

MANAGEMENT PLAN FOR WILLYAMA COMMON

Compiled by R.W. Corkery & Co. Pty. Limited for the Broken Hill City Council
(appointed as the Trust) in consultation with the Department of Infrastructure, Planning and Natural
Resources (formerly Department of Land and Water Conservation)

527/03



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MANAGEMENT PLAN FOR WILLYAMA COMMON

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MANAGEMENT PLAN
FOR
WILLYAMA COMMON

PART A
INTRODUCTION

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INTRODUCTION

Prepared in accordance with Section 25 of the *Commons Management Act, 1989* and Clause 30 of the *Commons Management Regulation, 2001* and replacing the existing transitional Management Plan for the Common as set out in Clause 9 of Schedule 5 of the *Commons Management Act, 1989*.

BACKGROUND

The purpose of the Management Plan is to address the specific uses for which the Willyama Common may be used in terms of the *Commons Management Act, 1989* and *Commons Management Regulation, 2001*.

The Willyama Common surrounds the City of Broken Hill in far western New South Wales. Due to the Common's location and proximity to the City, the Management Plan reflects the area's multiple use qualities, capabilities and demands.

MANAGEMENT

The administration, management and use of the Willyama Common shall be carried out in accordance with the:

- (i) *Commons Management Act, 1989*;
- (ii) *Commons Management Regulation, 2001*;
- (iii) Willyama Common Management Plan;
- (iv) *Commons By-Law, 1996*;
- (v) Support Document for Management Plan Willyama Common; and
- (vi) Willyama Common Local Rules,

referred to here-in after as the "Act", the "Regulations", the "Management Plan", the "By-law", the "Support Document" and the "Local Rules", respectively.

The Willyama Common Trust ("the Trust") will carry out the various activities required by the relevant Acts of Parliament and statutory authorities. Examples of these activities are:

- Bushfire management
- Noxious weed and feral animal control
- Protection of endangered species
- Planning and development control
- Soil conservation



- Crown timber management
- Noise, water and air pollution control
- Protection of Aboriginal heritage
- Extractive industry management

A USES

The purposes for which the Willyama Common may be used are:

Stock Travelling and Agistment

- Pasturage and watering of stock (cattle, horses, sheep and milking goats) and any other animal approved by the Trust
- Passage of travelling stock along routes approved by the Trust

Land Management and Conservation

- Improvement of Common land
- Landcare and land rehabilitation (including tree planting)
- Environmental protection
- Nature conservation
- Heritage conservation
- Aboriginal heritage conservation
- Bushfire control
- Noxious weed and vermin control

Mining and Extractive Industries

- Mineral exploration
- Mining
- Extraction of extractive materials

Recreation and Tourism

- Passive recreation (walking, cycling, picnicing and camping)
- Fossicking (mineral and relic)
- Rifle ranges
- Gun clubs
- Archery clubs
- Model aircraft clubs
- Horse riding



- Trotting horses and horse training
- Motorbikes - engine capacities less than or equal to 250 cubic centimetres only, and restricted to the "Motorbike Area"
- Registered motor vehicles - only for the purpose of accessing Common land for passive recreational activities
- Tourism
- Tourist and educational facilities

Commercial Agriculture and Horticulture

- Plantation agriculture and other agricultural/horticultural activities
- Apiary sites

Services, Infrastructure and Utilities

- Infrastructure associated with public utilities, e.g. water, gas, electricity for community or industrial purposes beyond the common
- Community purposes
- Health and engineering facilities / services
- Telecommunication facilities / services
- Educational studies / facilities
- Animal boarding
- Temporary dwellings approved by the Trust

Other Land Uses

- Other activities or land uses approved by the Trust, subject to their compatibility with the findings of the Willyama Common Land Assessment study and providing they do not adversely impact on the natural and cultural attributes of the Common

Prohibited Use

- The discharge of firearms is strictly prohibited on the Common, except on approved rifle or pistol ranges
- No unlawful activity may be undertaken on the Common
- Unauthorised activities that pose or potentially pose a risk to any person using the Common are strictly prohibited.



B WHO IS ALLOWED TO USE THE COMMON FOR THE ABOVE PURPOSES

The users of the Willyama Common fall into six categories. These categories and the respective activities that the users are permitted to undertake are as follows:

Trust

Activities such as:

- Stock management
- Improvements to Common land

Commoners

Approved activities

- Pasturage and watering of stock (cattle, horses, sheep and milking goats) and other animals approved by the Trust

Persons or Organisations Holding Licenses or Leases from the Trust:

Approved activities

- Extraction of extractive materials
- Relic fossicking
- Mineral fossicking
- Community purposes
- Tourism
- Tourist facilities
- Horse riding
- Trotting horses and horse training
- Rifle range
- Gun clubs
- Archery clubs
- Model aircraft clubs
- Animal boarding
- Temporary dwellings approved by the Trust
- Services, infrastructure and utilities
- Telecommunication facilities and services
- Plantation agriculture and other agricultural/horticultural activities



Persons or Organisations Authorised by the Trust

Approved activities

- Extraction of extractive materials
- Nature conservation
- Heritage conservation
- Environmental protection
- Tourism
- Passive recreation (walking, cycling, picnicing and camping)
- Apiary sites
- Passage of travelling stock through the Common

General Public

Approved activities

- Educational studies
- Passive recreation (walking, cycling, picnicing and camping)
- Registered motor vehicles - only for the purpose of accessing Common land for passive recreational activities
- Motorbikes - engine capacities less than or equal to 250 cubic centimetres only, and restricted to the "Motorbike Area"

Authorities Under other Legislation

Approved Activities

- Mineral exploration
- Mining
- Landcare
- Land rehabilitation and management (including tree planting)
- Bushfire control
- Health and engineering services



C HOW AND BY WHOM THE COMMON IS MAINTAINED

Generally the maintenance of the Willyama Common will be carried out by the Trust, Commoners, licences, lessees or persons licensed or authorised by the Trust.

Members of the general public have a duty of care in their use of the Common.

D MAINTENANCE FUNDING

The maintenance of the Willyama Common will be managed by the Trust and will be funded as follows.

- From the relevant persons paying grazing fees, annual fees, licence fees, rental and royalties, fees or charges as prescribed or imposed by the Commons Management Act, Regulations and Commons By-Law.
- From other sources of funds including donations or bequests (where applicable these funds will be expended in accordance with the wishes of the donor).
- From other funding that may be obtained or granted from Government Authorities.
- Income from these sources shall be expended in accordance with the provisions of the Act and the Management Plan.



MANAGEMENT PLAN
FOR
WILLYAMA COMMON

PART B
LOCAL RULES FOR PASTURAGE OF STOCK
AND
IMPOUNDING OF STOCK – TRUST RANGER DUTIES

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The administration, management and use of the Willyama Common shall be carried out in accordance with the:

- (i) *Commons Management Act, 1989;*
- (ii) *Commons Management Regulation, 2001;*
- (iii) Willyama Common Management Plan; and
- (iv) *Commons By-law, 1996,*

referred to herein-after as the “Act”, the “Regulation”, the “Management Plan” and the “By-law”, respectively.

The rights of Commoners to use the Common are specified in the Act, Regulations, Management Plan and By-law. The Broken Hill City Council which has been appointed to manage the affairs of the Trust has determined the following Local Rules in order to regulate the use of the Common for the benefit of all Commoners.

LOCAL RULES FOR PASTURAGE OF STOCK

A GENERAL RULES

1 Application

The Local Rules are complimentary to and consistent with the provisions of the Act, Regulations, Plan of Management and By-law.

2 Revision

The Local Rules may be reviewed or varied by the Trust at the Annual General Meeting of Commoners or a Special General Meeting of Commoners called for this specific purpose.

3 Penalties

The Trust may impose penalties for breaches of the Local Rules as provided in the individual Rules.

In addition the Trust may remove a Commoner who breaches the Local Rules from the Commoners Roll for an appropriate period determined by the Trust.

A Penalty Unit is defined in the Regulations.



4 Causing Nuisance

A Commoner who, in the opinion of the Trust, persistently causes nuisance so as to cause unrest and trouble among the Commoners, may, at the determination of the Trust, be removed from the Commoners' Roll and forfeit all rights to use the Common.

5 Complaints

Any complaints regarding the Common, the Trust or another Commoner shall be made in writing and signed by the complainant, and be lodged with the Secretary of the Trust. Any complaint received shall be considered at the next meeting of the Trust.

6 Pecuniary Interest

If a Commoner has a direct or indirect pecuniary interest in a matter being considered or about to be considered at a Commoners' Meeting, the Commoner must as soon as possible after the relevant facts have come to the Commoner's knowledge disclose the nature of the interest at the Commoners' Meeting. In the case of a disagreement at the meeting as to the existence of a pecuniary interest, a decision by a majority of Commoners present at the meeting will determine whether or not a pecuniary interest is deemed to exist. The majority of Commoners present at the meeting will also decide, taking into consideration the nature of the pecuniary interest, whether the affected Commoner must leave the meeting, or may remain at the meeting but not vote on any motion concerning the matter under consideration.

7 Pasturage Areas

The grazing of stock on the Common is confined to the stock pasturage area identified in this Management Plan.

8 Authority to Pasture Stock

The pasturage of stock upon the stock pasturage area is restricted to registered Commoners only.

9 Serious or Repeated Breach of Rules

Any Commoner seriously or repeatedly breaching these rules and/or the provisions of the Act and Regulation will be removed from the Commoners' Roll and lose all entitlements for a period set by the Trust at a Trust Meeting.



B RULES FOR COMMONER'S ENTITLEMENTS

1 Number of Head

The maximum number of beasts which a Commoner may depasture on the stock pasturage area (based on the stocking rate) has been set by the Trust at 4 beasts per Commoner, based on information provided by the Department of Infrastructure, Planning and Natural Resources for stocking rates in the far-western region. Given the fact that 10 sheep or goats are equivalent to 1 beast, the maximum number of stock which a Commoner may depasture on the stock pasturage area at any one time is as follows:

Description of Stock and Maximum Number Per Commoner

Cattle and horses: maximum combined of 4 per Commoner (also see Rule B4)

OR

Sheep and goats (milking): maximum combined of 40 per Commoner

- *These figures may vary in accordance with Commoner numbers*
- *A combination of different stock is permitted*

The annual stocking rate shall be reviewed at a Special General Meeting called during March each year. Should seasonal conditions subsequently warrant a variation to the stocking entitlement then the variation shall be determined by the Trust as set out in Rule (B)(5) below.

The Trust shall also reserve the right to reduce the maximum number of beasts which a Commoner may depasture on the Common, if demand for stock pasturage from all Commoners exceeds the stocking rate.

2 Breaches of Approved Entitlements

Any breach of the stocking entitlements as determined by the Trust will incur a penalty of one (1) penalty unit per head in excess of the entitlement allowed at the time. In addition loss of Commoners rights may also apply for a period as determined by the Trust.

3 Other Stock

Stock other than cattle, sheep, goats (milking) or horses are not permitted to be depastured on the Common without the prior approval of the Trust.



4 Horses Entitlements

The maximum number of horses depastured on the Common is restricted to one (1) per person per Commoner's household unless proof that extra horses are required - for example for participation in equestrian sports or as working horses. A breach of this rule will incur a penalty of one (1) penalty unit per horse in excess of the approved number.

5 Seasonal Stocking Rates - Common Closure

It is the responsibility of the Trust to periodically review and make determination as to the appropriate stocking rate of the Common. In the event of poor seasons or other adverse seasonal influences, the Trust may vary stocking rates to suit conditions or in extreme circumstances may close the Stock Pasturage Area altogether. In exercising such actions the Trust shall take into account meteorological forecasts, markets, fodder cost, ground cover, land degradation and any other natural resource or environmental condition.

The fundamental criteria for determination of the stocking rate shall be the percentage of ground cover.

6 Removal of Stock

Should ground cover be generally reduced to less than 70%, as determined by the Trust, stock shall either be removed from the area exhibiting less than this level of ground cover or removed from the Common. In the event of a dispute arising regarding ground cover, the Western Lands Commissioner shall be the arbitrator.

7 New Stock

All new stock proposed to be depastured on the Common will require proof of ownership. Proof of ownership is to be sighted by a Trust officer or Trust Ranger otherwise stock will not be allowed to be placed on the Common. Grazing fees for such new stock is to be prepaid prior to the stock being accepted onto the Common.

8 Stock Movements - Notice to be Given

Forty eight (48) hours notice must be given to the Trust Ranger or Trust Officer before any stock can be removed from, or placed on the Common.



9 Herd Book - Registration of New Stock

All progeny of stock depastured on the Common shall be registered in the Common Herd Book within fourteen (14) days of birth and an ear tag issued by the Trust. Grazing fees for all progeny born on the Common will become payable as from the first muster on or after 1 January.

10 Poddy Calves

No poddy calves are allowed on the Common. A breach of this rule is an infringement incurring a penalty of one (1) penalty unit per poddy calf owned by the Commoner.

C RULES FOR STOCK MANAGEMENT - OWNER'S RESPONSIBILITIES

1 Trust Obligation

The Trust takes no responsibility for stock depastured on the Common. It is the sole responsibility of the Commoner to properly care for their stocks' security, condition and health.

2 Straying Stock

Should a Commoner's stock stray or escape from the Common boundaries it is the responsibility of that Commoner to return their stock to the Common. Failure to do so will result in the Trust imposing a fee on the Commoner to cover costs incurred in the removal of the stock by the Trust Ranger.

The Trust may direct that any stock that persistently stray or escape from the Common and/or cause a nuisance must be removed from the Common.

3 Swapping of Stock

The swapping of stock between a property and the Common is not permitted. Stock may only be removed in accordance with Rule (B)(8). Any stock replacing removed stock become "New Stock" and are subject to Rule (B)(7).

4 Drenching

All stock must be deloused and drenched before being placed on the Common. A breach of this rule is an infringement incurring a penalty of one (1) penalty unit per head of untreated stock held by the Commoner.



5 Stock Identification

All stock must be ear tagged and branded with owners own identification brand before being placed on the Common. Stock must wear ear tags issued by the Trust and such ear tags are to be obtained from the Trust Secretary. The first ear tag for each head of stock will be issued free of cost, but payment will be required for any replacement ear tags. Payment for replacement ear tags is to be on a cost recovery basis for the provision of the service by the Trust.

6 Bull Calves

All bull calves must be marked before reaching the age of six (6) months or removed from the Common. A breach of this rule will incur a penalty of point five (0.5) of a penalty unit per bull calf held by the Commoner.

7 Bulls

No bulls are allowed on the Common. A breach of this rule will incur a penalty of one (1) penalty unit per bull held by the Commoner.

8 Stallions

No stallions are allowed on the Common. A breach of this rule will incur a penalty of one (1) penalty unit per stallion held by the Commoner.

9 Steers

All steers must be removed off the Common on or before reaching 12 months of age. Penalty for such a breach is point five (0.5) of a penalty unit.

Notwithstanding, a Commoner may retain one steer to kill for an additional period not exceeding 6 months without penalty. However, upon written request to the Trust, an extension of this period may be granted.

10 Brands and Proof of Ownership

Before stock are placed on the Common a full description of the stock together with brands must be lodged with the Secretary. The owner must at the same time certify in the Herd Book that such stock are his property. Should any Commoner register in his/her name any stock belonging to another person both Commoners (if the lawful owner is a Commoner) involved shall be liable to a penalty not exceeding one (1) penalty unit per head plus withdrawal of Commoners Rights.



11 **Musters/Working Bees**

- (a) The Trust may order a general muster of stock depasturing on the Common on an as needs basis.

The holding of general musters will be notified in writing to all Commoners two weeks before the programmed muster.

