of tools and templates to record, manage and monitor community feedback and engagement.

These templates include;

- Contact Form
 - Includes contact details, date, nature of contact, matter raised, recorder and internal referral, and any action required
 - Available on company website and in hard copy at community events
- Feedback Form
 - Unique feedback forms created for community event.
 - If issues are raised, information added to Community Issues Register.
- Community Engagement Register
 - A record of all communications by Terramin staff with stakeholders and the public which tracks conversations, queries and concerns.
 - Informs the community issues register and complaints register
 - Introduced March 2015.
- Community Issues Register
 - Allows Terramin to capture and maintain information on issues raised by stakeholders.
 - Used to inform focus of upcoming Terramin information displays, events, newsletters, etc.
 - Allows issue priority to be developed.
 - Terramin member is assigned, response and reporting action required.
- Consolidated publicly available Questions and answers
 - Questions and issues raised through all the identified vectors have been consolidated in Questions and Answers which have been made available to the WCCC and through the website.
 - This body of information is updated and added to as further issues are raised and more information on the project is developed.

- Complaints Register
 - Records issues which have been escalated and are a clear expression of dissatisfaction.
 - A response is required explicitly or implicitly and within assigned timeframes.

23.3 EXISTING ENVIRONMENT

This section provides an overview of the existing social environment in the region surrounding the proposed Project. Additionally included, is a summary of demographics, as well as a range of social services available and an overview of the social-economic conditions.

23.3.1 LOCAL COMMUNITY

23.3.1.1 DEMOGRAPHIC PROFILE

The 2016 ABS census data reflected Woodside (postcode 5244) population data as;

- Permanent population of approximately 2608, with almost equal proportions of males and females (50.4:49.6);
- The median age of the population is 43, compared to the South Australian average of 40, and the Australian average of 38;
- Aboriginal and Torres Strait Islander Peoples make up 0.4% of the total population;
- Approximately 18% of the population were born overseas, with the largest overseas denomination hailing from England (4.9% of the total population).
- The median weekly income for all persons aged over 15 years is \$627 compared to South Australian median of \$600 and Australian median of \$662.

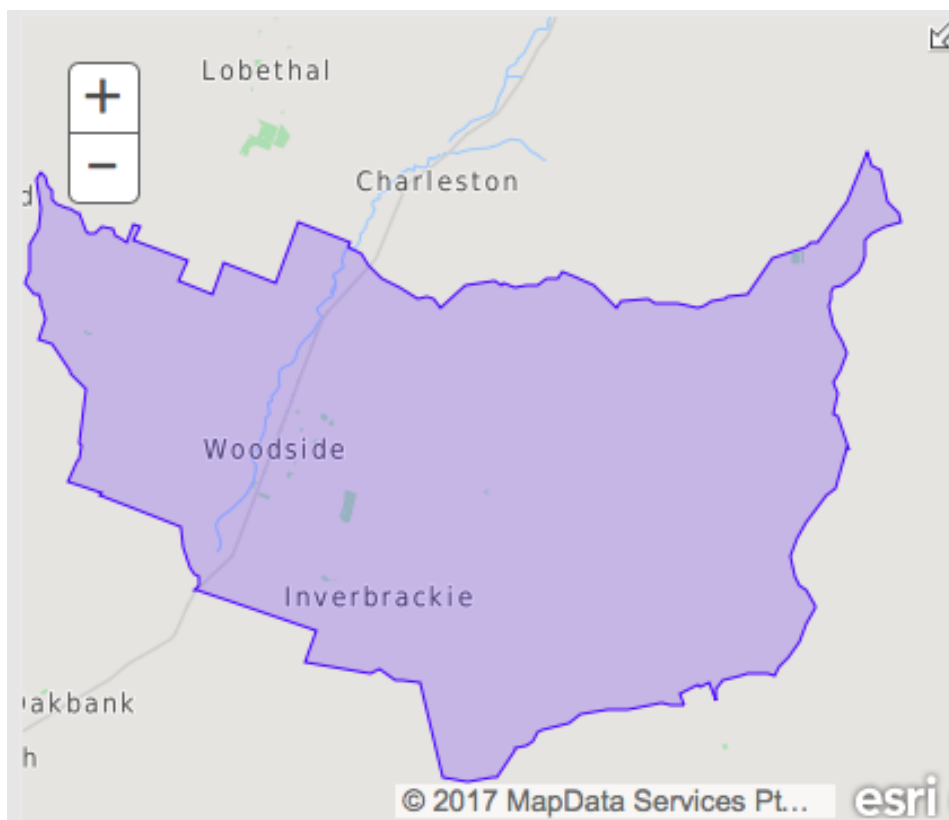


FIGURE 23-3 | CENSUS (2016) WOODSIDE DISTRICT

23.3.1.2 REGIONAL VISITATION

According to data available from Tourism SA² there are approximately 1.2million daytrips to the Adelaide Hills over 95% of which are domestic visitors (intra and interstate). These visitors contributed '\$126 million to the Adelaide Hills regional economy and directly employed approximately 1200 people'.

Most people visiting the Adelaide Hills were coming to see friends or family (67%). 59% of visitors experience dining and cafes in the region and 11% visit wineries, a reduction from 15% visitation the previous year³. **Invalid source specified..**

23.3.2 LAND USE WITHIN AND SURROUNDING THE ML

Terramin understand that the land use for the area covered by the ML includes:

- Part of Bird in Hand and all of Reefton Road;
 - Biodiversity conservation use
- Horticultural uses including planted vineyards;
- Rural residential housing;
- Livestock cultivation;
- SA Water reserve.

The entirety of the ML exists within the Adelaide Hills Council Area – Watershed Zone (as defined by the Adelaide Hills Council Development Plan⁴) and exists within exploration licenses EL 5469 and EL 5568, under the Mining Act 1971 (SA). The application area includes freehold land and public roads.

The majority of the surrounding land is currently used for either livestock grazing pasture, agriculture or horticulture (generally planted vineyards) (Figure 23-4). Extensive irrigation in the catchment is predominantly for horticulture and viticulture while less intensive irrigation is associated with dairy farming and grazing **Invalid source specified..** Irrigation of orchards, grapevines and pasture increased substantially in the Central Hills region in the preceding 20 years, with the inclusion of apples, strawberries and vineyards in the Inverbrackie Creek sub-catchment. The Western Mount Loft Ranges Water Allocation Plan regulates all groundwater abstraction within the Inverbrackie Creek sub-catchment.

Between the 2000-01 and 2005-06 Agricultural Censuses, the area of agricultural use decreased by 8%, or 2,971 Ha. This reduction was largely related to a decrease in cropping activities, of which the number of cropping establishments fell by 41% over this period. Conversely, the Adelaide Hills experienced an increase in agricultural land holdings over this period, with a 22% increase of agricultural establishments **Invalid source specified..** This reflects the changing nature of the Adelaide Hills, with an increasing pattern of agricultural land fragmentation as a result sub-divisions and urban developments.

Historically, the SA Water Reserve land was home to the original Bird-in-Hand Gold Mine, the mine operated from about 1882 to 1926, after which the site was transferred to the Commonwealth Government. The Commonwealth and the SA Dept. of Mines funded or assisted to undertake underground upgrades and installation of modern electrical equipment, as well as a detailed underground geology survey (including a surface diamond drilling program). The site was then used by the Commonwealth Government as a water supply for the Inverbrackie army barracks and other local

² Adelaide Hills Regional Profile, Annual Visitor Summary (December 2015 – December 2017)

³ Tourism Research Australia – Tourism Profiles (http://tra.gov.au/Tourism_Region_Profiles/Region_profiles/index.html#)

⁴ Department Planning Transport and Infrastructure (2017). Development Plan , Adelaide Hills Council. Adelaide.

landowners, presumably from the end of mining operations, until 1967, when it was transferred to the State Government and became a water reserve with the ability to augment South Australian drinking water supplies, if required, during peak summer periods prior to the Murray Bridge – Onkaparinga pipeline being completed. The water was predominantly used to supply the local army barracks through this period. Concurrently, the area was also used for military exercises, trench earthworks are still in situ from these activities. The site has been largely disused from about the mid-1990s. However, exploration activities by Maximus and other mining companies has occurred sporadically and resulted in various exploration drill holes and bores being installed. In the 1980's and 1990's Mining activities were undertaken on the Bird-in-Hand site under ML5169 (1983-1986), ML5458 (1987-1990), ML5683 (1990-1991) and tailings containing gold was mined, trucked and processed interstate. Some of this information is outlined in a report commissioned in 2006 by Maximus Resources, titled "Report on Geophysical Survey and Additional Site History Research" and can be found in Appendix L1.

To the north-west of the proposed ML, opposite the Bird in Hand waste water treatment plant, were two Barite mines, ML4845 and ML 4448, which operated in the 1970's, a few hundred metres further to the west there was a historic arsenic mine.

Terramin purchased the property "Goldwyn" and intend to use it for agricultural purposes, offices and storage until construction of project infrastructure can commence under the required legislative approvals.

The property within the proposed ML area to the north-east of Goldwyn is occupied by Petaluma Winery and will continue to be developed by them as a winery and cellar door with planted vineyards.

The property located to the north of the proposed ML boundary has been developed as polo fields by the Adelaide Polo Club. A clubhouse is proposed to be constructed in the near future to the north of the southern polo field.

There are various development applications pending with the Adelaide Hills Council, including winery expansions and housing developments, however, there are no other known significant land use changes within or immediately surrounding the proposed ML

There exists one public utility easement within the ML on CT5547/473, however, it is of no consequence to any activities proposed within the ML, as it is regarding the power supply for Petaluma.



FIGURE 23-4 | LAND USE WITHIN AND SURROUNDING PROPOSED ML

23.3.3 PROXIMAL BUSINESS AND RESIDENCES

There are three wineries in the immediate vicinity of the Bird in Hand Gold project site, the Petaluma Winery and cellar door, to the north-west, which is within the mineral claim. The Bird in Hand Winery, vineyard and cellar door, adjoins the western boundary of the proposed ML. Artwine, the third cellar door, is in close proximity to the north-east of the proposed ML.

Pasture both within and surrounding the proposed ML is used predominantly for beef cattle, as well as medium to large scale viticultural holdings, as shown in Figure 23-5 and Figure 23-6.

There are four residential houses, located within the proposed ML, three of which are occupied. The fourth dwelling is owned by Terramin and is currently vacant.

An 11kV power transmission line, as well as a mains water supply and telecommunications lines run through the ML parallel with Bird in Hand Road.

The eastern fringe of the township of Woodside is located approximately 1.2km from the western most point of the ML. The Woodside township is approximately 4km from the proposed ML and has a police station, medical centre, library and a recreation centre which includes a football oval, netball and tennis courts, bowls club and swimming pool and retail hub with a petrol station. The location of Woodside is shown in Figure 23-6.

