



## MARTINS CREEK QUARRY

### STATION STREET MARTINS CREEK

# ***Social and Economic Assessment***

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### APPENDIX A – RAV DESIGNATED ROADS

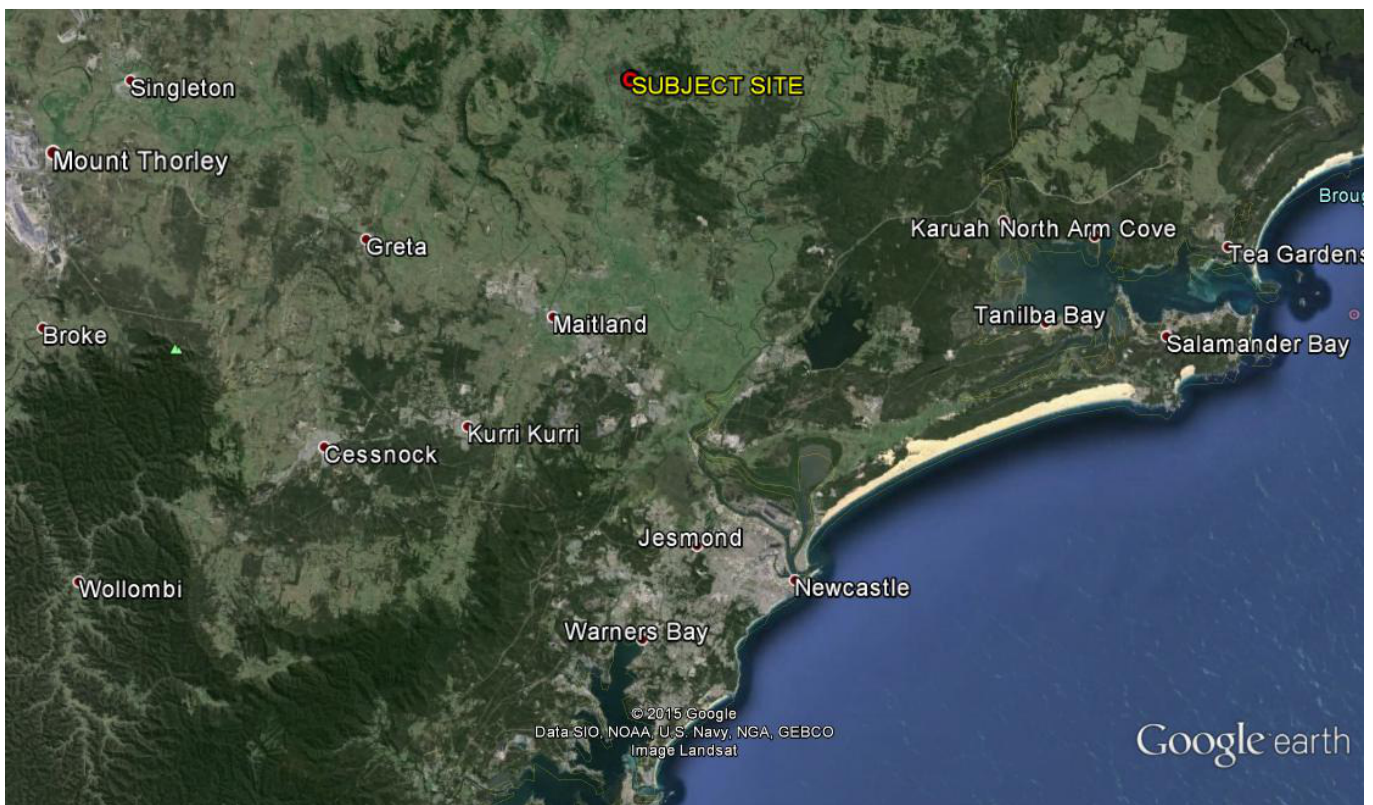
## 1. INTRODUCTION

This Social and Economic Impact Assessment (SEIA) has been prepared for Buttai Gravel Pty Ltd by Monteath & Powys Pty Ltd. This SEIA is to accompany the Environmental Impact Statement (EIS) for the proposed development at the Martins Creek Quarry in Martins Creek.

The purpose of this SEIA is to determine the social and economic impacts of the proposed development and provide recommendations to mitigate any impacts of concern. It is noted that other specialist reports (e.g. noise) have been prepared to accompany the EIS which should be read in conjunction with this assessment.

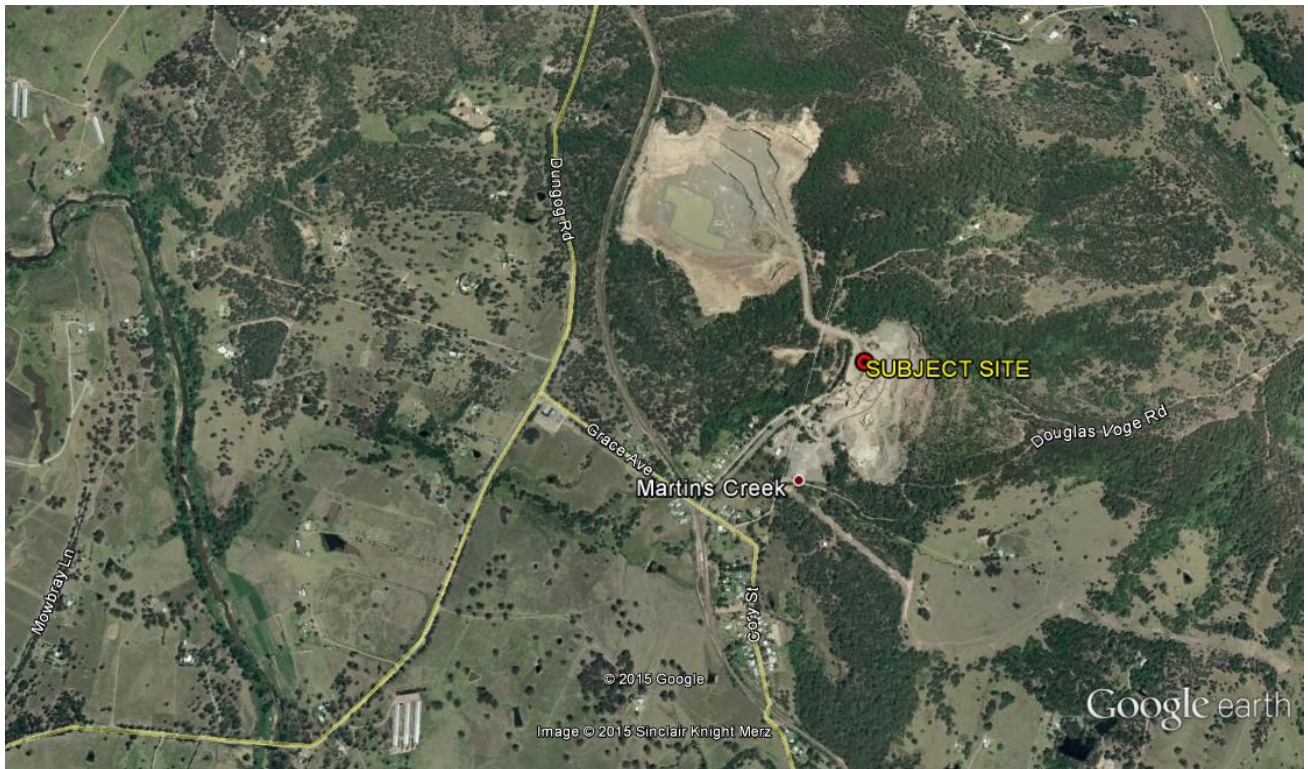
### 1.1 SITE DESCRIPTION

The site is shown in Figures 1.1 and 1.2 below.



**Figure 1.1:** Regional Locality Map (Google Earth 2016)





**Figure 1.2:** Locality Map (Google Earth 2015)

## 1.2 **GUIDELINES**

As part of preparing this social and economic impact assessment a number of guidelines were considered. Each guideline has been prepared for a variety of impact assessments for a potential range of projects. Thus, the guidelines below were considered in relation to the size, location and potential impacts of the proposed development. The documents identified below are therefore for guidance purposes only. These guidelines included:

- Guidelines for Assessing Social Impacts, prepared by the NSW Cabinet Office in 1997;
- Social and Community Planning Reporting Manual and Guidelines, prepared by NSW Department of Local Government in 2002;
- Guidebook on Social Impact Assessment, prepared as part of the NSW Department of Planning's Comprehensive Coastal Assessment Project in 2005.

It is noted that other relevant strategic planning documents and legislative provisions are addressed elsewhere in this report. A search of Dungog Council's web site did not identify a social impact assessment policy or guideline.

In regards to the economic assessment, relevant research, Australian Bureau of Statistics (ABS), and other guidelines around the use of input-output analysis have been also considered.

### 1.2.1 **International Principles for Social Impact Assessment**

The International Principles for Social Impact Assessment<sup>1</sup> is a set of principles to guide social impact assessment (SIA) practice. The principles are a guide for ongoing discussions within geographic localities for developing sector and national guidelines. SIA includes the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. The regulatory context varies, the cultural/religious context varies, and social and economic priorities for development vary between, and within, countries. The principles are therefore for guiding purposes, and in the context of this EIS are used for guidance only, as the article by Vanclay is designed to encourage the development of SIA guidelines for inclusion in impact assessments, not to specifically outline a methodological approach to SIA that will vary between states and regions.

### 1.2.2 **Guidelines for Community Consultative Committees**

The NSW Department of Planning and Environment's (DP&E's) document *Community Consultative Committee Guidelines: State Significant Projects* has been considered in the community consultation report presented elsewhere in the EIS.

<sup>1</sup> Vanclay, F. (2003) International Principles for Social Impact Assessment, *Impact Assessment and Project Appraisal*, 21(1), 5-11.

## 2. PROPOSED DEVELOPMENT

### 2.1 THE PROPOSAL

The Applicant is seeking development approval to regularise the existing operations at the Martins Creek Quarry and to expand the quarry operations.

The proposal seeks approval for:

- Extracting up to 1.5 million tonnes of hard rock material per annum;
- Expanding into new extraction areas and associated clearing;
- Increasing the hours of operation for:-
  - quarrying from 6am-6pm (Monday to Saturday),
  - processing from 6am-10pm (Monday to Saturday),
  - mixing and binding from 4:30am-10pm (Monday to Friday) and 4:30am-6pm (Saturdays),
  - stockpiling, loading and dispatch of road transport to 5:30am-7pm (Monday to Saturday), and
  - train loading 24 hours per day, 7 days per week;
- Consolidating existing operations and approvals;
- Construction of a new access road and bridge; and
- Rehabilitating the site.

The project seeks to continue extraction of hard rock from the site by completing the extraction of the existing operational areas, expanding the operational area, and increasing the depth of extraction (Figure 2.1).

Mining methods are expected to remain the same as currently used with rock being broken by Drill and Blast techniques in the pit with Run of Mine (**ROM**) material being trucked to the crushing plant for further processing before being stockpiled and loaded on to road trucks for delivery to market. The equipment and machinery used for operations is described in the EIS and the attached reports to the EIS.

It is noted that in emergencies the proponent may seek an exemption from the NSW Environment Protection Authority (**EPA**) under the provisions of the *Protection of the Environment Operations Act 1997* in order to assist clean-up activities and emergency service organisations. Previously the EPA has granted exemptions for the quarry and associated trucks and trains to operate 24 hours a day in order to assist State authorities and during flooding events in the Hunter region, as has been the case in recent years.

The project, including the proposed extension to the quarry, has been designed to address as many of these as is reasonably possible by including the following:

- Construction of a new access road to Dungog Road for product shipment and discontinuation of product shipment via Station Street and Grace Avenue;
- Discontinuation of use and rehabilitation of the southern section of the existing operational area;
- Onsite parking for trucks to reduce traffic impacts;
- Location of maintenance facilities behind a noise barrier;
- Construction of noise barriers along haul roads and around the existing quarry production floor; and
- Applying engineering noise treatments to existing quarry plant.



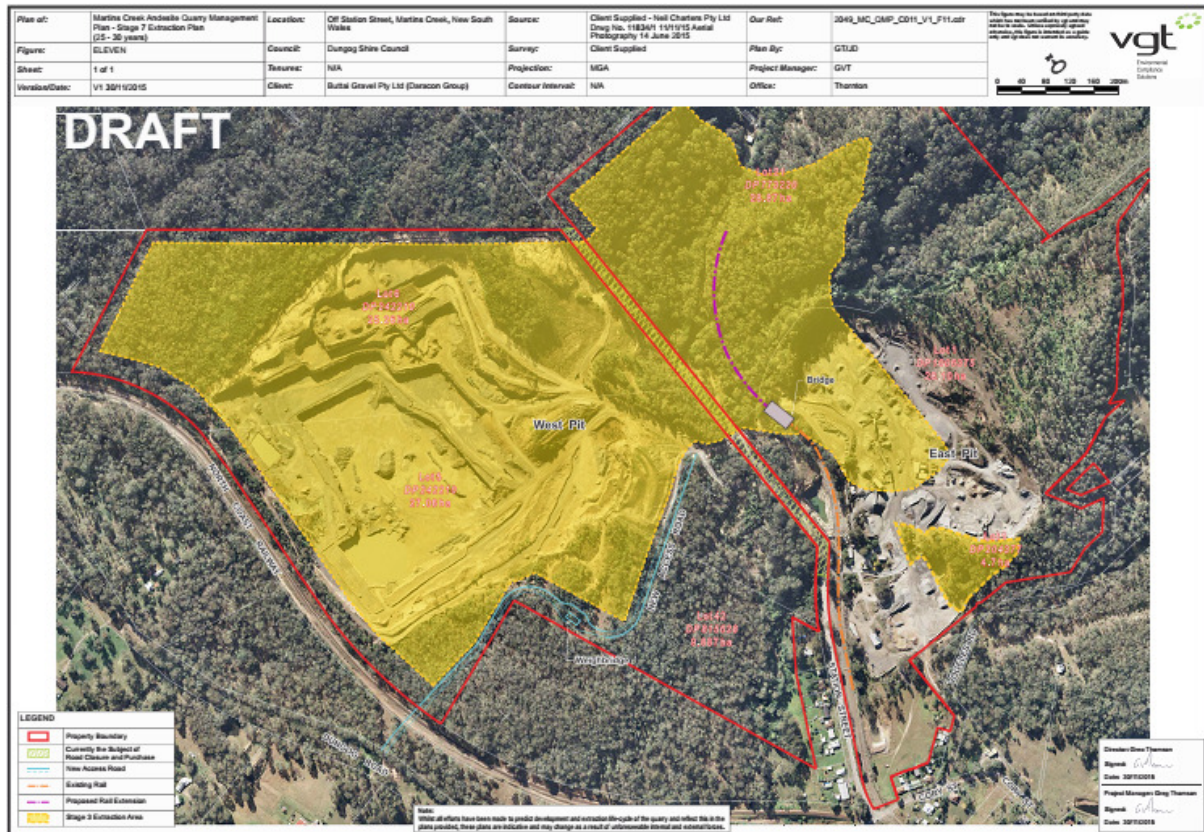


Figure 2.1: Proposed Area of Operation

### **3. METHODOLOGY**

A multi method approach was undertaken as part of this social and economic impact assessment in order to ascertain the potential impacts of the proposed development. This methodology includes:

#### **Social Impact Assessment**

- Analysis of Census data from the Australian Bureau of Statistics (ABS) to profile Martins Creek, the Dungog Local Government Area (LGA) and New South Wales (NSW);
- Review of other published social data;
- Review of existing documentation relating to the subject site (e.g. previous Council reports);
- Review of Dungog Shire Council social and community plans (where available);
- Review of relevant strategic and statutory planning documents;
- Review of existing social and community infrastructure;
- Discussion of the potential impact of the development;
- Consideration of possible mitigation and/or management options.

#### **Economic Impact Assessment**

- Analysis of Census data from the Australian Bureau of Statistics (ABS) to profile Martins Creek, the Dungog Local Government Area (LGA) and New South Wales (NSW);
- Review of other, relevant, published economic data;
- Review of existing documentation relating to the subject site (e.g. previous Council reports);
- Review of Dungog Shire Council community strategic plan, business/commercial strategies and economic development strategy (where available);
- Review of relevant strategic and statutory planning documents;
- Assessment of the economic impact of the proposed works and multiplier effects in the economy;
- Discussion of the potential impact of the development, and the costs and benefits of the proposal;
- Consideration of possible mitigation and/or management options.

## **4. STRATEGIC AND PLANNING CONSIDERATIONS**

This section identifies the strategic and planning policies that are applicable to the proposed development in relation to this social and economic impact assessment.

### **4.1 ENVIRONMENTAL PLANNING AND ASSESSMENT ACT 1979**

The proposed development will be assessed under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and the associated Environmental Planning and Assessment Regulation 2000 (EP&A Regulations). The Department of Planning and Environment (DP&E) will be the determining authority for the development.

### **4.2 STRATEGIC REGIONAL LAND USE PLAN – UPPER HUNTER**

The Upper Hunter Strategic Regional Land Use Plan applies to the Dungog area. There are no critical industry clusters in the vicinity of Martins Creek. This plan identifies approval pathways for mining and coal seam gas projects only, and not quarries.

### **4.3 HUNTER REGIONAL GROWTH PLAN**

The Draft Hunter Regional Plan applies to the Dungog LGA. The Plan is regional in nature and therefore does not specifically identify Martins Creek or any actions/goals for Martins Creek. Nonetheless, the proposal will support the Plan through providing jobs and ongoing employment in the region. The current quarry is identified on maps in the Plan as an “identified resource”.

### **4.4 DUNGOG SHIRE COMMUNITY STRATEGIC PLAN**

The purpose of the community strategic plan is to identify the community’s main priorities and aspirations for the future and to plan strategies for achieving outcomes related to those priorities and aspirations. In doing this, the planning process needs to consider the issues and pressures that may affect the community and the level of resources that will realistically be available to achieve the aims and aspirations.

The Councils Community Strategic Plan has to consider the State Plan and any relevant State or Regional draft plans and strategies. The focus areas of the Councils community strategic plan were established as a consequence of the initial engagement process with the community. The focus areas are:

- Natural Environment;
- Local Economy;
- Community and Culture;
- Rural and Urban Development;
- Recreation and Open Space;
- Public Infrastructure and Services;
- Council Governance and Finance.

The Strategic Plan notes that Dungog has an ageing population and like many rural communities once children leave school there is a tendency for them to move away from

Dungog for further education or for employment opportunities. Without major employment markets within the Shire the continued trend of youth migration will not be overcome.

Interestingly through the consultation process with Dungog High School students the Plan identifies that students want the opportunity to move away and experience other places and at the same time many of them also want to come back to the Shire when they grow older. The Community Strategic Plan is supported by long term financial plans and asset management strategy will help the Council find the best balance between competing pressures and limited resources. Within the focus areas (as identified above) a number of strategies and key performance indicators have been developed in consultation with the community. No specific actions are identified in the Plan but the adopted strategies will guide future operational budgets of Council.

#### **4.5 DUNGOG SHIRE LAND USE STRATEGY**

The Dungog Land Use Strategy is intended to provide a framework to guide landuse-related decisions affecting the Dungog Local Government Area (LGA) through to the year 2031. The Land Use Strategy provides direction and planning context to guide the preparation/review of planning documents, including the Local Environmental Plan (LEP) provisions, Development Control Plans and Local Area Plans.

Martins Creek is identified in the Paterson Planning District in this Strategy. Recommendations from the Strategy for Martins Creek include:

- The previous 9(a) Transition Zone adjacent to the Martins Creek village should be zoned RU1 Primary Production and RU5 Village in the LEP;
- The previous 9(a) Transition Zone (Lot 22 DP825658) to the south of Martins Creek off Martins Creek Road should be rezoned R5 Large Lot Residential and E3 Environmental Management in the LEP;
- Considering the isolation and current lack of infrastructure in Vacy and Martins Creek, the development of duplex or villa style accommodation should not be encouraged;
- Opportunities to link Martins Creek and Vacy via a cycling loop should be investigate during any Part 3A environmental assessment negotiations for the Quarry;
- A visual site analysis should be undertaken at the development stage for proposals in the vicinity of heritage items or the heritage conservation area. This would be a cost effective way to appropriately position new structures to complement existing heritage items and positively contribute to the surrounding streetscape.

The Strategy also identifies the following social considerations:

- In general, social services are provided as outreach programs from the larger centres of Maitland or Dungog.
- Major social concerns for the villages include:
  - The ageing population;
  - The decreasing number of children;
  - Young people leaving town for future work and educational opportunities;
  - Growing levels of dependency, with an increasing proportion of the population being either older or younger.



It is cost prohibitive to provide community service infrastructure in all small villages and the Strategy supports the continued provision of services in Dungog and Maitland, with outreach services provided to smaller villages.

Martins Creek maintains a School of Arts Hall and a local Infants/Primary School<sup>2</sup>. Students travel outside of the village for high school or tertiary education. Maintaining local numbers of children in order to retain teacher numbers is a perennial concern for the community.