- (b) It is the responsibility of all Commoners depasturing stock to attend the starting point of a muster at 8.00 am and remain and assist until the muster is finished.
- (c) During a muster, parents have the responsibility to ensure, in the interest of safety and risk management, that no children (under the age of 17) are allowed in or near the mustering yards. Any Commoner has the right and authority of the Trust to order any child or children out of and/or away from the mustering yards.
- (d) Drenching and delousing fees will be determined by the Trust on a cost recovery basis.

Accounts for drenching and delousing at musters will be issued by the Trust and are to be paid within 14 days of receipt of the account. Failure to pay within such time will incur a penalty equivalent to 50% of the account.

- (e) Any Commoners wishing to muster their stock must notify the Trust Ranger and/or Secretary of their intentions to avoid any confusion or contravention of any Rules.
- (f) It shall be a condition of enrolment that each Commoner or their nominee must attend all working bees. Commoners who fail to comply with this rule will be levied a charge of \$5.00 per head of stock per working bee in lieu of their attendance.

12 **Sick or Injured Stock**

It is the responsibility of each owner to treat their sick or injured stock. In the event of an owner failing to attend to such stock, treatment may be administered by the Trust Ranger on a cost recovery basis.

Any animal found on the Common infected with any contagious or infectious disease that is beyond treatment (where necessary confirmed by a veterinarian) may be destroyed by the Trust Ranger following the giving of notice to the owner describing the animal and stating that it is the Trust intention to destroy such animal. It is to be understood that such destruction shall not entail any liability at common law or otherwise upon any person giving or acting under any such direction by the Trust. All cost incurred by the Trust will be recovered from the owner on a cost recovery basis. Such a breach in owner's responsibility will also incur a penalty not exceeding one (1) penalty unit per head treated.



13 Dead Stock

Disposal of dead stock is the responsibility of the respective owner. Should the owner fail to do so within twenty four (24) hours the Trust Ranger or Trust Officer will make arrangements for disposal. All costs incurred in completing such disposal will be the responsibility of the owner who will be billed by the Trust accordingly and be liable to a penalty not exceeding one (1) penalty unit of every head of stock not satisfactorily removed or destroyed.

Where the owner carries out this responsibility the owner must consult and obtain the approval from the Trust Ranger or Trust Secretary as to the method and place of disposal. In all case fire bans must be observed.

14 Absence of Commoner

Should a Commoner be away for any period of time, it is that Commoner's responsibility to contact the Trust and inform it of the nominated person who is responsible for that Commoner's stock, in case of any injury, sickness or death of that Commoner's stock during his absence.

15 Maintenance and Vandalism

It is expected that Commoners aid the Trust in maintaining the stock pasturage areas by reporting any vandalism and general maintenance needs to the Trust Ranger.

D GRAZING FEES, MEMBERSHIP FEES AND OTHER CHARGES

1 Membership Fees

Every Commoner shall pay an annual Membership Fee to the Trust by 31 December.

2 Payment Date for Grazing Fees

Except for grazing fee payments under Rule (B)(7), all grazing fees as determined by the Trust must be paid quarterly by the first day of January, April, July and October in each year.

3 New Stock

Any stock placed on the Common after the quarterly payment date will incur the full quarterly fee as no discounts will be allowed for part of the quarter.



4 Refunds

No fees will be refunded for any reason.

5 Non-Payment of Grazing Fees or Other Charges or Penalties

Where a Commoner has not paid his/her fees or any penalty within 14 days, the Trust may take either or both of the following actions as it may deem appropriate:

- (a) The stock recorded in the Herd Book as belonging to the Commoner be impounded and sold by the Trust to recover the debts and any costs. All excess proceeds over the debts and costs incurred will be returned to the Commoner.
- (b) The Commoner's entitlements be withdrawn and his/her name removed from the Commoners Roll.

6 Re-enrolment

In the event of a Commoner being suspended from the Roll for non payment of fees that Commoner shall be eligible to apply for re-enrolment following expiry of three months after the effective suspension date and the payment of a re-enrolment fee of point two (0.2) of a penalty unit together with outstanding debts plus interest levied in accordance with Commons Management Regulation, 1996.

7 Setting of Fees and Charges

All annual fees and charges shall be set at the Annual General Meeting pursuant to the Model By-law of the Commons Management Regulation 1996.



IMPOUNDING OF STOCK - TRUST RANGER DUTIES

For the benefit of all Commoners and other Common users, it is important that the rules stated in the Local Rules for Pasturage of Stock are followed. Breaches of these rules may result in the impounding of the stock concerned.

Stock will be impounded under the following circumstances.

- Stock located outside the designated stock pasturage areas
- Stock on the stock pasturage areas which is unregistered or owned by non-enrolled Commoners
- Stock identified in excess of 4 beasts per Commoner will be treated as unregistered stock
- In circumstances considered by the Trust as necessary (e.g. mismanaged or ill treated stock, inappropriately behaved stock, general stock identification, etc)

In order for the Trust to manage the Common in relation to stock pasturage, a Trust Ranger is employed by the Trust as per Section 8(3) of the Commons Management Act, 1989. As part of the Trust Ranger's day to day activities, the following duties are considered necessary.

- Regular inspection of stock to ascertain that stock depastured are duly registered in the herd book and that the fees thereon are duly paid
- To report all strayed and missing stock to the Trust and to the owners thereof
- To impound, in the name of and under a general authority from the Trust, all stock illegally on the Common
- To regularly inspect and clean out troughs at all watering points provided for stock
- To generally become acquainted with the topography of the stock pasturage areas, the stock depastured and movements of stock
- To plot the fencing, note the condition and implement repairs

Other duties to be carried out by the Trust Ranger which relate to the whole of the Common and the various users include the following.

- The general policing and inspection of the Common and the appropriate uses within the guidelines of this Plan of Management
- To report to the Trust any person who in any way infringes any provision of the *Commons Management Act, 1989, Commons Management Regulation, 2001, Local Government Act, 1993* and policy statements as per this Common Plan of Management



- To plot noxious weeds in order that a plan to eradicate them may be introduced
- To take whatever steps are necessary to have dogs straying on the Common impounded or eliminated

Upon impounding of stock by the Trust Ranger, notice of such impounding shall be undertaken in the following manner:

- Recording in the Poundkeeper's book
- To the owner of the stock (if known) by way of post within 24 hours
- By advertisement in a local newspaper, once per week, of all animals impounded
- By notice exhibited on the notice board at the pound and conspicuous places on the Common

Prior to the release of the impounded stock to the identified owner, a fee totalling all costs incurred as a result of impounding of the stock must first be paid to the Trust. This fee will include driving charges, expenses of advertising, impounding fee, release fee and deterrent fee.

In the event that no owner of the stock is located after one week of impounding, the stock shall be sold by auction to the highest bidder.

Animals impounded by the Trust may be destroyed if:

- diseased, injured, starved or if in any other way infirmed;
- the animal has been unsuccessfully sold at auction; or
- the RSPCA has been informed, inspected the animal(s) concerned and approved of such action.



MANAGEMENT PLAN
FOR
WILLYAMA COMMON

PART C
SUPPORT DOCUMENT

527/03



PART 1 BACKGROUND

1. INTRODUCTION

The Willyama Common Management Plan has been prepared in accordance with Section 25 of the *Commons Management Act, 1989* and Clause 30 of the *Commons Management Regulation, 2001*, replacing Clause 9(1) of Schedule 5 of the *Commons Management Act 1989*.

With the introduction of the *Common Management Act, 1989*, greater flexibility is available to managing Trusts to allow a broader and more general purpose usage of the common lands. Under the Commons Act of 1898, Commons were permitted to be used only for the grazing and watering of stock.

The purpose of the Management Plan is to address the specific uses for which the Willyama Common may be used in terms of the Commons Management Act and Regulations.

In recent years, many requests have been received from the Broken Hill Community for alternative uses of Common land. Development proposals received to date include those related to the establishment of a quandong farm, eucalyptus distillery, archery range and recreational vehicle area. A number of recreational activities are currently occurring on the Common that are not permitted.

Until such time as a Management Plan is adopted by the Minister, any development or general usage of Common land by the Community cannot be legalised.

This Management Plan Support Document contains the necessary background information and framework to provide for effective management and control of the Willyama Common.

The Willyama Common covers an area of approximately 87 km² (8 700 hectares) surrounding the City of Broken Hill, in far western New South Wales. The Common was created in the 1890's to provide local Commoners with land to graze and mature stock. Since that time, the Common has been subjected to grazing pressures, vegetation removal, and fragmentation following the excise of land for:

- (i) mining activities;
- (ii) the issue of Western Lands Leases;
- (iii) freehold land;
- (iv) the creation of Crown Reserves; and
- (v) the creation of the Living Desert Reserve.



The Willyama Common is currently managed by Broken Hill City Council (the Trust) under a Transitional Management Plan in accordance with Clause 9, Schedule 5 of the *Commons Management Act, 1989*. The Transitional Management Plan provides for the use of the Common by:

- (i) Commoners for pasturage and watering of stock;
- (ii) Commoners for the collection of fallen timber or underwood, subject to the permission of the trustee and subject to payment to the trustee of any applicable charge fixed by the by-law in force in respect of the Common; and
- (iii) a person who is a genuine carrier, teamster, traveller or drover for pasturing animals that the person is using for carriage or riding or is actually driving (for a period not exceeding 3 consecutive days or such extended period as may be necessitated by rain or flood in the vicinity of the Common).

The use of the Common for other activities and purposes is not permissible under the existing Transitional Management Plan.

A Management Plan, prepared in accordance with the relevant legislation, is required by the Minister for Land and Water Conservation before other community purposes and developments can be considered for the Willyama Common.

This Management Plan has been developed as the framework under which future management of the Common can be undertaken by the Trust. The Management Plan draws extensively on the Willyama Common Land Assessment (the Land Assessment) prepared for Broken Hill City Council by R.W. Corkery & Co. in 2000.

2. OBJECTIVES

The objectives for the future usage of the Common in accordance with this Plan of Management are as follows.

- Administer the *Commons Management Act, 1989* and the *Commons Management Regulation, 2001*
- Facilitate the orderly development of the City of Broken Hill
- Provide for the traditional rights of Commoners to pasturage and water for stock
- Provide an effective management framework and guidelines under which the following activities can be lawfully performed on the Common

Land Management and Conservation

- Improvement of Common land
- Landcare and land rehabilitation (including tree planting)



- Environmental protection
- Nature conservation
- Heritage conservation
- Aboriginal heritage conservation
- Bushfire control
- Noxious weed and vermin control

Mining and Extractive Industries

- Mineral exploration
- Mining
- Extraction of sand and gravel

Recreation and Tourism

- Passive recreation (walking, cycling, picnicing and camping)
- Fossicking (mineral and relic)
- Rifle ranges
- Gun clubs
- Archery clubs
- Model aircraft clubs
- Horse riding
- Trotting horses and horse training
- Motorbikes - engine capacities less than or equal to 250 cubic centimetres only, and restricted to the "Motorbike Area"
- Registered motor vehicles - only for the purpose of accessing Common land for passive recreational activities
- Tourism
- Tourist and educational facilities

Commercial Agriculture and Horticulture

- Plantation agriculture and other agricultural/horticultural activities
- Apiary sites

Urban / Industrial Development and Community Purposes

- Community Purposes
- Health and engineering services
- Educational studies
- Telecommunication facilities and services
- Animal boarding



- Temporary dwellings approved by the Trust
- Services, infrastructure and utilities

Other Land Uses

- Other activities or land uses approved by the Trust, subject to their compatibility with the findings of the Willyama Common Land assessment study and providing they do not negatively impact on the natural and cultural attributes of the Common

3. DESCRIPTION AND STATUS

3.1 Location and Area

The Willyama Common covers an area of approximately 87 km² (8 700 hectares) surrounding the City of Broken Hill, in far western New South Wales (**Figure 1.1**).

Since its creation, the Common has become fragmented through the excise of numerous parcels of land to accommodate activities inconsistent with existing legislation of the time. **Figure 1.2** illustrates the current extent of the Willyama Common and the excised parcels of former Common land that are enclosed by the Common.

3.2 History

The Willyama Common was created during the late nineteenth century through the gazettal of three main areas.

- Reserve 2421 (3 116.08 hectares) – 4 September 1886 (Southern Part)
- Reserve 5498 (3 594.83 hectares) – 12 February 1888 (North-western Part)
- Reserve 23158 (4 134.27 hectares) – 8 November 1895 (North-eastern Part)

Since 1895, a number of land parcels have been excised from the Common to provide for Community purposes inconsistent with existing legislation of the time. The largest of these land parcels is the Living Desert Reserve (2 400 hectares) north of Broken Hill, which was excised from the Common in 2001. Today, the Common covers a fragmented area of approximately 8 700 hectares.

Before mining and settlement began in the Broken Hill area, the area supported pastures of saltbush and bluebush, mulga and belah trees on the hills and ridges, and river gums along the non-perennial watercourses (Solomon, 1988). The mineral discoveries at Broken Hill in the 1880's resulted in rapid population increase and an increase in demand for fuel, food and transport. During this time, the Common was used for the grazing of large numbers of sheep and cattle (held near the town in readiness for slaughtering), as well as horses, bullocks and camels for transport and goats for milking. Under the Commons Act of 1898, only grazing and maturing of stock were permitted on the Common. However, native trees and shrubs on the Common were felled to provide



timber for use in the mines and fuel for domestic heating (Turner and Associates, 1983). Mulga trunks in particular were used as props in the underground mines. The effects of vegetation clearing, overstocking with sheep and drought lead to the area surrounding Broken Hill City being entirely denuded of vegetation within a few years of settlement (Solomon, 1988).

The widespread destruction of vegetation within the Common resulted in extensive wind and water erosion, frequent dust storms, and the wind-blown sand drifts in the built up areas of Broken Hill City. Dust storms in Broken Hill were recorded as early as 1886 and caused damage to private residences, mining machinery and infrastructure (Solomon, 1988).

As a result of these impacts it was proposed that areas of land adjacent to the City should be fenced off from grazing animals and planted with trees and shrubs to control the erosion. In 1936, the Zinc Corporation fenced off a 20 hectare area and planted saltbush and another 2 500 trees which included eucalypts, acacias, black oak, bullock bush and tea trees. The trees were sourced from nurseries established at the mine. The area was irrigated with wastewater from showers and septic tanks. The mines and Council were then prompted to cooperate to fence a belt of land a half mile wide around the town to exclude grazing and burrowing animals and allow natural regeneration, and this area became the Regeneration Reserve. Some wind-eroded areas were furrowed to promote the collection and germination of seeds and some areas adjoining the City to the South have been planted with small trees and shrubs to supplement natural regeneration. Subsequent additions to the Regeneration Reserve meant that Broken Hill was nearly encircled by regeneration areas. (Turner and Associates, 1983; Solomon, 1988).

Overgrazing of the Common was still evident in the 1940's when dairy stock were reportedly permitted to graze the Common regardless of the available pasture and land conditions. Hence, the implementation of measures by the then Soil Conservation Service of NSW to monitor and limit stocking rates within the Common was of further assistance to the regeneration of the Common. With the regeneration of the Common, dust storms became much less frequent and intense.

There are other improved areas within the Common. The Twin Lakes area is between the then Zinc Corporation and New Broken Hill Consolidated offices. The plantation established as the regeneration nursery was expanded in about 1950 and an artificial lake was added to make the Twin Lakes area. Also, in 1967 North Broken Hill Limited opened the Imperial Lake and surrounding recreational facilities (Solomon, 1988).

The Trust is responsible for determining the stocking rate or safe carrying capacity for Common land. The stocking rate reflects the number of stock per unit area of land that can be grazed whilst maintaining the land in good condition, and should normally be set at a level that will carry sheep for approximately twelve-months into a drought without causing damage to soils or pasture (NSW Soil Conservation Service, 1976). The stocking rate is viewed as an 'average rate' that should be regularly reviewed in accordance with changing soil and pasture (vegetation) conditions.