The Woodside army barracks (also know as the Woodside Camp) were established in 1927, was initially used to train the Light Horse and infantry. There was a short period after the 2nd World War that the site was used as a Refugee Camp. Since 1950, the Barracks have been used by the Department of Defence for training. The Barracks are located approximately 2m to the south-west of the ML at Inverbrackie.



FIGURE 23-5 | PROJECT SITE



FIGURE 23-6 | PROJECT LOCATION SHOWING WOODSIDE

23.4 AMENITY

23.4.1 SOCIAL VALUES

The local government areas that could potentially be affected by the proposed BIHGP include the Adelaide Hills Council, Alexandrina Council and Mt Barker Council in the Adelaide Hills region in South Australia.

The focus of this MLP is on the proposed Bird in Hand project site, but consultation with stakeholders has been drawn from across the broader project elements including the proposed transport route, associated infrastructure and proposed processing site at Strathalbyn. Therefore, the combined perspectives informing the description of social value relate to that broader geographic catchment. The report indicates where views have been specifically expressed by immediate neighbours, which differ from the wider community view.

The proposed ML is located within a rural industry area, which has undergone significant change over the preceding 20 years. The economy of this area and the communities is now dependent on wineries and cellar doors, viticultural holdings, beef cattle grazing, horticulture including strawberries and apples, and a significant degree of commuting into Adelaide and surrounding areas for work. Other uses include military, landfills, a quarry, an airstrip and recreational facilities including Polo fields. Surrounding the local study area is a network of small towns, with similar land use and population densities.

Although the area has historically and presently experiences a range of uses based on a rural industry mix, consultation with stakeholders and the community indicates that there is a strongly held set of beliefs regarding the characteristics and values of the area.

These include:

- A sense of community

- A safe place to live
- Clean and green reputation
- Beautiful scenery and outlooks
- Quiet rural lifestyle
- World heritage quality region
- Non-industrial
- No mining
- A relaxed lifestyle
- Tree change opportunity
- Rural living close to Adelaide

Neighbouring businesses (winery/cellar door/events centre venue) have indicated that the proposed project is incompatible with the values of the area, will destroy the existing commercial activity (through amenity impacts and removing access to water), and undermine the international reputation of the businesses, their services and products. Stakeholder consultation has continued with these businesses and is included in Chapter 5.

23.4.2 VISUAL AMENITY

Visual amenity is discussed further in Chapter 9.

The Strategic Visual Amenity Plan (SVAP) reviews the visual impact of the proposed project from identified locations within the immediate site locality and provides recommendations for future mitigation techniques based on the proposed project infrastructure.

Multiple viewpoints were identified from the surrounding public roadways and places of business where views of and to the project site are visible. These are shown in Figure 23-7.

The surrounding hills and valley topography limit external views of the project site. There were no land based locations identified where a view of the entire site was possible. Views are predominantly scattered and partially obscured by existing vegetation and/or topography.

Of the residences neighbouring the ML, the residence located at 86 Bird in Hand Road overlooks the proposed operational area. Other select views are possible from viewpoints within 2km of the proposed project site. A polo clubhouse was proposed in 2015 and plans for the development were approved by the Adelaide Hills Council on the northern side of the Inverbrackie Creek. At the time of writing the clubhouse is yet to be constructed, although the playing fields, parking and associated infrastructure, were in use this year. The polo clubhouse is unlikely to have views of the project site owing to topography.

Of the neighbouring businesses, the Bird in Hand Winery cellar door and the Artwine cellar door both have partial views of the western side of the proposed project site.

The Bird in Hand Winery cellar door exit pathway faces the project site with existing vines in the foreground and a row of existing boundary trees providing mid-level screening, while existing trees within the Artwine carpark perimeter and Bird In Hand Road verge provide partial north eastern screening towards the project site. Both cellar doors predominantly face north.

All viewpoints of the proposed project site have been included in the SVAP located in Appendix G1.

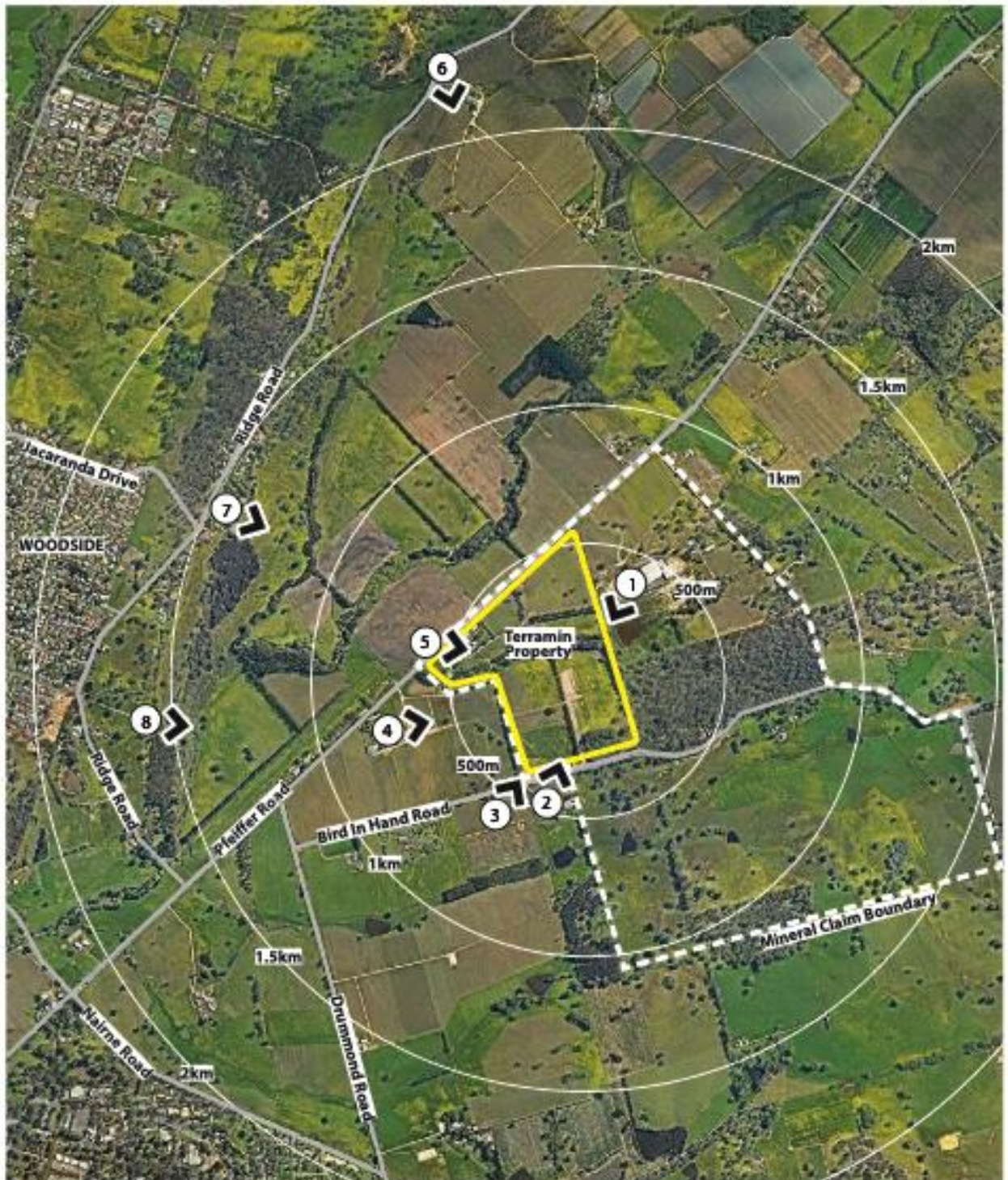


Figure 3: Photo Points

- | | |
|--------------------------------|----------------------------|
| 1. Petaluma Winery | 5. Pfeiffer Road Residence |
| 2. Bird In Hand Road Residence | 6. Ridge Road Verge |
| 3. Artwine Winery | 7. Ridge Road Residence |
| 4. Bird In Hand Winery | 8. Ridge Road Residence |



FIGURE 23-7 | PHOTO VIEW POINTS

23.5 SENSITIVE RECEPTORS

Sensitive receptors within the socio-cultural sphere have been identified in the CEP and other supporting documents and fall into the categories outlined in Table 23-2:

TABLE 23-2 | IDENTIFIED SENSITIVE RECEPTORS FROM THE CEP

Sensitive Receptor	Summary
Immediate Landowners	There are eleven (11) landowners who abut or are within the mining lease.
Regional Landowners	Landowners within the region who perceive a potential tension with mining on their reputation, market positioning, amenity and/or land use.
Local Communities	Local communities/townships who are potentially impacted by the project, particularly Woodside and Inverbrackie.
Catchment groundwater users	Landowners who hold the appropriate licensing and water allocation and have an interest in the quality and quantity of groundwater.
Neighbouring businesses	Businesses who abut or are within the mining lease.
Visitors to the Region	Those visiting the area for a day or short term stay at holiday accommodation. Peak bodies who represent visitors to the region SATC and Adelaide Hills Tourism.

The risk assessment details sensitive receptors further, and considers the following to be receptors, based on the potential impact events identified by the community:

TABLE 23-3 | IDENTIFIED SENSITIVE RECEPTORS FROM THE POTENTIALLY IMPACT EVENTS

Sensitive Receptor	Impact ID
Critical population groups	PIE_23_02
Landholders on operating site	PIE_23_03
Local and regional community and business	PIE_23_04
Local business, local/regional community	PIE_23_05
Local community	PIE_23_06 PIE_23_24 PIE_23_48 PIE_23_52 PIE_23_53 PIE_23_58 PIE_23_60 PIE_23_01 PIE_23_56 PIE_23_59
Local community and nearby landholders	PIE_23_64 PIE_23_65 PIE_23_67
Local community, adjacent business	PIE_23_11
Local community, Indigenous and connected communities and historians	PIE_23_12
Local/regional communities	PIE_23_16 PIE_23_17
Neighbouring businesses	PIE_23_18 PIE_23_19
Neighbouring businesses and landholders	PIE_23_20
Regional, local community and nearby landholders	PIE_23_21
Woodside residents	PIE_23_22
Local community and nearby landholders	
Other industries in region	PIE_23_25
Local businesses	PIE_23_27
Local regional waste management business	PIE_23_31
Young people	PIE_23_44
Local residents	PIE_23_49
Regional communities	PIE_23_50 PIE_23_51 PIE_23_54 PIE_23_55
Terramin, local community and nearby landholders	PIE_23_57
Local community, tourists	PIE_23_61

Sensitive Receptor	Impact ID
Local landholders	PIE_23_62
Soil quality	PIE_23_63
Regional traffic using or intersecting haul route	PIE_23_66

23.6 CONTEXT AND VIEWS OF AFFECTED PARTIES

23.6.1 ISSUES IDENTIFICATION

Throughout the engagement process Terramin has kept record of issues and concerns raised by the community.

All formal and informal contact with the community is recorded. This informs Terramin staff about issues and concerns the community have, which in turn populates the Community Issues Register.