#### **4.6 COMMUNITY / SOCIAL PLAN 2004-2009**

Although out of date the community and social plan prepared by Dungog Council provided an assessment of the social issues in Dungog Shire with a plan to action the issues identified in the Social Plan. The Plan at the time noted:

- Dungog Shire's age profile reflects a population with significant growth in the 40 years plus age group but there has also been an increase in primary school aged children highlighting younger families in the Shire. The 15-19 years age group has remained stable over the last ten year period while there has been a noticeable decline in the 20 to 39 years indicating the need for that age group to leave the shire for further education and employment opportunities.
- The major change in demographics as part of the steady population growth is the significant increase in population in the Clarence Town and Paterson areas and the rapid growth in numbers of over forty age group.
- These changes are placing pressures on Council's traditional infrastructure, as the demand for some services falls and demand for other services are rising sharply.
- The plan also recognises the introduction of growing affluence in the population in general, but recognises there is still a significant sector of the population on very low income levels who are finding it increasingly difficult to maintain a reasonable lifestyle or livelihood in the changing financial circumstances driven by increasing real estate prices, limited work opportunities and the pressures of the rising of cost of living. These trends are leading an increased demand for culturally-based activity at one end of the scale and an increased demand for social support services at the other.

The Plan recommends that the Dungog Shire Council commit the resources to developing a Cultural Plan to map and facilitate an organised and supported structure to the imposition of cultural infrastructure.

The Community and Social Plan is closely aligned with the following Principal Activities which form part of Council's Management Plan:

- Public Order and Safety;
- Health;
- Community Amenities;
- Recreation and Culture;
- Transport and Communication;
- Economic Affairs.

The Community and Social Plan is also linked to other plans of Council which are related to the social well-being of the community, including Plans of Management for Council facilities, the Local Environment Plan and the Road Safety Action Plan. Of particular relevance is Council's Section 94 Contributions Plan which levies developers for the social and other

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<sup>2</sup> Ongoing discussions about the closure of Martins Creek Public School is noted.



impacts of their developments. The Plan notes that development and social infrastructure need to proceed together.

#### **4.7 DUNGOG SITUATION ANALYSIS 2008**

In 2008, Dungog Shire prepared a situation analysis examining the state of play in Dungog. The study noted that:

- The limited availability of rural residential land supply in adjoining LGA's has generated rural residential interest in the southern areas of Dungog Shire;
- A decline in the availability of local employment and a rise in regional employment opportunities has motivated residents to commute outside of the LGA for work;
- Demographics show that the Dungog LGA loses many of its young people to urban centres for education and employment;
- The local population is ageing. It is predicted that the percentage of people aged over 65 years will reach 33% of the total population by 2031;
- The populated villages of Clarence Town and Paterson have experienced limited growth, Gresford and East Gresford have declined, and Dungog has been relatively static. At the same time there has been continued interest in residents seeking a "country" lifestyle across the Dungog LGA and these people are attracted for a variety of reasons including agriculture, investment, rural retreats, and rural residential lifestyle;
- There is an increase in the centralisation of major services, weakening local availability. Residents are travelling outside of the Dungog LGA for work and access to services. This creates economic leakage with residents buying goods and services in areas other than Dungog LGA, in areas where there is greater price competition;
- There is continual structural adjustment in the agricultural industry both locally and regionally. This will continue for some time. The Hunter's importance to NSW as an agricultural community is paramount;
- The community is in transition from a detached rural community to an economy that is more integrated with regional growth;
- There is a need for improved road access. The main vehicle links between Raymond Terrace, Maitland, and the Dungog LGA are poor and accident statistics are high;
- There are land use and settlement pattern issues emerging from higher transport and fuel costs. Compact settlement patterns stimulate the need for local services and facilities within the LGA's villages and towns;
- There are current gaps in the provision of telecommunications, both broadband and mobile phone coverage. Research shows there is a correlation between household income, local business levels, and access to broadband;
- Safe access across rail lines and rivers is a local issue. Some bridges are in need of constant maintenance;
- The availability of sewerage is an issue in Gresford, Paterson and Vacy. Onsite waste water disposal is a significant pressure on waterway health.

#### **4.8 DUNGOG SHIRE DEVELOPMENT CONTROL PLAN**

The Dungog Development Control Plan (DCP) will apply to the subject site. The EIS prepared for the site will need to consider the provisions of the DCP in guiding development on the site where applicable. In particular the EIS will need to consider the section on employment development. The DCP does not have a specific chapter or section relating to social or economic impact assessment.

#### **4.9 DUNGOG SHIRE COUNCIL CONTRIBUTIONS PLAN**

Dungog Shire has a development contributions plan that requires development to contribute to the provision or augmentation of infrastructure in the Shire. If applicable, this will be applied to the proposed development as part of the conditions of consent or be bound up in a voluntary Planning Agreement (VPA).

## **5. BACKGROUND**

This social and economic assessment has been prepared to address the socio-economic impacts of the proposed works at Martins Creek Quarry. In this instance it has been decided to include some background material which is important in the overall context of the proposed works.

### **5.1 HISTORIC OVERVIEW**

The location of early towns in Dungog local government area were for the main part shaped by the rivers and associated landscapes although some private development did occur. In many instances the settlements ranged from a few buildings to estates clustered around roads or homesteads. In the 1840s high land prices, drought and the withdrawal of convict labour left estates bare and forced workers to seek work in towns. By the 1860s the boom time for major towns particularly Newcastle saw Clarence Town and Paterson develop as busy transport nodes where goods and produce were transported between Newcastle and Sydney. In the early twentieth century the extension of the northern railway line through Paterson and Dungog altered the population patterns in the area. The broader decline of the dairy industry and growing centralisation in larger urban areas has also affected the towns and villages of Dungog LGA since the 1950s.

Martins Creek took its name from Edward Martin who settled on the Paterson River near Martins Creek in 1851. Some settlers followed, and a small private school was opened in 1892. However, the railway through Martins Creek in 1908 and the opening of both State and private andesite quarries in 1913 changed the landscape in Martins Creek. The State quarry employed 44 men and at its peak this rose to 80-100 men. The quarry was still employing 31 men in 1967 (Dungog Heritage Study, 1988). Since its opening, historically the quarry has provided significant employment in relation to the size of the township of Martins Creek.

### **5.2 DESIGNATED HEAVY VEHICLE ROUTES**

In NSW there are roads dedicated to hauling freight (including quarry products) for larger vehicles. These are more commonly known as heavy vehicle routes. As of early 2014, any single motor vehicle or combination which alone or together with its load exceeds the general access overall dimensions as defined in the Heavy Vehicle (Mass, Dimension and Loading) National Regulation is considered to be a Restricted Access Vehicle (RAV).

Heavy vehicle combinations in NSW that do not exceed the overall length of combinations defined in the Regulation, but are restricted due to the road network or infrastructure access that can accommodate these vehicles. These include but are not limited to B-doubles, road trains and vehicle combinations operating at higher mass limits. Combinations (and their loads) which are over height, oversize and/or over-mass are subject to special operating conditions. In some instances this may include the requirement to assess a route for suitability. In NSW, there are RAV designated roads as part of the road network. Some of these designated roads are identified in Appendix A. The RAV maps provide details on the roads and zones approved for the following heavy vehicle combinations:

- 4.6m high vehicle routes
- 19m B-doubles routes (over 50 tonnes)
- 23m B-double routes

- 25/26m B-double routes
- Type 1 A-double road train routes.

For the purposes of this assessment, there are several identified RAV roads for specific purposes which includes roads linking Dungog to Martins Creek and Martins Creek to Maitland, as well as linkages across to Seaham. In the context of truck movements these networks are important as in the Dungog Shire these roads do traverse townships, including Martins Creek and Paterson to the south.

## **6. SOCIAL AND DEMOGRAPHIC PROFILE**

The proposed development is located in the suburb of Martins Creek, within the Dungog LGA. This section presents an overview of the socio-demographics of the Martins Creek locality in the context of the wider Dungog LGA and New South Wales.

### **6.1 SOCIAL DISADVANTAGE AND ADVANTAGE**

The Australian Bureau of Statistics (ABS) releases Socio-Economic Indexes for Areas (SEIFA) data which identifies the relative socio-economic advantage or disadvantage of a locality compared with other areas in Australia. The ABS broadly defines relative socio-economic advantage or disadvantage in terms of people's access to material and social resources, and their ability to participate in society. A lower number on the index means that an area is relatively more disadvantaged than other areas. A higher number on the index means that an area is relatively less disadvantaged than other areas (i.e. a high number for the index means that an area is relatively more advantaged than other areas).

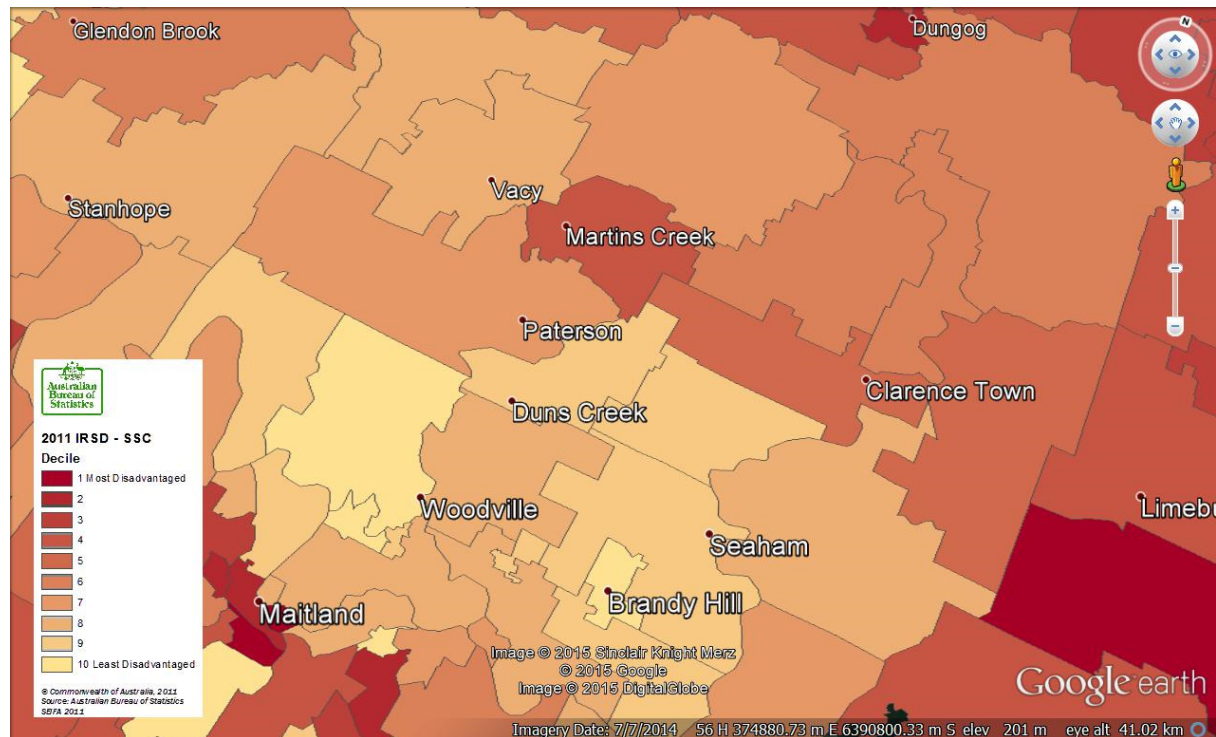
Figure 6.1 demonstrates the Index of Relative Socio-economic Disadvantage (IRSD) released by the ABS for suburbs (as defined by the ABS) in Dungog LGA. It is noted SEIFA is a general measure of relative socio-economic advantage and disadvantage. SEIFA is an area-level measure and is not intended to reflect individual people or households. As the SEIFA score is an average (that is, the average score across Australia is 1,000), it provides a summary measure of the people and households within an area. Section 5.2 below provides more detail on the socio-economic characteristics of Martins Creek.

The SEIFA index scores for suburbs in the Dungog LGA includes:

- Duns Creek – 1068;
- Vacy – 1046;
- Paterson – 1038;
- Clarence Town – 1007;
- Gresford – 1002;
- Martins Creek – 988;
- Dungog – 921.

The results show that the SEIFA index score for the Martins Creek area is slightly below the average across Australia (1,000) when compared to other areas.





**Figure 6.1:** ABS Index of Disadvantage (ABS 2011)

## 6.2 SOCIO-DEMOGRAPHIC PROFILE OF THE LOCALITY

This section provides a more detailed analysis of the ABS census data from 2011. This section analyses the data collected for Martins Creek in context to the Dungog LGA and New South Wales. Table 6.1 below presents the data collated from the Census. The figures presented in this report are for selected census data.

### Selected Data

In 2011, the population of Martins Creek was estimated at 341 persons, which is slightly lower than the nearby townships of Paterson (802 persons) and Vacy (547 persons). The median age of persons in Martins Creek is 40 years which is less than the median age in Paterson (43) and Vacy (42) as well as across the Dungog LGA (44). The lower median age in Martins Creek compared to nearby townships, however, is slightly higher than for NSW (38) as a whole. Interestingly, the average household size in Martins Creek is lower than for Paterson, Vacy, and for NSW as a whole, but similar to that for the LGA.

**Table 6.1:** Selected Socio-Economic Data, Martins Creek, 2011

	Martins Creek (SSC)	Paterson (SSC)	Vacy (SSC)	Dungog LGA	NSW
Persons	341	802	547	8,318	6,917,658
Households	125	273	180	3,115	2,471,299
Median Age	40	43	42	44	38
Average Household Size	2.73	2.94	3.04	2.67	2.80
Median Household Income	\$1,483	\$1,309	\$1,339	\$1,005	\$1,237
<b>Age</b>					
0-14 years	17.3%	21.3%	18.8%	18.8%	19.3%
15-24 years	15.5%	10.7%	11.0%	11.3%	12.9%
25-34 years	10.6%	8.5%	7.1%	8.4%	13.6%
35-44 years	13.8%	11.8%	17.4%	12.5%	14.0%
45-54 years	19.9%	18.5%	15.7%	16.0%	13.7%
55-64 years	11.1%	15.6%	16.6%	15.4%	11.7%
65 years and over	11.4%	13.6%	13.2%	17.6%	14.7%
<b>Indigenous Persons</b>	0.9%	1.6%	1.3%	3.2%	2.5%
<b>Birthplace</b>					
Australia	89.1%	90.9%	85.4%	90.0%	68.6%
Elsewhere	10.9%	9.1%	14.6%	10.0%	31.4%
<b>Marital Status (persons over 15 years)</b>					
Married	47.2%	58.8%	59.0%	54.7%	49.4%
Separated	3.2%	3.5%	2.5%	2.7%	3.1%
Divorced	9.9%	9.5%	8.6%	8.8%	8.3%
<b>Attendance at Educational Institution (persons attending educational institution)</b>					
Pre School	12.7%	8.5%	5.9%	6.9%	5.9%
Infants/Primary	28.4%	30.0%	26.6%	29.4%	25.7%
Secondary	27.5%	26.7%	18.6%	24.9%	21.2%
TAFE	6.9%	12.1%	7.4%	7.5%	7.9%
University/Other Tertiary Institution	5.9%	8.5%	8.0%	7.3%	14.2%
Not Stated/Inadequately Described	18.6%	14.2%	33.5%	24.0%	25.1%
<b>Household Type</b>					
Couple Family with No Dependents	29.6%	34.8%	38.9%	33.5%	27.1%
Couple Family with Dependents	36.0%	40.3%	35.6%	31.6%	33.7%
One Parent Family	10.4%	8.4%	7.8%	10.4%	12.1%
Lone Person Household	22.4%	15.8%	19.4%	23.8%	24.2%
Other/Not Stated/Inadequately Described	1.6%	0.7%	0.0%	0.7%	3.0%

	Martins Creek (SSC)	Paterson (SSC)	Vacy (SSC)	Dungog LGA	NSW
<b>Household Income (per week)</b>					
Less than \$400	10.4%	6.6%	9.4%	13.7%	12.3%
\$400-\$599	9.6%	8.4%	10.6%	12.1%	9.4%
\$600-\$799	10.4%	10.3%	9.4%	10.6%	8.3%
\$800-\$999	6.4%	7.3%	5.6%	7.9%	7.6%
\$1,000-\$1,499	10.4%	16.8%	15.0%	15.0%	14.4%
\$1,500-\$1999	12.8%	13.2%	5.6%	10.4%	10.9%
\$2000 or more	25.6%	27.8%	33.3%	19.2%	26.7%
Not Stated/Inadequately Described	14.4%	9.5%	11.1%	11.1%	10.5%
<b>Motor Vehicles (per household)</b>					
No Motor Vehicle	4.0%	2.2%	1.7%	4.6%	10.4%
One Motor Vehicle	25.6%	21.6%	24.4%	29.2%	37.8%
Two Motor Vehicles	35.2%	41.0%	33.9%	38.8%	34.0%
More than Two Motor Vehicles	31.2%	33.7%	36.1%	24.5%	14.6%
Not Stated/Inadequately Described	4.0%	1.5%	3.9%	2.9%	3.2%
<b>Dwelling Type</b>					
Separate Houses	100.0%	98.9%	98.3%	96.8%	69.5%
Semi Detached Dwelling, Townhouse etc	0.0%	0.0%	1.7%	1.6%	10.7%
Flat, Unit or Apartment	0.0%	1.1%	0.0%	0.9%	18.8%
Other Dwelling Type	0.0%	0.0%	0.0%	0.7%	0.9%
Not Stated/Inadequately Described	0.0%	0.0%	0.0%	0.0%	0.1%
<b>Dwelling Tenure</b>					
Owned Outright	35.2%	37.7%	43.3%	42.6%	33.2%
Being Purchased	47.2%	42.1%	41.7%	35.1%	33.4%
Rented - Private Landlord	9.6%	12.5%	11.7%	14.5%	23.2%
Rented - Social or Community Housing	0.0%	0.0%	0.0%	1.7%	5.1%
Other Dwelling Tenure	2.4%	6.6%	1.7%	3.5%	2.6%
Not Stated/Inadequately Described	5.6%	1.1%	1.7%	2.5%	2.6%
<b>Monthly Mortgage Repayments</b>					
\$0-\$599	15.8%	8.7%	6.6%	10.3%	7.8%
\$600-\$999	5.3%	20.0%	13.2%	13.5%	8.0%
\$1,000-\$1,799	28.1%	26.1%	32.9%	30.5%	25.9%
\$1,800-\$2,399	15.8%	14.8%	17.1%	17.3%	20.4%
\$2,400-\$2,999	12.3%	9.6%	5.3%	7.5%	12.0%
\$3000 or more	15.8%	12.2%	21.1%	13.5%	20.7%
Not Stated/Inadequately Described	7.0%	8.7%	3.9%	7.3%	5.2%
<b>Weekly Rent</b>					
\$0-\$99	18.8%	20.0%	28.6%	21.5%	10.6%
\$100-\$199	37.5%	28.0%	28.6%	31.5%	15.5%
\$200-\$274	25.0%	10.0%	28.6%	28.9%	15.5%
\$275-\$349	0.0%	22.0%	0.0%	9.0%	16.5%
\$350-\$449	0.0%	10.0%	0.0%	3.3%	18.0%
\$450 or more	0.0%	0.0%	14.3%	1.2%	20.3%
Not Stated/Inadequately Described	18.8%	10.0%	0.0%	4.7%	3.5%

	Martins Creek (SSC)	Paterson (SSC)	Vacy (SSC)	Dungog LGA	NSW
<b>Number of Bedrooms (per dwelling)</b>					
Bedsitter	0.0%	0.0%	1.7%	0.3%	0.7%
One	2.4%	4.0%	1.7%	3.3%	5.6%
Two	14.4%	9.2%	12.8%	16.7%	22.5%
Three	49.6%	45.8%	45.0%	46.8%	39.9%
Four	20.8%	31.9%	26.1%	25.1%	23.3%
Five	5.6%	6.6%	10.0%	4.9%	5.0%
Six or more	2.4%	1.8%	1.7%	1.3%	1.1%
Not Stated/Inadequately Described	4.8%	0.7%	1.1%	1.7%	1.9%
<b>Labour Force</b>					
Employed - Full Time	58.2%	56.9%	56.3%	56.5%	60.2%
Employed - Part Time	30.8%	34.8%	31.7%	32.4%	28.2%
Employed - Not at Work	6.6%	6.1%	8.6%	6.6%	5.7%
Unemployed	4.4%	2.2%	3.4%	4.4%	5.9%
Labour Force Participation	65.9	64.9	60.5	57.7	59.7
<b>Qualifications</b>					
University Qualification	9.9%	12.4%	9.7%	10.7%	19.9%
Diploma/Associate Diploma	11.3%	10.1%	8.3%	7.4%	8.3%
Certificate	25.9%	26.3%	26.1%	23.7%	17.7%
No Qualification/Not Stated/Inadequately Described	52.8%	51.2%	55.9%	58.2%	54.2%
<b>Qualification - Field of Study</b>					
Natural and Physical Sciences	1.8%	2.5%	4.5%	1.9%	2.7%
Information Technology	1.8%	0.0%	1.1%	0.7%	3.1%
Engineering and Related Technologies	18.9%	28.5%	22.7%	21.9%	14.8%
Architecture and Building	9.1%	8.7%	5.9%	6.5%	5.4%
Agriculture, Environmental and Related Studies	1.8%	5.1%	3.3%	4.8%	1.9%
Health	10.4%	9.3%	8.2%	10.1%	8.5%
Education	11.0%	7.6%	5.6%	8.2%	7.1%
Management and Commerce	12.2%	16.6%	14.1%	14.2%	20.3%
Society and Culture	9.1%	5.1%	6.7%	7.6%	10.2%
Creative Arts	5.5%	2.3%	0.0%	2.2%	3.6%
Food, Hospitality and Personal Services	5.5%	3.7%	3.3%	4.6%	4.5%
Mixed Field Programmes	0.0%	0.0%	0.0%	0.2%	0.1%
Not Stated/Inadequately Described	12.8%	10.7%	24.5%	17.1%	17.8%
<b>Migration</b>					
Lived at Same Address 1 Year Prior to Census	91.4%	87.4%	88.5%	88.9%	85.4%
Lived at Same Address 5 Years Prior to Census	69.5%	68.3%	67.5%	68.5%	60.8%