In 1986, the stocking rate for the Common was established at 216 beasts (1 beast = 1 horse/cow = 10 sheep/milking goats) or 1 beast per 54 hectares. From 1985-1993, an average of only 20 beasts (1 beast per 467 hectares) were recorded on the Common Herd



Book. The decrease in demand for stock grazing areas since that time is reflected in the number of stock currently recorded on the Common Herd Book which totals 3 in number. This equates to 1 beast per 2 900 hectares and is substantially below the stocking rate of the Common.

3.3 Status

The Willyama Common is administered by the Willyama Common Trust, which was established under the provisions of the *Commons Management Act, 1989*. The Broken Hill City Council has been appointed by the Minister for Land and Water Conservation to manage the affairs of the Trust and has statutory responsibilities for care, control and management of the Common.

3.4 Planning Controls

3.4.1 Planning Instruments

The Willyama Common falls within the City of Broken Hill Local Government Area (LGA), as gazetted on 4 September 1998 and is covered by the Broken Hill City Council *Local Environment Plan, 1996* (LEP) as amended on 21 March 2001 (Amendment No.2).

The following zone classifications apply to land within the Willyama Common (see **Figure 1.3**).

- Zone 1(a) General Rural Zone – the majority of Common land
- Zone 1 (c) Rural Small Holdings Zone – a small part of the Common on the north-eastern side of Broken Hill
- Zone 1 (m) Mining Zone – that part of the Common associated with the Line-of-Lode mineralisation
- Zone 7(a) Environment Protection (Regeneration Reserve) Zone – that part of the Common around the perimeter of Broken Hill that has been fenced to provide continuity of Regeneration Reserve corridor

3.4.1.1 Zone 1(a) General Rural Zone

The objectives of Zone 1(a) General Rural Zone are to promote the proper management and utilisation of resources by:

- (a) protecting, enhancing and conserving:
 - (i) agricultural land in a manner which sustains its efficient and effective agricultural production potential;
 - (ii) soil stability by controlling and locating development in accordance with soil capability;



- (iii) valuable deposits of minerals, coal petroleum and extractive materials by controlling the location of development for other purposes in order to ensure the efficient extraction of those deposits;
 - (iv) trees and other vegetation in environmentally sensitive areas where the conservation of the vegetation is significant to scenic amenity, recreation or natural wildlife habitat or is likely to control land degradation;
 - (v) water resources for use in the public interest;
 - (vi) areas of significance for nature and geological conservation, including areas with rare plants, wetlands and significant habitat; and
 - (vii) places and buildings of archaeological or heritage significance, including Aboriginal relics and places.
- (b) preventing the unjustified development of agricultural land for purposes other than agriculture;
 - (c) facilitating farm adjustments;
 - (d) minimising the cost to the community of:
 - (i) fragmented and isolated development of rural land; and
 - (ii) providing, extending and maintaining public amenities and services.
 - (e) providing land for future urban development for rural residential development and for development for other non-agricultural purposes, in accordance with the need for that development.

The following developments are not permitted under Zone 1(a) General Rural Zone.

- Motor showrooms
- Residential flat buildings
- Shops (other than general stores not exceeding 200 square metres in gross floor area)

3.4.1.2 Zone 1(c) Rural Small Holdings

The objectives of Zone 1(c) Rural Small Holdings Zone are to promote the development of land identified as suitable for:

- (a) rural residential or hobby farm;
- (b) a range of industrial, storage or intensive livestock keeping purposes which are compatible with the environmental capabilities of the land and which are unlikely to affect land or development in the vicinity adversely; and



- (c) the creation of small holdings to allow an attractive rural lifestyle.

The following developments are not permitted under Zone 1(c) Rural Small Holdings Zone.

- Boarding houses
- Commercial premises
- Hotels
- Motels
- Motor showrooms
- Residential flat buildings
- Road transport terminals
- Shops (other than general stores not exceeding 20 square metres in gross floor area)

3.4.1.3 Zone 1(m) Mining Zone

The objectives of Zone 1(m) Mining Zone are:

- (d) to promote the efficient extraction of metals and minerals from proven and potential ore bearing ground through predominantly traditional underground mining methods; and
- (e) to facilitate the efficient extraction of metals and minerals by open-cut mining where:
- (i) the land has been declared unsafe for underground mining; and
 - (ii) the reclamation of the land would enhance the potential reuse of the land.
- (f) to ensure that works associated with mining do not interfere with the natural environment, particularly surface water run-off systems and windblown dust; and
- (g) to facilitate conservation, education, heritage or tourist development related to mining activities in a manner compatible with:
- (i) the continued extraction of metals and minerals;
 - (ii) the environmental capabilities of the land; and the cost of providing public services or amenities.



Development for a purpose other than the following is not permitted under this zone.

- Agriculture
- Advertisements
- Educational establishments
- Extractive industries
- Industries
- Junk yards
- Mines
- Road transport terminals
- Tourist facilities
- Warehouses

3.4.1.4 Zone 7(a) Environment Protection (Regeneration Reserve) Zone

The objectives of Zone 7(a) Environment Protection Zone are to identify and protect land which is environmentally sensitive and in particular:

- (a) to protect significant wildlife habitats;
- (b) to preserve hillsclapes and ridgelines;
- (c) to promote the preservation, conservation and enhancement of major landscape features and indigenous fauna and flora in the city of Broken Hill;
and
- (d) to reduce dust nuisances and erosion.

Any development other than for the purpose of rehabilitation and conservation works is prohibited in Zone 7(a)

3.4.2 General

For any development of land, not requiring consent under a planning instrument, the Western Lands Commissioner will be the determining authority under Part 5 of the *Environmental Planning and Assessment Act, 1979*.



3.5 Physical Features

3.5.1 Geology/Geomorphology

The geology of the Willyama Common (**Figure 1.4**) is complex due to the considerable structural deformation (mainly folding), metamorphism and igneous intrusions that have occurred over the past 1 800 million years (Stevens et al, 1982). The rocks of the Willyama Common form part of the *Willyama Complex* - a group of structurally deformed, metamorphosed sedimentary rocks and subordinate quartzo-feldspathic rocks that include gneiss, pegmatite and minor granitic intrusives.

Outcrop exposures of the Willyama Complex are isolated to four discreet areas within the Common.

1. Metamorphosed sedimentary rocks outcrop extensively in the northern part of the Common and are interspersed with pegmatites comprising coarse-grained feldspar and quartz. These rocks are collectively known as the *Sundown Group* and outcrop on the steeper hills of the area.
2. Quartzo-feldspathic gneisses of the *Nine Mile Group* outcrop in the north-western corner of the Common.
3. The *Alma Granite* outcrops in a relatively well-vegetated area to the east of Alma.
4. The "line of load" outcrop that strikes in a northeast direction through the middle of the Common is characterised by a complex group of gneisses.

A thin layer of recent sediments comprising sand, gravel and clay, cover areas of the Common that lack outcrop. These sediments vary from less than 1 m in thickness, to greater than 10 m.

3.5.2 Landforms Drainage and Soils

3.5.2.1 Landforms

The morphology of the Willyama Common is characterised by a series of low hills, separated by narrow to broad drainage flats. Five landforms subdivisions have been identified (refer **Figure 1.5**).

1. Low hills and rises
2. Narrow drainage flats
3. Rocky hills
4. Broad drainage flats and plains
5. Disturbed areas



In general, the northern parts of the Common (including the excised Living Desert Reserve) are more elevated and characterised by steeper slopes and well-defined drainage lines. In contrast, the southern parts of the common are topographically lower, have gentler slopes and more mature (less well developed) drainage lines.

Hills are typically oriented in a north-easterly direction, in line with the local geological fabric. Local elevations range from approximately 250 m AHD in the north-east to 392 m AHD in the north.

Slopes along the drainage flats are typically less than 5 degrees. The area between the Tibooburra and Sydney roads (north-east of Broken Hill) contains steep rocky slopes with gradients greater than 1 in 3 (Vertical:Horizontal).

3.5.2.2 Drainage and Hydrology

The Willyama Common is situated within the Darling River Basin. The basin covers an area of approximately 155 000 km² and extends from Bourke in the north-east to Wentworth in the south. Major water storages in the region include Stephens Creek Reservoir northeast of Broken Hill and Menindee Lakes to the south-east. Both of these storages contribute to the potable water supply for Broken Hill.

On a local scale, the majority (82 per cent) of the Common covers the catchment of the Stephens Creek Reservoir (**Figure 1.6**). The south-western part of the Common covers part of the catchment of Stirling Vale Creek. Neither of these catchments have permanent watercourses.



Stephens Creek Reservoir

The catchment of Stephens Creek Reservoir is characterised by rocky hills and broad drainage lines that flow in a north to north-easterly direction. Four sub-catchments have been identified within land covered by the Common.

1. Nine Mile Creek (SCR1) - this sub-catchment covers an area of approximately 18.4 km² on the western side of the Common. The main drainage line is shallow and wide and substantial erosion is evident. Nine Mile Creek joins Stephens Creek approximately 8 km north of the Common.
2. Tibooburra Road (SCR3) - this sub-catchment covers an area of approximately 26.3 km², centred on a large unnamed drainage line that is oriented in a north-east direction, generally parallel with the Tibooburra Road. This sub-catchment forms a wide flat valley, with shallow drainage lines and evidence of erosion, between the two highest parts of the Common.
3. North-east Corner (SCR4) - this sub-catchment covers an area of approximately 4.1 km², in the north-eastern corner of the Common. The sub-catchment feeds directly into Stephens Creek Reservoir.
4. Willa Willyong Creek (SCR5) - this large sub-catchment covers an area of approximately 58.6 km², extending from north of the Sydney Road, to south of Menindee Road. This sub-catchment consists of broad drainage flats, with wide shallow creek bed, that drain into Willa Willyong Creek, and then into Stephens Creek Reservoir. This sub-catchment also includes Imperial Lake, an artificial lake located east of Broken Hill that is used as a sediment settling pond for water pumped from Menindee Lakes and Stephens Creek Reservoir.

Stirling Vale Creek

This Stirling Vale Creek catchment covers an area of approximately 26 km², within the south-western corner of the Common. This catchment is characterised by a series of small drainage lines, oriented in westerly and southerly directions, and shallow landforms. The catchment can be divided into three sub-catchments.

1. Stirling Vale Creek – this sub-catchment covers an area of approximately 11.1 km², directly west of Broken Hill. The sub-catchment tracks in a westerly direction away from the Common, before heading south to where it joins Pine Creek.
2. Kellys Creek - this sub-catchment is located in the south-western corner of the Common and covers an area of approximately 10.4 km². The sub-catchment collects runoff from large areas of land disturbed by industry and mining. Kellys Creek flows in a south-west direction from Broken Hill to join Stirling Vale Creek.



3. Acacia Creek - this sub-catchment covers an area of 4.5 km² on the southern side of Broken Hill and incorporates the airport and surrounding lands. The sub-catchment is characterised by relatively flat, low terrain.

The impermeable nature of the rocks in the Willyama Common, coupled with low availability of water for groundwater recharge, means that groundwater occurrences in the Broken Hill area are very limited and generally of poor quality. Of the few groundwater bores sunk within the Common, those that have intersected water have yielded low quantities of highly saline groundwater. In a number of instances, a number of bores have ceased production after short periods of time.

3.5.2.3 Soils

The soils of the Willyama Common are derived from either the bedrock geology or wind-blown and/or water-washed material. Soil types are closely related to landform and are generally categorised into the following six classes.

- Low hilltops
- Hilltops
- Upper slopes
- Footslopes
- Lower slope of low rise
- Broad drainage flats

Shallow, acid to alkaline skeletal soils are developed on the hills and rocky outcrops of the Common. Upper slopes and footslopes are covered by saline to highly alkaline, deeper duplex and gradational soils including desert loams, red earths, solonised brown soils and some buried soils. Deeper soil profiles are developed on the drainage flats and characterised by solonised brown soils. These profiles may extend to 3 m depth and although typically strongly alkaline, often contain saline areas.

All soil types on the Common have high erosion potential if stabilising vegetation cover is removed or water flow is concentrated. Salinity is evident in many areas on the lower slopes and drainage flats.

3.6 Environmental Aspects

3.6.1 Source of Data

Meteorological information (**Table 1**) has been sourced from the Bureau of Meteorology Station No. 47007 located on Patton Street, Broken Hill (31° 58' 33"S, 141° 28' 03"E, elevation 315 m). This station was opened on 1 January 1889 and provides a long-term historical record of meteorological data for the Broken Hill district.



TABLE 1
Meteorological Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
TEMPERATURE (°C)												
Mean Daily Maximum	32.7	32.2	28.9	23.8	19.1	15.6	15.1	17.2	21	24.9	28.6	31.3
Mean Daily Minimum	18.4	18.2	15.5	11.7	8.5	6.2	5.3	6.3	8.8	11.7	14.6	17
RELATIVE HUMIDITY (%)												
Mean 9.00 am	44	47.7	50.8	58.3	69.1	76.4	73.6	64	54.4	46.5	43.4	42.2
Mean 3.00 pm	27.9	30.1	32.2	38.8	47.8	53.6	49.5	41.1	34.5	30.2	27.3	26.7
RAINFALL (mm)												
Mean No. of Cloudy Days	6.1	4.5	4.1	5.8	8.8	8.8	8.6	6.8	6	6.6	6.7	6.1
Mean Monthly	23.6	24.6	20.1	18	23	21.7	18.8	18.5	20.8	25.1	20.2	21.8
Mean Raindays	3.1	3.1	2.8	2.9	4.4	5.2	5.6	5.2	4.4	4.7	3.7	3.4
WIND												
Mean No. Days Strong Wind	0.7	0.8	0.6	0.2	0.3	0.3	0.7	1.1	1.6	1.6	1.2	0.9
Mean No. Days Gales	0	0	0	0	0	0.1	0.1	0.1	0.2	0.1	0.1	0.1
Source: Bureau of Meteorology Station No. 47007, Patten Street Broken Hill												

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3.6.2 Rainfall

Broken Hill receives an average annual rainfall of 256.2 mm. The highest rainfall occurs in October with a monthly average of 25.1 mm while the lowest rainfall occurs in April with a monthly average of 18 mm. The mean number of rain days per month ranges from 2 to 6.

3.6.3 Temperature

The temperature regime experienced by Broken Hill is characteristic of arid Australia, typified by high summer temperatures and cool winters. Maximum temperatures occur during days in January with, an average daily maximum of 32.7°C. The coldest temperatures occur during winter nights in July, with an average daily minimum of 5.3°C. The highest temperature recorded in Broken Hill since 1889 was 46.8°C in January 2001.



3.6.4 Relative Humidity and Evaporation

Although no evaporation data is available from the Bureau of Meteorology station at Broken Hill, evaporation is expected to be high due to the temperature regime and low humidity levels.

Relative humidity is generally higher in the morning than the afternoon. Humidity data indicates that the maximum average humidity of 76.4 per cent is experienced at 9 am in June. The minimum average humidity level of 27.9 per cent is experienced at 3 pm in January.

3.6.5 Wind

Wind speeds experienced in Broken Hill are generally low. This is reflected in the wind data, which indicates that the maximum average number of days in which strong winds are experienced, occur in September and October (1.6 days). Gale force winds are rarely experienced and occur on average on less than 1 day per month.

3.6.6 Vegetation

A flora investigation of the Willyama Common was conducted by Mr Geoff Cunningham of Geoff Cunningham Natural Resource Consultants Pty Ltd, as part of the Land Assessment study. The principal objectives of the flora investigation were to provide information on the floristic features of each of the five principal landforms (refer Section 3.5.2.1) and identify areas of high, medium and low floral value within the Common.