For the purposes of this document, issues from the register are thematically grouped into areas of focus to enable clear and precise communication with stakeholders. Table 23-4 reflects the issues grouping, which have remained constant since July 2017. No new issues not covered by these categories have been identified.

TABLE 23-4 | ISSUES CATEGORISATION

Issue/Interest	Description
Amenity	An issue relating to amenity and vista (particularly impact of the project on the look and feel aspects of place) includes impact of noise; vibration; and lighting.
Community Engagement	Issues related to community access to information, transparency, two-way communication and responsiveness.
Economic Impact & Opportunity	Issues related to economic opportunities locally and across the region. (supply chain access; local procurement and employment). Including issues related to branding messages i.e.: 'Clean – Green' and 'Adelaide's Food Bowl'.
Environment	Issues relating to air quality, flora, fauna, erosion, waste, chemical contamination and rehabilitation (during exploration; construction; operations and closure).
Governance & Project Financing	Issues related to company and project financing.
Health & Safety	Issues associated with mine operation, particularly air quality; contaminants, public health.
Land Access	Issues related to land access.
Mine closure	Issues regarding end land use and rehabilitation.
Mine Design & Operation	Issues regarding design (i.e.: conveyors vs. trucks) and operation i.e.: blasting and vibration, dust, lighting and noise.
Regulatory Process	Issues relating to project approvals, monitoring and reporting, including heritage.
Roads & Traffic	Issues related to road network; traffic movement and routes; transport and road safety.
Water	Issues relating to groundwater, runoff, hydrology, and water quality and impact on water licenses.

23.6.2 AFFECTED PARTIES

Thirteen unique stakeholder groups were identified during stakeholder mapping, those particularly relevant to the social environment include;

- landholders immediate to the proposed project,
- regional landowners,
- local and regional communities,
- catchment groundwater users,
- visitors to the region,
- local government,
- local business and local agencies.

23.6.3 STAKEHOLDER VIEWS OF POTENTIAL IMPACTS

Additional information regarding stakeholder consultation undertaken is included in Chapter 5.

23.6.3.1 SUMMARY OF STAKEHOLDER ISSUES

Figure 23, reflects the aggregation of concerns (issues identification) raised with Terramin as at March 2019. Concerns have been raised primarily about the potential environmental impacts (32%) (largely related to water (30%)) and the consequent economic impact on or opportunity for the business and community (24%). With regard to water, concerns were raised about possible impacts to and on groundwater and water quality and impact on water licenses.

Other environmental concerns have included the potential impacts of noise, vibration, dust and the impact on visual amenity from an operating mine. This includes design and operation (14%) of the project (i.e.: conveyors vs. trucks) and impacts on amenity (3%) i.e.: blasting and vibration, dust, lighting and noise. Other concerns discussed included community safety, and increased road traffic and diminishing road conditions (1%).

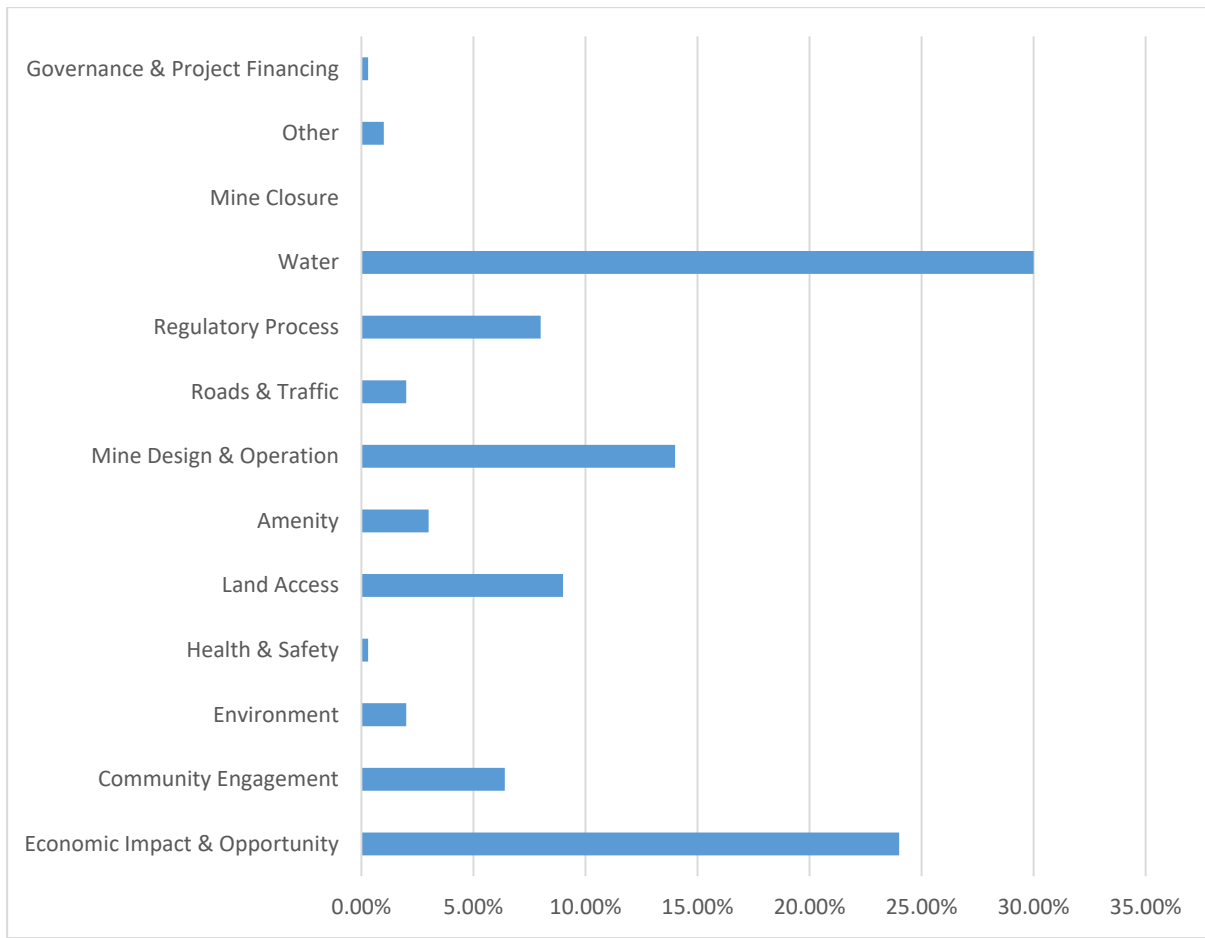


FIGURE 23-8 -STAKEHOLDER VIEW OF BIHGP ISSUES

In the opinion of some stakeholders, the perceived environmental and operating impacts of the project could lead to a major economic impact to nearby businesses. Some community members felt that the approval of the mine could threaten the areas perceived attributes, including its ‘clean and green’ reputation, pending application for World Heritage listing, aesthetic and general lifestyle.

Terramin were advised by Helen Edwards, chair of the Adelaide Hills Tourism Board, in March 2018 that noise, dust, traffic and lighting could have an impact on tourism in the region. Terramin have designed noise, dust, traffic and lighting to address each of these concerns to remove or significantly reduce the potential for impact on tourism associated with these aspects, through both control and management strategies.

Potential benefits identified through consultation include increased local employment, opportunities for local businesses, generation of increased tourism activity through mine/wine trails, historic and modern mining tours (including underground), increased economic sustainability of Woodside, additional state revenue, environmental improvements through tree planting and improved land management.

Water resource mapping and utilisation data provided by Terramin was seen by local land owners as a very positive contribution.

23.6.3.2 POTENTIAL IMPACTS RAISED THROUGH CONSULTATION

Community and stakeholder consultation identified a wide range of possible impacts. These included:

- Employment and training opportunities for young people

- Increase in Tourism initiatives
- Commercial opportunities for the provision of waste management services to Terramin
- Direct employment opportunities during construction for local residents
- Direct employment opportunities during operation for local community
- Indirect employment opportunities during construction for local residents
- Indirect employment opportunities during operation for local community
- Direct business opportunities for local businesses
- Indirect business opportunities for local businesses
- Direct employment opportunities during operation for regional residents
- Indirect employment opportunities during construction for regional residents
- Indirect employment opportunities during operation for regional residents
- Wage and price inflation from the operation of the proposed mine places cost of living pressures on critical population groups such as women, the elderly and people on low or fixed incomes
- Mine employment results in labour shortages in other regional and local industries
- Better funding for local roads
- Increased support of community activities
- Changes to the identity and lifestyle of the local community
- BIHGP interacts negatively with neighbouring businesses through existing as a mining operation next door - Terramin decreases tourism
- Negative amenity impacts on local communities as a result of dust, noise, light spill, blasting
- Impact on sense of the security and safety of a quiet rural lifestyle for those living near or adjacent to the proposed mining lease
- Impacts of mine closure on local community, and the possibility of being left with long term environmental problems
- Post mining land use is not acceptable to stakeholders
- Visibility of mine site and operational activity (including overburden)
- Constant noise in quiet environment
- Increased traffic from mine construction and operations causing already struggling roads to deteriorate and be unsafe
- Reverse noises from machinery and vehicles
- Mine design and operations - ongoing nuisance impacts to local community as a result of operations
- Impacts of blasting on near neighbours
- Impacts of vibration on near neighbours
- Tourism and the wine industry can't co-exist with mining
- Application for World Heritage listing negatively impacted
- Impact of the mine on land value and property prices
- Jobs and business opportunities going to Strathalbyn rather than Woodside business
- Delayed investment by existing business due to uncertainty/concern around the proposed mine
- Local procurement opportunities leading to improved sustainability of local businesses
- Tree planting creates a fire risk
- Transport and storage of Explosives creates a safety risk
- Rehabilitation fails due to lack of funding
- More trucks will make the roads less safe, particularly at school drop-off and pickup
- Water dependent local businesses fail