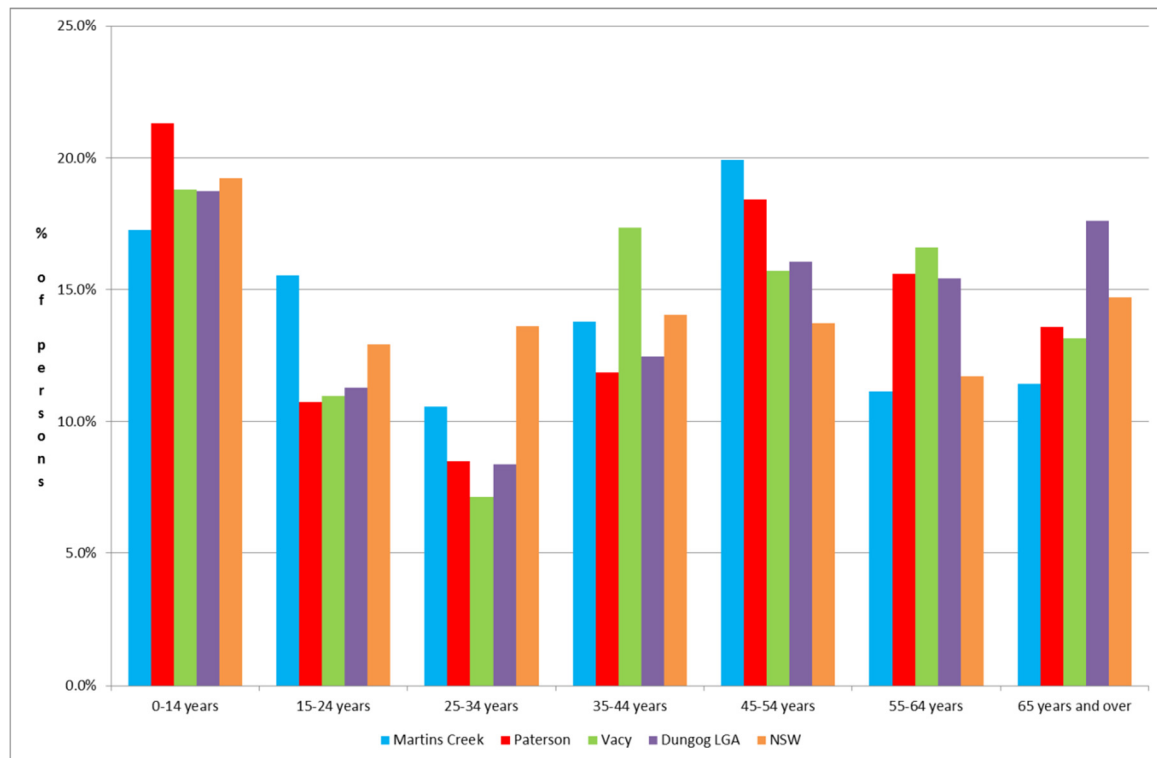
	Martins Creek (SSC)	Paterson (SSC)	Vacy (SSC)	Dungog LGA	NSW
<b>Industry of Employment</b>					
Agriculture, Forestry and Fishing	5.7%	5.5%	12.5%	10.9%	2.2%
Mining	3.4%	4.2%	3.9%	3.8%	1.0%
Manufacturing	9.8%	7.2%	9.8%	8.7%	8.4%
Electricity, Gas, Water and Waste Services	1.7%	3.7%	3.5%	1.7%	1.1%
Construction	11.5%	10.7%	7.1%	9.5%	7.3%
Wholesale Trade	5.2%	1.7%	3.5%	2.7%	4.4%
Retail Trade	12.1%	11.9%	2.4%	9.3%	10.3%
Accommodation and Food Services	5.2%	7.5%	8.2%	6.3%	6.7%
Transport, Postal and Warehousing	5.2%	5.0%	5.5%	5.6%	4.9%
Information Media and Telecommunications	0.0%	1.5%	0.0%	0.4%	2.3%
Financial and Insurance Services	1.7%	1.2%	4.3%	1.5%	5.0%
Rental, Hiring and Real Estate Services	0.0%	2.2%	1.2%	1.7%	1.6%
Professional, Scientific and Technical Services	2.3%	6.0%	4.7%	4.8%	7.9%
Administrative and Support Services	3.4%	4.0%	1.2%	2.5%	3.3%
Public Administration and Safety	5.2%	5.0%	4.7%	5.1%	6.1%
Education and Training	10.3%	8.2%	7.8%	7.3%	7.9%
Health Care and Social Assistance	12.1%	7.7%	10.2%	10.4%	11.6%
Arts and Recreation Services	0.0%	0.0%	0.0%	0.5%	1.5%
Other Services	0.0%	3.7%	7.1%	4.7%	3.7%
Not Stated/Inadequately Described	5.2%	3.0%	2.4%	2.5%	2.5%
<b>Occupation</b>					
Managers	14.8%	16.8%	19.1%	17.2%	13.3%
Professionals	13.6%	14.8%	17.2%	13.7%	22.7%
Technicians and Trade Workers	18.2%	17.5%	18.8%	17.2%	13.2%
Community and Personal Service Workers	9.7%	8.5%	8.6%	8.8%	9.5%
Clerical and Administrative Workers	13.6%	12.3%	14.8%	12.4%	15.1%
Sales Workers	6.8%	9.0%	4.3%	7.7%	9.3%
Machinery Operators and Drivers	10.8%	8.5%	7.4%	9.5%	6.4%
Labourers	10.2%	10.3%	8.6%	11.8%	8.7%
Not Stated/Inadequately Described	2.3%	2.5%	1.2%	1.7%	1.8%
<b>Method of Travel To Work</b>					
Train	0.0%	1.5%	0.0%	0.4%	6.2%
Bus	0.0%	0.0%	0.0%	0.2%	3.7%
Car	71.3%	70.0%	68.5%	67.6%	62.6%
Motorbike/Scooter	2.2%	0.8%	1.6%	0.6%	0.6%
Bicycle	0.0%	0.0%	0.0%	0.3%	0.7%
Walk	0.0%	2.5%	2.3%	3.8%	4.1%
Truck	2.2%	3.5%	2.7%	2.2%	1.2%
Other Method (e.g. taxi, ferry)	0.0%	0.0%	0.0%	0.8%	1.0%
Multiple Methods	1.7%	0.0%	1.2%	1.3%	4.2%
Did Not Go To Work	13.5%	11.8%	10.5%	11.0%	9.5%
Worked From Home	7.3%	9.3%	10.9%	10.1%	4.6%
Not Stated/Inadequately Described	1.7%	0.8%	2.3%	1.6%	1.5%



## Age

The median age of persons in Martins Creek is slightly less than for other areas in the LGA. There is a higher proportion of children (0-14 years) than in other areas. Conversely, the proportion of persons aged over 55 years in Martins Creek is less than other areas in Dungog LGA (Figure 6.2). Interestingly, across the Dungog LGA the proportion of persons aged 25-34 years is significantly less than for NSW as a whole while the proportion of persons aged 45-64 years is significantly higher.

**Figure 6.2:** Proportion of Persons by Age Category, Selected Areas, 2011



## Indigenous Persons

The proportion of Indigenous persons in Martins Creek is less than the proportions in Paterson, Vacy and for the LGA as whole. Similarly, the proportion is less than NSW as a whole.

## Birthplace

In Martins Creek the majority of persons (89%) were born in Australia. There are similar portions across the LGA as a whole, which is significantly higher than that for NSW as a whole (69%).

## Marital Status

A lower proportion of persons in Martins Creek are married (47%) compared to other areas in Dungog LGA and NSW, while a higher proportion are divorced. The proportion of persons over 15 years separated is similar to that for NSW.

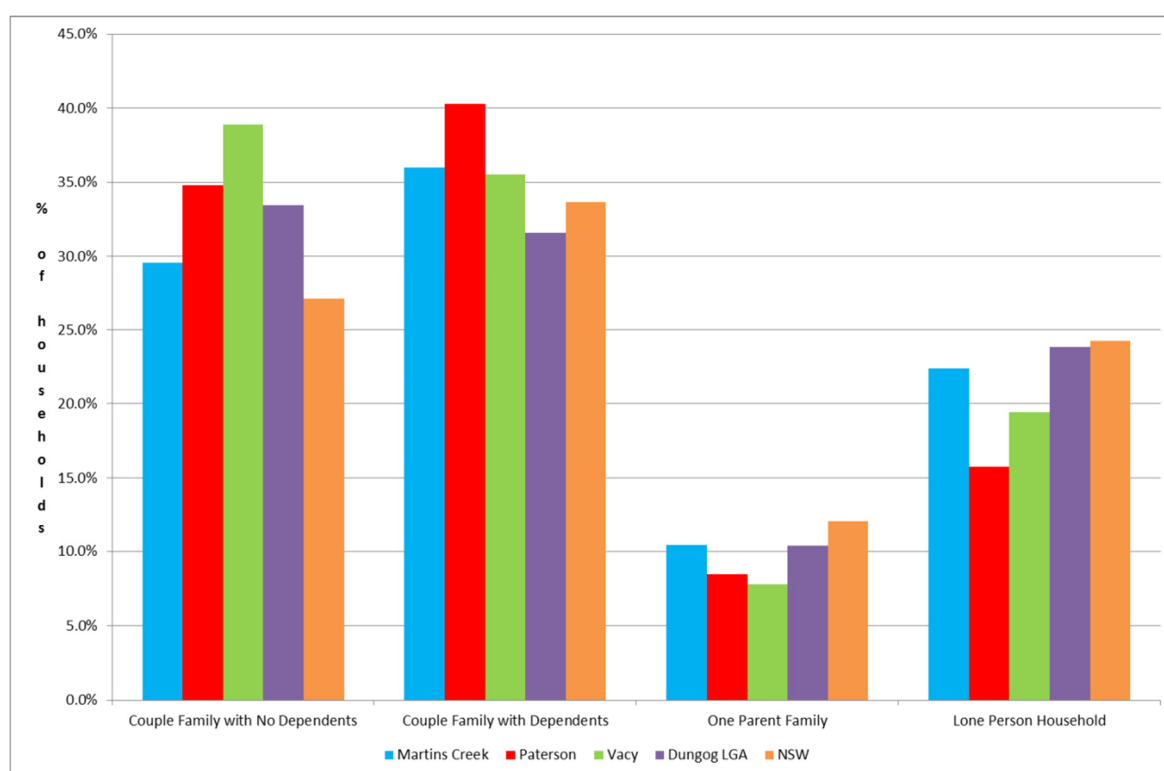
## Educational Attendance

Table 6.1 above identifies the type of educational institution being attended for persons in a particular locality. Care should be taken in interpreting these numbers as they represent a proportion of persons who attend an educational institution. The higher proportion of persons in non-tertiary educational facilities in Martins Creek is more a reflection of the age profile of the area. Of interest in these figures is the very high non-response rate.

## Household Type

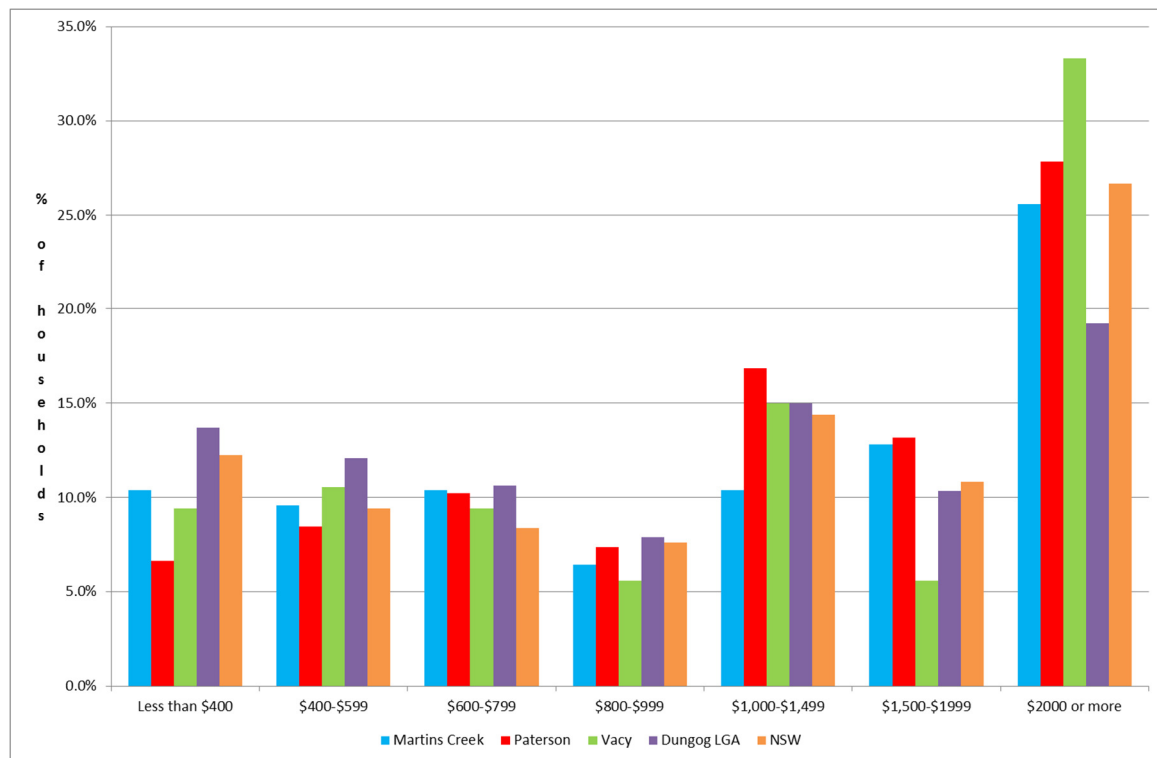
The proportion of couple families with no dependents in Martins Creek (30%) is slightly less than for other areas in Dungog LGA, but slightly higher than for NSW as a whole (Figure 6.3). The proportion of couples with dependents is higher than for Dungog LGA as a whole but slightly less than in Paterson, but higher than Vacy and NSW. The proportion of one parent families in Martins Creek is similar to Dungog LGA as a whole but less than the proportion for NSW. The proportion of lone person households is higher in Martins Creek than in Paterson or Vacy but is less than the proportion of lone person households in Dungog LGA and for NSW.

**Figure 6.3:** Proportion of Households by Type for Selected Areas, 2011



## Household Income

The proportion of households in Martins Creek on weekly incomes below \$600 is slightly less than for other areas in Dungog LGA and for NSW (Figure 6.4). Conversely, the proportion of households in Martins Creek, Paterson and Vacy with a weekly income of more than \$1,500 is significantly higher than for Dungog LGA as a whole and slightly higher than for NSW. The median weekly household income in Martins Creek is higher than for Paterson, Vacy, Dungog LGA and higher than the median across NSW.

**Figure 6.4:** Proportion of Households by Weekly Income for Selected Areas, 2011

## Motor Vehicles

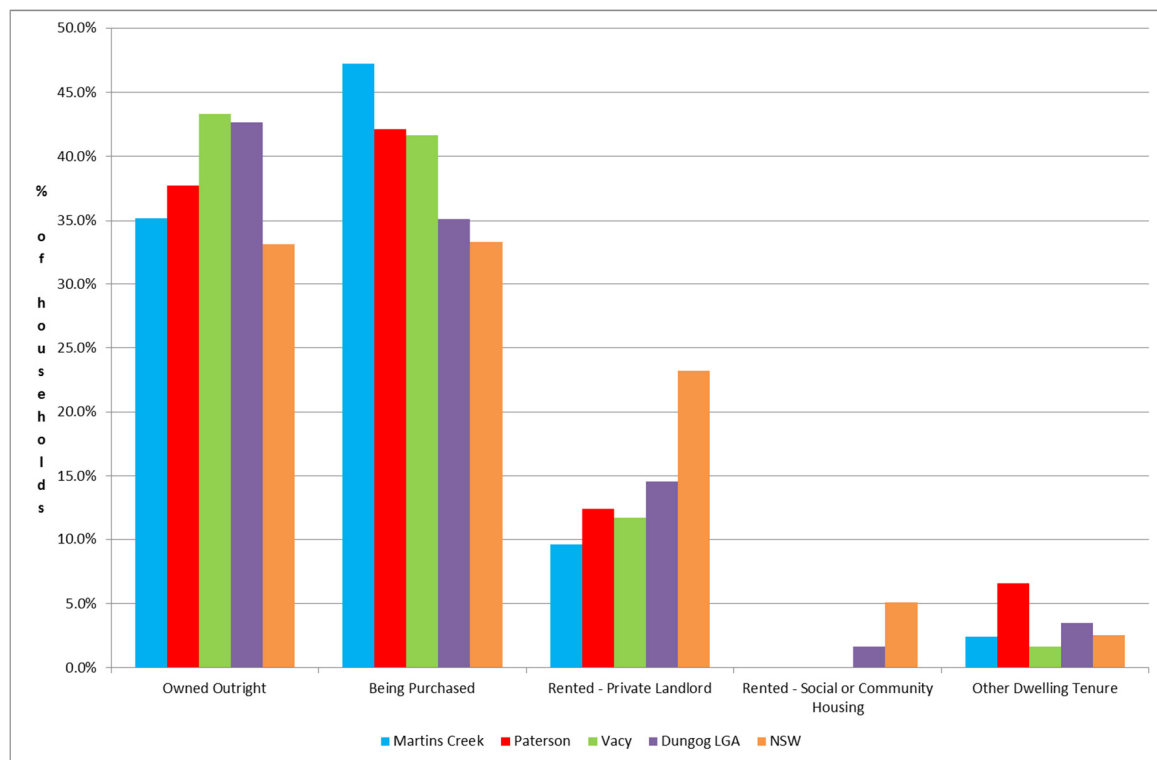
The proportion of households in Martins Creek and in other others in Dungog with more than two motor vehicles is significantly higher than the proportion in NSW. Conversely, the proportion of households in Martins Creek, Paterson, Vacy and across the LGA with no motor vehicle is less than half of the proportion recorded for NSW.

## Dwelling Type

All houses in Martins Creek are identified in the Census as separate houses. The proportion of separate houses in the LGA is over 97%, which is significantly higher than for NSW as a whole.

## Dwelling Tenure

Some 82% of dwellings in Martins Creek are owned outright or being purchased, with approximately 10% of dwellings being rented (Figure 6.5). These proportions are fairly consistent with other localities in Dungog, although it is noted that the proportion of private renters in other localities is slightly higher than in Martins Creek. The proportion of rental dwellings in Dungog is significantly less than for NSW as a whole.

**Figure 6.5:** Proportion of Households by Tenure for Selected Areas, 2011

### Mortgage Repayments

For those persons purchasing a dwelling, the monthly mortgage repayments are varied, with a relatively high proportion (16%) paying less than \$600 per month, with a significant proportion (28%) also paying more than \$2,400 per month. Conversely, compared to other areas in Dungog LGA the proportion of households paying \$600 - \$999 per month is relatively low.

### Weekly Rent

For those renters in Martins Creek the predominant weekly rent is less than \$275 per week. Some 63% of renters in Martins Creek spend between \$100 and \$274 per week on rent which is a significantly higher proportion than other areas in Dungog LGA.

### Number of Bedrooms

In Martins Creek some 70% of dwellings are three and four bedroom dwellings, which is slightly less than for other areas in the LGA. Compared to Paterson and Vacy the proportion of one and two bedroom dwellings in Martins Creek is slightly higher (17%). Similarly, the proportion of dwellings with five or more bedrooms in Martins Creek is slightly less than for neighbouring townships.

### Labour Force

At the 2011 Census, Martins Creek had an unemployment rate of 4.4% which was similar to the unemployment rate across the LGA but less than the unemployment rate across NSW. Martins Creek did, however, have the highest labour force participation rate at the 2011 Census compared to other areas in the LGA and across NSW.