The flora of the Willyama Common is dominated by a large number of shrub species, with very few trees. Although many of the plant species occur on a number of landform units (**Table 2**), the community structure and composition varies between, and often within, a single landform unit.



TABLE 2

Vegetation Community Structure and Dominant Tree, Shrub and Ground Layer Species for the Willyama Common Land Units

NOTE - * denotes introduced species

LAND UNIT	COMMUNITY and STRUCTURE	DOMINANT TREE SPECIES	DOMINANT SHRUB SPECIES	DOMINANT GROUND COVER SPECIES
1a. ROCKY HILLS - top	Mulga [<i>Acacia aneura</i>] - Dead <i>Finish</i> [<i>Acacia tetragonophylla</i>] open woodland to isolated trees; Lobe-leaf Hopbush [<i>Dodonaea lobulata</i>] - Cassia [<i>Senna</i> spp.] Bluebush [<i>Maireana</i> spp.] open shrubland with isolated trees	Mulga [<i>Acacia aneura</i>], Dead <i>Finish</i> [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>]; Butterbush [<i>Pittosporum phylliraeoides</i>]	Lobe-leaf Hopbush [<i>Dodonaea lobulata</i>], Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Puntly Bush { <i>Senna artemisioides</i> ssp. <i>filifolia</i> }, Jockey's Cap [<i>Prostanthera striatiflora</i>], Green Fuchsia-bush [<i>Eremophila serrulata</i>], Spiny Fan-flower [<i>Scaevola spinescens</i>], Spiny Saltbush { <i>Rhagodia spinescens</i> }, Black Bluebush [<i>Maireana pyramidata</i>], Low Bluebush [<i>Maireana astrotricha</i>], Turpentine [<i>Eremophila sturtii</i>]	Wild Hops* [<i>Acetosa vesicaria</i>], Shrubby Cress [<i>Arabidella trisecta</i>], Ward's Weed* [<i>Carrichtera annua</i>], Patersons Curse* [<i>Echium plantagineum</i>], Bottle-tree Spurge [<i>Euphorbia stevenii</i>], Three-winged Bluebush [<i>Maireana triptera</i>], Silver-tails [<i>Ptilotus obovatus</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Silky Copperburr [<i>Sclerolaena ericantha</i>], Rock Sida [<i>Sida petrophila</i>], Velvet Potato-bush [<i>Solanum ellipticum</i>], Thargomindah Nightshade [<i>Solanum sturtianum</i>], Violet Twinleaf [<i>Zygophyllum iodocarpum</i>]
1b. ROCKY HILLS - upper slopes	Mulga [<i>Acacia aneura</i>] - Dead <i>Finish</i> [<i>Acacia tetragonophylla</i>] woodland - open woodland to isolated trees	Mulga [<i>Acacia aneura</i>], Dead <i>Finish</i> [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>]	Lobe-leaf Hopbush [<i>Dodonaea lobulata</i>], Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Jockey's Cap [<i>Prostanthera striatiflora</i>], Green Fuchsia-bush [<i>Eremophila serrulata</i>], Spiny Fan-flower [<i>Scaevola spinescens</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Black Bluebush [<i>Maireana pyramidata</i>], Low Bluebush [<i>Maireana astrotricha</i>], Turpentine [<i>Eremophila sturtii</i>]	Ward's Weed* [<i>Carrichtera annua</i>], Three-winged Bluebush [<i>Maireana triptera</i>], Munyeroo [<i>Portulaca oleracea</i>], Silver-tails [<i>Ptilotus obovatus</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Hair-pod Cress [<i>Harmsiodoxa blennodioides</i>], Rock Sida [<i>Sida petrophila</i>], Velvet Potato-bush [<i>Solanum ellipticum</i>], Thargomindah Nightshade [<i>Solanum sturtianum</i>], Sturt's Desert Pea [<i>Swainsona formosa</i>], Violet Twinleaf [<i>Zygophyllum iodocarpum</i>]
1c. ROCKY HILLS - lower slopes and foothills	Mulga [<i>Acacia aneura</i>] - Dead <i>Finish</i> [<i>Acacia tetragonophylla</i>] woodland - open woodland to isolated trees; Bluebush [<i>Maireana</i> spp.] open to sparse shrubland with isolated trees	Mulga [<i>Acacia aneura</i>], Dead <i>Finish</i> [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>]; Miljee [<i>Acacia oswaldii</i>]	Lobe-leaf Hopbush [<i>Dodonaea lobulata</i>], Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Jockey's Cap [<i>Prostanthera striatiflora</i>], Green Fuchsia-bush [<i>Eremophila serrulata</i>], Black Bluebush [<i>Maireana pyramidata</i>], Low Bluebush [<i>Maireana astrotricha</i>]	Ward's Weed* [<i>Carrichtera annua</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Woolly Copperburr [<i>Sclerolaena lanicuspis</i>], Spear-fruit Copperburr [<i>Sclerolaena patenticuspis</i>], Green Copperburr [<i>Sclerolaena decurrens</i>], Thargomindah Nightshade [<i>Solanum sturtianum</i>], Rock Sida [<i>Sida petrophila</i>], Velvet Potato Bush [<i>Solanum ellipticum</i>], Jointed Copperburr [<i>Sclerolaena articulata</i>], Spear Grass [<i>Stipa scabra</i>]



LAND UNIT	COMMUNITY and STRUCTURE	DOMINANT TREE SPECIES	DOMINANT SHRUB SPECIES	DOMINANT GROUND COVER SPECIES
<p>2a. NARROW DRAINAGE FLATS - upper and mid sections</p>	<p>Cassia [<i>Senna</i> spp.] open to sparse shrubland / chenopod [<i>Maireana</i> spp., <i>Atriplex</i> spp., <i>Rhagodia spinescens</i>] shrubland with or without isolated trees or tree clumps; some Mulga [<i>Acacia aneura</i>] - Dead Finish [<i>Acacia tetragonophylla</i>] open woodland</p>	<p>Mulga [<i>Acacia aneura</i>], Dead Finish [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>]</p>	<p>Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Black Bluebush [<i>Maireana pyramidata</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Western <i>Boobialla</i> [<i>Myoporum montanum</i>], Dillon Bush [<i>Nitraria billardieri</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Yanga Bush [<i>Maireana brevifolia</i>], Grey Cassia [<i>Senna artemisioides</i> nssp. <i>sturtii</i>]</p>	<p>Shrubby Cress [<i>Arabidella trisecta</i>], Onion Weed* [<i>Asphodelus fistulosus</i>], Eastern Flat-top Saltbush [<i>Atriplex lindleyi</i>], Ward's Weed* [<i>Carrichtera annua</i>], Camel Melon* [<i>Citrullus lanatus</i>], Round-leaf Pigface [<i>Disphyma clavellatum</i>], Cannonball [<i>Dissocarpus paradoxus</i>], Patersons Curse* [<i>Echium plantagineum</i>], Satiny Bluebush [<i>Maireana georgei</i>], Small Woolly Burr Medic [<i>Medicago minima</i>], <i>Minuria</i> sp., Silver-tails [<i>Ptilotus obovatus</i>], Green Copperburr [<i>Sclerolaena decurrens</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Woolly Copperburr [<i>Sclerolaena lanicuspis</i>], Jointed Copperburr [<i>Sclerolaena articulata</i>], <i>Sisymbrium</i> sp.*, Black Nightshade* [<i>Solanum nigrum</i>], Thargomindah Nightshade [<i>Solanum sturtianum</i>]</p>
<p>2b. NARROW DRAINAGE FLATS - lower section</p>	<p>Chenopod [<i>Maireana</i> spp., <i>Atriplex</i> spp., <i>Rhagodia</i> sp.] open to sparse shrubland; Prickly Wattle [<i>Acacia victoriae</i>] - Dead Finish [<i>Acacia tetragonophylla</i>] open woodland to isolated trees; Prickly Wattle [<i>Acacia victoriae</i>] open woodland; River Red Gum [<i>Eucalyptus camaldulensis</i>] open woodland in some creeklines</p>	<p>River Red Gum [<i>Eucalyptus camaldulensis</i>], Mulga [<i>Acacia aneura</i>], Dead Finish [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>]; Miljee [<i>Acacia oswaldii</i>]; Pepper Tree* [<i>Schinus ariera</i>]</p>	<p>Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Black Bluebush [<i>Maireana pyramidata</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Western <i>Boobialla</i> [<i>Myoporum montanum</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Yanga Bush [<i>Maireana brevifolia</i>], Grey Cassia [<i>Senna artemisioides</i> nssp. <i>sturtii</i>], Bladder Saltbush [<i>Atriplex vesicaria</i>], Old Man Saltbush [<i>Atriplex nummularia</i>], Low Bluebush [<i>Maireana astrotricha</i>], African Boxthorn* [<i>Lycium ferocissimum</i>]</p>	<p>Spreading Saltbush [<i>Atriplex limbata</i>], Round-leaf Pigface [<i>Disphyma clavellatum</i>], Winged Sea-lavender* [<i>Limonium thouinii</i>], Cannonball [<i>Dissocarpus paradoxus</i>], Satiny Bluebush [<i>Maireana georgei</i>], Three-winged Bluebush [<i>Maireana triptera</i>], Silver-tails [<i>Ptilotus obovatus</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Woolly Copperburr [<i>Sclerolaena lanicuspis</i>], Jointed Copperburr [<i>Sclerolaena articulata</i>], Speargrass [<i>Stipa scabra</i>]</p>



LAND UNIT	COMMUNITY and STRUCTURE	DOMINANT TREE SPECIES	DOMINANT SHRUB SPECIES	DOMINANT GROUND COVER SPECIES
<p>3a. LOW HILLS - top</p>	<p>Chenopod [<i>Maireana</i> spp., <i>Rhagodia</i> sp.] open to sparse shrubland with or without isolated trees; Mulga [<i>Acacia aneura</i>] woodland; Mulga [<i>Acacia aneura</i>] - Dead Finish [<i>Acacia tetragonophylla</i>] open woodland with some Prickly Wattle [<i>Acacia victoriae</i>];</p>	<p>Mulga [<i>Acacia aneura</i>], Dead Finish [<i>Acacia tetragonophylla</i>], some Prickly Wattle [<i>Acacia victoriae</i>]</p>	<p>Lobe-leaf Hopbush [<i>Dodonaea lobulata</i>], Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Jockey's Cap [<i>Prostanthera striatiflora</i>], Green Fuchsia-bush [<i>Eremophila serrulata</i>], Spiny Fan-flower [<i>Scaevola spinescens</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Black Bluebush [<i>Maireana pyramidata</i>], Low Bluebush [<i>Maireana astrotricha</i>], Turpentine [<i>Eremophila sturtii</i>], Bladder Saltbush [<i>Atriplex vesicaria</i>], Yanga Bush [<i>Maireana brevifolia</i>], Grey Cassia [<i>Senna artemisioides</i> nssp. <i>sturtii</i>], Woody Cassia [<i>Senna artemisioides</i> ssp. <i>petiolaris</i>], Showy Daisy-bush [<i>Olearia pimelioides</i>]</p>	<p>Desert Chinese Lanterns [<i>Abutilon otocarpum</i>], Shrubby Cress [<i>Arabidella trisecta</i>], Onion Weed* [<i>Asphodelus fistulosus</i>], Hairy-pod Cress [<i>Harmsiodoxa blennodioides</i>], Leek Lily [<i>Bulbinopsis semibarbata</i>], Ward's Weed* [<i>Carrichtera annua</i>], Australian Bindweed [<i>Convolvulus erubescens</i>], Round-leaf Pigface [<i>Disphyma clavellatum</i>], Cannonball [<i>Dissocarpus paradoxus</i>], Patersons Curse* [<i>Echium plantagineum</i>], Bottlewashers [<i>Enneapogon avenaceus</i>], Blue Crowfoot [<i>Erodium crinitum</i>], Green Peppergrass [<i>Lepidium oxytrichum</i>], Satiny Bluebush [<i>Maireana georgei</i>], Black Cottonbush [<i>Maireana decalvans</i>], Three-winged Bluebush [<i>Maireana triptera</i>], Small Woolly Burr Medic [<i>Medicago minima</i>], Bush Minuria [<i>Minuria cunninghamii</i>], Spiked Rice-flower [<i>Pimelea trichostachya</i>], Munyeroo [<i>Portulaca oleracea</i>], Silver-tails [<i>Ptilotus obovatus</i>], Clustered Sunray [<i>Rhodanthe microglossa</i>], Buckbush [<i>Salsola kali</i>], Grey Copperburr [<i>Scleroaena diacantha</i>], Silky Copperburr [<i>Scleroaena eriakantha</i>], Jointed Copperburr [<i>Scleroaena articulata</i>], Rock Sida [<i>Sida petrophila</i>], <i>Sida</i> sp., <i>Sisymbrium</i> sp., Thargomindah Nightshade [<i>Solanum sturtianum</i>], Speargrass [<i>Stipa scabra</i>], New Zealand Spinach [<i>Tetragonia tetragonioides</i>], Violet Twinleaf [<i>Zygophyllum iodocarpum</i>], Climbing Twinleaf [<i>Zygophyllum eremaeum</i>]</p>



LAND UNIT	COMMUNITY and STRUCTURE	DOMINANT TREE SPECIES	DOMINANT SHRUB SPECIES	DOMINANT GROUND COVER SPECIES
3b. LOW HILLS - rocky outcrops	Mulga [<i>Acacia aneura</i>] woodland; Mulga [<i>Acacia aneura</i>] - Dead Finish [<i>Acacia tetragonophylla</i>] open woodland with some Prickly Wattle [<i>Acacia victoriae</i>]; open shrubland, trees absent	Mulga [<i>Acacia aneura</i>], Dead Finish [<i>Acacia tetragonophylla</i>], some Prickly Wattle [<i>Acacia victoriae</i>]	Lobe-leaf Hopbush [<i>Dodonaea lobulata</i>], Silver Cassia [<i>Senna artemisioides</i> nssp. <i>artemisioides</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Jockey's Cap [<i>Prostanthera striatiflora</i>], Green Fuchsia-bush [<i>Eremophila serrulata</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Black Bluebush [<i>Maireana pyramidata</i>], Low Bluebush [<i>Maireana astrotricha</i>], Spiny Fan-flower [<i>Scaevola spinescens</i>], Cough Bush [<i>Cassinia laevis</i>]	Shrubby Cress [<i>Arabidella trisecta</i>], Wild Onion* [<i>Asphodelus fistulosus</i>], Wild Turnip* [<i>Brassica tournefortei</i>], Leek Lily [<i>Bulbinopsis semibarbata</i>], Ward's Weed* [<i>Carrichtera annua</i>], Patersons Curse* [<i>Echium plantagineum</i>], Ruby Saltbush [<i>Enchylaena tomentosa</i>], Silver-tails [<i>Ptilotus obovatus</i>], Clustered Sunray [<i>Rhodanthe microglossa</i>], Buckbush [<i>Salsola kali</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Woolly Copperburr [<i>Sclerolaena lanicuspis</i>], Rock Sida [<i>Sida petrophila</i>], Thargomindah Nightshade [<i>Solanum sturtianum</i>], Speargrass [<i>Stipa scabra</i>]
3c. LOW HILLS - slopes	Mulga [<i>Acacia aneura</i>] - Dead Finish [<i>Acacia tetragonophylla</i>] open woodland; chenopod [<i>Maireana</i> spp., <i>Atriplex</i> sp., <i>Rhagodia</i> sp.] open to sparse shrubland with isolated trees; Prickly Wattle [<i>Acacia victoriae</i>] open woodland; open to sparse shrubland [not dominated by chenopods]	Mulga [<i>Acacia aneura</i>], Dead Finish [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>], miljee [<i>Acacia oswaldii</i>], Butterbush [<i>Pittosporum phylliraeoides</i>]	Bladder Saltbush [<i>Atriplex vesicaria</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Low Bluebush [<i>Maireana astrotricha</i>], Shrubby Rice-flower [<i>Pimelea microcephala</i>], Woody Cassia [<i>Senna artemisioides</i> ssp. <i>petiolaris</i>]	Hairy-pod Cress [<i>Harmsiodoxa blennodioides</i>], Ward's Weed* [<i>Carrichtera annua</i>], Round-leaf Pigface [<i>Disphyma clavellatum</i>], <i>Lotus</i> sp., Small Woolly Burr Medic [<i>Medicago minima</i>], Silver-tails [<i>Ptilotus obovatus</i>], Silky Copperburr [<i>Sclerolaena eriacantha</i>], Jointed Copperburr [<i>Sclerolaena articulata</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Rock Sida [<i>Sida petrophila</i>], Thargomindah Nightshade [<i>Solanum sturtianum</i>], Fuzzweed [<i>Vittadinia cuneata</i>]
4a. BROAD DRAINAGE FLATS - mid and upper sections [FOOTSLOPES]	Black Bluebush [<i>Maireana pyramidata</i>] - Bladder Saltbush [<i>Atriplex vesicaria</i>] chenopod open to sparse shrubland with isolated low trees	Prickly Wattle [<i>Acacia victoriae</i>] or ABSENT	Black Bluebush [<i>Maireana pyramidata</i>], Bladder Saltbush [<i>Atriplex vesicaria</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Yanga Bush [<i>Maireana brevifolia</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Low Bluebush [<i>Maireana astrotricha</i>], Dillon Bush [<i>Nitraria billardieri</i>]; Western Boobialla [<i>Myoporum montanum</i>] in actual drainage lines	Onion Weed* [<i>Asphodelus fistulosus</i>], Leek Lily [<i>Bulbinopsis semibarbata</i>], Wards Weed* [<i>Carrichtera annua</i>], Australian Bindweed [<i>Convolvulus erubescens</i>], Green Copperburr [<i>Sclerolaena decurrens</i>], Cannonball [<i>Dissocarpus paradoxus</i>], Ruby Saltbush [<i>Enchylaena tomentosa</i>], <i>Lotus</i> sp., Satiny Bluebush [<i>Maireana georgei</i>], Bush Minuria [<i>Minuria cunninghamii</i>], Buckbush [<i>Salsola kali</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Silky Copperburr [<i>Sclerolaena eriacantha</i>], Jointed Copperburr [<i>Sclerolaena articulata</i>], Speargrass [<i>Stipa scabra</i>]