- Grouting fails and water quality and quantity is impacted
- Terramin takes water from other users
- Permanent displacement of some farming families and loss of productive agricultural land as a result of the mine
- Major environmental or perceived environmental incident results in reputational damage to district and loss of 'clean and green' reputation
- Repeated non-compliance with licence conditions
- Positive changes from the increased population as a result of the operational workforce of the proposed mine including reversing population declines, providing expanded membership base for volunteer organisations and a critical population mass to support opportunities and services in the long term.
- Negative impact on Adelaide Hills branding – 'clean and green' damaged
- Loss of IML stability results in slumping onto surrounding agricultural land or vegetation
- Mining project along Pfeiffer Road is incompatible with local agricultural businesses branding and impacts their "through-door" visitors and buyers
- Mining project environmental monitoring detects evidence of environmental law breaches by local agricultural businesses leading to regulatory costs and brand damage for those businesses and the region.
- Transport of mine modules results in safety risks for road users in the region
- Reduced soil quality, capacity as a result of material handling (e.g. stockpiling) compromises rehabilitation
- Toxicity of waste material
- Scale and location of mullock heap
- Major environmental incident
- Region is dewatered
- Failure to deliver on commitments
- No/poor management of employee and contractor behaviour
- Failure to fulfil closure requirements
- Failure to properly manage exploration
- Long term environmental impact because of mine operations (e.g. neighbouring vegetation health impacts, lead dust increases over time, etc.)
- Health perceptions within local community that are perceived as being caused by mining operations (e.g. road safety, mental health, other public health issues)
- Impacts to indigenous and non-indigenous heritage as a result of Terramin's activities (e.g. removal of barn, impact to chimney, significant trees being removed/damaged/dying (natural or human induced)) causes increased stress in local community
- Local community members propagate non-factual information regarding mining impacts causing stress to local community
- Land access - perception that Terramin employees are trespassing/committing theft on private property causing increased stress to local community
- Mining project becomes surrogate for negative changes lifestyle/development of the region/loss of sense of place and lack of trust in government to protect their way life
- Perception of traffic increases causes safety concerns and reduced level of service (of roads) in the community
- Surface water run off of site impacts water quality in Inverbrackie Creek sub-catchment
- Increased demand for government and community services in Woodside from construction workforce

- Increased demand for government and community services in Woodside from operational workforce
- Competition for local housing drives up house prices in Woodside
- Decreased community cohesion and well-being
- Increased community concerns about safety and security
- Risk of mining activity being blamed for contamination issue from other sources
- Risk of mental health impacts to neighbours who do not understand or are not able to cognitively assess the risks of operations and the impact to their adjacent businesses
- Active sabotage of operations and or environment to deter mining operations
- Impact on visual amenity to neighbouring tourism operations
- Local businesses and landholders with substandard water management with potential to impact environment/Inverbrackie sub catchment

23.7 POTENTIALLY IMPACTING EVENTS

Considering the views of affected parties and the issues raised during technical studies, an assessment of Source Pathway Receptor (SPR) has been undertaken, as described in Chapter 6, to determine which potential impacts are relevant to this project. These impacts have been identified through stakeholder engagement, and are reflections of the impacts associated with the relevant aspects chapters, e.g. noise, air quality, traffic, visual amenity, ground and surface water, agriculture, economics. Potential perceived impact events associated with the construction, operation and closure of the proposed mining lease that have a confirmed SPR linkage which could impact the social environment include:

TABLE 23-5 | POTENTIALLY IMPACTING EVENTS

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
Increased demand for government and community services in Woodside from construction workforce	Construction	Construction activities	Employees	Woodside residents	No	PIE_23_01
Wage and price inflation from the construction and operation of the proposed mine places cost of living pressures on critical population groups	Construction, Operation	Construction and operation of mine	Wage and price inflation	Critical population groups	No	PIE_23_02
Permanent loss of productive agricultural land as a result of the mine	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Change of use	Landholders on operating site	No	PIE_23_03
Major environmental incident results in reputational damage to district and loss of 'clean and green' reputation	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin contractors and suppliers	Local and regional community and business	Yes	PIE_23_04
Mining activities negatively impact on Adelaide Hills branding	Construction, Operation,	Construction operation closure and	Mine related impacts (noise, visual amenity,	Local business,	No	PIE_23_05

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
	Closure, Post-closure	post-closure activities	environmental incidents) create negative publicity	local/regional community		
Repeated non-compliance with licence conditions	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin contractors and suppliers	Local community	Yes	PIE_23_06
Terramin takes water from other users	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Mine operations affects availability of water for other businesses	Local community and nearby landholders	Yes	PIE_23_07
Grouting fails and water quality and quantity is impacted	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	BIHGP structural failure affects availability of water for other businesses	Local community and nearby landholders	Yes	PIE_23_08
Water dependent local businesses fail as a result of no mine water management	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Mining affects availability of water for other businesses	Local community and nearby landholders	Yes	PIE_23_09
Increased support of community activities	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin	Local community and nearby landholders	No	PIE_23_10
As a mine, BIHGP interacts negatively with neighbouring businesses and visitation decreases	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Tourism, amenity impacts – noise, visual, water	Local community, adjacent business	Uncertain	PIE_23_11
Impacts to Indigenous and non-indigenous heritage as a result of BIHGP (e.g. removal of barn, impact to chimney, significant trees being removed/damaged/dying (natural or human induced)) causes increased stress in local community	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Local community Damage to heritage artefacts through mine development and operations	Local community, Indigenous and connected communities and historians	No	PIE_23_12
Failure to deliver on commitments during operation and closure	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin	Local community and nearby landholders	Yes	PIE_23_13
Ongoing nuisance impacts to local community as a result of BIHGP construction, operations and closure	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	External impacts (noise, visual amenity, dust, environmental incidents) create negative experience	Local community and nearby landholders	Yes	PIE_23_14
Perceptions within local community that	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Mine operations	Local community	Uncertain	PIE_23_15

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
adverse public health conditions are caused by mining operations	Operation, Closure, Post-closure	closure and post-closure activities		and nearby landholders		
Direct business opportunities for local businesses	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Purchasing for construction and operation	Local/regional communities	No	PIE_23_16
Indirect business opportunities for local businesses	Construction, Operation Closure, Post-closure	Construction operation closure and post-closure activities	Secondary purchasing, contracts with suppliers to Terramin	Local/regional communities	No	PIE_23_17
Mining project along Pfeiffer Road is incompatible with local agricultural businesses branding and impacts their "through-door" visitors and buyers	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Noise, vibration, dust and/or disruption to visual amenity is experienced by visitors to adjacent businesses	Neighbouring businesses	Uncertain	PIE_23_18
Impact on visual amenity to neighbouring tourism operations	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Mine construction, operation and closure activities	Neighbouring businesses	Yes	PIE_23_19
Mining project environmental monitoring detects evidence of environmental law breaches by local agricultural businesses.	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin to regulator	Neighbouring businesses and landholders	No	PIE_23_20
Major environmental incident	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin	Regional, local community and nearby landholders	Yes	PIE_23_21
Increased community concerns about safety and security	Construction, Operation, Closure, Post-closure	Construction operation closure and post-closure activities	Terramin employee, contractor and supplier behaviour on and off-site	Woodside residents, local community and nearby landholders	No	PIE_23_22
Perception that Terramin contractors and/or employees can trespass on private property	Construction, Operation, Closure, Post-closure	Criminals	Local community	Local community and nearby landholders	No	PIE_23_23
Positive change from local operational (BIHGP) workforce (ie: expanded membership base for volunteer organisations, retention of skilled labour in community).	Operation	Direct and indirect employment	Increased population, decrease of skilled staff leaving community	Local community	No	PIE_23_24
Mine employment results in labour shortages in other	Construction, Operation	Employment	Recruitment in potentially limited labour pool	Other industries in region	No	PIE_23_25

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
regional and local industries		requirements at mine				
Major accident related to explosives delivery and/or storage	Operation	Explosives in delivery truck	Poor driver behaviour, equipment failure, storm event	Local community and nearby landholders	Yes	PIE_23_26
Terramin data collection, identifies variable practises and water management strategies which exist (prior to BIHGP) proposed mining activity. Future poor standards attributed to Terramin.	Construction, Operation, Closure, Post-closure	Local businesses	Terramin to Regulator	Local businesses	No	PIE_23_27
Rehabilitation fails due to lack of funding	Closure	Mine Closure	Terramin fails financially, bonding not adequate	Local community and nearby landholders	No	PIE_23_28
Impacts of mine closure on local community, and the possibility of being left with long term environmental problems	Closure	Mine Closure	Water and landscape impacts from mining	Local community and nearby landholders	No	PIE_23_29
Increase in Tourism Initiatives	Closure	Mine closure activities	Alternative land use proposals	Local community and nearby landholders	No	PIE_23_30
Commercial opportunities for the provision of waste management services to Terramin	Construction, Operation, Closure	Mine construction, operation and closure activities	Commercial contracts	Local regional waste management business	No	PIE_23_31
Tree planting creates a fire risk	Construction, Operation, Closure	Mine construction, operations and closure activities	Additional trees create more fire fuel	Local community and nearby landholders	No	PIE_23_32
Delayed investment by existing business due to uncertainty/concern around the proposed mine	Construction, Operation, Closure	Mine construction, operations and closure activities	Perceptions of mining affect investment decisions	Local community and nearby landholders	No	PIE_23_33
Jobs and business opportunities going to Strathalbyn rather than Woodside business	Construction, Operation, Closure	Mine Construction, Operations and Closure activities	Terramin uses past suppliers from Angus Mine at Woodside	Local community and nearby landholders	No	PIE_23_34
Application for World Heritage listing negatively impacted	Construction, Operation, Closure	Mine construction, operations and closure activities	Mining not compatible with World Heritage Listing	Local community and nearby landholders	No	PIE_23_35
Reverse noises from machinery and vehicles	Construction,	Mine construction	High pitched reversing noises	Local community	No	PIE_23_36

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
	Operation, Closure	, operations and closure activities	when mine vehicles in operation	and nearby landholders		
Increased traffic from mine construction and operations causing already struggling roads to deteriorate and be unsafe	Construction, Operation, Closure	Mine construction, operations and closure activities	Additional traffic, particularly ore/haul trucks	Local community and nearby landholders	Yes	PIE_23_37
Constant noise in quiet environment	Construction, Operation, Closure	Mine construction, operations and closure activities	Noise disrupts sleep and daily activities	Local community and nearby landholders	No	PIE_23_38
Visibility of mine site and operational activity (including overburden)	Construction, Operation, Closure	Mine construction, operations and closure activities	Amenity impacts	Local community and nearby landholders	Yes	PIE_23_39
Local procurement opportunities leading to improved sustainability of local businesses	Construction, Operation, Closure	Mine construction, operations and closure activities	Operational mine	Local community and nearby landholders	No	PIE_23_40
Better funding for local roads	Construction, Operation, Closure	Mine construction, operations and closure activities	Terramin supports calls for funding	Local community and nearby landholders	No	PIE_23_41
Changes to the 'quiet rural' lifestyle of the local community	Construction, Operation, Closure	Mine Construction, operations and Closure activities	Perception of mining being a new activity	Local community and nearby landholders	No	PIE_23_42
Region is dewatered	Construction, Operation, Closure	Mine construction, operations and closure activities	Perceptions that mine activity could impact whole of region water supply	Local community and nearby landholders	No	PIE_23_43
Employment and training opportunities for young people	Construction, Operation, Closure	Mine construction, operations and closure activities	Training available with Terramin or supply chain providers	Young people	No	PIE_23_44
More trucks will make the roads less safe, particularly at school drop-off and pickup	Operation	Mine Operations	Ore/haul trucks passing school pickup/drop off points. Ore/haul trucks significantly adding to traffic volume	Local community and nearby landholders	Yes	PIE_23_45
Impacts of vibration on near neighbours	Operation	Mine operations	Vibration is felt strongly by near neighbours	Local community and nearby landholders	Yes	PIE_23_46

