# Appendix SIX
LSP 2007 Extracts

# 3.0 Key Opportunities and Constraints

## 3.1 Biodiversity

The Lochinvar study area consists of undulating rural land draining north towards the Hunter River floodplain.

Significant clearing for agricultural practices (predominantly grazing) in the past has reduced the natural landscape to open grassland with a few isolated pockets of vegetation. The remaining stands of vegetation have been identified as Hunter Lowland Red Gum Forest, an ecological endangered community (EEC).

Cultural plantings at "St Helena" and "Clifton" provide a point of interest and are significant in that they occur in limited numbers and areas.

There are no recordings of threatened fauna within the study area, however Hunter Lowland Red Gum Forest can provide support for some species, including grey crowned babblers and squirrel gliders.

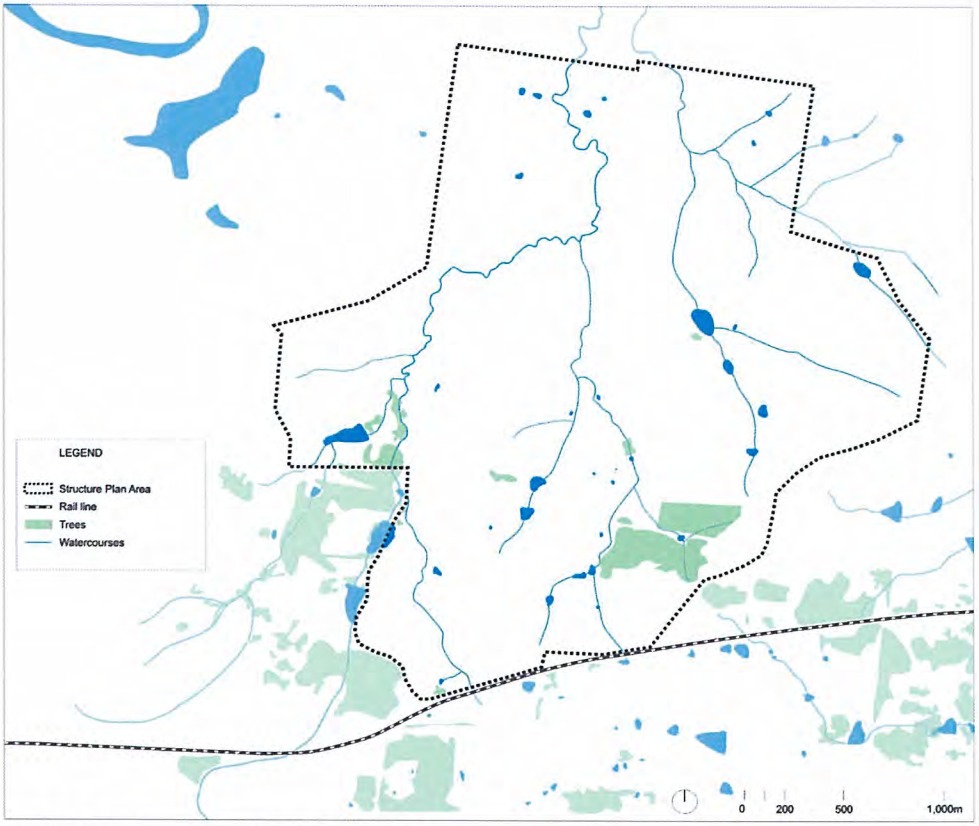


**Fig. 2**: Natural environment of Lochinvar study area

The lack of vegetation and supporting habitat for fauna species places greater emphasis on the importance of retaining what is left and creating future links to larger vegetation communities outside the study area. This is supported by the Maitland Greening Plan which identifies "opportunity corridors" within the Maitland area and identifies sections of the study

area as potential wildlife corridors and drainage line corridors. The vision of the Greening Plan in terms of revegetation is to *"increase the presence of native vegetation in the landscape so as to improve habitat for biodiversity in the local area and begin the process of reducing the impact of land degradation".*

The provision of native vegetation links will:

- Connect areas of existing vegetation, increasing biodiversity;
- Recreate vegetated vistas to add to visual amenity for the locality;
- Stabilise drainage lines; and
- Provide for recreation opportunities.

The Department of Natural Resources identifies all remaining native vegetation within the Structure Plan area as Protected Regrowth under section 10(1)(b) of the Native Vegetation Act 2003. The retention of the remaining remnant vegetation will help to ensure that any further loss for development is offset by additional revegetation and conservation activities.