LAND UNIT	COMMUNITY and STRUCTURE	DOMINANT TREE SPECIES	DOMINANT SHRUB SPECIES	DOMINANT GROUND COVER SPECIES
4b. BROAD DRAINAGE FLATS - lower section	Black Bluebush [<i>Maireana pyramidata</i>] - Bladder Saltbush [<i>Atriplex vesicaria</i>] chenopod open to sparse shrubland with isolated trees and tree clumps; some narrow-leaf hopbush shrubland to open shrubland	Mulga [<i>Acacia aneura</i>], Dead Finish [<i>Acacia tetragonophylla</i>], Prickly Wattle [<i>Acacia victoriae</i>]	Black Bluebush [<i>Maireana pyramidata</i>], Bladder Saltbush [<i>Atriplex vesicaria</i>], Woody Cassia [<i>Senna artemisioides</i> ssp. <i>petiolaris</i>], Puntly Bush [<i>Senna artemisioides</i> ssp. <i>filifolia</i>], Yanga Bush [<i>Maireana brevifolia</i>], Spiny Saltbush [<i>Rhagodia spinescens</i>], Grey Cassia [<i>Senna artemisioides</i> nssp. <i>sturtii</i>], Low Bluebush [<i>Maireana astrotricha</i>], Harlequin Fuchsia -bush [<i>Eremophila duttonii</i>], African Boxthorn [<i>Lycium ferocissimum</i> *]; Old Man Saltbush [<i>Atriplex nummularia</i>] and Western Boobialla [<i>Myoporum montanum</i>] in actual drainage lines	Onion Weed* [<i>Asphodelus fistulosus</i>], Leek Lily [<i>Bulbinopsis semibarbata</i>], Ward's Weed* [<i>Carrichtera annua</i>], Cannonball [<i>Dissocarpus paradoxus</i>], Ruby Saltbush [<i>Enchylaena tomentosa</i>], Lotus sp., Satiny Bluebush [<i>Maireana georgei</i>], Grey Copperburr [<i>Sclerolaena diacantha</i>], Silky Copperburr [<i>Sclerolaena ericantha</i>], Jointed Copperburr [<i>Sclerolaena articulata</i>], Speargrass [<i>Stipa scabra</i>]
4c. MAJOR CREEK CHANNELS [occur to a limited extent in study area]	River Red Gum [<i>Eucalyptus camaldulensis</i>] open woodland	River Red Gum [<i>Eucalyptus camaldulensis</i>], Pepper Tree* [<i>Schinus ariera</i>]	Old Man Saltbush [<i>Atriplex nummularia</i>]	Onion Weed* [<i>Asphodelus fistulosus</i>], Hexham Scent* [<i>Melilotus indica</i>], Small Woolly Burr Medic* [<i>Medicago minima</i>], Burr Medic* [<i>Medicago polymorpha</i>], Couch Grass* [<i>Cynodon dactylon</i>], Psoralea sp., Sow Thistle* [<i>Sonchus oleraceus</i>], Flatweed* [<i>Hypochaeris radicata</i>]
5. DISTURBED AREAS	CONTAINS SMALL AND SCATTERED AREAS OF LAND UNITS 1 to 3 ABOVE interspersed with urban and infrastructure sites, mine dumps and associated workings, recreation areas and areas of planted native [often non endemic] and exotic trees and shrubs			



Shrubs are particularly abundant on the rocky and more elevated areas. Chenopods (the saltbushes and bluebushes) are the dominant shrub species and although they occur across all landform units, they are most abundant on the footslopes and broader drainage flats. In contrast, the few tree species present tend to occur on all landform units, in a variety of community combinations.

Weed species are common within the vegetation communities of the Common. Introduced weed species include three introduced Medics (*Medicago laciniata*, *M. mimina*, *M. polymorpha*) that are useful pasture species. The most common weed is Ward's Weed (*Carrichtera annua*) that is found in all communities. Other common weed species include the following.

- Onion Weed (*Asphodelus fistulosus*)
- Wild Hops (*Acetosa vesicaria*)
- Paterson's Curse (*Echium plantagineum*)
- Winged Sea-lavender (*Limonium thouinii*)
- Camel Melon (*Citrullus lanatus*)
- Paddy Melon (*Cucumis myriocarpus*)

African Boxthorn (*Lycium ferocissimum*) is present on the Common. The Trust is currently implementing a weed control program targeting this species.

The protected Sturt's Desert Pea (*Swainsona formosa*) occurs over the Common but no other Threatened flora species were recorded during the field survey conducted for the Land Assessment study.

3.6.7 Fauna

An investigation of vertebrate fauna and fauna habitats on the Willyama Common was undertaken by Dr Leong Lim of Countrywide Ecological Service, as part of the Land Assessment study. The objectives of the fauna investigation were as follows.

- To provide information on the fauna and flora habitats of each landform unit within the Common, including any protected dominant fauna communities and threatened species
- To provide recommendations of what is considered an appropriate level of assessment for future proposals likely to significantly impact on the fauna, especially the Threatened Species in the Common
- To provide recommendations for appropriate future management of various parts of the Common that are relevant to fauna and with the land use history of the habitat in mind. The recommendations for future ongoing use and development of the Common need to be consistent with the Principles of Ecologically Sustainable Development.



A summary of the habitat components, threatened fauna species and dominant vertebrate fauna likely to be present in each of the five principle landforms is presented as **Table 3**. The assessment of fauna habitats and likely dominant fauna is primarily based on the vegetation descriptions presented in **Table 2**.

A review of the NPWS database and relevant literature indicated that 9 species of frogs, 134 species of birds, 41 species of mammals (including 11 exotic predators and herbivores) and 58 reptiles are found in the Broken Hill area. A number of these are threatened species, and some are already presumed extinct in New South Wales. Outside the Broken Hill Urban area, three threatened species were sighted - the Western Blue Tongue Lizard and two bird species, the Redthroat and the Blue Billed Duck (refer **Figure 1.7**).

3.6.8 Bushfire Hazard

In general terms, more level areas of the Common (≤ 5 degree slope) are assessed to have a low relative bushfire hazard rating, whereas hilly to steep areas (≥ 5 degree slope) are assessed to have a low to moderate bushfire hazard rating.

3.6.9 Visibility

An assessment of visual amenity was undertaken as part of the Land Assessment study, in order to identify and protect those landscapes with high visual amenity.

This assessment process involved the classification of the visual variability of each site (called "relative scenic quality") based on landform, waterform and vegetation, as well as the classification of the sensitivity of a site (called "landscape sensitivity") based on visibility and prominence from public vantage points such as roads.

Areas assessed as being of high scenic quality include elevated areas within the Living Desert Reserve and the north-eastern part of the Common, including the area known as "Round Hill". These areas have high scenic quality as they represent elevated landscape features that contrast with the surrounding areas.

Most of the Common was assessed to have high landscape sensitivity due to the typically low relief and substantial site distances from the main road network. Furthermore, large areas of the Common are visible from the Sculpture Site within the Living Desert Reserve.



TABLE 3
Fauna Habitats, Threatened Species and Dominant Fauna Species Likely to Occur in the Willyama Common

Habitat	Component	Threatened Species	Dominant Fauna
1 Low Hills, Rises and Slopes	South-facing slopes, Seepages and Gullies	Long-tailed Hopping Mouse, Greater Stick-nest Rat, Flinders Rangers Skink, Gunther's Skink, Stimson's Python	Raptors, Euros, Wrens and Shrub Birds, Corvids, Honeyeaters
2 Narrow Drainage Lines	River Red Gum Corridor, Seepages and Lower Slopes	Pink Cockatoo, Bats, Raptors	Owls, Corellas, Galah, Grey Kangaroos, Burrowing Frogs
3 Rocky Hills	Outcrops, Cliffs, Rock Pools and Scree Slopes	Yellow-footed Rock Wallaby, Long-tailed Hopping Mouse, and Stick-nest Rat, Flinders Rangers Skink, Gunther's Skink	Raptors, Euros, Painted Dragon, Carpet Python, Wedged-tail Eagle, Other Skinks
4 Broad Drainage Flats and Plains	Sparse Shrubland	Stripe-faced Dunnart, Plain's Rat, Kultarr	Raptors, Emu, Hopping Mouse, Red and Grey Kangaroos, Shingle Back, Eastern Bluetongue Lizard, Burrowing frogs, Honeyeaters
4a Rehabilitated and Fenced-off Areas	Mallee, Dense Shrubland	Microbats, Bolam's Mouse, Western Blue-tongued Lizard.	Other Microbats, Grey Kangaroos, Shingle Back, Eastern Bluetougue Lizard, Honeyeaters, Correllas, Other Cockatoos
4b Creek Line	River Red Gum / Acacia Corridor	Pink Cockatoo, Bats, Square-tailed Kite, Black-breasted Buzzard, Masked Owl	Other Raptors, Correllas, Galah, Other Cockatoos
5 Disturbed Areas		Nil	Raptors, Corvids, Exotic spp
5a Old Mine Shafts	Bat Roosting Sites	Microbats	Other Microbats
5b Reservoir, Dams and Ponds	Refuge and Water Source	Various waterbirds including JAMBA and CAMBA spp.	Other Waterbirds
5c Alienated Parcels, mainly Habitat 4	Special Purpose, eg speedway, rifle range, race tracks, explosive and rubbish dumps	Stripe-faced Dunnart, Plain's Rat, Kulturr	Raptors, Emu, Hopping Mouse, Red and Grey Kangaroos, Shingle Back, Eastern Bluetongue Lizard, Burrowing frogs, Exotic spp, Corvids
Source: R.W. Corkery & Co. Pty. Limited (Ref: 527/01)			

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3.7 Cultural Aspects

3.7.1 Aboriginal Heritage

3.7.1.1 Introduction

Consultant archaeologist Mr John Appleton (Archaeological Surveys & Reports Pty Ltd) investigated the Aboriginal heritage of the Willyama Common as part of the Land Assessment study. The objectives of the Aboriginal heritage investigation were to:

- (i) develop a predictive model for the occurrence of Aboriginal cultural heritage sites, (based on known geology, fauna and flora resources, topography and recorded Aboriginal sites);
- (ii) test and refine the predictive model through a field investigation; and
- (iii) provide categories to identify the different degrees of cultural significance of known sites, and the potential cultural significance of the Common generally, to be included on the Land Resource Inventory Cards.

3.7.1.2 Method

The Aboriginal heritage investigation covered all parts of the Common, excluding commercial and residential areas, mine and mine workings and peripheral developments.

The predictive model for the occurrence of Aboriginal cultural heritage sites was developed based on a review of the environmental and archaeological context of the Common. The review of the environmental context covered geology and soils (in order to identify potential sources of stone for the manufacture of tools), water sources and potential food resources (in order to identify likely drinking water sources that may have been the focus of Aboriginal activities), as well as impacts on the environment and archaeological record. The review of the archaeological context involved the examination of literature on Aboriginal activities, as well as a review of Aboriginal sites listed on the Aboriginal Sites Register of the National Parks and Wildlife Service.

The field investigation to test the predictive model was carried out by Mr John Appleton in September 2000. Mr Raymond O'Donnell, a representative of the Broken Hill Local Aboriginal Land Council, assisted Mr Appleton. With the exception of areas where the ground surface visibility was less than 20 per cent, all creek and drainage depressions along the six major roads that cross the Common were inspected. The survey area at each location was often greater than 50 m in diameter. A total of 27 Predictive Model Locations (PML's) were investigated. Any Aboriginal heritage sites observed during the investigation were recorded on Site Recording forms to be lodged with National Parks and Wildlife Service for listing on the Aboriginal Sites Register.



3.7.1.3 Results

The Aboriginal heritage investigation contributed to the development of the following predictive model parameters to assist with locating Aboriginal cultural heritage sites on the Willyama Common.

1. Isolated artifacts may be present and visible in erosion features, particularly on deflating surfaces adjacent to gully lines
2. Artifact scatters and hearths may be present and visible in erosion features, particularly on deflating surfaces adjacent to gully lines
3. There will be no art sites
4. There may be rock surfaces exhibiting pecked engravings
5. There will be no scarred trees
6. There will be no carved trees
7. There will be no evidence of burials
8. There will be no Bora rings
9. It is unlikely there will be any stone arrangements
10. There will be no shell middens
11. There are no known mythological sites directly associated with the Common
12. There are unlikely to be quartz reef quarries and associated workshop waste, specifically in the north-western section of the Study Area

The predictive model parameters were used to develop a classification for the Willyama Common that identifies areas of high, moderate and low Aboriginal cultural significance, as well as known archaeological sites (**Figure 1.8**).

The predictive model is intended as a management tool only, to provide cultural resource managers, developers, and the Broken Hill City Council, with a means of assessing the potential constraints and opportunities afforded by the known and predicted distribution of sites of indigenous origin. It is stressed that neither this predictive model, nor the investigation that has taken place to provide the information on which the model is based, precludes any prospective developer or Broken Hill City Council from requiring a full archaeological investigation, performed with the assistance of a representative of the Broken Hill Aboriginal Land Council, before proceeding with any development of or alteration to the land covered by this report.



3.7.2 European Heritage

There are 356 heritage items listed in Schedule 1 of the Broken Hill LEP (1996). All of these heritage items are located within the built-up and mining lease areas of Broken Hill; the majority of which are located outside the Willyama Common. Although no heritage items are listed away from the built-up and mining areas a number of items have been identified on the Common that may have heritage value. These include the following.