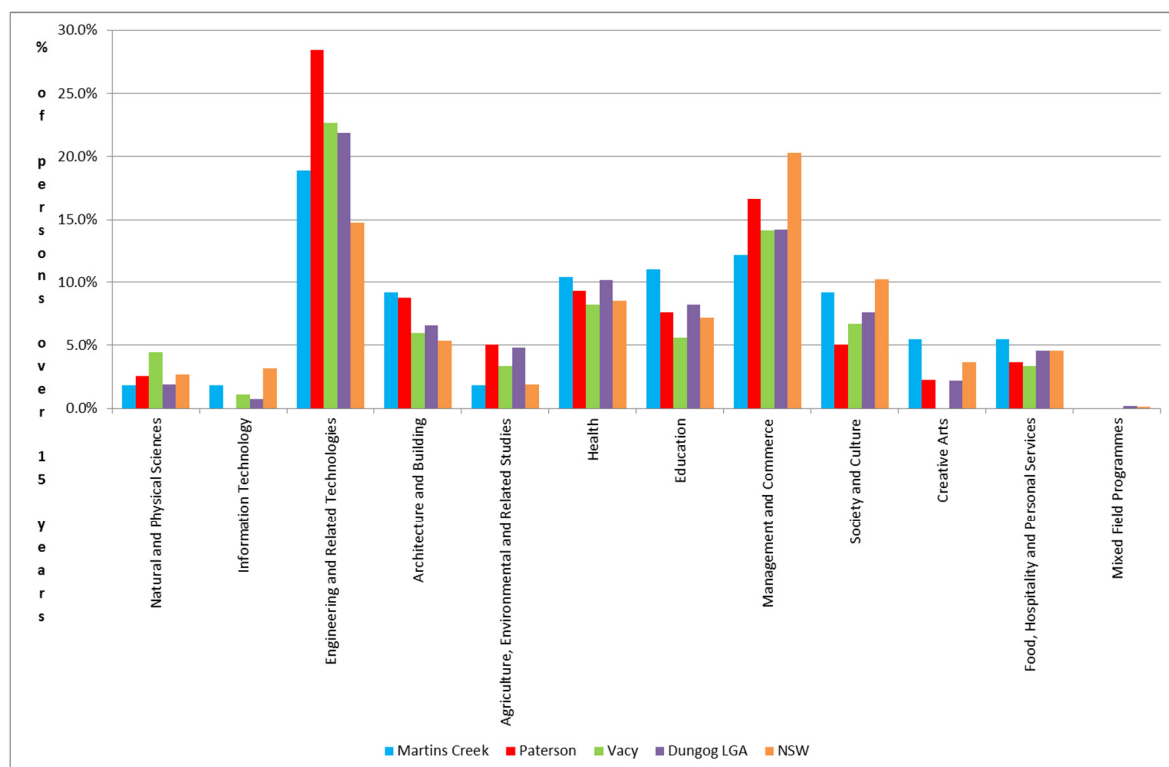
## Qualifications

The proportion of persons in Martins Creek with a diploma/associate diploma (11%) is higher than for other areas in LGA, whereas, the proportion of persons with a university qualification (10%) is slightly less than the proportion across the LGA (11%). It is noted that approximately half of the residents in Martins Creek do not have a known qualification (this excludes children) which is similar to other areas in the LGA and for NSW as a whole.

## Field of Study

Of those persons with a qualification in Martins Creek the largest proportion of have a qualification in Engineering and Related Technologies, followed by Management and Commerce, and Education and Health (Figure 6.6). Compared to other areas in the LGA, Martins Creek has a lower proportion of persons qualified in Engineering and Related Technologies, Natural and Physical Sciences, Agriculture, Environment and Related Studies, and Management and Commerce. Conversely, Martins Creek has a higher proportion of qualified people in the fields of Education, Health, Society and Culture, Creative Arts, Food, Hospitality and Personal Services, compared to other areas in the LGA and when compared to NSW.

**Figure 6.6:** Proportion of Persons Aged over 15 years and with a Qualification, by Field of Study, Selected Areas, 2011





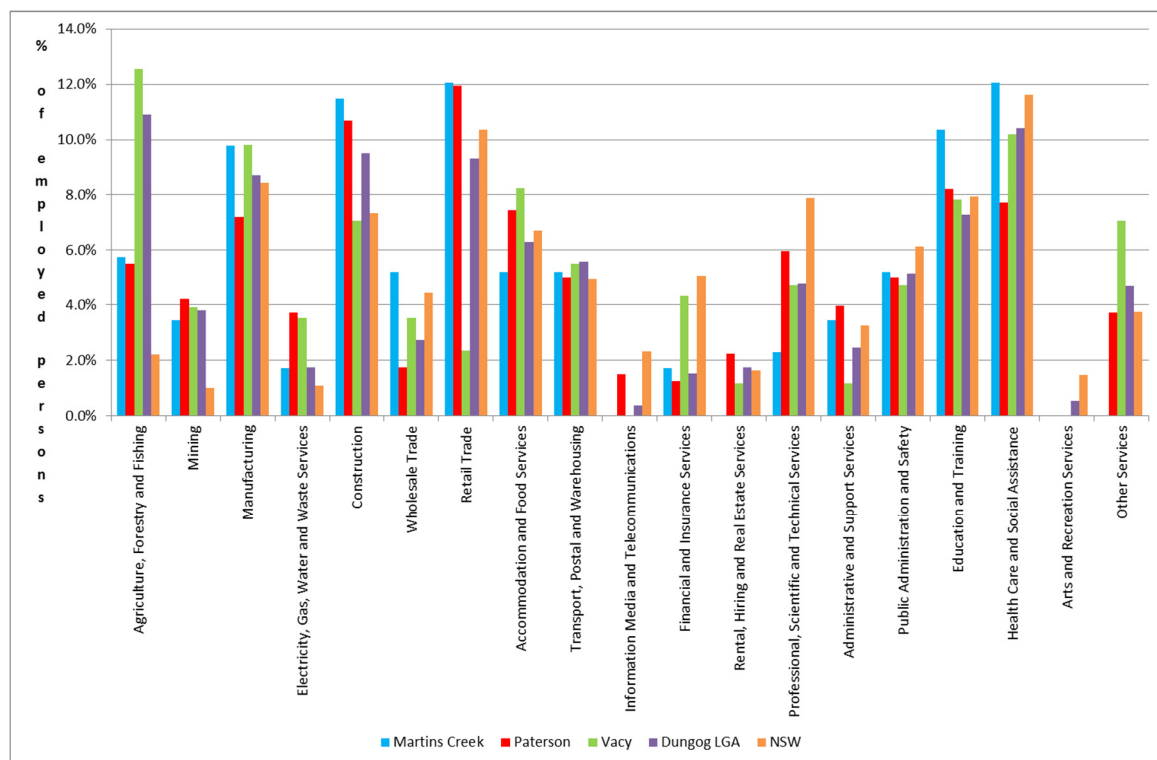
## Migration

The population of Martins Creek is relatively stable in relation to individual migration movements. At the 2011 Census some 91% of persons in Martins Creek resided at the same address for twelve months, while 70% had resided at the same address for five years. These proportions are higher than for other areas in the LGA and for NSW as a whole.

## Industry of Employment

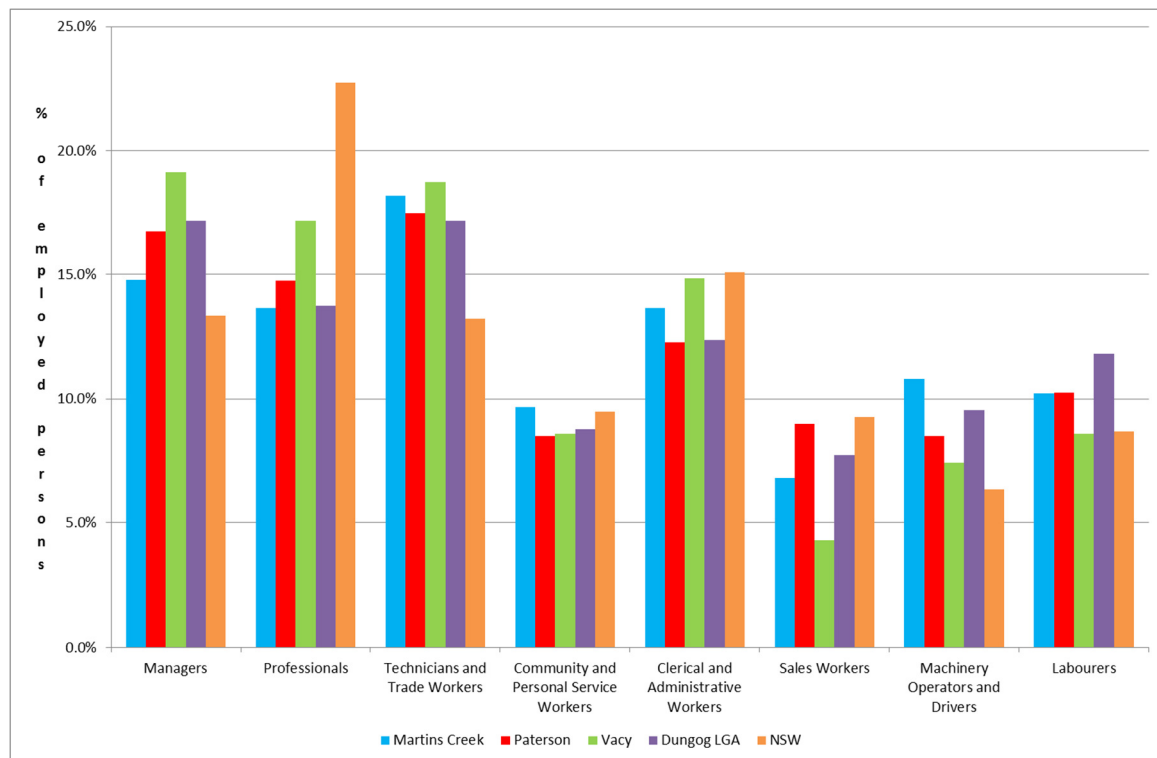
The largest employers in Martins Creek are the Construction, Retail, Health Care and Social Assistance and Education and Training industries (Figure 6.7). These four industries provide approximately 46% of employment in Martins Creek. Compared to other localities in the LGA and for NSW the proportion of employed persons in these industries is relatively high. Conversely, there are lower proportions of persons employed in Professional, Scientific and Technical Services, Accommodation and Food Services and Information Media and Telecommunications compared to other areas in NSW.

**Figure 6.7:** Proportion of Employed Persons by Industry of Employment, Selected Areas, 2011



## Occupation

In Martins Creek there is a higher proportion of persons who are Machinery Operators and Drivers, Labourers, Clerical and Administrative Workers and Community and Personal Service Workers compared to nearby localities (Figure 6.8). Conversely, there is a relatively lower proportion of Sales Workers in Martins Creek as well as Managers.

**Figure 6.8:** Proportion of Employed Persons by Occupation, Selected Areas, 2011

### Method of Travel to Work

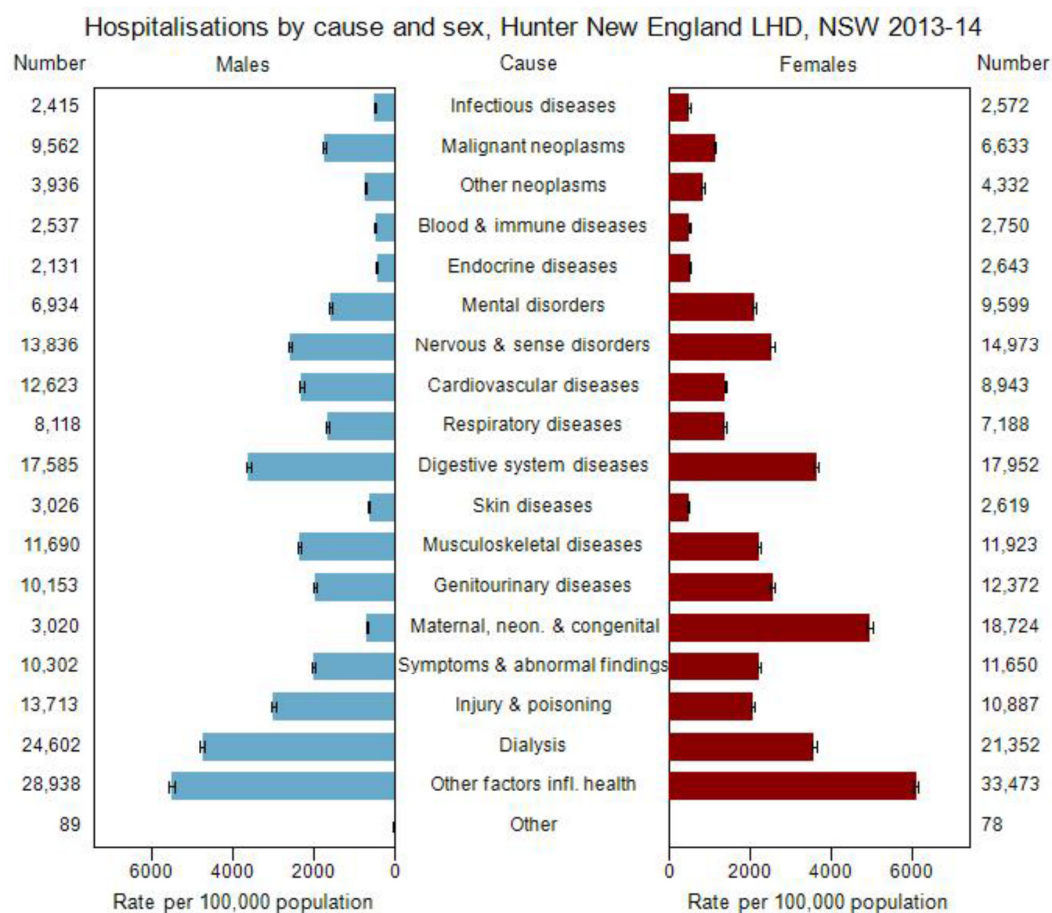
Some 71% of workers in Martins Creek used a car to get to work on Census day in 2011, which is slightly higher than the proportion in Paterson, Vacy and Dungog LGA. There was also a higher proportion of workers who travelled to work by motorbike/scooter compared to other areas in the LGA and NSW. Interestingly, the Martins Creek area had a much lower proportion of persons who worked from home on Census day compared to other localities in the LGA. There was a lower proportion of persons who walked to work in Martins Creek, compared to other areas in the LGA and for NSW as a whole.

## 6.3 HEALTH

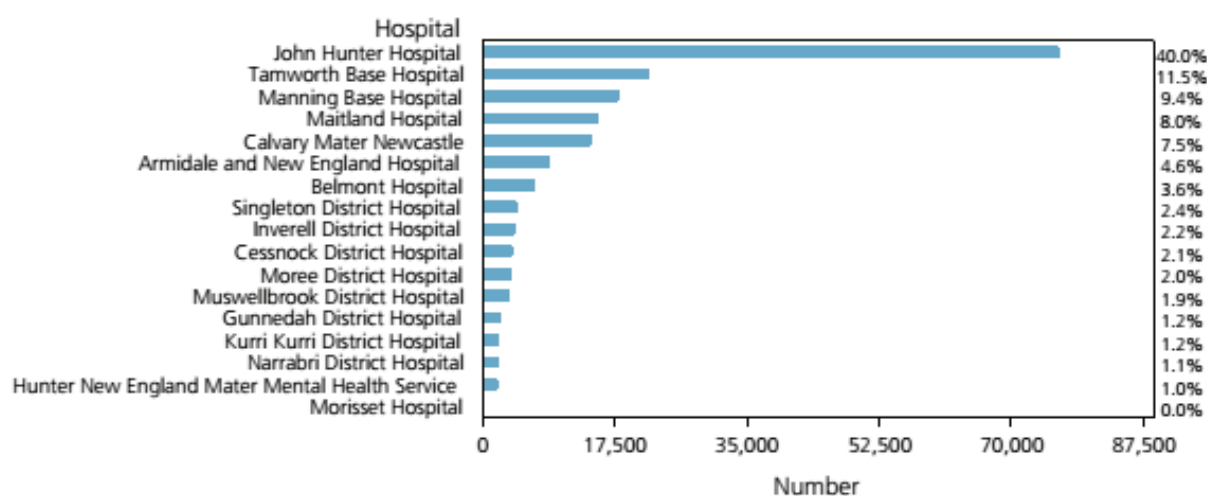
A review was undertaken of health data. Data available was only recently available for the Area Health Service (AHS) level for NSW Health. The AHS data covers the Hunter region and northern parts of NSW. As such, the data was considered irrelevant for the proposed development. The data is presented in Figure 6.9 and 6.10. The Australian Institute of Health and Welfare publishes information for states and territories. The My Hospital web site provides local hospital statistics but these are often related to the type of services provided.

John Hunter Hospital is a regional based hospital which services the Hunter through to the Queensland border. This is the main hospital for residents in Dungog. Some services are provided locally and in Maitland as well. Ambulance services are available in the area. GP services are addressed elsewhere in this assessment.

**Figure 6.9:** Hospitalisations, Hunter New England Area Health Service 2013-2014  
(Source: Health Statistics NSW)



**Figure 6.10:** Hospitalisations, Hunter Area Health Service 2010-11  
(Source: Health Statistics NSW)



Recent data collated for smaller hospitals in the Hunter New England Health District identified a small proportion of patients in Dungog compared to other hospitals, with the John Hunter hospital the main hospital for servicing Dungog (Figure 6.10).

**Figure 6.10:** Emergency Department Presentations 2013-2014  
(Source: PHN<sup>3</sup>)

Emergency Department Presentations 2013 - 2014					
Large Hospitals	Triage 1 Resus.	Triage 2 Emergency	Triage 3 Urgent	Triage 4 Semi-Urgent	Triage 5 Non-Urgent
Armidale & New England Hospital	30	910	3734	8345	1776
Belmont Hospital	30	1472	5789	13695	4474
Calvary Mater Newcastle	211	4233	7911	15268	5470
Cessnock District Hospital	26	1080	4024	8187	2982
Gosford Hospital	822	7248	22422	26015	2156
Gunnedah District Hospital	6	280	1508	5636	1360
Inverell District Hospital	18	802	2427	4655	3238
John Hunter Hospital	509	7048	20400	36587	7694
Kurri Kurri District Hospital	0	426	1444	4120	1112
Maitland Hospital	87	4257	9876	24115	6425
Manning Base Hospital	134	3723	7936	10192	4441
Moree District Hospital	23	449	1850	4346	397
Muswellbrook District Hospital	10	493	1790	3728	1159
Narrabri District Hospital	5	280	1538	2116	1288
Singleton District Hospital	8	652	2618	6452	1392
Tamworth Base Hospital	252	3982	9466	17951	7874
Wyang Hospital	271	5096	15695	30168	6234
Small Hospitals or MPS's	Triage 1 Resus.	Triage 2 Emergency	Triage 3 Urgent	Triage 4 Semi-Urgent	Triage 5 Non-Urgent
Barraba MPS	0	61	292	928	474
Bingara MPS	0	69	175	348	380
Boggabri MPS	0	18	134	260	269
Bulahdelah Hospital	0	59	96	218	4442
Denman MPS	0	27	68	131	429
Dungog Hospital	0	56	261	1214	1094
Glen Innes Hospital	22	164	762	2103	2370
Gloucester Hospital	0	152	460	1172	765
Guyra MPS	0	83	426	891	637
Manilla Hospital	11	159	553	1243	713
Merriwa MPS	0	24	111	242	421
Quirindi Hospital	0	142	541	1484	1350
Scone Hospital	13	298	1090	1867	1672
Tenterfield Hospital	0	190	483	573	523
Tingha MPS	0	0	0	21	333
Tomaree Hospital	13	733	2391	6312	1561
Vegetable Creek MPS	0	12	38	101	314
Walcha MPS	0	62	197	1263	463
Warialda MPS	0	25	162	350	832
Wee Waa Hospital	0	113	385	877	486
Werris Creek Hospital	0	0	8	25	170
Wilson Memorial Community Hospital (Murrurundi)	0	23	112	247	502

<sup>3</sup> Primary Health Network, Hunter New England and Central Coast

It is noted that the median age in Dungog is higher than the NSW average. This is also reflected in the Home and Community Care Services (HACC) being utilised in Dungog (Figure 6.11).

**Figure 6.11:** Home and Community Car Program 2012-2013, Hunter New England  
(Source: PHN)

Home and Community Care Program 2012-2013	Greatest Proportions	Lowest Proportions	NSW
Total Clients (ASR/1,000)	Gwydir (70.1) (522 clients) Gloucester (68.9) (574 clients)	Gosford (32.9) (7,672 clients) Tamworth Regional (33.9) (2,292 clients)	35.6
Clients Living Alone (%)	Armidale Dumaresq (50.2) (513 clients) Gunnedah (48.9) (274 clients)	Tenterfield (33.1) (178 clients) Greater Taree (35.9) (1,075 clients)	39.0
Clients with a Carer (%)	Dungog (81.7) (445 clients) Maitland (64.9) (1,915)	Walcha (3.9) (7 clients) Gunnedah (9.7) (54 clients)	20.7
Indigenous Clients (%)	Moree Plains (32.3) (210 clients) Tenterfield (22.2) (120 clients)	Upper Hunter Shire (1.8) (16 clients) Dungog (2.0) (11 clients) Gwydir (2.0) (10 clients)	3.8
Total Instances of Assistance (ASR/1,000)	Dungog (183.1) (1,829 instances) Gwydir (138.7) (1,042 instances)	Gosford (49.3) (11,701 instances) Wyong (56.4) (11,484 instances)	58.2

## 6.4 CRIME

The NSW Bureau of Crime Statistics and Research (BOCSAR) identifies that there has been little change in most crime rates in Dungog LGA between 2010 and 2014. Malicious damage to property, harassment, and stealing are the highest ranking categories. There are a number of offence categories that have no recorded incidents (Table 6.2).

A search of crime hotspot maps maintained by the BOCSAR, did not identify any 'hotspots' in the Dungog LGA, when compared to other LGAs.