Opportunity corridors and other significant natural environmental features are identified in the following figure. Detailed planning investigations for any future development within the study area are to address the constraints and opportunities of the area.

## 3.2 Bushfire Hazard

Bushfire mapping for the Maitland LGA indicates that a small portion of land in the southeast of the study area is designated as high bushfire hazard under the State Government bushfire provisions. The vegetation community in this location has been categorised as relatively mature Hunter Lowland Red Gum Forest with no understorey due to continuous grazing practices.

Any subdivision and development in close proximity to these areas is to be designed in accordance with the NSW Planning for Bushfire Regulations.

## 3.3 Soils

The study area is identified as being susceptible to salinity. Protection and enhancement of riparian vegetation can be used to minimise soil erosion and the expansion of salinity within the study area.

Areas of cracking black soil that could present limitations to road and building foundation design are also expected to occur within the study area.

Further investigations of soil types within the study area will be required in the next phase of development planning.

## 3.4 Topography

The topography of the study area is one of the most important natural elements to determine the future character of the town. The topography has implication on water flows, wind distribution, soil humidity, pedestrian and cycle movement, solar access and visual connections.

Developing a town structure which responds to the natural topography of the area is of key significance in achieving a sustainable urban environment.

A road network which follows the natural terrain has the advantage of providing legible routes, and comfortable movement for pedestrians and cyclists.

The town centre as well as the neighbourhood centres will be located on ridgelines to enable visibility and facilitate orientation according to their communal usage.

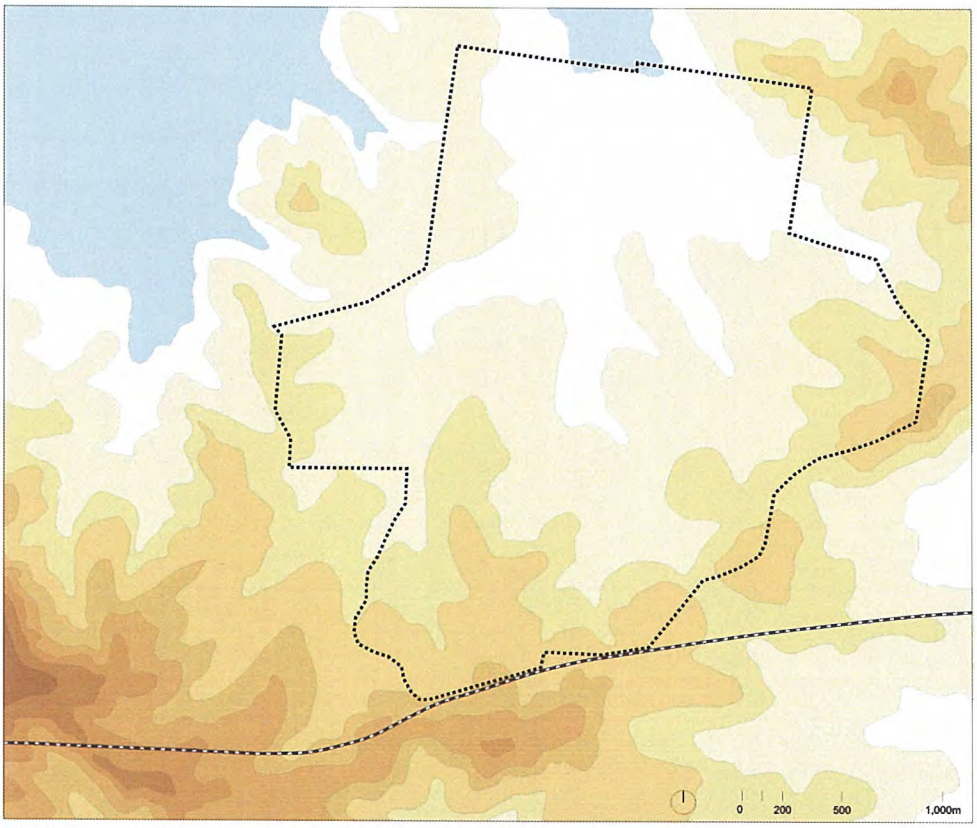


**Fig. 3**: Topography of Lochinvar study area (10 metre contours)

## 3.5 Flooding and Drainage

A small portion of the study area has been identified as being affected by the 1% flood event, based on the current known flood information. This area is subject to inundation from Lochinvar Creek, or overland flows from the Hunter River. Localised flooding in Lochinvar Creek and its tributaries occurs during peak storm events, in particular in the existing residential area adjacent to Lochinvar Creek in Freeman Drive and Hunter Close.