- (i) The former Royal Flying Doctor Service Base – which is now operated as a Bed and Breakfast facility
- (ii) The commercial explosives storage area which comprises buildings of various ages, several which appear to be still in use
- (iii) The area known as “Round Hill” near Imperial Lakes. Mining and processing is known to have occurred here in the past and there are remains of mining infrastructure here
- (iv) The former town of Taltingan, east of the former Royal Flying Doctor Service Base. The few obvious remains of the former town are the remains of foundations of a building that is understood to have been a hotel
- (v) The ruins of the original Broken Hill Rifle Club (1889) and the Broken Hill Gun Club (clay pigeons) located near the current rifle club, east of Alma
- (vi) The stone foundations of buildings or stockyards to the west of the Menindee Road and east of Alma

3.7.3 Existing Land Use

Existing land use activities on the Willyama Common and land enclosed by, or adjacent to the Common, are illustrated on **Figure 1.9**.

While it is acknowledged that urban development / residential occupation is an existing land use within the Common, the main urban areas are removed from Common Land. In the past, a number of areas have had their land status changed and excised from the Common to permit specific developments or land uses. These excised areas which include freehold land, Western Lands Leases and areas under permissive occupancy, have had their land status changed to permit developments and land uses such as mining, recreation, an airport and a landfill.

Most of the Common is vacant land, currently available for grazing of stock owned by Commoners. A Traveling Stock Route (TSR) is located in the northern part of the Common. The TSR has not been used for traveling stock for a number of years because droving is no longer a cost effective option for moving animals.

Large areas of land have in the past been excised from the Common to create special purpose reserves. These include the Living Desert Wildlife Reserve and Sanctuary and the Regeneration Reserves around the City. A narrow belt of Common land adjacent to the southeastern perimeter of Broken Hill has been fenced in order to provide continuity of



the Regeneration Reserve. Although this land is not formally part of the Regeneration Reserve, the zoning under the Local Environmental Plan is the same as that covering the Regeneration Reserves.

Many of Broken Hill's sporting and recreational facilities are on freehold or Western Lands Lease land enclosed by the Willyama Common. These facilities include golf courses, rifle ranges, gun clubs, the old drive-in theatre, race track, speedway and the Go-Kart track. Several small horse-trotting tracks, four-wheel drive courses, an archery range and a model aircraft area are located on Common land.

Large-scale mining within the Common is generally restricted to the area known as the "Line of Lode". The former Potosi open cut mine is located within the Common and exploration activities are currently being undertaken at various locations within the Common.

3.7.4 Services and Access

Services available in Willyama Common are generally limited to telephone and power, with little or no reticulated town water or sewerage available outside the urban areas (**Figure 1.10**). Consequently, services are concentrated in the south-western corner of the Common and along the Sydney and Tibooburra Roads. With the exception of recreational areas like the racecourse and golf course, other parts of the Common have virtually no services.

Access to the Common is generally reasonable with the main constraints arising from landform and fencing. Main road access is generally good with sealed roads radiating out from Broken Hill at regular intervals. The lower and flatter areas are easily accessible from either sealed roads, or numerous unsealed roads and four-wheel drive tracks.

The steeper and higher areas in the north-east of the Common are reasonably accessible by four-wheel drive vehicles, as are portions of the Living Desert Reserve. The Regeneration Reserves surrounding Broken Hill are not accessible to traffic.

3.8 Capability / Significance Assessment

3.8.1 Introduction

A land capability / significance assessment was undertaken as part of the Willyama Common Land Assessment and involves the assessment of the potential of the land within each Mapping Area to sustain a number of land uses. Land capability refers to the ability of the land to sustain a land use without degradation, assuming viable land management practices. Land significance refers to the inherent values of the land for a particular use, e.g. ecological values for a nature conservation use. Both land capability and land significance are based only on the biophysical attributes and constraints of the land but do not consider human-related values. Therefore, a high capability or significance ranking for a land use does not necessarily mean that land use is desirable. Human-related values are considered during the suitability assessment stage (Source: DLWC, 1999).



According to the Draft Crown Land Assessment Manual, the following land uses should be considered during the land assessment.

- Catchment and Natural Resource Protection
- Nature Conservation
- Heritage
- Forestry
- Urban development
- Outdoor recreation
- Agriculture
- Mining / extraction

All of these land uses will be considered in this land assessment except forestry. Forestry is excluded because there are no areas of the Common capable of supporting commercial harvesting of wood products.

Capability / significance ranking schemes for each land use are presented in the Draft Crown Land Assessment Manual. **The capability / significance ranking schemes all use a five-class alpha-numeric ranking system, where the "alpha" refers to the land use and the number represents the ranking ranging from 1(very high) to 5 (very low).** The schemes are presented in a tabular format in the manual and require the land attributes of each Mapping Area to be matched with the criteria in the table. These ranking schemes are used in this land assessment.

Land capability rankings are generally based on the most limiting factor. That is, the ranking of a Mapping Area is the ranking for which all attributes meet or better all of the criteria. Generally, land significance is based on the most outstanding feature, i.e. the ranking of the highest ranked attribute.

3.8.2 Catchment and Natural Resource Protection

The catchment and natural resource protection significance rating scheme, as presented in the Draft Crown Land Assessment Manual, considers the role of the land within the Mapping Area in the protection of natural resource values both on-site and in the wider catchment. It involves an assessment of the environmental values of the land and an assessment of features of the land that may affect adjoining lands. A high ranking in this assessment may indicate either a strong need for environmental protection as a land use or the need for a high level of environmental management if an active land use is adopted in that area.

The Catchment and Natural Resource Protection Significance ranking of each of the 20 Mapping Areas, along with comments relating to the justification of the ranking, are presented in the **Table 4**.



The areas with the very high Catchment and Natural Resource Protection Significance rankings are the areas of extreme erosion hazard (i.e. slopes >33%), the area surrounding the Imperial Lake, which has a high value for protecting the quality of the drinking water stored in the lake, and the regeneration areas and area near the airport, where the undisturbed vegetation has a high value in preventing soil erosion. The heavily disturbed areas have a low or very low ranking. The vegetation in other areas, although not ranked as having very high catchment protection values, serve an important role in preventing widespread wind and water erosion of the soil, as has occurred in the past.

TABLE 4
Catchment and Natural Resource Protection Significance Assessment

Mapping Area	Ranking	Comments
1	CP3	Moderate to high erosion hazard. Moderate scenic values.
2	CP1	High scenic values.
3	CP2	High scenic values.
4	CP1	Includes Living Desert Wildlife Sanctuary and surrounds. Has high scenic quality and sensitivity and extreme erosion hazard.
5	CP3	Moderate erosion hazard. Moderate scenic values.
6	CP1	Extreme erosion hazard.
7	CP3	Moderate erosion hazard. Moderate scenic values.
8 - Mining Areas	CP5	Area disturbed by mining.
8 - Other Areas	CP1	"Round Hill" Area has high scenic values.
9	CP5	Area disturbed by mining.
10	CP1	High scenic values due to Imperial Lake. Area has catchment protection values -lake used to store potable water.
11	CP3	Moderate erosion hazard. Moderate scenic values.
12	CP2	High scenic values.
13	CP3	Moderate erosion hazard. Moderate scenic values.
14	CP1	Extreme erosion hazard.
15	CP2	High scenic values.
16	CP4	Low scenic values due to development related disturbances.
17	CP5	Area heavily disturbed by various developments.
18	CP4	Low scenic values due to development related disturbances.
19	CP1	Regeneration Area - has very high vegetation values for catchment protection - serves protective role in relation to water and wind erosion of soil.
20	CP1	Regeneration Area - has very high vegetation values for catchment protection - serves protective role in relation to water and wind erosion of soil.



3.8.3 Nature Conservation

The nature conservation significance ranking scheme, as presented in the Draft Crown Land Assessment Manual evaluate the biotic resources of the land. Related values, such as scenic quality, were assessed as part of the Catchment and Natural Resource Protection Assessment. The nature conservation ranking scheme evaluates the significance of remnant habitat in terms of the ecological value of the land itself and its role in the conservation of biodiversity in the region. The ranking of the most significant feature in a Mapping Area is the overall significance ranking of the whole Mapping Area (DLWC, 1999).

A summary of the Nature Conservation Significance of each Mapping Area and comments relating to the justification for that ranking are presented in the **Table 5**.

TABLE 5
Natural Conservation Significance

Mapping Area	Ranking	Comments
1	NC3	Moderate degree of disturbance (clearing).
2	NC3	Moderate degree of disturbance (clearing).
3	NC3	Moderate degree of disturbance (clearing).
4	NC2	Minor clearing, higher number of shrub species.
5	NC4/NC2	Generally high degree of disturbance (clearing and recreational development). Part of area forms wildlife corridor.
6	NC2	Minor degree of disturbance, higher number of shrub species.
7	NC2	Minor degree of disturbance.
8 - Mining Areas	NC5	Extreme degree of disturbance (mining).
8 - Other Areas	NC2	Round Hill Area - Minor degree of disturbance, higher number of shrub species.
9	NC5	Extreme degree of disturbance (mining).
10	NC2	Imperial Lake provides habitat for wildlife.
11	NC4/NC2	Generally high degree of disturbance (clearing and recreational development). Part of area forms wildlife corridor.
12	NC2	Connected to wildlife/habitat corridor (regeneration area) minor clearing.
13	NC4/NC2	Generally high degree of disturbance (clearing and recreational development). Part of area forms wildlife corridor.
14	NC2	Minor clearing, higher number of shrub species.
15	NC1	Contains significant remnant of vegetation and forms a habitat corridor with regeneration area.
16	NC4	High degree of disturbance (clearing and grazing).
17	NC5	Extreme degree of disturbance (clearing and developments).
18	NC4	High degree of disturbance (clearing and grazing).
19	NC1	Regeneration Area - comprises a block of remnant habitat and forms a wildlife corridor.
20	NC1	Regeneration Area - comprises a block of remnant habitat and forms a wildlife corridor.



3.8.4 Heritage Protection

Heritage protection assessment includes identifying and rating the cultural resources within each Mapping area including buildings or places of historic, scientific, archaeological, Aboriginal, natural or aesthetic significance.

The ranking scheme adopted for Crown land assessment, and presented in the Draft Crown Land Assessment Manual, does not attempt to directly assess the heritage significance or value of features within each Mapping Area but relies on the level of classification by relevant heritage bodies. It utilises the concept of state, regional and local value or significance (DLWC, 1999).

A list of the cultural resources within each Mapping Area, the heritage protection ranking of the cultural resources and comments justifying the ranking are presented in **Table 6**.

3.8.5 Urban Development

Urban development refers to all land uses that involve the erection of buildings or other structures, generally in association with an urban environment. Urban development includes residential, commercial, industrial, community purpose, tourist, recreational and public utility development (DLWC, 1999).

The five-class development capability ranking scheme presented in the Draft Crown Land Assessment Manual assesses the intensity of urban development that can be erected and sustained without on-site and off-site degradation (e.g. from erosion) and without causing problems to the development itself (e.g. subsidence). Generally the ranking scheme considers site attributes that may be potential constraints to development such as slope, rock outcrop and other soil constraints.

The urban development capability ranking of each Mapping Area, along with comments justifying the ranking, are presented in **Table 7**.

3.8.6 Outdoor Recreation

The five-class outdoor recreation capability ranking scheme presented in the Draft Crown Land Assessment Manual, and used for this land assessment, applies to outdoor recreation activities that may or may not require the construction of some associated minor structures (e.g. picnic tables and playground equipment). The outdoor recreation ranking scheme does not consider indoor recreation activities or recreation activities that require major built structures (e.g. swimming pools or sports stadiums). The main categories of outdoor recreation are summarised below.

- Intensive recreation – involves significant modification of the site (e.g. sports fields, show grounds, golf courses).



- Semi-natural recreation – involves partial modification of the site (e.g. picnic and camping grounds).
- Natural recreation – involves no or minor modification (e.g. bush walking and horse riding trails).

TABLE 6

Heritage Protection Assessment of Cultural Resources Within Each Mapping Area

Mapping Area	Cultural Resources	Ranking	Comments
1	Aboriginal Heritage Site(s) listed on NPWS register.	H1	These features are of known high cultural significance and are listed on the State register.
2	No known cultural resources.	-	-
3	Aboriginal Heritage Site(s) listed on NPWS register.	H1	These features are of known high cultural significance and are listed on the State register.
4	Living Desert Wildlife Sanctuary	H2	This feature is of high natural and aesthetic significance.
	Sculptures site	H2	This feature is of high cultural significance.
	Aboriginal Heritage Site(s) listed on NPWS register.	H1	These features are of known high cultural significance and are listed on the State register.
5	Aboriginal Heritage Site(s) listed on NPWS register.	H1	These features are of known high cultural significance and are listed on the State register.
6	No known cultural resources.	-	-
7	Aboriginal Heritage Site(s) listed on NPWS register.	H1	These features are of known high cultural significance and are listed on the State register.
8	Remains of old mines and mine infrastructure.	H3	This feature has been identified by Council and local historical group as having heritage value.
9	Mines and mine related infrastructure and buildings	H2	Many features within this Mapping Area are listed on LEP.
10	Imperial Lake	H3	This feature has aesthetic significance and may be of local cultural value.
11	Former Royal Flying Doctor Base	H3	These features have been identified by Council and a local historical society as having heritage value.
	Former town of Taltingan.	H3	
	Aboriginal Heritage Site(s) listed on NPWS register.	H1	
12	Aboriginal Heritage Site(s) listed on NPWS register.	H1	These features are of known high cultural significance and are listed on the State register.
13	Stone foundations of old building or stockyards.	H3	These features may have local heritage values.
	Old remnants of former gun club clubhouses.	H3	
	Aboriginal Heritage Site(s) listed on NPWS register.	H1	
14	No known cultural resources.	-	-
15	Old Mica Mines.	H3	This feature may have local heritage value.
16	No known cultural resources.	-	-
17	No known cultural resources.	-	-
18	Old ammunitions / explosives storage buildings.	H3	This feature has been identified by Council and local historical society as having heritage value.
19	Regeneration Area	H1	Regeneration areas are listed on the Register of the National Trust of Australia.
20	Regeneration Area	H1	

TABLE 7
Urban Development Capability Assessment

Mapping Area	Ranking	Comments
1	D3	Moderate to high erosion hazard. Low flood susceptibility near drainage line.
2	D5	Steep slopes and high percentage of rock outcrop.
3	D2	Generally low slopes. Moderate erosion hazard.
4	D5	Steep slopes and high percentage of rock outcrop.
5	D2/D5	Generally low slopes. Moderate erosion hazard. Part of area contains former waste disposal depot - low capability due to potential soil contamination.
6	D5	Steep slopes and high percentage of rock outcrop.
7	D3	Large areas of moderate slopes.
8	D5	Steep slopes and high percentage of rock outcrop.
9	NA	Area already developed by mining activities.
10	D3	Large areas of moderate slopes.
11	D2	Generally low slopes. Moderate erosion hazard.
12	D5	Generally steep slopes and high percentage of rock outcrop.
13	D2	Generally low slopes. Moderate erosion hazard.
14	D5	Steep slopes and high percentage of rock outcrop.
15	D4	Large areas of moderately steep slopes.
16	D2	Generally low slopes. Moderate erosion hazard.
17	D2	Generally low slopes. Moderate erosion hazard.
18	D2	Generally low slopes. Moderate erosion hazard.
19	D2	Generally low slopes. Moderate erosion hazard.
20	D2	Generally low slopes. Moderate erosion hazard.

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The higher the outdoor recreation capability of each Mapping Area, the greater the range of recreational uses possible. A low ranking indicates that the Mapping Area is capable of only supporting natural recreation, (DLWC, 1999).