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
Impacts of blasting on near neighbours	Operation	Mine operations	Blasting is heard loudly by near neighbours	Local community and nearby landholders	Yes	PIE_23_47
Indirect employment opportunities during construction for local residents	Construction	Mine site construction	Employment with local business due to increased demand for goods or services as a result of mine construction	Local community	No	PIE_23_48
Direct employment opportunities during construction for local residents	Construction	Mine site construction	Employment with Terramin or contractor(s)	Local residents	No	PIE_23_49
Direct employment opportunities during construction for regional residents	Construction	Mine site construction	Employment with Terramin, construction contractor(s) or suppliers	Regional communities	No	PIE_23_50
Indirect employment opportunities during construction for regional residents	Construction	Mine site construction	Employment with construction contractor, supplier which indirectly supports the mine construction.	Regional communities	No	PIE_23_51
Direct employment opportunities during operation for local community	Operation	Mine site operation	Employment with Terramin or contractor(s)	Local community	No	PIE_23_52
Indirect employment opportunities during operation for local community	Operation	Mine site operation	Employment with local business due to increased demand for goods or services as a result of mine operation	Local community	No	PIE_23_53
Direct employment opportunities during operation for regional residents	Operation	Mine site operation	Employment with Terramin, contractor(s) or suppliers	Regional communities	No	PIE_23_54
Indirect employment opportunities during operation for regional residents	Operation	Mine site operation	Employment with contractor, supplier which indirectly supports the mine operation.	Regional communities	No	PIE_23_55
Increased demand for government and community services in Woodside from operational workforce	Operation	Mining operations	Employees	Woodside residents	No	PIE_23_56
All contamination issues identified in the community attributed to BiHGP activity	Construction, Operation, Closure, Post-closure	Neighbouring business. Construction operation closure and	Contamination identified and wrongly attributed to mining operations	Terramin, local community and nearby landholders	No	PIE_23_57

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
		post closure activities				
Post mining land use is not acceptable to stakeholders	Closure, Post-closure	Post mining land use	Failure to achieve post mining land use objective, site rehabilitation and closure activities	Local community	Yes	PIE_23_58
Competition for local housing drives up house prices in Adelaide Hills and Woodside	Construction, Operation, Closure	Purchase of housing by employees	Increased housing demand	Woodside residents	No	PIE_23_59
BIHGP surrogate for negative changes lifestyle/ development of the region	Construction, Operation, Closure	Regional development	Local community	Local community	No	PIE_23_60
As a mine, BIHGP interacts positively with neighbouring businesses through development of tourism opportunities post mine use and increases visitor amenity and choice in Adelaide Hills	Post-closure	Regional development post closure activities	Tourism site amenity (walk trails, maze)	Local community, tourists	No	PIE_23_61
Loss of IML stability results in slumping onto surrounding agricultural land or vegetation	Post-closure	Slumping of IML Mine closure	Direct disturbance	Local landholders	No	PIE_23_62
Reduced soil quality, capacity as a result of material handling (e.g. stockpiling) compromises rehabilitation	Post-closure	Stockpiled topsoil	Removal and stockpiling of topsoil.Mine operational and environmental management	Soil quality	Yes	PIE_23_63
No/poor management of employee and contractor behaviour	Construction, Operation, Closure	Terramin contractors	Terramin employees, contractors and suppliers	Local community and nearby landholders	No	PIE_23_64
Perception of traffic increases causes safety concerns and reduced level of service (of roads) in the community	Construction, Operation, Closure	Terramin related traffic	Ore/haul trucks and on road mine related vehicles cause traffic incidents – Terramin staff and contractors and suppliers Roads / Local community	Local community and nearby landholders	Yes	PIE_23_65
Transport of mine modules results in safety risks for road users in the region	Construction	Transport of mine modules	Temporary road closures, Terramin and transport contractors	Regional traffic using or intersecting haul route	Yes	PIE_23_66
Surface water run-off, from BIHGP impacts water quality in	Construction, Operation, Closure	Water quality Mine Constructio	Surface water drainage lines Failure of onsite	Local community and nearby landholders	Yes	PIE_23_67

Potentially Impacting Events	Mine Life Phase	Source	Potential Pathway	Sensitive Receptors	Confirmation of S-P-R	Impact ID
Inverbrackie Creek sub catchment		n, Operations and Closure activities	water management			
Increased waste stream volumes affecting the ongoing operation of existing waste management facilities (e.g. Adelaide Hills Council)	Construction, Operation, Closure	Waste generated from mining activities	Land transport	Local community	No	PIE_23_68

23.8 CONTROL MEASURES TO PROTECT SOCIAL COMPONENTS

This section identifies design and control measures implemented to mitigate the level of impact and risk associated with the social environment such that it is considered as low as reasonably practicable.

Specific social impacts that have been identified, are either not covered in other sections of this report, or have been covered but are included because they were raised as significant issues through the stakeholder and community engagement process. These can be grouped into:

- Economic impact on local business and community
- Local and regional economy
- Amenity and disturbance (Lifestyle impacts)
- Closure Outcomes

Other impacts and controls which were raised through stakeholder consultation are dealt with in:

- Air Quality control measures are discussed in Chapter 15
- Noise control measures are discussed in Chapter 14
- Groundwater control measures are discussed in Chapter 10
- Surface water control measures are discussed in Chapter 11
- Vibration and air blasting control measures are discussed in Chapter 17
- Geotechnical control measures are discussed in Chapter 14
- Traffic control measures are discussed in Chapter 8
- Economic control measures are discussed in Chapter 24

23.8.1 DESIGN MEASURES

Design measures and management strategies which are particularly relevant regarding control measures to protect social impacts have been replicated in the table below.

TABLE 23-6 | DESIGN MEASURES

Design Measures	Summary	Impact ID
Location of mine operations area and decline	Surface infrastructure and decline located in deep valley to limit viewpoints from surrounding viewpoints.	PIE_23_19

Design Measures	Summary	Impact ID
Mine void design and location of decline	Mine void designed to access gold without mining through major fracture zone	PIE_23_07 PIE_23_08 PIE_23_09 PIE_23_27 PIE_23_43
Minimising visual impact from adjacent properties and visage points	Surface infrastructure and movements have been considered from key aspect points of adjacent properties and line of sight from roads/vantage points. Site design incorporated a minimal visibility approach.	PIE_23_19
Surface infrastructure location – location of IML	IML location has moved from south-western corner of Project area to far east in response to community feedback	PIE_23_19
Pre-excavation grouting of mine voids	Pre-excavation grouting of mine voids reduces groundwater inflows into mine void	PIE_23_07 PIE_23_08 PIE_23_09 PIE_23_27 PIE_23_43
Managed Aquifer Recharge System	Managed aquifer recharge reduces or removes the potential for drawdown to existing groundwater users	PIE_23_07 PIE_23_08 PIE_23_09 PIE_23_27 PIE_23_43
ROM silo instead of ROM pad	A ROM silo allows a sealed process which limits dust and also reduces noise from having dump trucks loaders moving ore on surface	PIE_23_19 PIE_23_36 PIE_23_38
Sealed roads	Reduces dust that would be visible from surrounding residences and businesses	PIE_15_05 PIE_15_11
Silencers on ventilation fans	Reduces noise impacts known from ventilation fans at other sites	PIE_16_08 PIE_23_38
Conveyors	Covered to reduce noise and dust, and only run for approximately 5 minutes at a time rather than continuously	PIE_23_19 PIE_23_36 PIE_16_08 PIE_15_05
Landscape and amenity bunding around operational area	Entirely removes the ability of neighbouring residences and businesses (cellar doors) to see the operational area of the mine, IML or the mine decline	PIE_9_01 PIE_9_02 PIE_9_03 PIE_9_04 PIE_9_05
Screening vegetation	Together with the landscape and amenity bunding, entirely removes the ability of neighbouring residences and businesses (cellar doors) to see the operational area of the mine and the IML	PIE_9_06 PIE_9_07 PIE_9_08 PIE_9_09 PIE_9_10 PIE_9_11 PIE_9_12 PIE_9_13 PIE_9_14 PIE_23_19

Design Measures	Summary	Impact ID
Design and construct of dam	Reducing visual impact	PIE_9_02 PIE_9_03 PIE_9_09 PIE_9_10
Noise Reduction Infrastructure	Covers over conveyor and wash down facility Rubber lining onsite	PIE_16_04 PIE_16_08
Site entry off Bird in Hand Road	Movement of site entry location from existing farm entry to closer to Petaluma, changes to site entry design	PIE_8_03

23.8.2 MANAGEMENT STRATEGIES

To minimise and mitigate impacts to the social environment during construction, operations and closure activities, control and management measures will be integrated into the Program for Environmental Protection and Rehabilitation (PEPR) and implemented throughout the relevant phases of the project. Key Management Strategies relevant to the Social Environment are outlined in the table overleaf.

TABLE 23-7 | MANAGEMENT STRATEGIES

Management Strategies	Summary	Impact ID
Minimising visual impact from adjacent properties and visage points	Surface infrastructure and movements have been considered from key aspect points of adjacent properties and line of sight from roads/vantage points. Site design incorporated a minimal visibility approach.	PIE_9_01 PIE_9_02 PIE_9_03 PIE_9_04 PIE_9_05 PIE_9_06 PIE_9_07 PIE_9_08 PIE_9_09 PIE_9_10 PIE_9_11 PIE_9_12 PIE_9_13 PIE_9_14 PIE_9_15 PIE_9_16 PIE_9_17 PIE_9_18 PIE_9_19 PIE_9_20 PIE_9_21
Control of noise levels	Noise levels will be at a minimum of 5dB(A) below the regulated level. Early warning indicators set at rural living level will be in place (10 dB(A) lower than EPA legislative level).	PIE_16_01 PIE_16_02 PIE_16_03 PIE_16_04 PIE_16_05 PIE_16_06 PIE_16_07 PIE_16_08 PIE_23_36 PIE_23_38
Operating hours – day/night activities	Noise Impact Assessment outlines activities which will not be undertaken overnight: 10pm- 7am	PIE_16_01 PIE_16_02 PIE_16_03 PIE_16_04 PIE_16_05 PIE_16_06 PIE_16_07 PIE_16_08 PIE_23_36 PIE_23_38
Weed and pest management plan	Weed and pest management plan will be implemented to reduce any potential impacts on neighbouring land use (spread of weeds and pests)	PIE_22_07 PIE_22_11 PIE_22_12 PIE_24_48
Phytophthora and Phylloxera Management Plan	PPMP has been implemented as a precaution due to the sensitive location of the Project and the community expectation that Terramin will not contribute to a viticultural industry problem.	PIE_22_08