Drainage within the study area occurs via a number of well defined channels to the Hunter River through Lochinvar Creek. Management of drainage lines is important to achieve effective stormwater flows, and the linkage of vegetation from south of the rail corridor to the floodplain in the north.

Riparian buffer widths ranging from 10m to 30m either side of minor streams, creeks, rivers and wetlands are to be identified and established in the future planning investigations and development of the area.

Flooding and drainage characteristics of the study area are shown in the following figure.

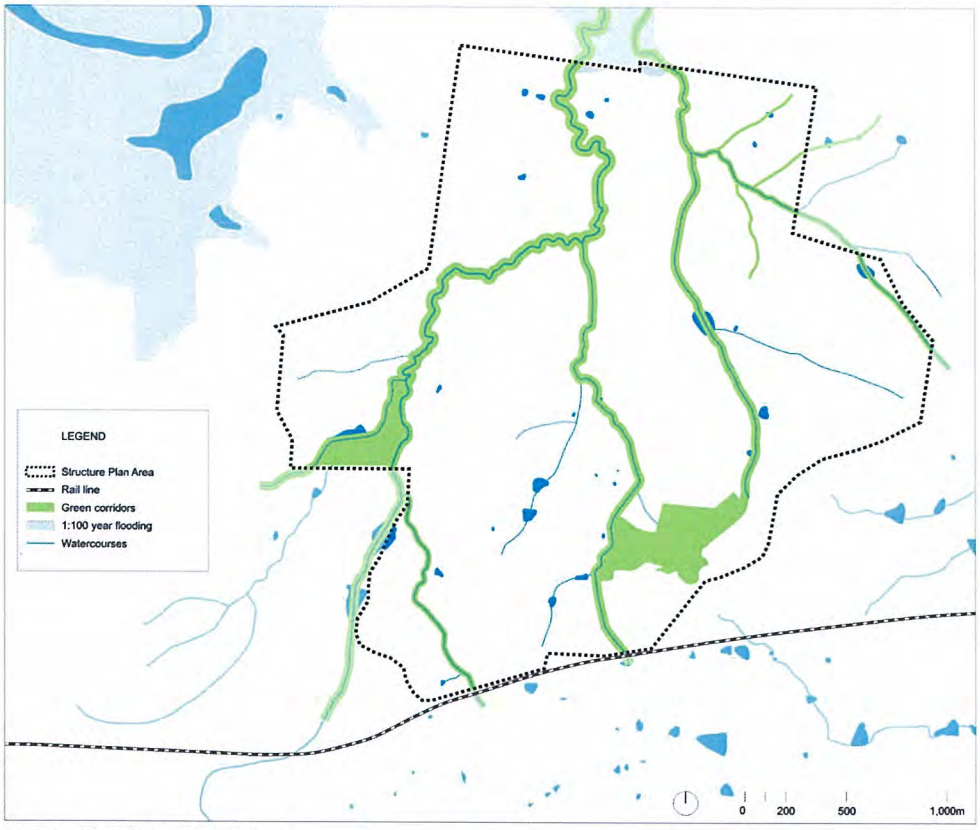


**Fig. 4**: Flooding and drainage

## 3.6 Lot Structure

The existing subdivision pattern (see figure below) has important implications regarding the potential implementation of the Structure Plan. Road reserves provide opportunities for extending the existing road network without legal constraints. Large land holdings (yellow) provide the opportunity for relatively easy implementation of a new street and subdivision pattern.

In contrast, areas where land is subdivided into many small lots (red) constitute a significant constraint for future redevelopment, as new street and subdivision patterns could be only implemented in small steps or upon land consolidation implying the agreement of a large number of land owners.