**Table 6.2:** Crime Statistics, Dungog LGA, 2010-2014

(Source: NSW Bureau of Crime Statistics and Research)

<i>Offence type</i>	<i>Jan-Dec 2010</i>		<i>Jan-Dec 2014</i>	
	<i>Number of incidents</i>	<i>Rate per 100,000 population</i>	<i>Number of incidents</i>	<i>Rate per 100,000 population</i>
Murder	0	0.0	0	0.0
Assault - domestic violence related	12	141.9	22	247.6
Assault - non-domestic violence related	20	236.5	22	247.6
Sexual assault	9	106.4	9	101.3
Indecent assault, act of indecency and other sexual offences	6	70.9	7	78.8
Robbery	0	0.0	0	0.0
Break and enter dwelling	29	342.9	17	191.4
Break and enter non-dwelling	34	402.0	8	90.0
Motor vehicle theft	16	189.2	10	112.6
Steal from motor vehicle	32	378.4	18	202.6
Steal from retail store	4	47.3	6	67.5
Steal from dwelling	24	283.8	25	281.4
Steal from person	4	47.3	5	56.3
Fraud	10	118.2	20	225.1
Malicious damage to property	81	957.8	47	529.0
Other Homicide	0	0.0	0	0.0
Assault Police	0	0.0	1	11.3
Abduction and kidnapping/ Blackmail/Extortion	0	0.0	0	0.0
Harassment, threatening behaviour and private nuisance	26	307.4	45	506.5
Other offences against the person	0	0.0	1	11.3
Receiving or handling stolen goods	1	11.8	3	33.8
Stock theft	0	0.0	1	11.3
Other theft	36	425.7	20	225.1
Arson	17	201.0	19	213.9
Possession and/or use of cocaine, narcotics, ecstasy, other drug	0	0.0	0	0.0
Possession and/or use of cannabis	12	141.9	16	180.1
Possession and/or use of amphetamines	5	59.1	3	33.8
Dealing, trafficking in cocaine, narcotics, ecstasy, other drug	0	0.0	0	0.0
Dealing, trafficking in cannabis	0	0.0	3	33.8
Dealing, trafficking in amphetamines	2	23.6	0	0.0
Cultivating cannabis	4	47.3	4	45.0
Manufacture drug	1	11.8	0	0.0
Importing drugs	0	0.0	0	0.0
Other drug offences	1	11.8	2	22.5
Prohibited and regulated weapons offences	9	106.4	24	270.1
Trespass	6	70.9	13	146.3
Offensive conduct	0	0.0	4	45.0
Offensive language	2	23.6	4	45.0
Criminal intent	0	0.0	0	0.0
Betting and gaming offences	0	0.0	0	0.0



	<i>Jan-Dec 2010</i>		<i>Jan-Dec 2014</i>	
<i>Offence type</i>	<i>Number of incidents</i>	<i>Rate per 100,000 population</i>	<i>Number of incidents</i>	<i>Rate per 100,000 population</i>
Liquor offences	4	47.3	6	67.5
Pornography offences	0	0.0	3	33.8
Prostitution offences	0	0.0	0	0.0
Escape custody	0	0.0	0	0.0
Breach Apprehended Violence Order	9	106.4	13	146.3
Breach bail conditions	9	106.4	5	56.3
Fail to appear	0	0.0	0	0.0
Resist or hinder officer	2	23.6	2	22.5
Other offences against justice procedures	0	0.0	0	0.0
Transport regulatory offences	45	532.1	1	11.3
Other offences	5	59.1	11	123.8

## 6.5 SUMMARY

Overall, when compared to the rest of Dungog LGA and NSW, the following socio-demographics have been noted regarding Martins Creek:

- The ABS Index of Socio-Economic Disadvantage value for Martins Creek is lower than that of the Australian average, although other nearby areas are slightly higher (e.g. Paterson, Vacy).
- At the 2011 Census the population of Martins Creek was 341 persons with a median age of 40 years. The median age in Paterson (43 years) and Dungog LGA (44) is above the median age for NSW.
- Martins Creek has a significant proportion of persons aged 45-54 years and 15-24 years but compared to other areas in the LGA has a lower proportion of persons aged over 55 years.
- Martins Creek as with other areas in Dungog LGA has a high proportion of persons born in Australia, but a lower proportion of Indigenous persons compared to other areas in NSW.
- The make-up of households in Martins Creek varies compared to other areas in NSW with 36% being couples with dependents higher than the NSW average. Paterson is even higher at 40%.
- Median household income in Martins Creek is slightly higher (\$1,483) than for other areas in the LGA, including Paterson (\$1,309).
- There are a large proportion of detached houses in Martins Creek and other areas in Dungog LGA and the majority are being purchased or owner-occupied.

- At the 2011 Census, Martins Creek had a relatively low unemployment rate and a high labour force participation rate. Nearby Paterson had an extremely low unemployment rate at the 2011 Census.
- The largest proportion of workers in Martins Creek with a qualification is in the area of Engineering and Related Technologies, Health Care, Education, Retail and Construction.
- John Hunter Hospital provides higher order health care services in the Hunter Region including Dungog. Data collected at the LGA level for Dungog identifies a high utilisation of HACC services.
- There were no crime hotspots in Martins Creek compared to other areas in the LGA.

## **7. SOCIAL INFRASTRUCTURE**

Martins Creek is a small township in Dungog LGA which is predominantly serviced by the main centres of Dungog, Maitland and Raymond Terrace. Dungog is approximately 20 kilometres to the north-east, while central Maitland is approximately 20 kilometres to the south-west and Raymond Terrace is approximately 25 kilometres to the south-east. A list of relevant services is provided in Table 7.1.

### **7.1 RETAIL & BUSINESS DISTRICT**

The main business districts which are closest to Martins Creek are Dungog, Maitland and Raymond Terrace. Some retail services are available in the smaller townships of Paterson and Vacy.

Dungog township provides the majority of shopping services for the day-to-day needs of residents of Martins Creek. A supermarket is also located at Paterson.

The main business support centres near Martins Creek are Dungog, Maitland and Raymond Terrace, with major retail outlets located mainly at Maitland.

### **7.2 MEDICAL**

Dungog has a small hospital which is within the Hunter New England Health Service Area. The nearest major hospital is John Hunter Hospital in Newcastle.

A number of GP services are also located in Dungog, Clarence Town and Paterson, although none in Martins Creek itself.

There is an ambulance station in Dungog and also in nearby Stroud.

Overall, there are some local medical practitioner services in the Dungog LGA, however, specialist services are predominantly located outside the LGA, particularly in Newcastle, Lake Macquarie and Maitland.

The latest GP and other medical services collected by PHN is presented in Table 7.2.

### **7.3 RECREATION/OPEN SPACE**

The majority of the recreational facilities servicing the residents of Martins Creek are generally confined to Dungog or Maitland.

There are several recreational facilities in Dungog including swimming pool, bowling club, golf club and showground, and sporting fields. There are some facilities in nearby Paterson, and Clarence Town but most are located in Dungog or Maitland, which reflects the population size of Martins Creek.

Martins Creek does have a community hall as does nearby Paterson and Vacy. The majority of sporting fields are located in Dungog or Maitland.

**Table 7.1:** List of Selected Social and Recreational Infrastructure Servicing Martins Creek

Type Of Infrastructure	List of Relevant Services
Schools and Child Care	St Josephs Primary School
	Dungog High School
	Martins Creek Public School
	Paterson Pre School
	Vacy Public School
Emergency Services	Fire and Rescue NSW, Dungog
	NSW Ambulance Service, Dungog
	NSW Ambulance Service, Stroud
Medical and Health	Dungog Hospital
	Paterson Medical Centre
	Early Childhood Health Centre Gresford and Clarence Town
	2 GP Services, Dungog
Recreational	Clarence Town Sport and Recreational Club
	Dungog Bowling Club
	Gresford Bowls, Sport and Recreation Club
	Dungog Golf Club
	Paterson Golf Club
	Dungog Pool
Other	Martins Creek School of Arts Hall
	Paterson School of Arts Hall
	Vacy School of Arts Hall
	James Theatre Community Centre
	Dungog Library
	Dungog Showground

**Sources:** Yellow Pages, White Pages, Dungog Council web site, UBD, NSW Health

**Notes:** Excludes open space areas

**Table 7.2:** Health Workforce

(Source: PHN 2015)

LGA	Number of General Practices	Number of GPs	Number of Nurses in General Practice	Number of Dentists	Number of Pharmacies
Armidale Dumaresq	8	37	16	15	7
Cessnock	19	43	20	9	12
Dungog	2	4	3	0	3
Glen Innes Severn	5	9	5	3	2
Gloucester	1	7	6	3	1
Gosford	56	208	79	79	38
Great Lakes	14	41	17	7	11
Greater Taree	16	52	27	15	13
Gunnedah	3	8	4	3	2
Guyra	2	2	0	0	1
Gwydir	2	6	3	0	2
Inverell	6	15	10	7	3
Lake Macquarie	58	216	90	67	44
Liverpool Plains	6	5	0	0	2
Maitland	23	68	32	27	15
Moree Plains	5	14	5	0	4
Muswellbrook	4	16	7	3	4
Narrabri	5	11	3	0	3
Newcastle	55	222	80	69	41
Port Stephens	21	76	36	19	14
Singleton	10	24	9	0	4
Tamworth Regional	21	66	21	23	14
Tenterfield	4	4	3	3	1
Upper Hunter Shire	5	16	11	3	5
Uralla	2	3	0	0	1
Walcha	2	3	0	0	1
Wyong	50	144	44	44	38

## 7.4 EDUCATION

There is a public school at Martins Creek<sup>4</sup> as well as a nearby public school at Vacy. There is also a nearby pre-school at Paterson. Students of high school age attend Dungog High School. There was identified a non-government primary school at Dungog. Non- Government High Schools are located in the adjacent LGA of Maitland.

## 7.5 CHILDCARE

There appears to be limited child care facilities in the Dungog LGA. Paterson has a preschool facility while there is a child care centre and pre-school in Dungog. Other child care facilities are available in Maitland and Raymond Terrace.

## 7.6 PUBLIC TRANSPORT

There are local bus services for school students across Dungog LGA. Rail passenger services are available to Dungog from Newcastle, travelling through Maitland, Martins Creek to Dungog. There are between two and five services per day.

## 7.7 OPEN SPACE

There is a large amount of passive and active open space in the Dungog LGA and in the vicinity of Martins Creek. The Dungog Shire State of the Land Report (2009) identifies that

<sup>4</sup> The recent discussions about the closure of Martins Creek Public school are noted.

nearly one-quarter of the LGA is State Forest or National Park. Land managed by NPWS in the LAG is estimated at 37,000 hectares of land. The LGA has numerous parklands and active open space areas and Council's Section 94 contributions plan collects money for additional facilities as the population increases.



## **8. ECONOMIC CONSIDERATIONS**

### **8.1 ECONOMIC PROFILE OF DUNGOG**

As noted in Section 5 above the economic profile of Martins Creek and Dungog LGA includes:

#### **Household Income**

The proportion of households in Martins Creek on weekly incomes below \$600 is slightly less than for other areas in Dungog LGA and for NSW. Conversely, the proportion of households in Martins Creek, Paterson and Vacy with a weekly income of more than \$1,500 is significantly higher than for Dungog LGA as a whole and slightly higher than for NSW. The median weekly household income in Martins Creek is higher than for Paterson, Vacy, Dungog LGA and higher than the median across NSW.

#### **Mortgage Repayments**

For those persons purchasing a dwelling, the monthly mortgage repayments are varied, with a relatively high proportion (16%) paying less than \$600 per month, with a significant proportion (28%) also paying more than \$2,400 per month. Conversely, compared to other areas in Dungog LGA the proportion of households paying \$600 - \$999 per month is relatively low.

#### **Weekly Rent**

For those renters in Martins Creek the predominant weekly rent is less than \$275 per week. Some 63% of renters in Martins Creek spend between \$100 and \$274 per week on rent which is a significantly higher proportion than other areas in Dungog LGA.

#### **Labour Force**

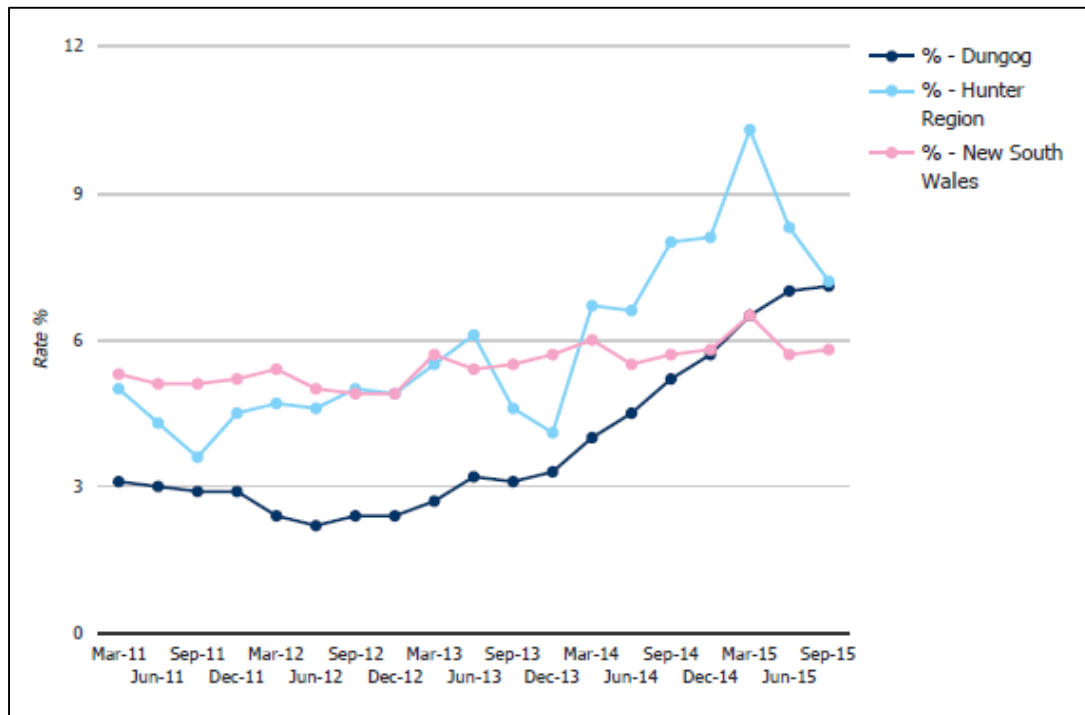
At the 2011 Census, Martins Creek had an unemployment rate of 4.4% which was similar to the unemployment rate across the LGA but less than the unemployment rate across NSW. Martins Creek did, however, have the highest labour force participation rate at the 2011 Census compared to other areas in the LGA and across NSW.

#### *Unemployment Rate*

More recent data from the Department of Employment and REMPlan identifies that over the period between 2011 and 2015 the unemployment rate in Dungog has increased significantly from 3.1% in March 2011 to 7.1% in September 2015. This increase is proportionally higher than for other areas (Figure 8.1).

**Figure 8.1:** Unemployment Rate in Dungog LGA

(Source: REMPlan)



### Qualifications

The proportion of persons in Martins Creek with a diploma/associate diploma (11%) is higher than for other areas in LGA, whereas, the proportion of persons with a university qualification (10%) is slightly less than the proportion across the LGA (11%). It is noted that approximately half of the residents in Martins Creek do not have a known qualification (this excludes children) which is similar to other areas in the LGA and for NSW as a whole.

### Field of Study

Of those persons with a qualification in Martins Creek the largest proportion of have a qualification in Engineering and Related Technologies, followed by Management and Commerce, and Education and Health. Compared to other areas in the LGA, Martins Creek has a lower proportion of persons qualified in Engineering and Related Technologies, Natural and Physical Sciences, Agriculture, Environment and Related Studies, and Management and Commerce. Conversely, Martins Creek has a higher proportion of qualified people in the fields of Education, Health, Society and Culture, Creative Arts, Food, Hospitality and Personal Services, compared to other areas in the LGA and when compared to NSW.

### Industry of Employment

The largest employers in Martins Creek are the Construction, Retail, Health Care and Social Assistance and Education and Training industries. These four industries provide approximately 46% of employment in Martins Creek. Compared to other localities in the LGA and for NSW the proportion of employed persons in these industries is relatively high. Conversely, there are lower proportions of persons employed in Professional, Scientific and Technical Services, Accommodation and Food Services and Information Media and Telecommunications compared to other areas in NSW.

## Occupation

In Martins Creek there is a higher proportion of persons who are Machinery Operators and Drivers, Labourers, Clerical and Administrative Workers and Community and Personal Service Workers compared to nearby localities. Conversely, there is a relatively lower proportion of Sales Workers in Martins Creek as well as Managers.

## Business Counts

The ABS identifies that between June 2012 and June 2015 that the number of businesses in Dungog has fallen by about 3% over this period. This compares with the ABS figures for the Hunter Region and NSW where the number of businesses has declined by 0.7% and 0.3% respectively. Care needs to be taken in interpreting ABS Business Counts as business can move between categories of staffing by hiring new employees or where ABN numbers might change. Nonetheless, the results tend to reinforce other evidence presented that businesses and therefore jobs have been under pressure in Dungog, and more so compared to other areas.

**Table 8.1:** Count of Businesses by Number of Staff

(Source: Australian Bureau of Statistics, Counts of Australian Businesses, including Entries and Exits, Cat. 8165.0)

Staff	June 2012			June 2015		
	Dungog LGA	Hunter	NSW	Dungog LGA	Hunter	NSW
Non Employing	680	25,182	420,132	646	25,066	414,163
1-4	220	13,318	208,015	220	13,226	212,027
5-19	85	5,243	64,180	79	5,107	63,846
20-199	3	1,240	15,431	9	1,212	15,825
200+	0	9	1,288	0	57	1,337
Total	988	44,992	709,046	954	44,668	707,198

## 8.2 ECONOMIC OUTPUT IN DUNGOG

The output generated by the Dungog economy is estimated at \$563 million. Dungog represents 0.6% of the \$88 billion in output generated in Hunter Region. Output data from REMPlan represents the gross revenue generated by businesses/organisations in each of the industry sectors in a defined region. Gross revenue is also referred to as total sales or total income.

The largest sector in relation to output in Dungog is Agriculture, Forestry and Fishing (\$93 million) while Arts & Recreation Services is the industry group with the smallest output (\$2 million).

**Table 8.2: Economic Output by Industry, Dungog LGA**

(Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.)

Industry	Output
<b>Total</b>	<b>\$563.038 M</b>
Agriculture, Forestry & Fishing	\$93.266 M
Rental, Hiring & Real Estate Services	\$78.601 M
Construction	\$64.781 M
Manufacturing	\$36.677 M
Electricity, Gas, Water & Waste Services	\$32.826 M
Professional, Scientific & Technical Services	\$28.895 M
Accommodation & Food Services	\$28.352 M
Public Administration & Safety	\$27.942 M
Transport, Postal & Warehousing	\$27.187 M
Education & Training	\$26.546 M
Retail Trade	\$26.200 M
Health Care & Social Assistance	\$19.189 M
Mining	\$19.012 M
Other Services	\$13.476 M
Wholesale Trade	\$12.602 M
Financial & Insurance Services	\$10.842 M
Administrative & Support Services	\$8.242 M
Information Media & Telecommunications	\$6.048 M
Arts & Recreation Services	\$2.354 M

## Wages and Salaries

The wages and salaries paid by businesses and organisations in Dungog is estimated at \$126.391 million. Dungog represents 0.64 % of the \$19.714 billion in wages & salaries paid by businesses and organisations in Hunter Region. Output data from REMPlan represents the value of entitlements earned by employees from their employers for services rendered, includes wages and salaries received by employees in cash and in kind (e.g. provision of food, accommodation or motor vehicles), and employers' social contributions such as superannuation contributions and workers' compensation premiums.

The largest sector in relation to wages and salaries in the Dungog economy is the Education & Training sector which contributes \$18 million while Arts & Recreation Services is the industry group with the smallest output (\$0.5 million).

**Table 8.3: Total Wages and Salaries Paid by Businesses in Dungog LGA by Industry**

Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

Industry	Output
<b>Total</b>	<b>\$126.391 M</b>
Education & Training	\$17.585 M
Health Care & Social Assistance	\$13.186 M
Public Administration & Safety	\$13.064 M
Construction	\$10.410 M
Retail Trade	\$10.031 M
Professional, Scientific & Technical Services	\$9.456 M
Agriculture, Forestry & Fishing	\$7.678 M
Transport, Postal & Warehousing	\$7.105 M
Accommodation & Food Services	\$6.862 M
Manufacturing	\$5.267 M
Other Services	\$4.666 M
Electricity, Gas, Water & Waste Services	\$4.275 M
Wholesale Trade	\$3.883 M
Administrative & Support Services	\$3.467 M
Mining	\$2.855 M
Financial & Insurance Services	\$2.644 M
Rental, Hiring & Real Estate Services	\$2.223 M
Information Media & Telecommunications	\$1.228 M
Arts & Recreation Services	\$0.507 M

### Value Added

The total value added by the Dungog economy is estimated at \$282 million. Dungog represents 0.7% of the \$39 billion value added in the Hunter Region. Value-Added data represents the marginal economic value that is added by each industry sector in a defined region. Value-Added can be calculated by subtracting local expenditure and expenditure on regional imports from the output generated by an industry sector, or alternatively, by adding the Wages & Salaries paid to local employees, the gross operating surplus and taxes on products and production. Value-Added by industry sector is the major element in the calculation of Gross Regional Product.