Management Strategies	Summary	Impact ID
Dust management plan and TARP	Dust management plan and TARP will be implemented to reduce any potential impacts on neighbouring land use (air quality)	PIE_7_04 PIE_7_05 PIE_7_06 PIE_7_07 PIE_7_08 PIE_7_10 PIE_7_11 PIE_15_01 PIE_15_02 PIE_15_03 PIE_15_13 PIE_22_01 PIE_22_02 PIE_22_03 PIE_22_04 PIE_22_05 PIE_22_06 PIE_24_18 PIE_24_19 PIE_24_20 PIE_24_21 PIE_24_22 PIE_24_23 PIE_24_24 PIE_24_25 PIE_24_26 PIE_24_27 PIE_24_28 PIE_24_29 PIE_24_30 PIE_24_31 PIE_24_32
Noise management plan and TARP	Noise management plan and TARP will be implemented to reduce any potential impacts on neighbouring land use (noise)	PIE_16_01 PIE_16_02 PIE_16_03 PIE_16_04 PIE_16_05 PIE_16_06 PIE_16_07 PIE_16_08 PIE_24_33 PIE_24_34 PIE_24_35 PIE_24_36 PIE_24_37 PIE_24_38 PIE_24_40 PIE_24_41
Haulage hours	Haulage of ore operating hours between Woodside and Strathalbyn have been limited to 9am to 3pm and avoids 6am to 9.30am and between 3pm and 4.30pm due to school drop off and pick up hours. No haulage to Strathalbyn between 10pm and 6am.	PIE_8_08

Management Strategies	Summary	Impact ID
Reversing alarms	To be implemented to remove impulsive noise associated with them	PIE_23_36

23.9 IMPACT ASSESSMENT

This section identifies and assesses impacts; benefits and risks associated with the social environment as a result of the construction, operation and closure of the proposed mine. Impact events confirmed by the presence of a source, pathway and receptor, are those considered possible to occur as a result of the development of the project, leading to risks that may or may not eventuate. The purpose of the risk assessment process is to identify management and mitigation measures required to reduce the identified risks to a level as low as reasonably practicable. The risk assessment of uncertainty investigation has focussed on the potential negative impacts.

Impacts and potential risks were identified through stakeholder consultation and technical studies. Impact events can include multiple sources, pathways or receptors. These have been grouped together to minimise the duplication of information.

- Economic impact on local business and community
- Local and regional economy
- Amenity and disturbance (Lifestyle impacts)
- Closure Outcomes

23.9.1 ECONOMIC IMPACT ON LOCAL BUSINESS AND COMMUNITY

The potential impact on businesses close to the proposed mine has been a major focal point for a small but very concerned group, in many of the stakeholder and community engagement processes. Concerns have been expressed that the mine operations would lead to the failure of significant local business. Additionally, Terramin were advised by Helen Edwards, chair of the Adelaide Hills Tourism Board, in March 2018 that noise, dust, traffic and lighting could have an impact on tourism in the region. Terramin have designed noise, dust, traffic and lighting to address each of these concerns to remove or significantly reduce the potential for impact on tourism associated with these aspects, through both control and management strategies.

The main pathways that have been identified by immediate businesses are:

- Impact on water from the operation of the mine, such that there would be no water for grape growing or winery operation, and
- Amenity impacts – noise, dust, vibration, visual impacts, would be incompatible with wine growing, events, and cellar door activities.

Assessments of the risk, design controls, management strategies and residual risks, have therefore focussed on the pathways that are potentially causing the negative impact. The full risk assessment and management process of each of the identified pathways can be found in the relevant sections. The consequent risk assessment of level of risk corresponds to the conclusion for each of the pathways.

The following aspects which have been raised by local business have been addressed in each individual chapter (methodology, baseline, control and management strategies, and proposed impact):

TABLE 23-8 | MLP STRUCTURE

Contents Pages
Chapter 8: Traffic
Chapter 9: Visual Amenity
Chapter 10: Groundwater
Chapter 15: Air Quality
Chapter 16: Noise
Chapter 17: Air-overpressure and Vibration
Chapter 22: Agricultural Impacts
Chapter 24: Economic

Technical studies have considered the potential impacts on near businesses. Barry Burgan, Professor of Management and BBT MBA Program Director at Bond University, was engaged to complete an Economic Impact Assessment on the BIHGP, as required by the Ministerial Determination for the BIHGP. The Economic Impact Assessment of the BIHGP concluded that:

Some community concerns have been expressed with respect to the negative economic impact on existing businesses in the area. Based on an agricultural impact report, the likelihood - especially with adoption of appropriate management strategies re the concerns would be for a minimal impact. Moreover, indicative probability based modelling suggests a worst case situation would be offsetting loss in potentially impacted activities of (in expected value terms) of 18 direct jobs and \$1.6 million of value added, and additional flow through effects 24 jobs and \$1.8 million of value added which could be impacted. However, risk mitigation measures increase the probability of no impact at all. The overall conclusion is that the risk to other economic activities in the area is low. The possible impact on existing businesses in the area through the impact on tourism, wineries and events have also been considered by comparing areas sharing similar co-existing land uses like the Hunter Valley.

While there are possibilities of further developments that could occur based on approval of this project (additional value added, additional projects using the infrastructure) such projects are not at a sufficient status to include in the modelling or assessment.

The Economic Impact Assessment and associated peer review is located in Appendix W1 and W2.

Terramin engaged Ashley Keegan, CEO of Food and Beverage Australia Limited (FABAL) to undertake an assessment of potential agricultural risks based on Terramin’s proposed project. The Agricultural Impact Assessment made the following points in relation to risks relevant to social environment:

Major Environmental Event:

A potential risk exists in the event that the BIH Project suffered a major incident such as a contamination event or other environmental incident. The proximity to adjoining agricultural enterprises could impact on brand or reputation value. The most credible pathways of this nature have been considered in this and the other BIH Project risk reports and based on the implementation of the design and regulated controls the residual risks are deemed low

Visual Amenity

With any development, there is a potential for visual impact to take place. The regulatory environment that the BIH Project operates within appears to mandate a level of consideration

and intervention that may not be imposed upon other potential site uses, i.e. a major agricultural commodity processing operation.

It appears from the draft Oxigen design work that the ore storage silo is likely to be the key material inorganic feature of the mine visible from proximal agritourism facilities. From the modelled imagery the author has been shown, the proposed silo appearance is not inconsistent with the existing Bird In Hand Winery silos immediately adjacent to the site.

Oxigen design work combined with the fact that the mine is an underground decline structure has mitigated the majority of the remaining visual impact due to bunding, vegetation and infrastructure placement within the existing surface contours and remnant vegetation.

The Agricultural Impact Assessment is located in Appendix U1.

23.9.2 LOCAL AND REGIONAL ECONOMY

At each phase of the project, an operation workforce will be required, and employment opportunities can be expected in service industries. Mining construction, operations and closure will require a range of services that can be supplied by local/regional businesses.

In addition to local employment and local buy policies, Terramin will build on positive working relationships with local business and chambers of commerce, the WCCC and near neighbours.

These benefits are discussed in the sections below.

- Local and Regional Jobs – direct and indirect
- Business opportunities – direct and indirect
- Potential alternative land uses post closure (tourism and new business)

23.9.2.1 LOCAL AND REGIONAL JOBS

The project will employ 140 FTEs, as shown in Table 23-10. The annual wages budget is expected to be in the order of \$6.7m. Terramin has a local employment preference. At the Angas Zinc Mine, run by Terramin, 67% of employees were from the Adelaide Hills Region.

TABLE 23-9 | CONCEPTUAL TIMELINES FOR JOB CREATION (INCLUDING POSIITONS AT THE ANGAS PROCESSING FACILITY)

Position	Time employed				
	Year 1	Year 2	Year 3	Year 4	Year 5
Management	2	2	2	2	2
Bird in Hand site					
Management	1	1	1	1	1
Technical	5.5	9	9	9	9
Administration	6.3	7.9	9	9	9
Mining	14.1	38.3	42	42	42
Maintenance	6.3	14	14	14	14
Contractors	0	7	10	10	10
Angas Processing Facility					
Administration	2.5	4.7	5	5	5
Process Management	0.8	3.9	5	5	5
Mill Crews	0	11.8	28	28	28
Cleaners	0	1.6	3	3	3
Construction and General					
General	24	5.4	1	1	1

AZM	0	5.2	0	0	0
BIH	1	1	1	1	
Haulage	0	2.5	10	10	10
Total	63.3	115.3	140	140	140

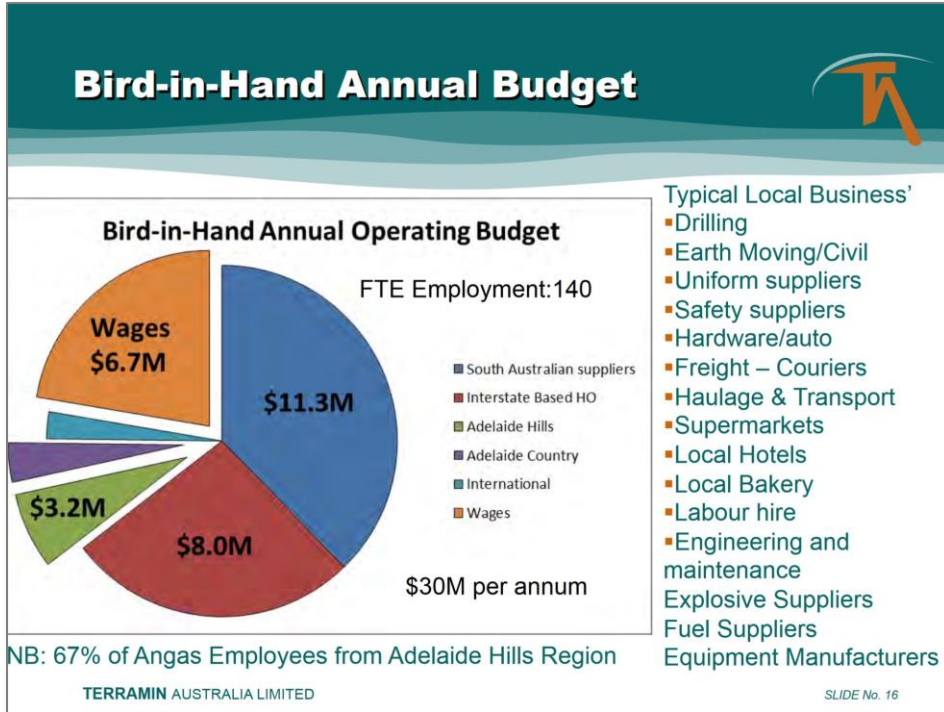


FIGURE 23-9 | SLIDE FROM TERRAMIN PRESENTATION TO REGIONAL ECONOMY FOCUS GROUP

In addition, it is expected that employment will be generated within local and regional businesses that supply good and services to the proposed mine.

23.9.2.2 BUSINESS OPPORTUNITIES

Terramin is committed to a local buy policy, sourcing goods and services locally, then regionally and within the state.