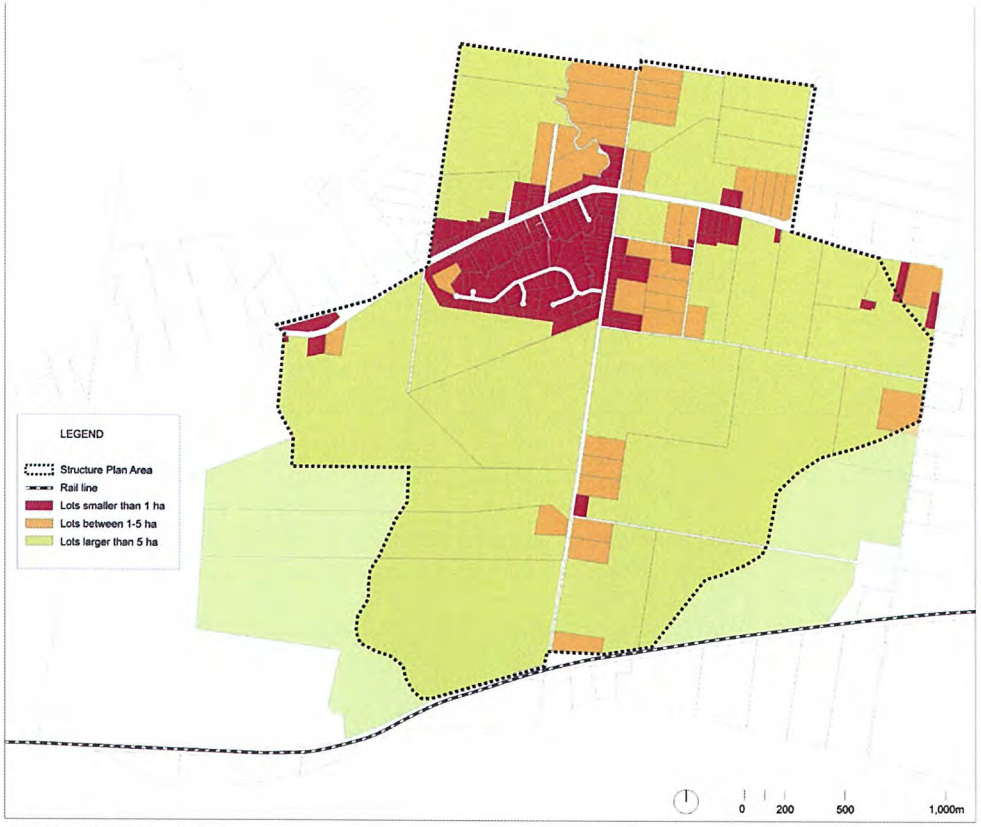


**Fig. 5**: Lot structure

## 3.7 Scale of Development

A basic method to explore the number of inhabitants or dwellings able to be accommodated within the study area is by comparing footprints of localities of similar size to the boundary of Lochinvar Structure Plan. The figure below illustrates two distinct urban types. Regional centres in NSW like Mudgee, Bathurst, Cessnock (left column) have large footprints as a result of low -car based- built densities and predominance of detached dwellings. With a similar land use pattern, Lochinvar could accommodate a maximum of 6-7,000 inhabitants. The examples of Bolsward, Bathmen and Vorden in the Netherlands (right column) illustrate that if the predominant dwelling types are medium density (semi-detached and attached dwellings), a population of 10,000 - 12,000 - the target population for the town - inhabitants could be accommodated in Lochinvar, while preserving significant parts of the land as green space. Medium density would also provide better opportunities for sustainable transport modes (walking & cycling).