The largest output sector in Dungog is the Rental, Hiring and Real Estate Services which contribute \$57m to the Dungog economy while Art & Recreation contribute \$1m.

**Table 8.4:** Value Added in the Dungog Economy by Industry

Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

Industry	Output
<b>Total</b>	<b>\$281.593 M</b>
Rental, Hiring & Real Estate Services	\$56.581 M
Agriculture, Forestry & Fishing	\$42.520 M
Education & Training	\$20.045 M
Construction	\$19.820 M
Public Administration & Safety	\$15.568 M
Retail Trade	\$15.522 M
Health Care & Social Assistance	\$15.225 M
Professional, Scientific & Technical Services	\$14.373 M
Electricity, Gas, Water & Waste Services	\$13.394 M
Accommodation & Food Services	\$12.371 M
Transport, Postal & Warehousing	\$12.114 M
Mining	\$7.714 M
Manufacturing	\$7.690 M
Financial & Insurance Services	\$7.674 M
Other Services	\$6.837 M
Wholesale Trade	\$6.132 M
Administrative & Support Services	\$4.263 M
Information Media & Telecommunications	\$2.749 M
Arts & Recreation Services	\$1.000 M

## Regional Exports

The value of regional exports generated by the Dungog economy is estimated at approximately \$172million. Regional Exports data represents the value (\$) of goods and services exported outside of the defined region that have been generated by businesses / organisations in each of the industry sectors within the region. Another way of defining exports is as an inflow of money into the region, i.e. Motels have an inflow of money from people who live outside the region's boundaries thus they are earning export dollars. No distinction is made between domestic and international exports. For instance, so exports of goods and services from Dungog include sales to the rest of the Hunter Region.

The largest regional exports in Dungog are generated by the Agriculture, Forestry and Fishing sector (\$75million) while the Arts & Recreation sector generates the smallest regional export value of any industrial sector (\$0.1million).



**Table 8.5: Regional Output of Exports by Industry, Dungog LGA**

Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

Industry	Output
<b>Total</b>	<b>\$171.901 M</b>
Agriculture, Forestry & Fishing	\$75.017 M
Manufacturing	\$18.246 M
Mining	\$17.115 M
Transport, Postal & Warehousing	\$11.522 M
Accommodation & Food Services	\$11.522 M
Electricity, Gas, Water & Waste Services	\$10.356 M
Construction	\$4.777 M
Public Administration & Safety	\$3.669 M
Education & Training	\$3.410 M
Wholesale Trade	\$2.752 M
Other Services	\$2.668 M
Financial & Insurance Services	\$2.611 M
Information Media & Telecommunications	\$2.480 M
Professional, Scientific & Technical Services	\$1.660 M
Retail Trade	\$1.578 M
Rental, Hiring & Real Estate Services	\$1.549 M
Administrative & Support Services	\$0.668 M
Health Care & Social Assistance	\$0.182 M
Arts & Recreation Services	\$0.120 M

## Regional Imports

The value of intermediate goods and services imported into Dungog by local industry sectors is estimated at approximately \$138million. Regional Imports data represents the value (\$) of goods and services imported into the defined region by businesses / organisations in each of the industry sectors. Another way of defining imports is as an outflow of money from the region, i.e. a local business outsourcing accountancy services to a firm in another region which results in an outflow of money thus they are importing services. No distinction is made between domestic and international imports, and so imports into Dungog include goods and services sourced from the broader Hunter Region.

The largest regional importers of goods and services in Dungog is the Agriculture, Forestry and Fishing sector (\$25million) while the Arts & Recreation sector generates the smallest regional export value of any industrial sector (\$0.7million).

**Table 8.6: Regional Value of Imports by Industry, Dungog LGA**

Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

Industry	Output
<b>Total</b>	<b>\$137.884 M</b>
Agriculture, Forestry & Fishing	\$24.508 M
Manufacturing	\$21.546 M
Construction	\$17.543 M
Rental, Hiring & Real Estate Services	\$11.728 M
Accommodation & Food Services	\$11.074 M
Transport, Postal & Warehousing	\$7.012 M
Professional, Scientific & Technical Services	\$5.765 M
Mining	\$5.694 M
Public Administration & Safety	\$5.078 M
Retail Trade	\$4.630 M
Electricity, Gas, Water & Waste Services	\$4.521 M
Other Services	\$4.134 M
Wholesale Trade	\$3.334 M
Education & Training	\$3.068 M
Information Media & Telecommunications	\$2.287 M
Health Care & Social Assistance	\$2.058 M
Administrative & Support Services	\$1.704 M
Financial & Insurance Services	\$1.546 M
Arts & Recreation Services	\$0.654 M

Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

### Gross Regional Product (GRP)

Dungog's Gross Regional Product is estimated at approximately \$317million. Dungog represents 0.8 % of Hunter Region's GRP of \$42 billion. GRP is the net measure of wealth generated by the region. GRP can be measured by using the incomes approach, where all incomes earned by individuals (wages and salaries), firms (gross operating surplus) and governments (taxes on products or services) are added. Alternatively an expenditure approach can be taken where all forms of final expenditure, including consumption by households, consumption by governments, additions or increases to assets (minus disposals) and exports (minus imports), are added. The expenditure approach does not include intermediate expenditure, as this would lead to double counting, e.g. the wheat and flour in a loaf of bread. These methodological approaches are the same as those used to calculate Gross State Product (GSP) at a state level and Gross Domestic Product (GDP) at a national level. The per capita GRP in Dungog is \$38,113 while the per worker GRP is \$154,929.

**Table 8.7: Gross Regional Product, Dungog LGA**

Source: REMPlan Australian Bureau of Statistics' (ABS) June 2014 Gross State Product, 2012 / 2013 National Input Output Tables and 2011 Census Place of Work Employment Data.

GRP Expenditure Method	
Household Consumption	\$397.064 M
Government Consumption	\$97.954 M
Private Gross Fixed Capital Expenditure	\$129.607 M
Public Gross Fixed Capital Expenditure	\$27.792 M
<b>Gross Regional Expenses</b>	<b>\$652.417 M</b>
plus Regional Exports	\$173.537 M
minus Domestic Imports	-\$488.642 M
minus Overseas Imports	-\$20.326 M
<b>GRP</b>	<b>\$316.985 M</b>
Per Capita GRP	\$38,113
Per Worker GRP	\$154,929

### 8.3 EXTRACTIVE INDUSTRIES: A BACKGROUND

Cement Concrete and Aggregates Australia (CCAA)<sup>5</sup> notes that heavy construction materials make up approximately 30% of the costs of residential and infrastructure construction. These materials are a significant contributor to the overall costs of construction, and on delivering infrastructure and construction projects. For example, CCAA states:

- A kilometre of highway requires 25,000 tonnes of aggregates.
- A kilometre of suburban roads requires 5,000 tonnes of aggregates.
- A kilometre of railway requires 2,000 tonnes of aggregates.
- A high-rise building can use 1,000 plus tonnes of aggregates per floor.
- Construction of a typical house, including driveway and landscaping, uses approximately 100 tonnes of aggregates.

The CCAA also notes that forecasts made in 2012 for 2015/16 estimate NSW will consume round an additional 1,000,000 m<sup>3</sup> of just pre-mixed concrete than currently demanded based on forecast population and economic growth the Sydney Metropolitan Strategy and Lower Hunter Regional Strategy.

The Lower Hunter Regional Strategy aims to provide for up to an additional 115,000 new dwellings ensuring that housing can accommodate the projected 160,000 additional people that is forecasted to populate the Region over the period. This number has been revised down to approximately 60,000 dwellings in the Draft Hunter Regional Plan of 2015.

To meet these targets an ongoing supply of construction materials is required. The CCAA identifies to be cost-efficient and generally economically viable, quarries and their major consumers must be relatively close to markets with good transport links to enable conveyance of the high volumes of materials. There is obviously a balancing act between land use conflicts and closeness to market. Planned growth in urban and employment centres around NSW, including the Hunter, will require a reliable supply of aggregate material.

In 2011, the Government established the Hunter Infrastructure and Investment Fund (HIIF) to promote economic growth and enhance the liveability of the Hunter region. The Government initially committed \$350 million to the HIIF over four years. Of this amount \$332 million has now been allocated to projects, including \$60 million towards the revitalisation of the Newcastle CBD. The NSW State Government has committed \$60 billion to rebuilding state infrastructure in the 2014-2015 budget. The budget has an allowance of \$43 million allocated to road infrastructure upgrades in the Hunter Region.

This forecasted growth within the Hunter, and government commitment to upgrading infrastructure, will increase market need for hard rock quarry products in the region such as Martins Creek, to service the demand for building and construction materials. Whilst Martins Creek Quarry is critical to the ongoing development and growth of the Hunter area, it is anticipated that it will have a significant place in the state market due to the potential utilisation of the rail siding and limited hard rock quarries in NSW locations that are forecast to have major road and rail infrastructure upgrades completed. In particular it is anticipated that the Pacific Highway Upgrade in Northern NSW will require quarry materials in excess of volume and quality available locally to meet project demands.

NSW Trade and Investment estimate based on extractive returns for NSW that Hunter quarry operations extracted approximately 3.8Mt of which Martins Creek Quarry supplied

<sup>5</sup> Cement Concrete and Aggregates Australia (CCAA) *Submission to the WHITE PAPER: A NEW PLANNING SYSTEM FOR NSW*, 2013.

approximately 30%. Of the 3.8Mt in the Hunter region approximately 2.1Mt is considered material of competing strength and quality suitable for use in high strength applications as Martins Creek materials are used. Based on the data, Martins Creek contributes approximately 55% of the total volume of high quality materials to the local area.

There is a dearth of research on the economic impacts of quarries in NSW, however, several studies in other states provide evidence of a large employment base and financial contributions to state revenue. Access Economics<sup>6</sup> notes that in 2003-04 Victorian quarries:

- Produced 38.8 million tonnes of stone;
- Total sales of \$450 million;
- Employed 2,218 full time equivalent staff;
- Contributed 42% of total mining value in Victoria;
- Contributed around \$450 million to Gross State Product.

The proposed Gold Coast Quarry<sup>7</sup> is anticipated to generate significant employment and economic benefit for the wider Gold Coast region during both development/construction and operation. It is estimated that the total cost of the proposed quarry would be in the order of \$140 to \$160 million. The indirect flow-on or multiplier effects of the development and construction phase to the Gold Coast region and Queensland economy are projected to be in the order of \$142 million and \$156 million, respectively. The quarry is estimated to generate 246 full-time equivalent (FTE) position years during development and construction, with flow-on benefits of approximately 480 and 490 FTE positions.

Upon completion the proposed Gold Coast Quarry would maintain employment for up to 24 FTE positions, including the relocation of some staff from the existing West Burleigh Quarry operations. The flow-on benefits of this employment would support about 62 FTE positions in Queensland, with 62 FTE positions generated in the Gold Coast.

The operating revenue of the proposed Gold Coast Quarry is projected to be in the order of \$45M upon completion. The flow-on or multiplier effects to the Queensland economy are estimated to be in the order of \$43.5M, with \$40.3M generated within the local Gold Coast economy.

A review of recent projects in NSW has identified the following economic activity from the projects (Table 8.8).

The last column in the table identifies whether a separate social and/or economic report was prepared for the EIS or whether the EIS itself included some commentary around the social and economic impacts of the proposals.

<sup>6</sup> Access Economics (2006) *Economic Contribution of the Extractive Industries in Victoria*.

<sup>7</sup> Norling Consulting (2013) *Economic Impact Assessment: Proposed Gold Coast Quarry*.

**Table 8.8:** Overview of Economic Activity for Recent Quarry Approvals, NSW

	Output	Direct Employment	Indirect Employment	Extension/Increase Period of Operation	Economic Contribution	Separate Social and/or Economic Assessment Report
Austen Quarry, extension	1.1million tonnes per annum	Increase of 4 staff	Increase of 6 FTEs	30 years	Est \$5million per annum	No (commentary in EIS)
Gunlake Quarry, Marulan	500,000 tonnes per annum	20 plus 10 in construction	25	30 years	-	No (commentary in EIS)
East Guyong Quarry	400,000 tonnes per annum	20	15 subcontractors plus multiplier effects	Minimum of 25 years, preferable 50 years	Approx \$1million	No (commentary in EIS)
Tevan Quarry, extension	500,000 tonnes per annum	Increase of 3 staff	-	30 years	Direct \$2million plus ongoing of \$3.2million per annum	No (commentary in EIS)
Tinda Creek Quarry, extension	300,000 tonnes per annum	Increase of 2 staff	At least 10 additional truck drivers	30 years	\$9-\$10 million over 25-30 years	No (commentary in EIS)
Slys Quarry	500,000 tonnes per annum	12 FTEs at maximum extraction	-	30 years	-	No (commentary in EIS)
Calga Quarry extension	1,000,000 tonnes per annum	Increase of 8-19 staff	-	30 years	-	No (commentary in EIS)
Champions Quarry expansion	250,000 tonnes per annum	Increase of 8 staff to 10	-	25 years	-	No (commentary in EIS)
Dolwendee Quarry	250,000 tonnes per annum	3-5 staff plus construction	-	21 years	-	No (commentary in EIS)
Cabbage Tree Road	Up to 600,000 tonnes per annum (average 300,000)	6 plus 10-12 contract drivers	-	15 years	-	Separate SIA with some economic analysis
Coraki Quarry	Up to 1,000,000 tonnes per annum	8-10 jobs	-	7 years	Approx. \$1.9 million per annum	No (commentary in EIS)
Gunlake Quarry Extension	Allow up to 2,000,000 tonnes per annum	7 plus 20 truck drivers	33 jobs	No increase in period of operation, already approved until 2038.	\$68M with flow on effects	Economic Impact Assessment, Social commentary in EIS

## **8.4 THE NEED FOR ADDITIONAL EXTRACTIVE RESOURCE**

The Sydney Metropolitan Strategy and Hunter Regional Strategy has identified that up until 2031 these two areas will house some additional 1.7 million people. Add to this the potential growth on the Mid North Coast then NSW could potentially see an increase in these three regions of up to 1.8 million people. The infrastructure that needs to support this growth is significant. Coupled with the proposed sale of the 'poles and wires' in NSW and the follow on investment in infrastructure projects in NSW, the need for ongoing extractive resources will be significant. If proposed Federal works such as Sydney's Second Airport and transport linkages, and the Inland Rail Project proceed over the next few years, a large amount of construction materials and resources (e.g. gravel, cement, etc) will be required. For example, the inland rail project is estimated to include approximately 600 kilometres of additional rail track. Other significant construction projects that are in the planning face also include the M12 motorway in Sydney, as well as the final stages of the Pacific Highway upgrade between Newcastle and the QLD border.

It is identified that all levels of government have policies/strategies and funding with a focus on construction of new infrastructure and maintaining and upgrading existing infrastructure, including the:

- National Remote and Regional Transport Strategy (Draft 2015)
- National Land Freight Strategy (2012)
- Australian Infrastructure Plan (2016)
- NSW 2021 Plan
- NSW State Infrastructure Strategy (2014)
- NSW Freight and Ports Strategy (2013)

There are also a number of local strategies and Council operational plans which envisage the construction of new and upgraded infrastructure.

## **8.5 MARTINS CREEK QUARRY**

Martins Creek Quarry is an important extractive resource in the Hunter region and based on major construction projects in the pipeline will have a significant place in the State market. In addition to major projects such as the Pacific Highway construction works and the proposed inland rail, the NSW State infrastructure program has a particular focus on transport projects designed to reduce Sydney's road congestion.

One of the key aspects of the Martins Creek Quarry is the rail infrastructure already in place. It should be noted that this does not necessarily mean that all extracted material can be transported by rail, however, the rail has been utilised in the past in emergency situations by ARTC where quarry product is needed in emergency situations. Due to constraints with unloading materials from trains and rail access being unavailable at most sites, this method of delivering quarry materials will continue to be limited. This mechanism will require ongoing development to ensure Buttai Gravel optimises this option where possible.

The quarry has a regional impact with the following LGAs the largest markets for the sale of product:

- Newcastle City Council (40%)
- Maitland City Council (13%)
- Port Stephens Council (18%)
- Lake Macquarie Council (16%)



Hard rock extractive resources are limited in NSW, particularly those that are suitable for high strength concrete and asphalt applications. This situation is no different in the Hunter Region. The Lower Hunter Region is supplied by five hard rock quarries considered to have the capacity to service the demand placed by the construction industry with high strength aggregates for the production of concrete/asphalt and high quality base and subbase materials for RMS applications. These being:

- Daracon/Buttai Gravel, Martins Creek;
- Boral Quarry, Seaham;
- Hanson Quarry, Brandy Hill;
- Hunter Quarry, Karuah;
- Quarry Products Newcastle, Allandale.

Whilst Martins Creek Quarry primarily produces aggregates, it also focuses on the design and manufacture of high quality road pavement materials, in particular Stabilbase (RMS Dense Graded Base) and Stabilstone (RMS Heavily Bound Base). For the past 15 years (approximately) Stabilstone has been one of only two products that met RMS heavily bound specification RN73, Heavily Bound Base is critical to road infrastructure for state and local government roads subjected to increased traffic volume and heavy loading

## **8.6 ECONOMIC BENEFITS AND FLOW ON EFFECTS**

### **Input-Output Analyses**

This economic assessment has utilised input-output (I-O) analyses as prepared by the Australian Bureau of Statistics (ABS). Care needs to be taken when interpreting the I-O output. I-O models are commonly used to assess economic impacts, as these models capture the transactions that link industry sectors in a simplified form. I-O models do have several limitations and assumptions, in particular the data is collected for Australia as a whole. In addition, I-O models assume that industry dynamics are static, when in reality an economy will evolve over time.

Although multipliers that are used to estimate flow-on effects and are developed from a robust methodology, they should be viewed as having a theoretical element. They are estimates and the economy is often more complex. In particular, for most development projects limited information is available on all expenditures associated with the project and the destination location of those expenditures. The analysis also assumes that no imports will be sourced from overseas (the Direct Allocation of Imports Method).

Nonetheless, the results produced using multipliers generated by I-O models will provide reliable information under current conditions and interactions.

### **Terminology**

There are a number of different terms that are used to identify the economic impact of a project (ABS 1995<sup>8</sup>).

<sup>8</sup> Australian Bureau of Statistics (1995) *Information Paper Australian National Accounts, Introduction to Input-Output Multipliers*, Cat No. 5246.0.

Input-output **multipliers** are summary measures used for predicting the total impact on all industries in an economy of changes in the demand for the output of any one industry.

**Output multipliers** are defined as the total value of production by all industries of the economy required to satisfy one extra dollar's worth of final demand for that industry's output.

The initial requirement for an extra dollar's worth of output of a given industry is called the **initial output effect**. By definition it is equal to one in total for all industries since an additional dollar's worth of output from any industry will require the initial one dollar's worth of output from that industry plus any induced extra output.

The **first round effect** is the amount of output required from all industries of the economy to produce the initial output effect. For example, the output of the construction industry is increased by one dollar, then inputs from other industries such as manufacturing and mining will be required as well as inputs from the construction industry itself.

Similarly, the extra output from manufacturing and mining industries from creating extra output from a one dollar increase in the construction industry will **induce extra output (production induced effects)** from all other industries of the economy and, in turn, these will induce extra output, and so on.

The combined results of the initial effect plus all of the production induced rounds of extra output are called the **simple multipliers**.

For example, the **initial effects** of one dollar of additional output in the mining industry will create the need for the economy's output to increase in order to provide inputs into the mining industry (**first round effects**). The economy's output will also need to increase to provide inputs to the suppliers of the mining industry (**industrial support effect**). The combined result of the first round effects and industrial support effect is referred to as the **production induced effect**.

The household sector receives wages and salaries for work done in the production process and spends some or all of this on goods and services. This expenditure can be regarded as generating the production of goods and services by the industries of the economy. This induced production of extra goods and services is referred to as **consumption induced effects**.

A new set of multipliers can be calculated taking into account the initial effects, the production induced effects and the consumption induced effects. These are called the **total multipliers**.

**Employment multipliers** are calculated by dividing the number of employed persons in a given industry by the level of production generated by that industry.

Sometimes other types of output multipliers may be identified using the terminology **Type 1A, Type 1B, Type 2A and Type 2B**. These output multipliers include:

- Type 1A – Equals the Initial Output Effect + First Round Effect
- Type 1B – Equals the Initial Output Effect + Production Induced Effect
- Type 2A – Equals the Total Multiplier
- Type 2B – Equals the Production Induced Effect + Consumption Induced Effect

## Multipliers and Quarries

There is limited research in relation to the multiplier or flow on effects of the quarry industry. Multipliers for quarries tend to overlap between the mining and construction industries when it comes to the broader impacts of quarry investment and employment. Mining impacts and flow on effects in the coal mining and iron ore industries are more commonly researched in Australia, however, other extractive industries (e.g. sand, hard rock quarries) have been less researched.

As noted above, for the Gold Coast the proposed quarry would be in the order of \$140 to \$160 million. The indirect flow-on or multiplier effects construction phase to the Gold Coast region and Queensland economy are projected to be in the order of \$142 million and \$156 million, respectively. The quarry is estimated to generate 246 full-time equivalent (FTE) position years during development and construction, with flow-on benefits of approximately 480 and 490 FTE positions.