The outdoor recreation capability ranking of each Mapping Area and comments relating to the justification of the ranking are presented in **Table 8**.



TABLE 8
Outdoor Recreation Capability Ranking of Each Mapping Area

Mapping Area	Recreation Capability Ranking	Comments
1	R3	Moderate to high erosion hazard. Low flood susceptibility near drainage line.
2	R5	Steep slopes and high percentage of rock outcrop.
3	R2	Generally low slopes. Moderate erosion hazard.
4	R5	Steep slopes and high percentage of rock outcrop.
5	R2/R5	Generally low slopes. Moderate erosion hazard. Part of area contains former waste depot - low capability due to potential soil contamination.
6	R5	Steep slopes and high percentage of rock outcrop.
7	R3	Large areas of moderate slopes.
8	R5	Steep slopes and high percentage of rock outcrop.
9	NA	Area heavily disturbed by mining activities.
10	R3	Large areas of moderate slopes.
11	R2	Generally low slopes. Moderate erosion hazard.
12	R5	Generally large areas of steep slopes.
13	R2	Generally low slopes. Moderate erosion hazard.
14	R5	Steep slopes and high percentage of rock outcrop.
15	R4	Large areas of moderately steep slopes.
16	R2	Generally low slopes. Moderate erosion hazard.
17	R2	Generally low slopes. Moderate erosion hazard.
18	R2	Generally low slopes. Moderate erosion hazard.
19	R2	Generally low slopes. Moderate erosion hazard.
20	R2	Generally low slopes. Moderate erosion hazard.

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3.8.7 Agricultural Capability

Agricultural use for Crown land assessments refers to all farming activities including cropping, grazing and agroforestry. The five-class agricultural capability ranking scheme presented in the Draft Crown Land Assessment Manual is modified from the former Soil Conservation Service eight-class rural capability system (Emery 1985) and NSW Agriculture's five-class agricultural suitability system (Department of Agriculture 1983) and is based on site constraints such as slope, erosion hazard and rock outcrop, soil constraints (e.g. low chemical fertility) and site constraints (e.g. arid climate).

The higher the agricultural capability, the higher the level of agriculture that can be sustained and the greater the range of agricultural uses possible. A high rating indicates that the land is capable of supporting intensive cropping and a low rating means that only low intensity grazing may be possible (DLWC, 1999).



The agricultural capability ranking of each mapping area and comments relating to the justification of the ranking are presented in **Table 9**.

TABLE 9
Agricultural Capability Ranking of Each Mapping Area

Mapping Area	Agricultural Capability Ranking	Comments
1	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
2	A5	Steep to very steep slopes, high percentage of rock outcrop.
3	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
4	A5	Steep to very steep slopes, high percentage of rock outcrop.
5	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
6	A5	Steep to very steep slopes, high percentage of rock outcrop.
7	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
8	A5	Steep to very steep slopes, high percentage of rock outcrop.
9	NA	Area heavily disturbed by mining activities.
10	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
11	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
12	A5	Generally steep to very steep slopes, high percentage of rock outcrop.
13	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
14	A5	Steep to very steep slopes, high percentage of rock outcrop.
15	A5	Generally steep to very steep slopes.
16	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
17	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
18	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
19	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).
20	A4	High soil constraints (low chemical fertility) and high site constraints (arid climate).

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3.8.8 Mining and Extraction

For Crown land assessments, mining refers to mining metallic and industrial minerals and energy resources and extraction refers to the extraction of materials such as sand and gravel. The five-class mining and extraction significance scheme presented in the Manual assesses the significance of an area for mining and extraction activities. That is, the area's potential for containing economic geological resources. The objective of this assessment is to identify potential mineral and extractive resources in order to prevent their sterilisation by other land uses. The ranking scheme does not consider the physical capability of the area for mining or extraction (DLWC, 1999).



The mining/extraction significance ranking of each Mapping Area, along with comments justifying the ranking, are presented in **Table 10**. Essentially, all areas have a very high or high significance ranking given the past and present mining, and considerable potential that remains for identifying economic areas of base-metal mineralisation. It will be important that wherever possible, access is maintained for mineral exploration across the Common, subject to satisfying normal environmental criteria.

TABLE 10
Mining / Extraction Capability Ranking of Each Mapping Area

Mapping Area	Mining / Extraction Capability Ranking	Comments
1	M2	Potential for base metal mineralisation at depth.
2	M2	Potential for base metal mineralisation at depth.
3	M2	Potential for base metal mineralisation at depth.
4	M2	Potential for base metal mineralisation at depth.
5	M2	Potential for base metal mineralisation at depth.
6	M2	Potential for base metal mineralisation at depth.
7	M2	Potential for base metal mineralisation at depth.
8	M1	Potential for base metal mineralisation near surface and at depth.
9	M1	Potential for base metal mineralisation near surface and at depth.
10	M1	Potential for base metal mineralisation near surface and at depth.
11	M1	Potential for base metal mineralisation near surface and at depth.
12	M1	Potential for base metal mineralisation near surface and at depth.
13	M2	Potential for base metal mineralisation at depth.
14	M2	Potential for base metal mineralisation at depth.
15	M2	Potential for base metal mineralisation at depth.
16	M2	Potential for base metal mineralisation at depth.
17	M2	Potential for base metal mineralisation at depth.
18	M2	Potential for base metal mineralisation at depth.
19	M2	Potential for base metal mineralisation at depth.
20	M2	Potential for base metal mineralisation at depth.

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3.8.9 Summary

The capability / significance ranking of each Mapping Area for each land use category assessed are presented in **Table 11**.

TABLE 11
Capability / Significance Ranking of Each Mapping Area for Each Land Use Category

Mapping Area	Catchment & Natural Resource Protection	Nature Conservation	Heritage Protection	Urban Development	Outdoor Recreation	Agriculture	Mining / Extraction
1	CP3	NC3	H1	D3	R3	A4	M2
2	CP1	NC3	-	D5	R5	A5	M2
3	CP2	NC3	H1	D2	R2	A4	M2
4	CP1	NC2	H2, H2, H1	D5	R5	A5	M2
5	CP3	NC4/NC2	H1	D2/D5	R2/R5	A4	M2
6	CP1	NC2	-	D5	R5	A5	M2
7	CP3	NC2	H1	D3	R3	A4	M2
8	CP5/CP1	NC5/NC2	H3	D5	R5	A5	M1
9	CP5	NC5	H2	NA	NA	NA	M1
10	CP1	NC2	H3	D3	R3	A4	M1
11	CP3	NC4/NC2	H3, H3, H1	D2	R2	A4	M1
12	CP2	NC2	H1	D5	R5	A5	M1
13	CP3	NC4/NC2	H3, H3, H1	D2	R2	A4	M2
14	CP1	NC2	-	D5	R5	A5	M2
15	CP2	NC1	H3	D4	R4	A5	M2
16	CP4	NC4	-	D2	R2	A4	M2
17	CP5	NC5	-	D2	R2	A4	M2
18	CP4	NC4	H3	D2	R2	A4	M2
19	CP1	NC1	H3	D2	R2	A4	M2
20	CP1	NC1	H3	D2	R2	A4	M2

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3.9 Suitability Assessment

3.9.1 Introduction

A land use suitability assessment was undertaken as part of the Willyama Common Land Assessment to determine land uses for the Common that are socially and environmentally acceptable. The principal objective of a suitability assessment is to identify a land use or uses that the land is capable of supporting and that will optimise the benefit to the people of NSW now and in the future. According to the Draft Crown Land Assessment Manual, factors to be considered in suitability assessment include land capability / significance, socio-economic factors, environmental impacts, legislation and DLWC and government policy.

An important process in suitability assessment is socio-economic analysis, and suitability assessment will necessarily involve considering social impacts, economic impacts and environmental impacts.

A methodology or approach to suitability assessment is presented in the Draft Crown Land Assessment Manual and involves considering a number of listed guiding principles for suitability criteria for each land use category. Generally, the greater number of specific suitability criteria that are satisfied, the more suitable that land use is for that site (DLWC, 1999).

The land assessment is required to identify which land uses are broadly suitable and which are broadly unsuitable and preferably provide a broad suitability ranking for each Mapping Area. This section of the land assessment report identifies suitable land uses for each Mapping Area along with justification for the suitability ranking.

3.9.2 Environmental Protection

The approach to environmental protection suitability assessment presented in the Draft Crown Land Assessment Manual involves assessment of the following.

- Catchment and Natural Resource Protection Significance
- Nature Conservation Significance
- Heritage Protection Significance

The objectives of environmental protection suitability assessment in land assessments are:

- (i) to provide an indication of the desirability of establishing environmental protection as a land use in its own right (e.g. for a nature reserve);
- (ii) to provide an indication of the level of environmental management required of the site (DLWC, 1999).

Broad rankings of the environmental protection suitability for each Mapping Area as well as comments justifying the ranking are presented in **Table 12**.



TABLE 12
Broad Environmental Protection Suitability Rankings for Each Mapping Area

Mapping Area	Environmental Protection Suitability Ranking	Comments
1	Generally low, some high	Generally area has low Catchment Protection and Nature Conservation Significance, however some areas have high Heritage Protection Significance due to presence Aboriginal Heritage Site(s).
2	Moderate	Relatively High Catchment Protection and Nature Conservation significance, and low capability and suitability for other uses, due to slope.
3	Very High	Area Currently within Living Desert Reserve
4	Very High	Area Currently within Living Desert Reserve
5	Generally low, some high	Generally area has low Catchment Protection and Nature Conservation Significance, however some areas have high Heritage Protection Significance due to presence Aboriginal Heritage Site(s). Former waste disposal area requires appropriate management.
6	Moderate	Relatively High Catchment Protection and Nature Conservation significance, and low capability and suitability for other uses, due to slope.
7	Moderate, some high	Relatively High Catchment Protection and Nature Conservation significance, and low capability and suitability for other uses, due to slope, however some areas have high Heritage Protection Significance due to presence Aboriginal Heritage Site(s).
8 - Mining Areas	Very Low	Area disturbed by mining activities.
8 - Other Areas	Moderate	Relatively High Catchment Protection and Nature Conservation significance, and Heritage Protection ranking.
9	Very low	Area disturbed by mining activities.
10	Very High	Generally area has high Catchment Protection and Nature Conservation Significance.
11	Generally low, some high	Generally area has low Catchment Protection and Nature Conservation Significance, however some areas have high Heritage Protection Significance due to presence of Aboriginal and non-indigenous Heritage Site(s).
12	Moderate, some high	Moderate High Catchment Protection and Nature Conservation significance, and low capability and suitability for other uses, due to slope, however some areas have high Heritage Protection Significance due to presence Aboriginal Heritage Site(s).
13	Generally low, some high	Generally area has low Catchment Protection and Nature Conservation Significance, however some areas have high Heritage Protection Significance due to presence Aboriginal Heritage Site(s).
14	Moderate	Relatively High Catchment Protection and Nature Conservation significance, and low capability and suitability for other uses, due to slope.
15	High	High Nature Conservation significance due to vegetation values. Adjoins regeneration corridor and forms part of vegetation corridor.
16	Low	Generally area has low Catchment Protection and Nature Conservation Significance.
17	Very Low	Low Catchment Protection and Nature Conservation Significance, due to development related disturbances.
18	Low, some high	Generally area has low Catchment Protection and Nature Conservation Significance, however some areas have high Heritage Protection Significance due to presence of non-indigenous Heritage Site(s).
19	Very High	Area currently reserved for regeneration.
20	Very High	Area currently reserved for regeneration.



3.9.3 Urban Development

Areas of Crown land, particularly areas within or close to expanding urban centres are often required to fulfill the increasing demand for land for development purposes. The objective of the urban development suitability assessment is to determine whether development is an appropriate use for Crown lands. Urban development for the purpose of Crown land assessments includes urban residential, commercial, industrial, community purpose, tourism, recreational and public utility developments (DLWC, 1999).

The approach to assessment of urban development suitability presented in the Draft Crown Land Assessment Manual involves assessment of, amongst other things, urban development capability, environmental protection significance, agricultural capability, mining/extraction significance, adjacent land uses, available infrastructure and zoning.

According to the Draft Crown Land Assessment Manual, Crown land should not be made available for development (except community purpose developments) where the demand for urban development land could be met from freehold lands in the district. Also, development of Crown land should generally fulfill a wider public need than simply benefiting a few individuals (DLWC, 1999).

Broad rankings of the urban development suitability of each mapping area, together with comments justifying the ranking are presented in **Table 13**.

3.9.4 Recreation

The provision of land for recreational purposes is an important component of Crown land management in NSW. Many existing recreational areas in NSW are on Crown land and there is a public expectation that the provision of Crown land for public recreation will remain a high priority for the Government (DLWC, 1999).

The recreation suitability assessment considers “indoor” recreation (involving the building of structures such as entertainment centres) and outdoor recreation which includes intensive, semi-natural and natural recreation activities. For this suitability assessment “intensive recreation” includes indoor recreation as well as intensive outdoor recreation. Four-wheel driving and trail-bike riding are considered to be “intensive recreation” due primarily to the erosion potential of the soils within the Common and the level of management required for these activities to minimise or prevent any adverse environmental impacts.

The approach to recreation suitability assessment presented in the Draft Crown Land Assessment Manual involves assessment of outdoor recreation capability, urban development, environmental significance, zoning, access and availability of infrastructure.



TABLE 13
Broad Urban Development Suitability Rankings for Each Mapping Area

Mapping Area	Urban Development Suitability Ranking	Comments
1	Low	Area suitable for natural and semi-natural recreation only, if such uses are in demand, and only with appropriate management strategies, due to only moderate Urban Capability, lack of infrastructure, proximity to town, and moderate to high erosion potential of area.
2	Low	Low Urban Development capability.
3	High/Low	Area highly suitable for community purpose or tourism developments or natural or semi-natural recreation due to location in the Living Desert Reserve and high urban development capability. Low suitability for intensive residential developments due to location within Reserve.
4	High/Low	Area highly suitable for low intensity community purpose or tourism developments or natural or semi-natural recreation developments only due to location in the Living Desert Reserve and low urban development capability . Low suitability for intensive developments due to location within Reserve due to low urban development capability.
5	Moderate/Low	Area moderately suitable for commercial, industrial, tourism, recreational, residential or public utility developments, if there is a demand for such developments, due to high Urban Development capability of the area, available existing infrastructure, and some areas already being disturbed. Low suitability of areas containing Aboriginal Heritage site(s) and former waste disposal area.
6	Low	Low Urban Development capability.
7	Moderate/Low	Area suitable natural and semi-natural recreation only, if such uses are in demand, and only with appropriate management strategies, due to only moderate Urban Capability, lack of infrastructure, proximity to town, and moderate to high erosion potential of area. Low suitability of areas containing Aboriginal Heritage site(s).
8	Low	Low Urban Development capability.
9	NA	Area already developed by mining activities.
10	Moderate	Area moderately suitable for natural recreation due to location of Imperial Lake and adjacent regeneration area, however activities must be managed to minimise impacts on drinking water supply in lake.
11	Moderate	Area moderately suitable for commercial, industrial, tourism, recreational, residential or public utility developments, if there is a demand for such developments, due to high Urban Development capability of the area, available existing infrastructure, and some areas already being disturbed.
12	Low	Low Urban Development capability, high Nature Conservation significance.
13	Moderate/Low	Area moderately suitable for commercial, industrial, tourism, recreational, residential or public utility developments, if there is a demand for such developments, due to high Urban Development capability of the area, available existing infrastructure, and some areas already being disturbed. Low suitability of areas containing Aboriginal Heritage site(s).
14	Low	Low Urban Development capability.
15	Very Low	Very high Nature Conservation significance.
16	High	Area suitable for commercial, industrial, tourism, recreational, residential or public utility developments, if there is a demand for such developments, due to high Urban Development capability of the area, available existing infrastructure, and some parts of the area already being heavily disturbed.
17	High	Area suitable for commercial, industrial, tourism, recreational, residential or public utility developments, if there is a demand for such developments, due to high Urban Development capability of the area, available existing infrastructure, and some parts of the area already being heavily disturbed.
18	High	Area suitable for commercial, industrial, tourism, recreational, residential or public utility developments, if there is a demand for such developments, due to high Urban Development capability of the area, available existing infrastructure, and some parts of the area already being heavily disturbed.
19	Very Low	Existing regeneration reserve.Very High Catchment and Natural Resource Protection significance and very high Nature Conservation significance.
20	Very Low	

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Broad rankings of the suitability of each mapping area for the various types of recreation (both indoor and outdoor), together with comments justifying the ranking, are presented in **Table 14**.