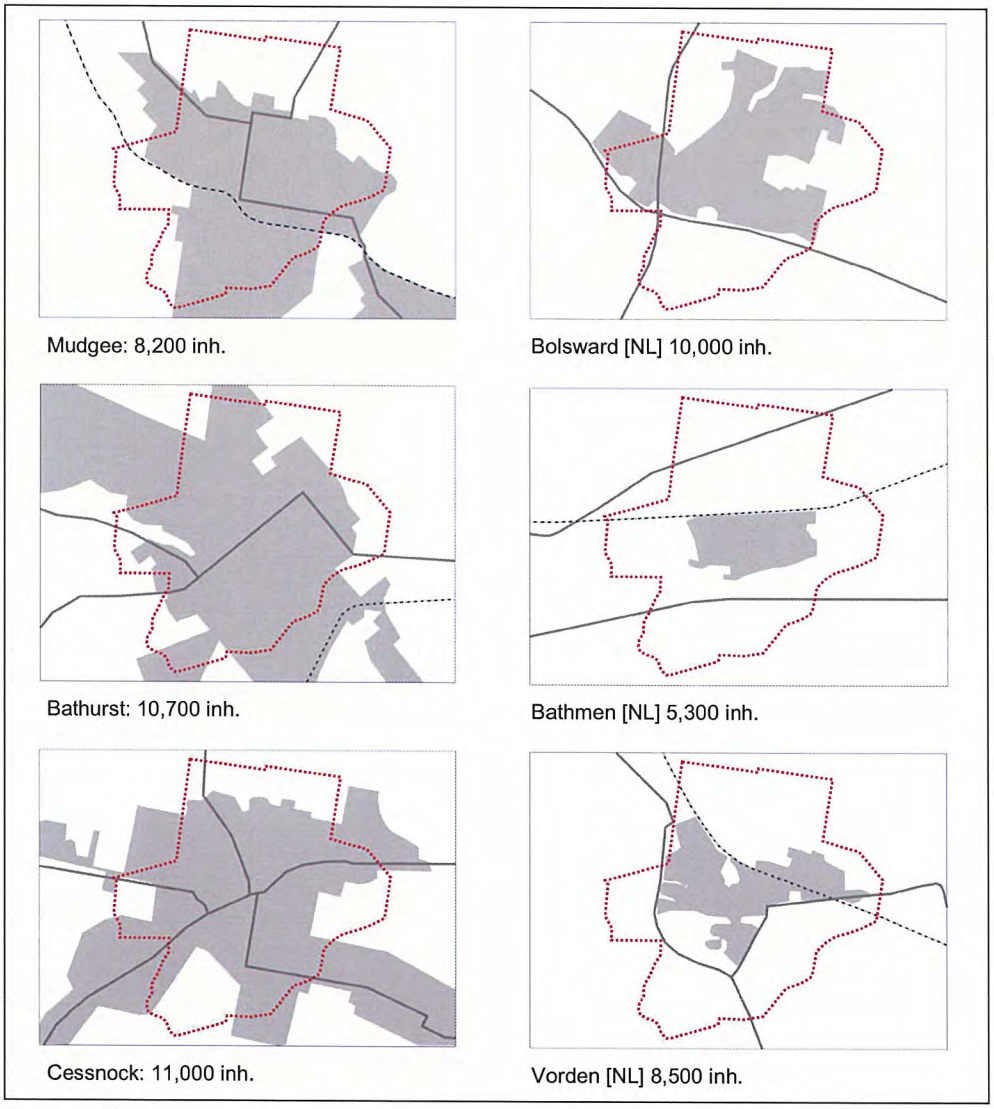


**Fig. 6**: Scale of development

## 3.8 Traffic and Transport

The traffic in Maitland LGA is presently car dominated: 93% of trips to work are made by car, compared to the NSW average of 77% (ABS Census 2001). The *Sustainable Transport in the Lower Hunter Region Issues Paper* (2003) aims for a 20% reduction of trips made by car. Lochinvar as a major new urban development has the potential to make a major contribution to achieve this sustainability aim.

### 3.8.1 Roads

The New England Highway is the central spine through the existing village of Lochinvar and is expected to remain the key link between the City of Maitland and the northern regions of the Hunter Valley.

The F3 Seahampton to Branxton link is likely to be constructed in the next 5-10 years, with Allandale Road just north of the Structure Plan boundary providing the closest link to the future urban centre.

The existing road network identified in the figure below shows a number of unformed roads. These Crown roads have been mapped in Lochinvar in the earliest plans of the area.

**Fig. 7**: Existing Road network

Traffic growth has been identified in the Lower Hunter Regional Strategy at 3.4% per annum. Whilst the extension of the freeway may provide an initial reduction in through traffic volumes, it is not expected that traffic utilising the New England Highway (NEH) between Maitland and Lochinvar will be substantially affected with the construction of this F3 Freeway link.

The adjacent photograph shows the current formation of the New England Highway through Lochinvar.

**Pic.1**: New England Highway north of Lochinvar Creek

**Pic. 2:** An aerial photo of the Lochinvar township along New England Highway west of Lochinvar Creek

Traffic studies will be undertaken in conjunction with the next planning phase for the development of Lochinvar and will indicate the expected level of upgrading works required to accommodate the increase in traffic on the NEH. Intersections with the highway will be required to be improved to service additional urban traffic accessing areas to the north and south.

Old North Road (south of the rail line) provides an important opportunity to investigate an alternative connection between Lochinvar and Maitland, and potentially a link to the F3.

Local roads within the study area, such as Station Lane shown in the adjacent photograph, will need to be reviewed to determine their suitability for new urban development. It is expected that the narrow road corridors and unformed/ unsealed pavements will require upgrading in conjunction with any future development.