Upon completion the proposed Gold Coast Quarry would maintain employment for up to 24 FTE positions. The flow-on benefits of this employment would support about 62 FTE positions in Queensland, with 62 FTE positions generated in the Gold Coast. The operating revenue of the proposed Gold Coast Quarry is projected to be in the order of \$45M upon completion. The flow-on or multiplier effects to the Queensland economy are estimated to be in the order of \$43.5M, with \$40.3M generated within the local Gold Coast economy.

Valadkhani (2005)<sup>9</sup> identified that in 1997 the Type I employment multiplier for Mining and Quarrying was 3.06. This means that for every job created in this industry and extra 3.06 jobs would be created in the broader economy. For quarrying activities itself this number is likely to be somewhere between 2 and 3 based on other evidence.

More recently, Gillespie Economics<sup>10</sup> prepared an economic impact assessment of a proposed extension to the Gunlake Quarry in NSW. This study identified a Type 2A multiplier of 2.22 for employment and 3.36 for income, on the incremental impact of the project.

## Construction Impacts

Part of the proposed works will include construction works (e.g. roads). The multiplier effects of construction activity are more defined than that for quarries. The table below presents the multiplier effects in construction as identified by various sources.

NSW Treasury (2009)<sup>11</sup> identifies the following employment multipliers (full time equivalents) for construction per \$1 million.

ABS Industry Sector	Initial Effect (1)	Production Induced Effect (2)	Simple Employment Multiplier (1+2)	Consumption Induced Effect
Construction Trade Services	7.2	11.8	18.9	5.4
Residential Building	2.2	1.8	4.0	1.0
Other Construction	2.1	3.0	5.0	1.5

<sup>9</sup> Valadkhani, A. (2005) A Cross-Country Analysis of High Employment Generating Industries, University of Wollongong.

<sup>10</sup> Gillespie Economics (2016) Gunlake Quarry Extension Project Economic Assessment

<sup>11</sup> NSW Treasury (2009) Employment Support Estimates – Methodological Framework, trp 09-3. Multipliers based on ABS 2004-05 Input-Output Tables.

NSW Treasury (2009)<sup>12</sup> also identifies a broader range of employment multipliers (full time equivalents) for other industries per \$1 million of output/construction as presented below.

ABS Industry Sector	Initial Effect	First Round Effect
Infrastructure and Construction	6	4
Mining	2	1
Transport and Logistics	5	5

The ABS<sup>13</sup> has a slightly different set of multipliers at the national level for construction industry multipliers per \$1 million of output as presented below.

	Initial Effect (1)	First Round Effect (2)	Industrial Support Effects (3)	Production Induced Effects (2+3)	Consumption Induced Effects (5)	Total Multiplier
Output (\$m)	1	0.466	0.438	0.904	0.962	2.866
Employment (No.)	9	3	4	7	21	37

More recent construction multipliers from the ABS<sup>14</sup> has identified similar results for output related effects but different employment multipliers, as identified below.

	Initial Effect (1)	First Round Effect (2)	Industrial Support Effects (3)	Production Induced Effects (2+3)	Consumption Induced Effects (5)	Total Multiplier
Output (\$m)	1	0.456	0.425	0.881	0.915	2.796
Employment (No.)	6	3	2	5	6	17

## Housing

Consideration was afforded to the impact this proposal will have on the small housing market in Martins Creek. The number of FTE jobs predicted once the quarry is at full operation (see below) will be minor. In addition, it is not expected that any construction workers will be required to be sourced from outside the Hunter Region. That is, all the proposed construction workers will be utilised from the local labour market. As such, it is considered that there will be no impacts on the housing market in the area. Should, in the event, a minor number of workers be required (or relocate) from outside the region there is sufficient accommodation in the nearby centres of Dungog, Maitland and Raymond Terrace.

## 8.7 ECONOMIC ASSESSMENT OF THE PROPOSED DEVELOPMENT

### Capital Investment Value and Output

The capital investment value (CIV) of the proposed project is estimated at \$4.26 million. It is noted that this CIV is significantly from construction work.

It is estimated that if approved the output of the quarry in terms of ongoing salaries and the purchase of goods and services will be approximately \$20 million per annum based on current output.

<sup>12</sup> NSW Treasury (2009) Guidelines for Estimating Employment Supported by Actions, Programs and Policies of the NSW Government, trp 09-7. Multipliers based on ABS 2004-05 Input-Output Tables.

<sup>13</sup> ABS (2002) The Construction Industry's Linkages with the Economy. I-O tables 1996-97.

<sup>14</sup> Parsons Brinckerhoff (2005) Economic Impact Assessment Newcastle Airport Limited. I-O tables 1996-97 and 1998-99.

## Input Output Analysis

The analysis below uses information derived from the input output methodology. This has been provided as a basis to assess the economic impact of the proposed works. However, it is important to note that consultations have occurred with Buttai Gravel to gather on-ground information about employment patterns as a means of providing more rigour around the potential job creation of the project.

It should also be noted that other previous studies have been utilised in this assessment are included for comparative purposes. Some of these have been conducted in other states and regional areas and therefore are included for comparative purpose and guidance only.

## Employer Consultation

The economic assessment presented above provides an indicative assessment of the proposed economic impacts of the development based on previous research and economic multipliers. However, consultations were also undertaken with the quarry operator to perform an on-ground quality check of likely employment outcomes.

At current extraction levels it is estimated that Martins Creek contributes 24 full time equivalent jobs. Based on the potential extractive resource (1.5 million tonnes per annum) at full capacity it is expected that the additional number of jobs will be in the order of 16 positions. This is for the quarry operations itself. Additional contractor positions are also considered below.

**Table 8.9:** Potential Job Creation from the Proposed Works

Standard Quarry Operations		Clearing and Stripping	
Stages	Jobs Created	Duration (weeks)	Jobs Created
1 (0-2 years)	27	nil	nil
2 (up to year 5)	35	17	4
3 (year 5-10)	36	10	4
4 (year 10-15)	36	4	4
5 (year 15-20)	36	2	4
6 (year 20-25)	36	nil	nil
7 (year 25-30)	36	nil	nil

## Indirect Employment

Based on a typical lorry completing 3-4 loads per day, the current operations currently provide, on average, for 27-36 drivers per day. Based on the potential increase in tonnage to be extracted it is anticipated that the number of drivers (at full extraction capacity) would be between 42-56 drivers per day. It is anticipated that should there be an increase in product distribution from the rail siding this would add three full time equivalent positions.

At each stage of the proposed works additional materials and consumables will be required, including replacement parts for crushers and mobile plant, PPE gear, electrical parts for plant, small tools, conveyor belts, rollers and frames, materials for plant and vehicles (e.g. diesel fuel) etc. These will be sourced from external suppliers. Buttai Gravel also source external professional services such as geotechnical consultants and environmental services.

As the quarry owner has access to the Daracon Group of services, consultation with the owner around construction services was also conducted. These discussions identified the following potential construction employment.

Overall, it is considered that at full capacity the proposed works will create an estimated 16 ongoing positions, with the potential for an additional 15-20 drivers. During the quarry construction and decommissioning period it is anticipated that this total process will create approximately 155 jobs.

**Table 8.10:** Potential Construction Phase Employment

Stage	Description	Estimated Project Duration (Weeks)	Jobs Created
1 (0-2 years)	Quarry access road/ intersection/bridge/upgrades to intersections on haulage routes	17	24
	Potential relocation of weighbridge, offices, wheelwash	4	13
	Sound attenuation tertiary crusher building, screen 2 and 3	5	13
2 (up to year 5)	Rail siding barrier (potential)	12	11
	Sound attenuation primary crusher building, secondary crusher building, and potential rail loading discharge hopper	8	15
	Sound barriers on haul roads	6	11
	8m sound wall processing area	6	11
3 (year 5-10)	Potential rail siding extension and bridge over rail	10	29
4 - 5 (year 10-20)	nil	nil	nil
6 (year 20-25)	Decommission crushing and processing plant	16	16
7 (year 25-30)	Decommissioning all infrastructure	10	12
<b>TOTAL</b>			<b>155</b>

### Potential Economic Impacts

This section outlines the potential economic impacts of the proposed works based on the employment and CIV prepared by Buttai Gravel. It is noted that there is a variety of employment and income multipliers identified in the research above, and this report takes a conservative approach to estimating the flow on effects of the project. The analysis below has been provided for assessing potential flow on effects in the economy. The anticipated number of construction and operational jobs is presented above along with the proposed CIV. The analysis below is taken from a number of research and economic assessments and provides an analysis to the economic impact of the proposed works.



**Table 8.11:** Analysis of Economic Impacts

OUTPUT					
		Value of Works (Construction)	Production Induced Effect	Consumption Induced Effect	Total Effect
ABS	Output (\$m)	4.26	3.75	3.90	11.91
EMPLOYMENT					
		Additional Direct Jobs (Operational Only)	Multiplier	Total Effect (Operational)	Estimate Total Effect (Construction n=155)
ABS	\$m	4.26	17	72	NA
GRP					
	GRP Per Worker	Additional Number of Jobs (Operational)	Total GRP (Operational)	Total GRP Estimate (Construction n=155)	
Dungog LGA	\$154,929	31-36	\$4.8m	\$24m	

**Notes:**

- Figures rounded to one decimal place

Based on the analysis above the number of jobs directed created by the project works will be 31-36 during the operation of the quarry at full capacity with approximately another 155 jobs during construction and decommissioning. We note that the quarry owners are part of the broader Daracon Group and the number of additional jobs created during construction may be less, however, this is dependent on the state of the construction market at that time. Nonetheless, the project will continue to create jobs for these workers. The flow on effects of the operational jobs are likely to have a total effect in the order of around 70 jobs in the economy. It is expected that given the suppliers and contractors currently used on the site are predominantly local (i.e. Hunter Region) that the flow on effects will generally be contained in the region.

It is estimated that road/construction works associated with the project will be approximately \$4.26 million. With flow on effects this is estimated at an impact of \$11.9 million in the broader economy. Based on current costs for salaries, goods and services, it is expected that the quarry will contribute approximately \$20 million per annum, in addition to the proposed infrastructure works. Based on the gross regional product (GRP) per worker in Dungog LGA it is expected that the additional jobs will add \$4.8 million to the GRP of Dungog LGA (based on current figures).

It is noted that the ABS figure above are based on the national accounts and as such some comparative figures of more regional based studies is presented below. These figures should be used as a guide only. It is anticipated that the number of jobs created locally will be around 70 as noted above due to the regional downstream suppliers and upstream market of the quarry. Should Buttai Gravel increase its market share in NSW (e.g. Sydney market) in the future it is expected this would add additional flow on effects in this regions rather relocate jobs from the region.

In regards to the flow on effects of the proposed works (\$4.26m) the quarry will contribute approx. \$12m to the broader economy. It is difficult to estimate the local nature of this contribution. It is expected that \$4.8m will be added to the gross regional product of Dungog LGA through the increase in workers, however, much of the flow-on effects will likely be more Hunter region based rather than the specific LGA, but there will be some local suppliers and retailers that will benefit from the increased number of jobs/workers in the area. As noted part of the issue of the flow-on effects in the economy is also the way that Buttai Gravel engages workers which is an output basis, similar to most other quarries.

**Table 8.12:** Comparative Analysis of Economic Impacts

OUTPUT					
		Value of Works (Construction)	Production Induced Effect	Consumption Induced Effect	Total Effect
ABS	Output (\$m)	4.26	3.75	3.90	11.91
Gillespie (2016)	Output (\$m)	4.26	1.83	0.34	6.43
Gillespie (2013)	Output (\$m)	4.26	2.04	1.15	7.46
EPS (2014)	Output (\$m)	4.26	-	-	12.2
EMPLOYMENT					
		Direct Jobs (Operational Only)	Multiplier	Total Effect (Operational)	Estimate Total Effect (Construction n=155)
ABS	\$m	4.26	17	72	NA
Gillespie (2016)	Additional Jobs	31-36	2.22	68 - 79	344
Gold Coast Quarry	Additional Jobs	31-36	2.58	79 - 92	399
Valadkhani (2005)	Additional Jobs	31-36	3.06	94 - 110	474
Gillespie (2013)	Additional Jobs	31-36	2.87	88 - 103	444
AIGIS (2106)	Additional Jobs	31-36	2.72	84 - 97	421

**Notes:**

2. Figures rounded to one decimal place
3. Gillespie (2016) incremental regional economy impacts.
4. Some studies are based on different geographical output models (e.g. state, regional).
5. Gillespie (2013) Chain Valley Bay Lake Macquarie/Wyong data used for Hunter Region comparative perspective.
6. AIGIS (2016) Mandalong South Transmission Line Project Lake Macquarie used for Hunter Region comparative perspective.
7. Value of Works (Construction) includes works associated with the current project.
8. EPS (2014) Economic Benefit Assessment AGL Gas Storage Facility.

## **9. OTHER SOCIAL AND ECONOMIC CONSIDERATIONS**

Based on the findings in previous sections of this report, this section provides an assessment of the social and economic impact of the proposed development.

### **9.1 PROJECTED POPULATION**

The number of extra jobs potentially created as part of this project can increase the population in the local area. It is not expected that the increased number of jobs will create any issues within the local area housing market due to the availability of housing in nearby centres. This includes other town ships in Dungog LGA but also the broader Lower Hunter Region.

### **9.2 SOCIAL INFRASTRUCTURE**

The proposal will provide a positive economic impact in the local area and broader region. This will have some advantages social benefits by maintaining employment in Martins Creek and Dungog generally and flow on effects in the economy including the ongoing purchased of goods and services in the region. The increase in jobs will not significantly impact on the provision of social and recreational infrastructure in the area and thus no additional social infrastructure required.

### **9.3 AIR QUALITY AND NOISE**

Air quality and noise addressed as part of wider EIS. These reports also contain management and mitigation measures as part of the assessments to minimise impacts.

### **9.4 TRAFFIC**

According to the traffic impact assessment the proposed works include the utilisation of traffic routes which will provide some benefit to the local Martins Creek community. The traffic impact assessment presented elsewhere also identifies if any additional infrastructure upgrades are required for the proposed works. It is identified that there is limited heavy vehicle haul routes in the area, heading towards the main centres of Maitland and Newcastle, which still traverse smaller townships such as Paterson. Martins Creek town ship will be improved as a result of the proposed works, however, townships further afield will be affected by designed allocated heavy haul routes, which are outside the control of the operator and approval authority.

### **9.5 COSTS VERSUS BENEFITS**

There are a number of benefits to the project as well as costs which are identified in the table below. This table assumes that mitigation measures identified in other specialist will be implemented as part of the project.

**Table 9.1:** Overview of Costs and Benefits

	Incidence	Comment
<b>Benefits</b>		
Increased employment	Local and Regional	Increase in operational and construction jobs
Increase work for suppliers and contractors	Local, Regional, Intra-State	Ongoing supply of goods and services to the quarry
Flow - on effects in the economy	Local, Regional, State	Increase in jobs and output have increased benefits to other industries
Increased Company Tax	State, National	Assumes increased output and sales and increased tax burden of Buttai Gravel.
Development Contributions	Local	Development contributions and/or a VPA executed with Council to provide local contributions either cash and/or in-kind works.
Rail	Local, Regional	The potential utilisation of rail into the future (subject to the market). The utilisation by ARTC into the future in emergency situations.
Strategic	Regional	The site is identified as a strategic resource in the Draft Hunter Regional Plan.
<b>Costs</b>		
Lack of supply of extractive material	Local, Regional, State	As noted above there is a large number of construction projects in the State and Region with limited numbers of quarries in the region supplying materials being extracted from the quarry.
Loss of surplus to other industries	Local, Regional, State	If this project is not approved it will have an impact on suppliers and contractors.
Noise impacts	Local	Noise Impact assessment provided elsewhere identifying any mitigation measures
Air Quality	Local	Air Quality impact assessment provided elsewhere identifying any mitigation measures
Increased Traffic	Local, Sub-Regional	A Traffic impact assessment has been prepared for the project identifying any additional infrastructure upgrades that may be required as a result of the project. It is noted that heavy vehicle haul routes are identified by other agencies.
Ecology	Local, Sub-Regional	An ecological assessment provided elsewhere identifying any mitigation measures and offset requirements.
Heritage	Local	An Aboriginal Heritage assessment has been prepared for the project which identifies impacts and proposed management methods.
Greenhouse Gases	Local, Regional, State, National	A greenhouse gas assessment has been prepared for the project which identifies any impacts and management methods.
Water	Local, Sub-Regional	A water management strategy examining surface and groundwater has been prepared for the project which does not identify any additional impacts.
Vibration	Local	Measures to address basting impacts are addressed in the EIS.
Visual Impacts	Local	Measures to minimise visual impacts (e.g. landscaping) are addressed elsewhere in the EIS.

There are both costs and benefits to the proposed development. There are some environmental impacts of the proposed development. Specialist reports have been prepared to assess these and provide mitigation measures and ongoing management methods to address these issues. This has to be weighed up against the ongoing economic benefits to the economy of the project. Consideration should also be afforded to the large ongoing construction projects in NSW and the product that will need to be sourced to construct these projects along with the suppliers who contribute materials to these projects. Quarries across NSW extract different materials for different projects and markets. This quarry contributes significantly in the region and intra-state to large construction projects. All this will need to be considered against the environmental impacts once mitigation measures are considered. Overall, it is considered that there are positive socio-economic impacts.

## 10. CONCLUDING REMARKS

This socio-economic assessment has been prepared to examining the potential social and economic impacts of the proposed development.

Overall, the project is estimated to create 31-36 additional jobs during the operation of the quarry, at full capacity, with approximately up to another 155 jobs during construction and decommissioning. The flow on effects of the operational jobs are likely to have a total effect in the order of around 70 jobs in the broader economy. It is expected that given the suppliers and contractors currently used on the site are predominantly local (i.e. Hunter Region) that the flow on effects will generally be contained in the region.

It is estimated that road/construction works associated with the project will be approximately \$4.26 million. With flow on effects this is estimated at an impact of \$11.9 million in the broader economy. Based on current costs for salaries, goods and services, it is expected that the quarry will contribute approximately \$20 million per annum, in addition to the proposed infrastructure works. Based on the gross regional product (GRP) per worker in Dungog LGA it is expected that the additional jobs will add \$4.8 million to the GRP of Dungog LGA (based on current figures). It is noted that these jobs are based on proposed outputs of the quarry at full capacity.

The project will continue to create employment for the staff and contractor already employed by the quarry. It is considered that the project will provide positive economic and social benefits to the local community, and that local section 94 development contributions and/or a voluntary Planning Agreement can provide additional funding sources for local infrastructure in the community. It is noted that specialist studies in relation to environmental issues are addressed elsewhere.

One of the important benefits of the proposal is the ongoing contribution to major construction projects in NSW. The NSW State Government has committed \$60 billion to rebuilding state infrastructure in the 2014-2015 budget. The budget has an allowance of \$43 million allocated to road infrastructure upgrades in the Hunter Region. Whilst Martins Creek Quarry is critical to the ongoing development and growth of the Hunter area, it is anticipated that it will have a significant place in the state market. In particular it is anticipated that the Pacific Highway Upgrade in Northern NSW will require quarry materials in excess of volume and quality available locally to meet project demands. Based on NSW Trade and Investment data, Martins Creek contributes approximately 55% of the total volume of high quality materials to the local area.

Hard rock extractive resources are limited in NSW, particularly those that are suitable for high strength concrete and asphalt applications. This situation is no different in the Hunter Region. The Lower Hunter Region is supplied by five hard rock quarries considered to have the capacity to service the demand placed by the construction industry with high strength aggregates for the production of concrete/asphalt and high quality base and subbase materials for RMS applications. These being:

- Daracon/Buttai Gravel, Martins Creek;
- Boral Quarry, Seaham;
- Hanson Quarry, Brandy Hill;
- Hunter Quarry, Karuah;
- Quarry Products Newcastle, Allandale.

Whilst Martins Creek Quarry primarily produces aggregates, it also focuses on the design and manufacture of high quality road pavement materials. For the past 15 years

(approximately) Stabilstone has been one of only two products that met RMS heavily bound specification RN73, critical to road infrastructure for state and local government roads subjected to increased traffic volume and heavy loading. While there may be some environmental costs of the project the importance of the quarry to ongoing construction projects cannot be underestimated.

Notwithstanding, as part of the ongoing operations of the quarry it is recommended that:

- Buttai Gravel's environmental management plan be continually monitored and reviewed;
- The sites environmental management plan and/or site management plan continue to include details for members of the public to contact if issues arise during the operations of the quarry;
- Following approval Buttai Gravel continue to consult with the community;
- Buttai Gravel continue to use local suppliers where practical;
- Environmental mitigation and management measures as identified in the specialist reports included in the EIS should be implemented at the appropriate time.