The project is predicted expend (taken from the 2018 released Scoping Study for the BIHGP):

- Start up capital cost estimate ~ \$34M⁵
 - Surface includes: offices, workshops, road construction, water treatment plant and MAR infrastructure, ore storage infrastructure, fuel storage, etc.
 - Tenders from local civil and construction companies
 - Underground includes: escape routes, equipment, ventilation and decline access
 - Concrete suppliers, cable, piping, steel mesh, hardware, safety equip.
- Life of Mine Sustaining capital cost ~ \$66M
 - Ongoing capital costs associated with developing the mine and production of gold ore to concentrate
- Operating cost ~ \$30M per annum

⁵ Exclusive of working capital and sustaining capital

The typical local business that may provide goods and services related to the proposed mine at construction, operations and closure phases, include:

- Drilling
- Earth Moving/Civil
- Uniform suppliers
- Safety suppliers
- Hardware/auto
- Freight – Couriers
- Haulage & Transport
- Supermarkets
- Local Hotels
- Local Bakery
- Labour hire
- Engineering and maintenance
- Explosive Suppliers
- Fuel Suppliers
- Equipment Manufacturer

The project is a high-grade resource with gold at 12.6g/t. It has excellent financial attributes, and is well placed to contribute to the local, regional and state economies.

To date, Terramin has spent over \$7 million procuring services from business to support the development of the MLA. As reflected in Figure 23-10 below, almost a third of this spend (30%) has been spent locally and a further 47% spent on services provided by businesses based in South Australia.

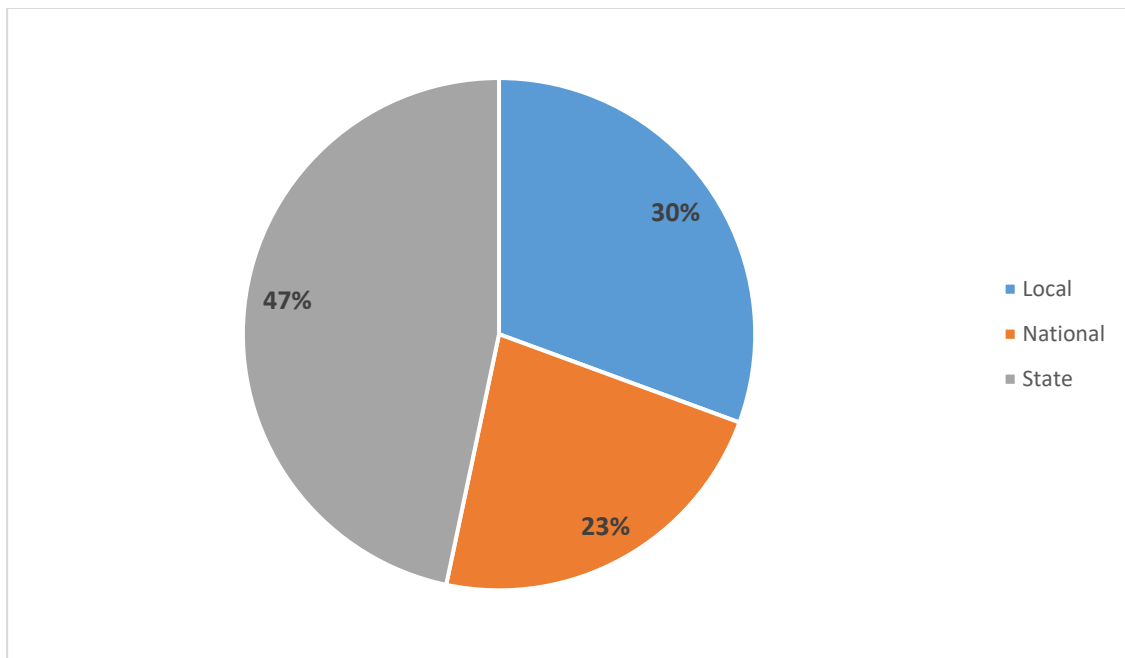


FIGURE 23-10 | TERRAMIN’S BIHGP SPEND FROM 2014 TO 2018

23.9.2.3 TOURISM OPPORTUNITIES

Similarly to other historic mine sites, Terramin’s Goldwyn property is host to mining relics and infrastructure from the 1880s Gold Rush. Combined with the extensive revegetation undertaken by Terramin, and the neighbouring cellardoor facilities, Terramin are investigating the potential to create a site which combines historic mining infrastructure, such as the heritage listed Lone Hand Chimney and historic blackbird processing area, revegetation and endangered bird species, a walking trail and mine tours into the site once operating. The site holds the potential to have a training and educational facility, as it will be the closest underground mine to Adelaide and have facilities which universities, TAFE and schools can utilise. This option will continue to be explored through the development of the project.

23.9.3 AMENITY AND DISTURBANCE (LIFESTYLE IMPACTS)

During consultation with stakeholders, and in particular some local residents, concerns were raised about the amenity impacts associated with dust, noise, vibration, visual impacts, lights from the mine at night, increased traffic and changes to the perceived identity and lifestyle of the local community.

Concerns were also raised about the impacts of mine closure on the local community, and the possibility of being left with long term environmental problems.

A number of stakeholders discussed concerns about damage to ‘clean and green’ image of the Adelaide Hills. It has been particularly difficult to identify any specific branding or pathways in relation to this more general concern. There is a reported strong perception that there is ‘no mining’ in the Adelaide Hills. At the same time community members discussed the apparently accepted noise and impacts of a local quarry.



FIGURE 23-11 | BIRD IN HAND SITE – COMMUNITY TREE PLANTING 2016 (LEFT) AND TREE GROWTH (2019)

As the Project is located within a rural area, scattered with rural living as well as rural industry, sensitive receptors include residences as well as industrial wineries, cellar door facilities and operating vineyards. Concerns identified relating to lifestyle impacts were:

- Visibility of mine site and operational activity (particularly the overburden)
- Constant noise in quiet environment
- Dust on grapes
- Reverse noises from machinery and vehicles
- Noise when loading ore trucks
- Lights from mine site at night
- Vibration affects
- Blasting

Each of these concerns have been incorporated into the design and management decisions related to the topic involved. As a result, Terramin has adopted specific design and management approaches to reduce possible negative amenity impacts. It is acknowledged, that due to the levels of employment (140 FTE), there is unlikely to be a perceptible impact on public health and emergency services, either positive or negative.

These are discussed in detail in the relevant sections of the MLP.

Summaries are in the following sections:

23.9.3.1 NOISE

Design measures to limit noise propagation are largely controlled by implementing landscape bunding and shielding around the operating area. Other design measures include constructing infrastructure with insulation around it, for example, insulating sheds around pump stations. The underground ventilation fans are designed to have two silencers installed around them to reduce, if not limit, any continuous hum of the ventilation system. The other significant factors in noise reduction associated with the ore silo system (ROM silo) includes the rubber lining of the silo to reduce noise associated with filling the silo with ore. In addition, the ore handling system is placed within a cutting and behind earthen bunds creating physical noise barriers. The conveyor system is electrically powered and driven reducing noise associated with internal combustion engines and transfer case gear boxes. The ROM bin and conveyor system design measures includes an enclosure around the truck unloading point and surge bin, and an open-ended enclosure around the haul truck loading area. Noise impacts have been reduced through the consideration of types of activities, the noise they can generate, and restricting their operating hours appropriately. This includes restricting the hours of construction between 7am and 10pm in the first instance, as well as ensuring vehicles and mobile equipment is maintained appropriately, and ensuring service and maintenance schedules are adhered to. The ROM silo ore handling management plan will include specifications in regard to drop/tip heights.

In addition, outcomes related to reducing concerns to provide information and engagement opportunities are critical. This is important to ensure not only that concerns are understood, acknowledged, responded to, managed and therefore any negative impacts are minimised, but that these concerns are seen to be so managed by Terramin.

23.9.3.2 AIR QUALITY – DUST

Specific design measures have been considered through the development of the Project in regard to air quality impacts. The most significant of these include the sealing of the vast majority of internal roads (excluding fire access tracks) and the location of the primary vent rise. Vent rise locations that were considered include within the SA water property, on the native vegetation block, and within the property boundary of Goldwyn. The decision to locate the vent rise within Goldwyn was largely in response to air quality considerations, and hence the mine plan was altered to ensure the location has minimal impact on both the surrounding residence and the native vegetation located within the vegetation heritage agreement area. Nuisance dust in the area is typically from unsealed local roads, where dust is picked up from fast moving public vehicles. Restricted speed limits on site will further reduce the likelihood of dust generation on site.

23.9.3.3 BLASTING AND VIBRATION

Terramin has committed to no adverse impact on public amenity or third party damage from blasting. Blasting design is a critical part of a mining project and undertaken by a suitably qualified professional. The mining method use for the project is small scale and the associated blasting is similarly small scale. Blasting accuracy is critical to the project and integral to the project to ensure safety for people and the infrastructure, the economics and efficiency. Designs are developed to only remove rock to produce the tunnel or to remove rock containing gold in a very controlled method. This minimises damage (including vibration and overpressure damage). In addition, this a safer environment for miners as well as less ground support required. Once the mine access tunnel reaches the ore, it will be 150m below ground, under solid rock. Blasting analysis shows that it is highly unlikely that blasting will be perceivable on surface through ore production.

23.9.4 CLOSURE OUTCOMES

Closure planning is a key part of the development of the project. Throughout the consultation with stakeholders, people indicated their concerns about what will be left after the mine closes, particularly in relation to potential impacts on water. The community reported concern relating to possible long-term damage to water availability and quality. As there is a historic mine within the water table now, reaching 125m below surface with tunnels, stopes and infrastructure from previous activity, that has refilled with water and become part of the aquifer, there is evidence that a mine can exist without detriment to the groundwater quality.

Terramin has indicated through the engagement process that it is aiming to leave site better than it is now. The objective is to improve and not degrade. Terramin has already begun the process of rehabilitation of the areas of the freehold property owned by Terramin that will not be used for the proposed project. This has included revegetation with endemic vegetation, habitat for native fauna, particularly native birds. The mine site will have no acid and metalliferous drainage, as the mullock is predominantly non-acid forming (neutral) and any potentially acid forming materials will be managed and preferentially used as backfill for the final decline void.

In a positive light, the potential post closure uses have engendered a lot of interest through community engagement. Current discussion post closure and closure activity has identified number opportunities for post mine life which offer visitor amenity and opportunity, including: a maze (already planted), vineyard, commercial agriculture/viticulture, bottling facility, strawberry farm, beer garden, greenhouses, winery, woodland forest, mushroom farm and wine cellar.

Mine Closure Opportunities



FIGURE 23-12 | CLOSURE OPPORTUNITIES POSTER

Engagement and consultation in relation to closure standards, closure activities and possible future economic land uses will continue throughout the development of the Program for Environment Protection and Rehabilitation (PEPR), through operations and closure.