The New England Highway provides good access to the Rutherford employment area and employment, services and facilities within Rutherford, Maitland, Newcastle, Cessnock, Greta, Braxton and Singleton and beyond.

**Pic.3**: Station Lane looking north towards town

### 3.8.2 Public Transport

Lochinvar Railway Station lies at the southern boundary of the Structure Plan area. There is a small unmanned platform existing on the rail line to the west of Station Lane, as identified in the following photograph, with a very limited informal parking area available.

A signal crossing exists on Station Lane over the rail line. Two to four (2-4) passenger trains per day pass through the Lochinvar Railway Station commuting between Scone and Newcastle via Maitland.

**Pic.4**: Lochinvar Railway Station

Improvements to the Lochinvar train station and increased passenger train services would enhance Lochinvar's position to provide for the Region's population growth, with urban housing, recreational, civic and educational facilities easily accessible to the wider community

Lochinvar is currently served by both school and public bus services, with routes along the New England Highway. Services run between Lochinvar and Woodberry in the south east and Singleton Heights to the north-west. This bus service is frequent enough to make it possible to commute to Rutherford or Maitland.

There are also five (5) school buses which currently service the area.

### 3.8.3 Transport Noise

Lochinvar is significantly affected by noise from the New England Highway and the railway corridor.

In 1999 the NSW Government produced guidelines for Environmental Criteria for Road Traffic Noise which sets out criteria for proposed residential and other noise sensitive developments. The Australian Standard AS2107-2000 defines acceptable internal noise levels for different activities within a residential building. Australian Standard AS3671-1989 provides guidelines on the type of construction required to achieve acceptable internal noise levels (categ. 1-4).

Rail noise standards are defined by the Rail Infrastructure Corporation and State Rail Authority in their guide: "Consideration of Rail Noise and Vibration – Guidelines for Councils".

As part of the development of the Structure Plan, Council engaged noise consultants to undertake acoustic modelling for the study area. The impacts of road and rail noise up to 2016 have been modelled for residential, educational and other sensitive noise receivers.

Land adjoining the New England Highway and along the rail corridor is subject to the highest level of noise impact. Noise sensitive developments are primarily restricted from these areas.

Areas not recommended for residential development without Category 3 construction are within 60m of both the New England Highway and the rail corridor. Similarly, recreational land, schools, hospitals or places of public worship are restricted from these areas.

Land within 500m of the highway and rail corridor are not suitable for the development of classrooms however open space associated with schools can be positioned within this area.

Hospital wards or places of public worship are also restricted from this area. Given the location of existing churches and educational facilities within this area, consideration may be given to the expansion of such facilities with appropriate noise amelioration treatments.

The proposed built structure has an important potential to mitigate the spread of noise from the above mentioned main sources. Therefore during the master plan process of each precinct of the Lochinvar Structure Plan, acoustic modelling should be considered to inform the design process.

## 3.9 Visual Environment

### 3.9.1 Town Identity and Setting

The township of Lochinvar is surrounded by rural land and farming practices which create a rural village setting. Lochinvar is also easy to identify from elevated positions around the valley due to the cultural plantings associated gardens and civic buildings.

The study area has been categorised into four distinctive areas supporting different visual and physical characters. These areas are: the cleared central portion, eastern town centre, western town centre and northern portion.

The most visually prominent buildings occur in the eastern part of Lochinvar. The proximity of these buildings to each other creates a precinct within Lochinvar that is distinctly different from the western part of the township. The cluster of buildings creates an attractive entry to the town from the east.

**Pic.5**: Convent of the Sisters of St Joseph

The following figure (Fig.8.) identifies visually significant features of the existing Lochinvar village and surrounds.

The lack of significant stands of native vegetation is also considered to be a special feature of the landscape. Emphasis on retaining the remaining vegetation will provide visual breaks and amenity improvements.