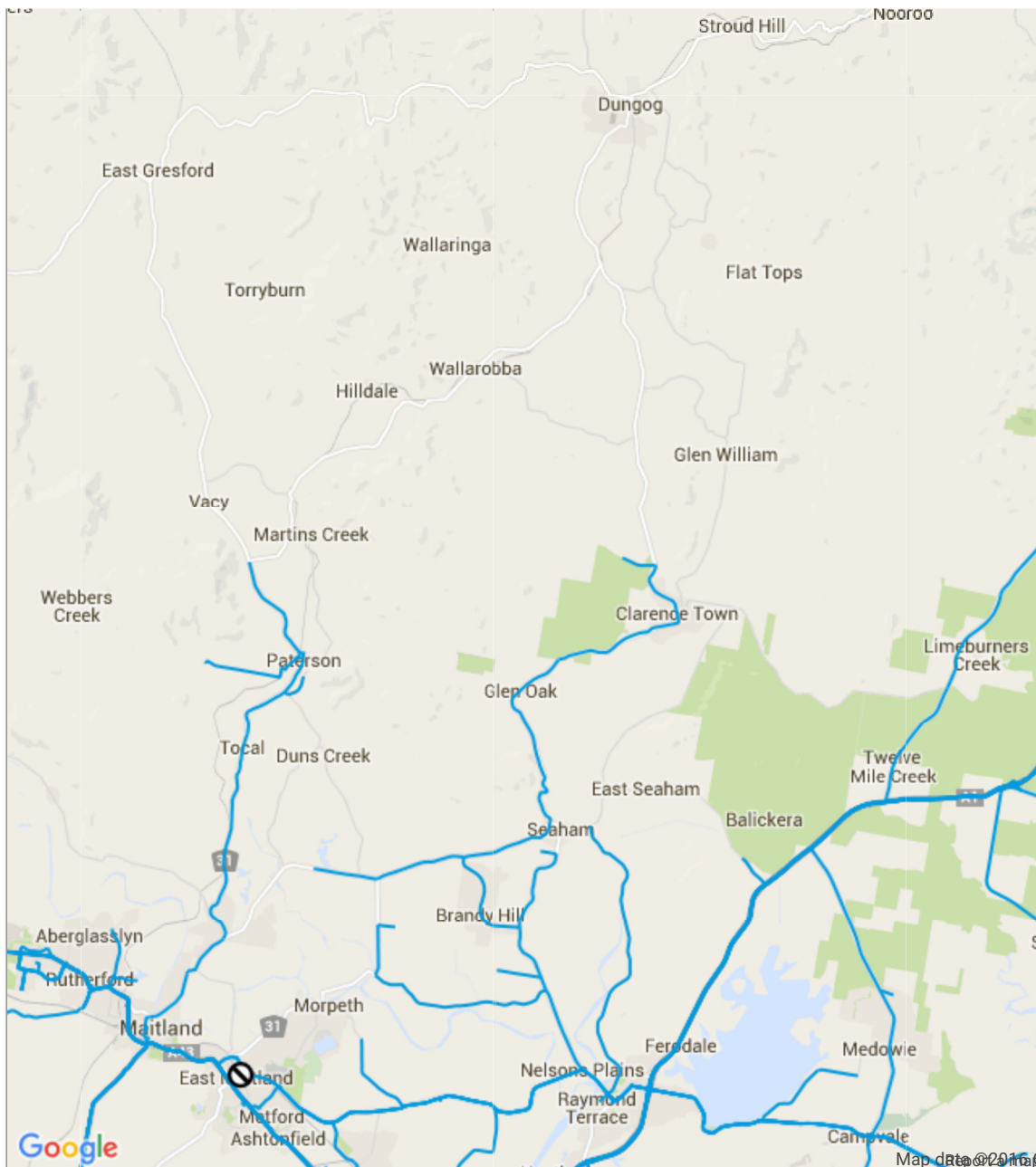


# **APPENDIX A**

## **RAV Designated Roads**

# NSW Livestock Loading Scheme Map

Map Last Updated: 11/01/2016



## Legend



Restricted Bridge



Single Articulated Combination Routes



Approved Area

## Provide Feedback to RMS

Email: [Journey.Information@rms.nsw.gov.au](mailto:Journey.Information@rms.nsw.gov.au)

Phone: 131 782

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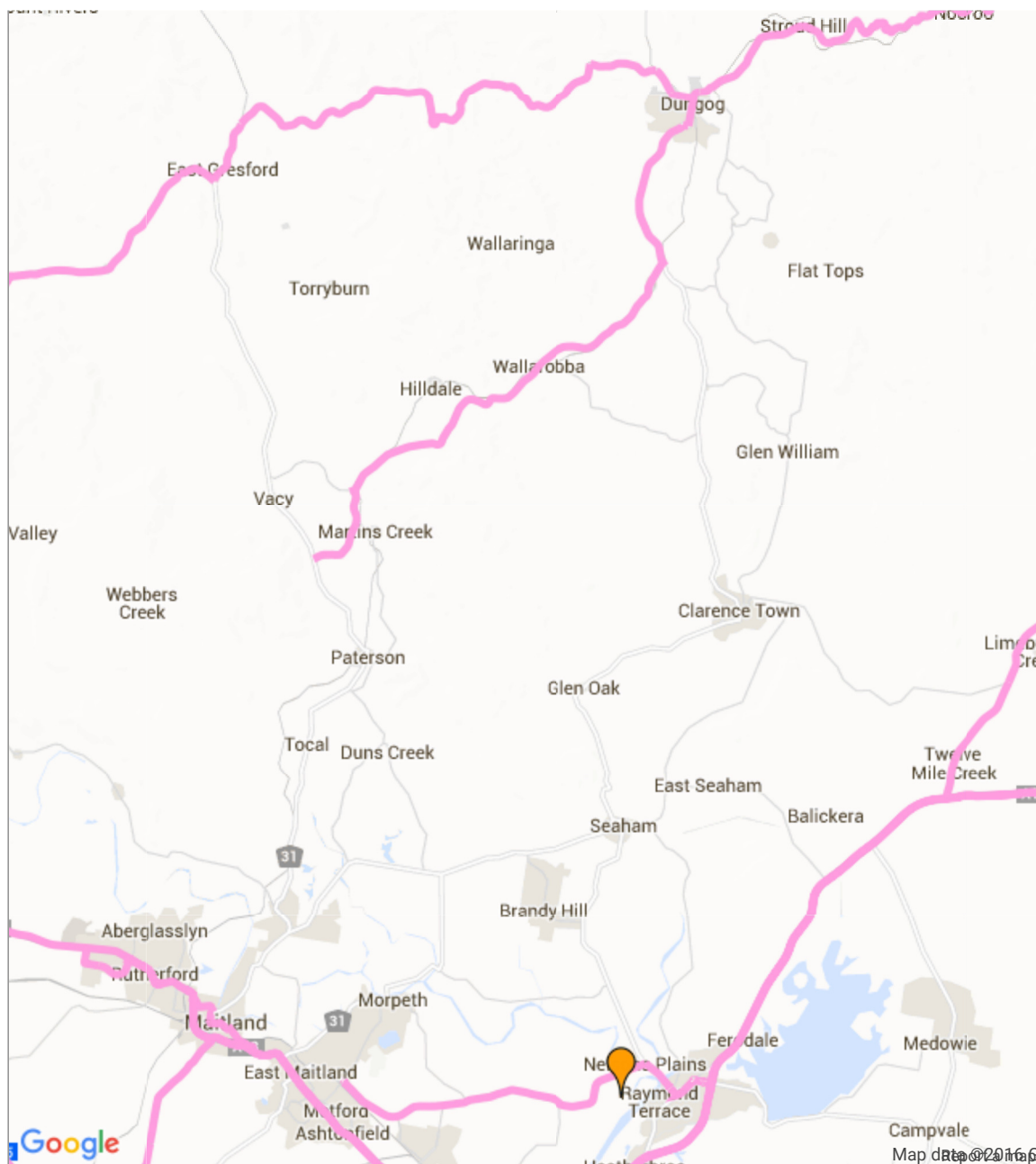
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DISCLAIMER ACCEPT

# Restricted Access Vehicle Map NSW

Map Last Updated: 06/05/2016



## Legend



Through Traffic on Bridge



4.6m High Vehicle Routes



4.6m High Vehicle Approved Area




Through Traffic under Bridge



4.6m High Vehicle Routes with Conditions



4.6m High Vehicle Approved Area with Conditions

- |  |   |
|--|---|
|  Road Train Routes                        |  Road Train Approved Area              |
|  Road Train Approved Area with Conditions |   |
|  Exception Routes (not approved)          |  Travel conditions exist on this route |

**Provide feedback**Email: [Journey.Information@rms.nsw.gov.au](mailto:Journey.Information@rms.nsw.gov.au)

Phone: 131 782

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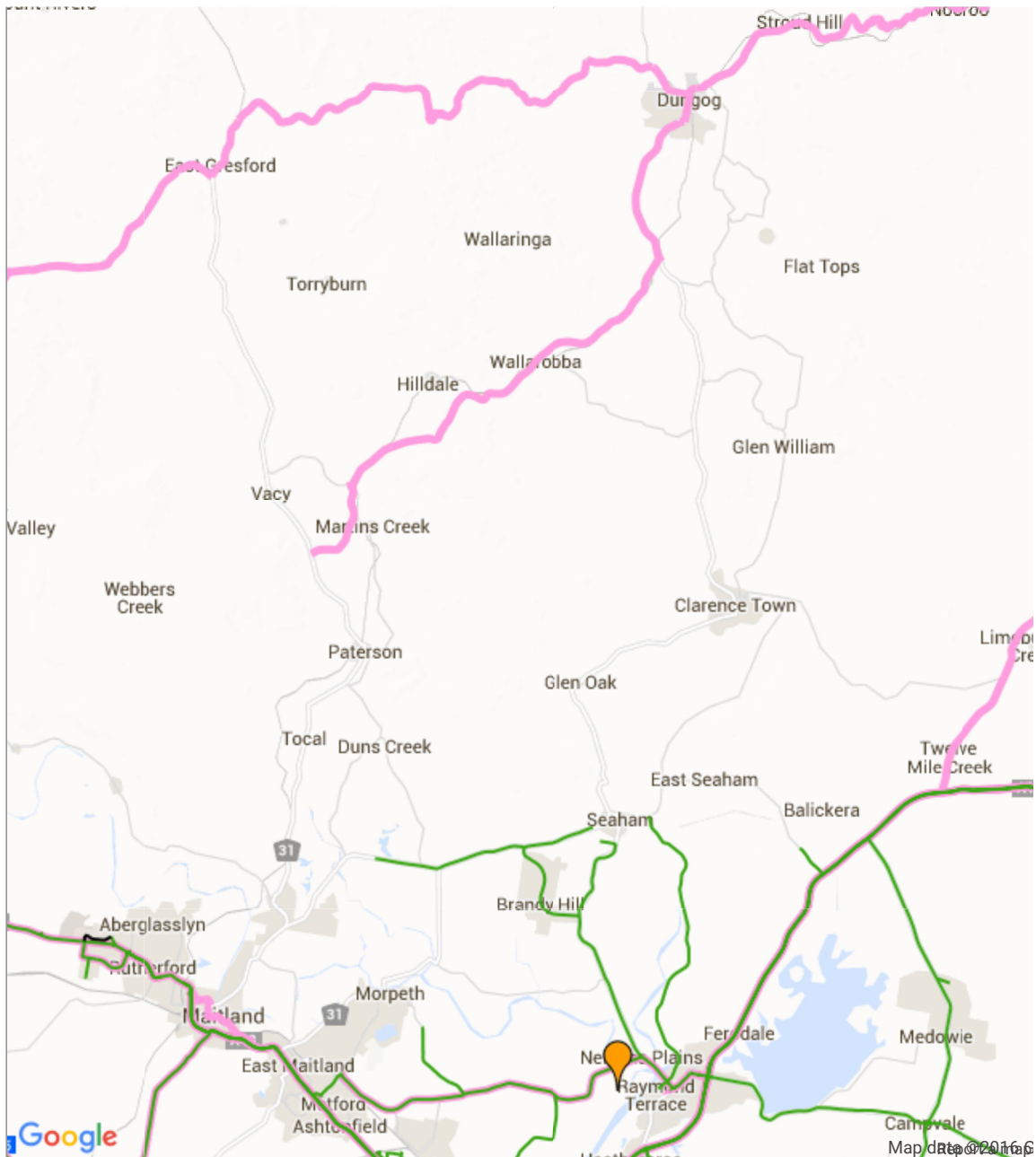
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DISCLAIMER ACCEPTED

# Restricted Access Vehicle Map NSW

Map Last Updated: 06/05/2016



## Legend



Through Traffic on Bridge



4.6m High Vehicle Routes



4.6m High Vehicle Approved Area



Through Traffic under Bridge



4.6m High Vehicle Routes with Conditions



4.6m High Vehicle Approved Area with Conditions

- |  |   |
|--|---|
|  25/26m B-Double Route                  |  B-Double Approved Area                |
|  B-Double Approved Area with Conditions |   |
|  Exception Routes (not approved)        |  Travel conditions exist on this route |

**Provide feedback**Email: [Journey.Information@rms.nsw.gov.au](mailto:Journey.Information@rms.nsw.gov.au)

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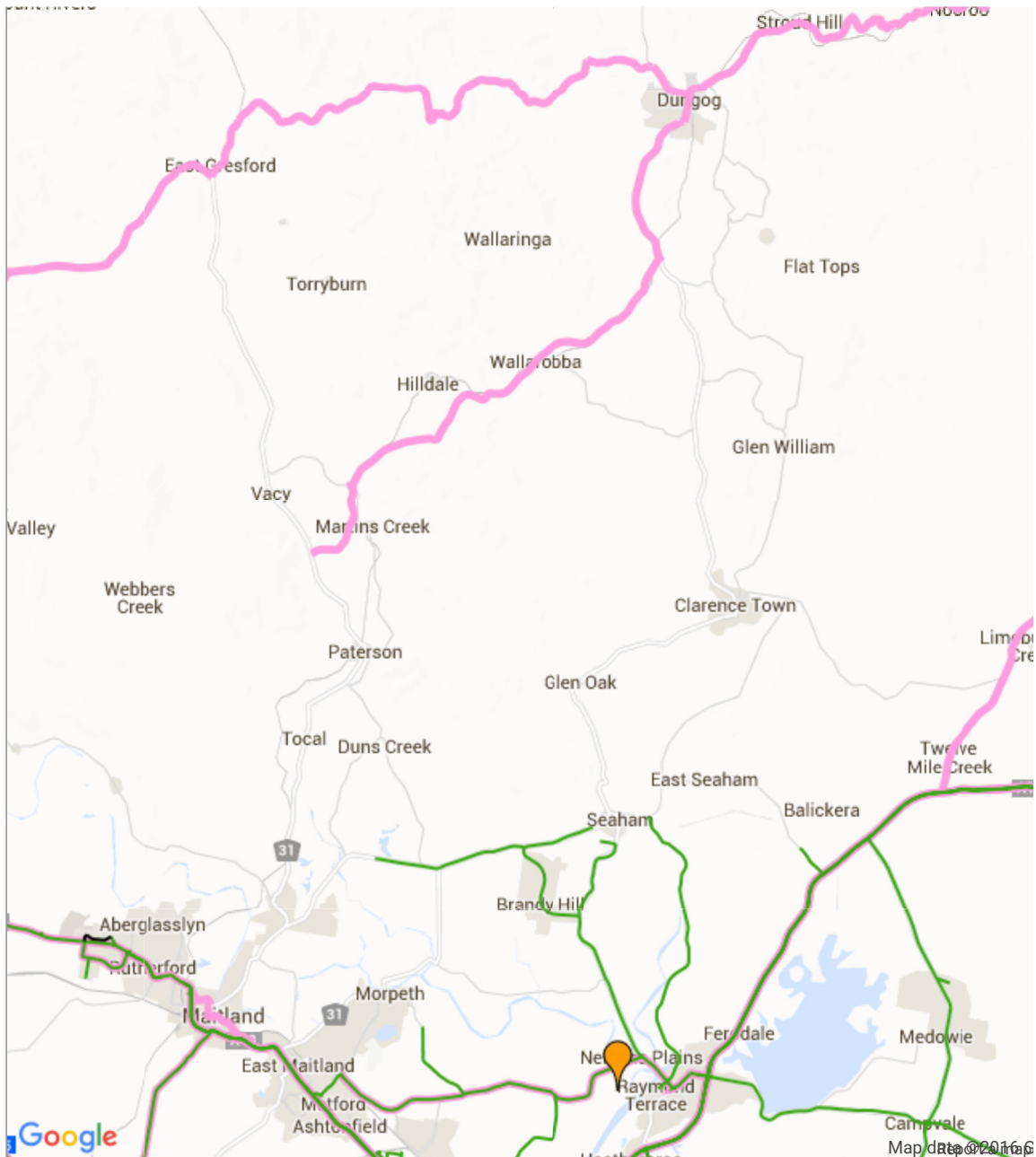
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DISCLAIMER ACCEPTED



# Restricted Access Vehicle Map NSW

Map Last Updated: 06/05/2016



## Legend



Through Traffic on Bridge



4.6m High Vehicle Routes



4.6m High Vehicle Approved Area



Through Traffic under Bridge



4.6m High Vehicle Routes with Conditions



4.6m High Vehicle Approved Area with Conditions

- |  |   |
|--|---|
|  23m B-Double Routes                    |  B-Double Approved Area                |
|  B-Double Approved Area with Conditions |   |
|  Exception Routes (not approved)        |  Travel conditions exist on this route |

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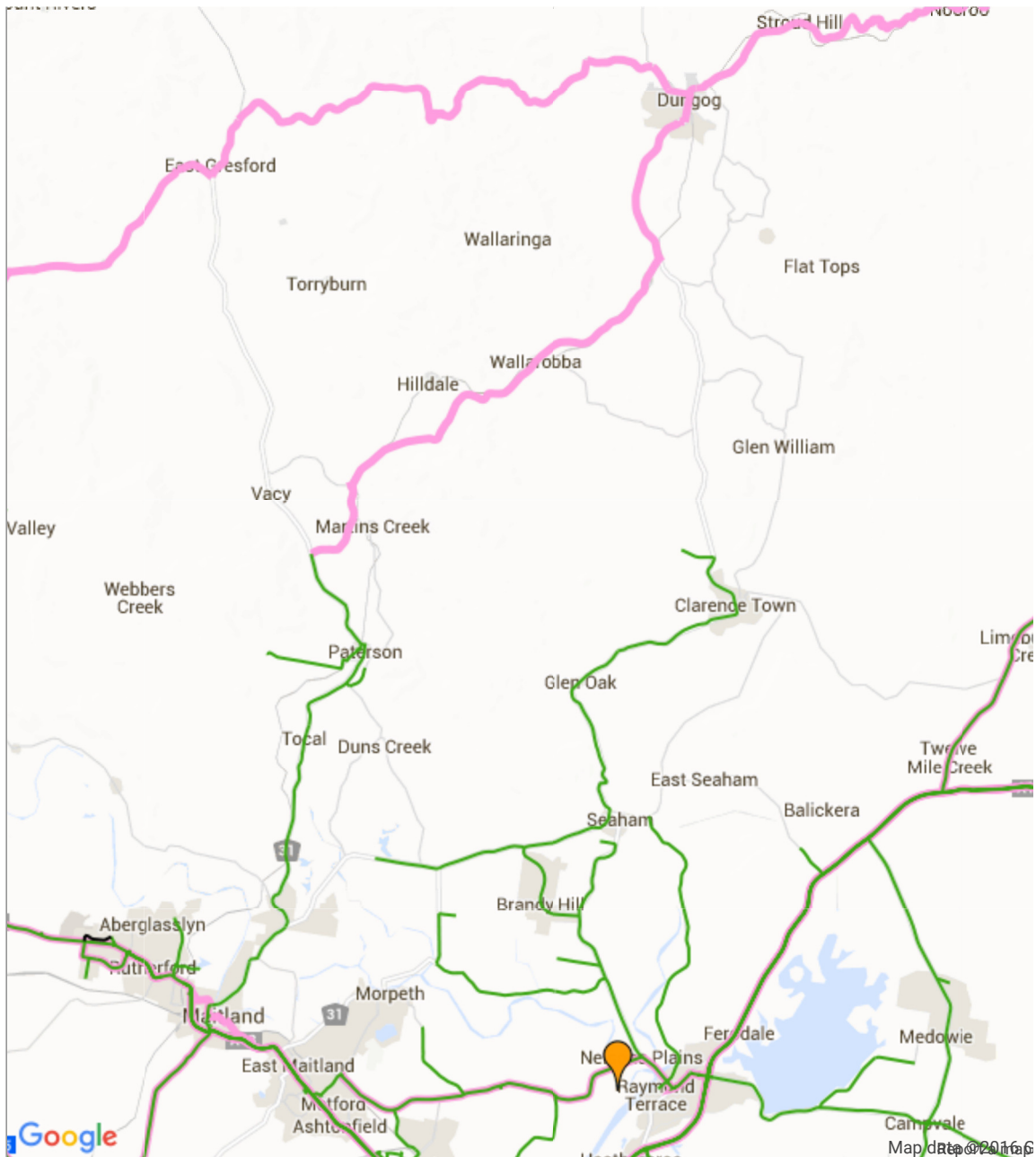
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# Restricted Access Vehicle Map NSW

Map Last Updated: 06/05/2016



## Legend



Through Traffic on Bridge



4.6m High Vehicle Routes



4.6m High Vehicle Approved Area



Through Traffic under Bridge



4.6m High Vehicle Routes with Conditions



4.6m High Vehicle Approved Area with Conditions

- |  |   |
|--|---|
|  19m B-Double Routes                    |  B-Double Approved Area                |
|  B-Double Approved Area with Conditions |   |
|  Exception Routes (not approved)        |  Travel conditions exist on this route |

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