23.9.5 SUMMARY OF IMPACTS AND RISKS

All impacts and risks were considered to be as low as practicable, and not warrant specific control measures, other than standard environmental management controls and measures outlined in this chapter. A summary of each of the identified social impacts and risks associated with social environment at the proposed mining lease is presented in Table 6.

Remaining impacts and risk assessment with a social dimension are dealt with in:

- Air Quality impacts are discussed in Chapter 15
- Noise impacts are discussed in Chapter 16
- Groundwater impacts are discussed in Chapter 10
- Surface water impacts are discussed in Chapter 11
- Vibration and air overpressure impacts are discussed in Chapter 17
- Geotechnical impacts are discussed in Chapter 14
- Traffic impacts are discussed in Chapter 8
- Agricultural impacts are discussed in Chapter 22
- Economic impacts are discussed in Chapter 24

The BIHGP and the proposed mining lease represent a relatively small operation within an existing rural industry area. The proposed project does not involve any on site crushing, processing or refining.

The social environment impacts and risks that have been identified by stakeholder consultation have pathways, which are related to environmental impact (water and amenity) leading to either amenity lifestyle impacts or economic impacts.

The potential environmental impacts are subject to detailed design and management controls. Pathways from environmental impacts to economic impact have been considered, with the type of catastrophic event required to produce the perceived impact being both highly unlikely, and not likely to be caused by mining operations.

Heightened perceptions of risk to water, and concerns about amenity impacts, means that effective early indicators of amenity, and effective information provision and engagement will be critical to allaying concerns within those sections of the community that are affected, or believe they are impacted.

Terramin will continue a high level of engagement through a wide range of mechanisms, including the Woodside Community Consultative Committee, Community Information Day, Open Days, focus Groups, one-on-one meetings. This will be characterised by an open and transparent approach, and the provision of timely and accessible information on construction, operational and closure matters.

With the implementation of design and management measures across the proposed mining lease, all residual impacts and risks have been categorised as medium or lower.

23.10 DRAFT OUTCOME(S) AND CRITERIA

In accordance with the risk methodology, outcomes have been developed for all impact events with a confirmed linkage between a source, pathway and receptor (S-P-R linkage), where there is a potential negative impact. Each outcome is supported by draft measurement assessment criteria that will be used to assess compliance against the draft outcomes during the relevant phases (construction, operation and closure) of the project, and where relevant draft leading indicator criteria. These measurement criteria and leading indicators are indicative only and will be developed further through the PEPR.

Outcomes developed for this project which are particularly relevant to preventing social impacts include:

- Noise outcome;

- Air Quality outcome;
- Vibration outcome;
- Visual Amenity Outcome;
- Traffic Outcome;
- Dust Outcome;
- Economic Impact Outcome;
- Water Outcome; and
- Closure Outcome.

All Outcomes for the entire project are presented in Appendix D1.

TABLE 23-10 | DRAFT OUTCOMES AND MEASUREMENT CRITERIA (REPLICATED FROM THE RELEVANT ASPECT CHAPTERS)

Draft Outcome	Draft Measurement Criteria	Draft Leading Indicator Criteria
Compliance with Air Quality, Noise, Visual Amenity and Water Outcome Measurement Criteria demonstrates no impact to surrounding business from mining activities	See OMC/LIC for Air Quality, Noise, Visual Amenity and Water	
No adverse impact to the quantity or quality of water caused by the mining activities to existing and future licenced users and water dependant ecosystems	The Mine Manager will ensure that monthly drawdown (SWL) measurements recorded by site staff in monitoring wells X, Y and Z (installed monitoring piezometers) and private bores A, B and C (shown in Figure X) are compared with dewatering model predictions for the 70% grouting effective groundwater modelling scenario, presented in Table X and are within 2 standard errors of model predictions for two consecutive readings.	Observed drawdown in monitoring wells X, Y and Z (installed monitoring piezometers) falls outside of 2 standard errors of model predictions for one reading.
No adverse impact to the quantity or quality of water caused by the mining activities to existing and future licenced users and water dependant ecosystems	The Mine Manager will ensure that monitoring of the water quality of the injectant (mine water) from the WTP during re-injection, undertaken on a monthly basis for field parameters TDS, pH and NTU shows that field TDS and pH (and any other parameter of concern as determined by MAR trial) is as per DEW drainage permit conditions, and turbidity is below 5 NTU; or as per DEW drainage permit conditions, confirmed by Laboratory major ion testing of the injectant using a NATA accredited laboratory on a monthly basis.	Field TDS of the blended injectant greater than 2 standard errors of baseline data for each well (mg/L) or as per DEW drainage permit conditions. Field measurement of turbidity is above 5 NTU or as per DEW drainage permit conditions.
Terramin is committed to working with communities to maximise the benefits and minimise the impacts resulting from our activities	Annual compliance reporting demonstrates Terramin has delivered on commitments made to the community.	None proposed

Draft Outcome	Draft Measurement Criteria	Draft Leading Indicator Criteria
No nuisance or health impacts to local residents from dust, air emissions, or light spill generated by construction, mining or closure activities.	Regular monitoring of water, air quality and live time reporting Refer to OMC for Air Quality; Geotech & Blasting; Traffic Site & Visual Amenity	Refer to LIC for Air Quality; Geotech & Blasting; Traffic Site & Visual Amenity
No nuisance or health impacts to local residents from dust, air emissions, or light spill generated by construction, mining or closure activities.	See OMC for public safety	See LIC for public safety
No nuisance or health impacts to local residents from dust, air emissions, or light spill generated by construction, mining or closure activities.	Independent audits and data collection throughout mine life, at mine completion demonstrates high standards maintained, made available to public through annual reporting.	None proposed
No traffic accidents occur involving the public and mine traffic that could have been reasonably prevented	Independent investigation of all traffic accidents involving the public are completed in 14 days, or as agreed with the Director of Mines, and demonstrate that the mine operator could not have reasonably prevented the accident from occurring.	None proposed
No impact to third party infrastructure caused by mining activities	Evidence that agreements are in place with DPTI and/or Council requirements regarding asphalt or other infrastructure damage.	None proposed

Draft Outcome	Draft Measurement Criteria	Draft Leading Indicator Criteria
<p>No nuisance or health impacts to local residents from dust, air emissions, or light spill generated by construction, mining or closure activities.</p>	<p>"Noise generated from the mining lease during operation activities, measured live at predefined monitoring points demonstrates noise at sensitive receivers is in accordance with the Environment Protection (Noise) Policy 2007, and does not exceed the following noise limit (averaged over 15 minutes):</p> <p>Construction - 57 dB(A) 7am-10pm</p> <p>Underground development - 57 dB(A) 7am-10pm - 50 dB(A) 10pm-7am.</p> <p>Ore production - 52 dB(A) 7am-10pm - 45 dB(A) 10pm-7am.</p> <p>The above noise levels may only be exceeded if the Chief Inspector of Mines:</p> <ul style="list-style-type: none"> - is satisfied, on the basis of information provided to him by an acoustic engineer, that the noise will not cause an adverse impact at the sensitive receiver due to the existing influence of ambient noise, or the limited duration and/or frequency of occurrence of the activity; and - provides prior approval for the exceedance. <p>Mine records demonstrate all noise complaints (construction, operation and closure) acknowledged within 2 hours and closed out within 14 days to the satisfaction of the complainant or as agreed with the Chief Inspector of Mines.</p>	<p>Noise generated from the mining lease during operation activities, measured at sensitive receptors in accordance with the Environment Protection (Noise) Policy 2007, does not exceed the following noise limit (averaged over 15 minutes):</p> <p>Ore production - 47 dB(A) 7am-10pm - 40 dB(A) 10pm-7am.</p> <p>Demonstrate the Trigger Action Response Plan has been followed.</p>

Draft Outcome	Draft Measurement Criteria	Draft Leading Indicator Criteria
No impact to visual amenity caused by the use of colour and/or materials of built structures related to mining activities	Continued use of CSIRO Pulse Survey and/or introduction of an annual survey to demonstrate the level of perceived impact of BiHGP operations in the community.	Monitoring of community complaints (to report increases)
Terramin is committed to working with communities to maximise the benefits and minimise the impacts resulting from our activities	Annual compliance reporting demonstrates Terramin has delivered on commitments made to the community.	Non proposed
No adverse impact on public amenity from vibration or air overpressure caused by blasting. Compliance criteria based on protection of personal amenity	Air overpressure levels as a result of blasting activities are less than 115 dB(Lin Peak) at the nearest sensitive receptor for 95 per cent of blasts per year, with a maximum of 120 dB (Lin Peak) for any one blast, in accordance with Australian Standard AS2187.2.2006 Use of explosives.	None proposed
All land on the mining lease affected by mining and associated activities is rehabilitated to achieve the agreed post mining land use.	Independent audit at mine completion demonstrates all reasonable actions have been taken to achieve post mining land use , where this use has been agreed with stakeholders. Independent audit at mine completion confirms all land in the mining lease is suitable for the agreed post mining land uses.	None proposed
No adverse impacts on soil quality or quantity within the mining lease that could compromise the post mining land use	Annual review of soil movement records, including topsoil available / stockpiled for closure, shows no measurable decline in soil quality or quantity	A materials balance of topsoil available / stockpiled for closure demonstrates requirements are met or identifies a deficiency.
All road and intersection upgrades are conducted in accordance with technical standards provided in writing by the Department for Planning Transport and Infrastructure	Audit within 3 months of completion of work confirms technical standards met	None proposed
No traffic accidents occur involving the public and mine traffic that could have been reasonably prevented	Independent investigation of all traffic accidents involving the public are completed in 14 days, or as agreed with the Director of Mines, and demonstrate that the mine operator could not have reasonably prevented the accident from occurring.	None proposed

Draft Outcome	Draft Measurement Criteria	Draft Leading Indicator Criteria
<p>No adverse impact to the quantity or quality of water caused by the mining activities to existing and future licenced users and water dependant ecosystems</p>	<p>During rainfall events which generate runoff, three samples will be taken to measure turbidity at the car park, south-western drainage line, central drainage line and at the overflow point of the surface water retention dam as per sampling method AS/NZS 5667.1:1998 standards. A paired t-test will demonstrate that turbidity at the car park, south-western drainage line and at the overflow point of the surface water retention dam is not significantly greater (p-value \leq t-test value) from the mean of the samples taken at Inverbrackie Creek upstream of the ML at that point in time.</p>	<p>None proposed</p>

23.11 FINDINGS AND CONCLUSION

The social environment assessment has identified a range of social effects, both positive and negative, which are anticipated if the proposed mine is developed and operated. Terramin has developed design measures and management strategies to minimise potential adverse impacts and risks, and maximise benefits.

Overall, whilst there will be some change to the amenity of the Pfeiffer Road and Bird in Hand Road communities, this will be limited. Design and Management control measures for noise, vibration, dust, visual amenity, groundwater, surface water, traffic (and therefore economic) impacts have been developed with a high degree of confidence, resulting in a low degree of risk to the social environment.