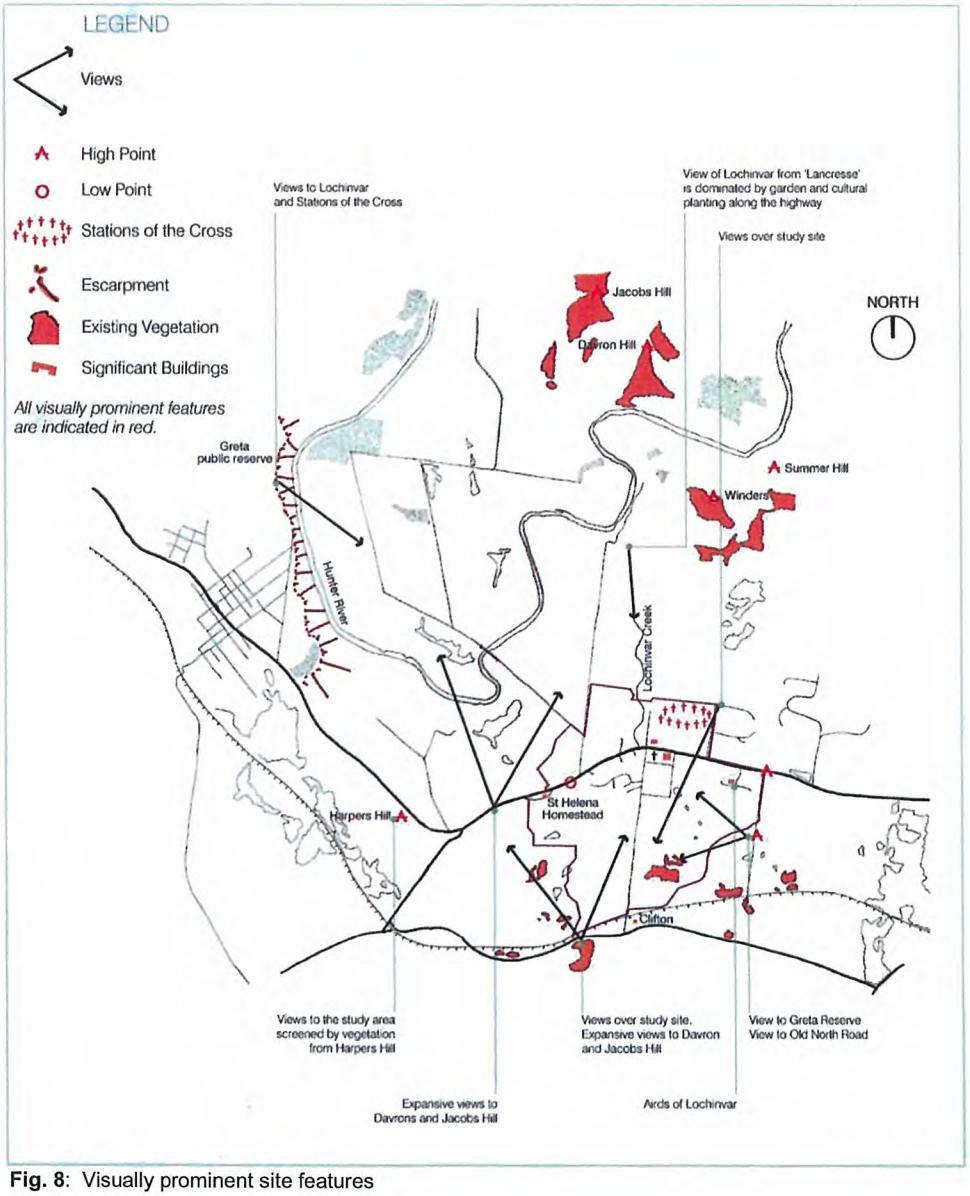


**Fig. 8**: Visually prominent site features

### 3.9.2 Special Features and Local Icons

Lochinvar supports a number of iconic buildings contributing to the village character. Visually prominent site features from the highway include:

- Airds outdoor clothing building;
- St Helena homestead and cultural tree plantings;
- All Saints College St Josephs Campus;
- Stations of the Cross;
- St Patrick's Church;
- Holy Trinity Church;

- Davron Hill / Jacobs Hill / Winders Hill / Summer Hill;
- Greta Reserve

Other local icons not visible from the highway but contributing to the character and identity of Lochinvar include:

- 'Clifton' (home adjoining Lochinvar Railway Station);
- 'Lochinvar House' (western outskirts of the village);
- Police Station (heritage listed).

### 3.9.3 View Corridors

The natural topography of Lochinvar provides a buffer to the proposed development areas of the Structure Plan which are placed below surrounding ridgelines reducing the visibility of developing areas from the New England Highway.

Distant views to the site are available from a few selected elevated positions being Greta Reserve, Winders Lane and Old North Road ridge line. The undulating topography of the site inhibits views into the study area from closer proximity, however a number of key roads traverse the interior of the study area and there are some low rises within the site which permit views.

**Pic.6**: View of study area, looking west from Wyndella Rd

Future development should consider the importance of low rises within the study area and use them to locate roads as this will provide the opportunity for associated street trees to be at the high points of the development and provide a backdrop for housing. Consideration of the regional views across the valley that has a rural character interspersed with native vegetation should also be made.

## 3.10 Infrastructure

### 3.10.1 Water

Town water connections are available to the Lochinvar township. Consultation is required to be undertaken with the Hunter Water Corporation to ensure that the proposed development area can be adequately serviced.

### 3.10.2 Wastewater

Lochinvar is not presently serviced by reticulated sewerage facilities. Hunter Water Corporation is nearing completion of works in Lochinvar to replace the existing on-site wastewater treatment system.

The sewerage system for Lochinvar will consist of gravity pipelines, a pumping station and associated pressure pipelines and gravity mains. The gravity mains will collect wastewater

from individual households and drain to the pumping station. Some sites located to the east of Lochinvar Creek will be serviced with a pressure sewer system.

The pump station is to be located in a Crown land reserve off the New England Highway. From the pump station a pressure main (rising main) will discharge to a gravity main nears Winders Lane. This gravity main will then extend to the existing sewerage system in the Rutherford Industrial Area.

The initial infrastructure provided for the pumping station, rising main and gravity main will have the capacity of approximately 1,200 lots. The infrastructure has the potential to be amplified to a capacity of 2,500 lots with provision of new pumps and an additional pressure main and gravity main.

The design and provision of this infrastructure, in consultation with Hunter Water Corporation, will assist to establish the staging structure for the future development and release of land in Lochinvar.

### 3.10.3 Wastewater Treatment

Wastewater from the Lochinvar township will be transported to the Farley Wastewater Treatment Works. Sufficient capacity exists at Farley to treat effluent from the early stages of development, with upgrades of the Treatment Plant required as development progresses.

### 3.10.4 Services

Energy Australia have advised that augmentation of the existing high voltage electricity supply will be required. The distribution network requirements will be set by Energy Australia (11,000 volts, low voltage and street lighting) and will be designed and established as development progresses in the area.

Discussions with Energy Australia, AGL and Telstra will continue to ensure that all facilities will be provided to the whole of the Structure Plan Area.

## 3.11 Community Facilities

Community facilities and services currently provided in Lochinvar include:

- Ecclesiastical buildings
- Public Primary School
- Non-Government Schools
- Sports Ground (see photo)
- Passive open space
- Police Station
- Rural Fire Service
- Community Hall
- Tennis courts
- Hotel
- Convenience store/takeaway shop
- Post office

**Pic.7:** Lochinvar Sportsground

The proposed expansion of Lochinvar has the potential to increase the level of services and facilities provided and include additional facilities and services such as professional consulting rooms, childcare centre, aged/disability centre, preschool, library, ambulance, community health centre, specialised recreation centre, and a supermarket and range of speciality shops.

**Pic.8**: Existing local commercial services

## 3.12 Heritage

### 3.12.1 European Heritage

Lochinvar supports many examples of the Hunter Valley's early settlement by Europeans. The earliest land grant in the district was to Leslie Duguid in 1823 with the village of Lochinvar being laid out in 1840 on part of Duguid's land.

The current heritage items within Lochinvar are listed below:

- Victoria House, Cantwell Rd (local)
- St Helena cottage, New England Highway (regional)
- Holy Trinity Church, New England Highway (regional)
- Catholic Cemetery, New England Highway (regional)
- Police Station, Railway Lane (local)
- Clifton, Station Lane (local)
- Government railway (regional)

### 3.12.2 Indigenous Heritage

The study area is located within the boundary area of the Wonnarura Aboriginal language group represented by the Mindaribba Local Aboriginal Land Council (LALC) and Lower Wonnarua Tribal Council.

Little is known of the Structure Plan Area historically. The NSW Department of Environment and Conservation (DEC) Aboriginal Information Management System has registered 27 Aboriginal sites within 5km of Lochinvar. The sites are a combination of open camp sites, isolated finds and one grinding groove at Greta.

A previous archaeological survey over land located in the study area has recorded three (3) sites, being two (2) isolated finds and one (1) artefact scatter at the corner of Christopher Road and Robert Road.

Further archaeological surveys will be required to be prepared prior to any further development investigations of the area, in consultation with the Mindaribba LALC and the Lower Wonnarua Tribal Council Inc.