3.9.5 Agriculture

Most land of high agricultural quality in NSW is freehold land. However, significant areas of land with moderate agricultural quality are Crown lands. Agricultural activities may be undertaken on Crown land through a variety of tenures including leases, permissive occupancies, licences and reserves. The Draft Crown Land Assessment Manual notes that it is important to protect any significant agricultural lands because these lands provide employment for a significant proportion of the rural population (DLWC, 1999).

The approach to agricultural suitability assessment presented in the Manual involves assessment of, amongst other things, agricultural capability, environmental protection significance, economic viability (carrying capacity), demand for agricultural activities (e.g. plantation agriculture and horticulture) and if the site is currently being used in a sustainable manner. The agricultural suitability assessment for this land assessment has been based on the approach presented in the manual as well as recommendations arising from the soil, flora and fauna investigations, and recommendations arising from consultation with government authorities.

Broad rankings of the agricultural suitability of each mapping area, together with comments justifying the ranking, are presented in **Table 15**.

3.9.6 Mining and Extraction

The Draft Crown Land Assessment Manual notes that mining and extractive industry are of considerable importance to the NSW economy and general development of the State. This is most applicable at Broken Hill where the town's existence has been underpinned by mining for over 120 years. Unlike most other land uses, mining and extraction activities are entirely dependent on location of resources. The Manual notes that given the importance of mining and extractive industry to the people of NSW generally, it is important to protect these resources by preventing sterilisation of potential resources through establishment of non-compatible land uses (e.g. national parks).

The approach to mining and extraction suitability assessment, presented in the Draft Crown Land Assessment Manual includes assessing the economic value of the deposit, potential environmental impacts of mining, mining / extraction resource potential / rating), the environmental protection significance rating and existing land use. The mining / extraction suitability assessment for this land assessment is also based on recommendations arising from consultations with the Department of Mineral Resources.



TABLE 14
Broad Recreation Suitability Rankings for Each Mapping Area

Mapping Area	Intensive Recreation Suitability Ranking	Semi-natural Recreation Suitability Ranking	Natural Recreation Suitability Ranking	Comments
1	Low	Moderate	High	Only low suitability for urban development (lower suitability for intensive recreation) higher suitability for natural recreation, if in demand.
2	Very Low	Low	High	Very low Urban Development capability and suitability for intensive or semi-natural recreation but very high scenic value and suitability for natural recreation.
3	Low	High	Very High	Low Urban Development suitability (low suitability for intensive recreation) but higher suitability for natural recreation due to location in reserve.
4	Very Low	High	Very High	Low Urban Development capability and suitability but very high scenic value. Existing land use is semi-natural and natural recreation.
5	High	High	Very High	High urban development capability and suitability (suitable for intensive recreation) and relatively high scenic values (suitable for natural recreation). Compatible with existing uses in area.
6	Very Low	Low	High	Very low Urban Development capability and suitability for intensive or semi-natural recreation but very high scenic value and suitability for natural recreation.
7	Low	Moderate	High	Only low suitability for urban development (lower suitability for intensive recreation) higher suitability for natural recreation, if in demand.
8	Very Low	Low	High	Very low Urban Development capability and suitability for intensive or semi-natural recreation but very high scenic value and suitability for natural recreation.
9	Very Low	Very Low	Very Low	Area heavily disturbed by mining.
10	Very Low	Low	Moderate	High suitability for nature conservation and catchment protection, therefore only suitable for natural recreation with appropriate management to protect water supply.
11	Moderate	High	High	Moderate suitability for urban development (moderate suitability for intensive recreation) higher suitability for natural recreation, if in demand.
12	Low	Moderate	Moderate	Very low Urban Development capability and suitability for intensive recreation. High scenic values but moderate nature conservation suitability give only moderate suitability for natural recreation.
13	Moderate	High	High	Moderate suitability for urban development (moderate suitability for intensive recreation) higher suitability for natural recreation, if in demand.
14	Very Low	Low	High	Very low Urban Development capability and suitability for intensive or semi-natural recreation but very high scenic value and suitability for natural recreation.
15	Very Low	Low	Low	Very high nature conservation suitability (low suitability for even natural recreation).
16	High	Moderate	Moderate	High urban development capability (suitable for intensive recreation) but relatively low scenic qualities (less suitable for natural recreation).
17	Very High	Moderate	Low	High urban development capability (suitable for intensive recreation) but very low scenic qualities (less suitable for natural recreation).
18	High	Moderate	Moderate	High urban development capability (suitable for intensive recreation) but relatively low scenic qualities (less suitable for natural recreation).
19	Very Low	Low	Low	Existing land use is nature conservation and catchment protection, therefore low suitability for any recreation.
20	Very Low	Low	Low	

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TABLE 15
Broad Agricultural Suitability Rankings for Each Mapping Area

Mapping Area	Agricultural Suitability Ranking	Comments
1	Low	Low agricultural capability.
2	Very Low	Very low agricultural capability.
3	Very Low	Very high Environmental Protection suitability and high semi-natural and natural recreation suitability.
4	Very Low	Very high Environmental Protection suitability and high semi-natural and natural recreation suitability, and existing uses (Wildlife Sanctuary and Sculptures Symposium).
5	Low	Low agricultural capability.
6	Very Low	Very low agricultural capability.
7	Low	Low agricultural capability.
8	Very Low	Very low agricultural capability.
9	NA	Area disturbed by mining.
10	Very Low	Very high Environmental Protection suitability.
11	Low	Low agricultural capability.
12	Very Low	Low agricultural capability.
13	Low	Low agricultural capability.
14	Very Low	Very low agricultural capability.
15	Very Low	Very low agricultural capability.
16	Low	Low agricultural capability.
17	Low	Low agricultural capability.
18	Low	Low agricultural capability.
19	Very Low	Existing regeneration reserve.
20	Very Low	Existing regeneration reserve.

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The mining / extraction suitability rankings of each mapping area, together with a justification of the ranking is presented in **Table 16**. It remains very important that access is retained to as many areas throughout the Common for ongoing exploration, to identify extensions to existing ore bodies or new ore bodies.



TABLE 16
Broad Mining / Extraction Suitability Rankings for Each Mapping Area

Mapping Area	Mining / Extraction Suitability Ranking	Comments
1	High	High mining/extraction significance and low to moderate capability/significance for other uses.
2	High	Generally moderate to low capability/significance for other uses. However, high erosion hazard.
3	Low	Location with Living Desert Reserve.
4	Very Low	High Catchment and Natural Resource Protection, Nature Conservation and Heritage Protection Significance. Area includes wildlife sanctuary and is within Living Desert Reserve.
5	Moderate/High	High capability/significance and suitability for recreation and urban development.
6	High	Generally moderate to low capability/significance for other uses. However, high erosion hazard.
7	Moderate/High	Generally moderate to low capability/significance for other uses. However, moderate erosion hazard.
8	Low / High	In undisturbed areas, low suitability. In mined areas, high suitability.
9	Very High	Existing Use.
10	Low	High Catchment and Natural Resource Protection Significance due to Imperial Lake.
11	Very High	Generally low Catchment Protection and Nature Conservation Significance. Very high mining/extraction significance.
12	Low	High Catchment Protection and Nature Conservation Significance.
13	High	Generally low Catchment Protection and Nature Conservation Significance.
14	High	Generally moderate to low capability/significance for other uses. However, high erosion hazard.
15	Low	High Catchment Protection and Nature Conservation Significance.
16	High	Low Catchment Protection and Nature Conservation Significance. Close proximity to existing mines.
17	High	Low Catchment Protection and Nature Conservation Significance. Close proximity to existing mines.
18	High	Low Catchment Protection and Nature Conservation Significance. Close proximity to existing mines.
19	Very Low	Very high Catchment and Natural Resource Protection Significance (Regeneration Area).
20	Very Low	Very high Catchment and Natural Resource Protection Significance (Regeneration Area).

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4.0 RELATIONSHIP WITH OTHER PLANS, STRATEGIES AND POLICIES RELEVANT TO THE SUB-REGION

4.1 Introduction

The overall philosophy for management of the Willyama Common shall adopt the principles and objectives of the following strategies. While the link between these policies and management of the Common is an informal one, collectively they aim to encourage better land management.

4.2 Broken Hill Local Environmental Plan, 1996

The general aims of the Broken Hill LEP, 1996, are:

1. to encourage the proper management, development and conservation of natural and cultural resources within the City of Broken Hill by protecting, enhancing or conserving:
 - (a) places and buildings of archaeological or heritage significance, including Aboriginal relics and places;
 - (b) timber, minerals, soil, water and other natural resources;
 - (c) areas of significance for nature conservation; and
 - (d) areas of high scenic or recreational value.
2. to replace the former planning controls with a single local environmental plan to help facilitate growth and development of the City of Broken Hill in a manner which is consistent with the aims specified in Item 1 (above) and which:
 - (a) minimises the cost to the community of fragmented and isolated development of rural land;
 - (b) facilitated the efficient and effective delivery of amenities and services;
 - (c) facilitates a range of residential and employment opportunities in accordance with demand;
 - (d) ensures that the efficiency of arterial roads is not adversely affected by development on adjacent land; and
 - (e) provides for orderly development of tourist activities; and



3. to rectify some of the land vested in or under the control of Council in accordance with Part 2 of Chapter 6 of the Local Government Act 1993 as operational land (land which need not be retained for use by the general public).

The Broken Hill LEP, 1996, applies to all land within the City of Broken Hill and is therefore applicable to land incorporated within the Willyama Common.

The general aims of the LEP have been recognised during the formulation of this Management Plan to ensure that both instruments are complimentary in the way that they address the protection, enhancement and conservation of the natural and cultural values of the land within the Willyama Common.



PART 2 MANAGEMENT PLAN SUPPORT DOCUMENT

1.0 PLAN STRUCTURE

The Management Plan Support Document is a strategic planning document. Strategic planning and management is the process of making and implementing good decisions. In this case, that means decisions that shall benefit the Common, the Commoners and the Broken Hill and wider communities.

Management is based on a **vision** intended to guide the Willyama Common Trust ("the Trust") with a broad view of the future. The vision is supported by a set of management principles.

A range of suitable land uses for the Common have been identified, based on the results of the Willyama Common Land Assessment study (the Land Assessment) and demand for alternate uses from the Broken Hill Community. Each land use has been considered in terms of:

- (i) strategic goals or **objectives** stating what is to be achieved;
- (ii) strategic **policies**, rules or guidelines that contain decisions or limit actions;
and
- (iii) strategic **actions** or programs to achieve goals.

The strategies contained in the Management Plan Support Document will be periodically reviewed to ensure they reflect achievements, changes in community needs and to assist in meeting regular evaluation.

2.0 VISION STATEMENT

The **vision** of the Willyama Common Trust in managing the Willyama Common is:

To provide for the rights of Commoners to pasturage and watering of stock in areas suitable for this purpose, whilst recognising, encouraging and enhancing the multiple use values of the Common and its resources for the benefit of the wider Community



3.0 MANAGEMENT PRINCIPLES

The Willyama Common Trust has adopted the following Management Principles.

1. *Management Style*

The Trust will implement a management system that ensures reserve viability, promotes cooperative decision-making and is responsive to legal, social and technological change. The Trust shall work towards achieving self-sufficiency in carrying out land management responsibilities.

2. *Land Uses*

The Trust will use and manage the Common in the best interest of Commoners and the community. A number of uses have been identified but in particular it is recognised that appropriate Common Lands will be required for future development.

3. *Community Involvement*

The Trust will encourage active participation of local and visiting people in the development, care and long term management of the Common.

4. *Safety and Public Health*

The Trust will manage the Common by providing and maintaining facilities in a manner which minimises risk to Commoners, travelling public (commuters), towns people and other Common users (eg, fencing of main roads, fire hazard reduction, safety of mining and quarry areas).

5. *Integrated Management*

The Trust will assist in giving effect to the principles of Total Catchment Management (TCM) by establishing and maintaining cooperative management with residents and government authorities and linkages with organisations within the Local Government area and adjacent Crown Reserves and rural holdings.

6. *Economic Management*

The Trust will provide an economic framework for managing resources and programs. The potential to reinvest certain income into a range of benefits to the community is recognised. In particular the Trust will implement guidelines for financial control that meet necessary standards set by the Minister.

7. *Natural Environment*

The Trust recognises and where appropriate will protect and enhance the natural landscape and ecological values of the Common.



8. *Recreation*

The Trust will wherever possible encourage and provide for recreational activities compatible with natural and cultural features of the Common and in response to community needs and development.

9. *Cultural Values*

The Trust will recognise, interpret and promote valuable cultural heritage relating to the Common and local area particularly traditional Common usage, mining history and Aboriginal heritage.

10. *Mining and Extraction Industry*

The Trust will assist in providing rational access to the mineral and extractive resources of the Common for community benefit and shall assist with the rehabilitation and tourist development of abandoned mines.

11. *Community Facilities*

The Trust will provide for and promote a range of appropriate facilities on the Common for local and visitor use and enjoyment that will enhance community development.

12. *Reserve Information*

The Trust will inform and educate users and interested persons of the Common's resources and appropriate ways to use and care for them.

4.0 LAND MANAGEMENT STRATEGIES

4.1 Pasturage of Stock

4.1.1 Background

The majority of land covered by the Willyama Common is vacant land that has been used for pasturage and watering of stock by Commoners since the Common was established in the 1890's. A Travelling Stock Route (TSR) is located in the northern part of the Common (refer **Figure 1.1**), but as droving is no longer a cost effective option for moving stock, this is rarely used for this purpose.

No natural water storage areas or permanent watercourses exist on the Common. Water for stock watering purposes is currently limited to one water trough that is permanently connected to the Broken Hill town water supply.



The recommended stocking rate or safe carrying capacity of the Common is 1 beast per 54 hectares (1 beast = 1 horse/cow = 10 sheep / milking goats). The number of stock currently recorded on the Common Herd Book totals 3 horses. These stock are grazed in a single paddock, which equates to 16 beasts for the entire paddock. Consequently, stock numbers averaged for the entire Common are substantially below the stocking rate and reflect the much-diminished demand on the Common for stock grazing.

While pasturage and watering of stock is a valid use of Common land, the decrease in demand for this activity, the degraded vegetation on much of the Common, and increasing Community pressure for alternate recreational uses, have brought about the need to re-evaluate the area of the Common available for stock pasturage.

The Management Plan outlines the objectives, policies actions and evaluation criteria formulated to assist the Trust in strategically managing the rights of Commoners to the pasturage and watering of stock on the Willyama Common.

4.1.2 Objectives

The following strategic management objectives relate to the pasturage of stock on the Willyama Common.

- Define an area within the Common suitable for pasturage and watering of stock (i.e. "Stock Pasturage Area")
- Provide an equal opportunity for all Commoners to graze and water stock on the Stock Pasturage Area
- Remove the threat posed to motorists by stock on unfenced Common land roaming onto public roads
- Implement sound stock management policies that serve to improve the quality of soil, water and vegetation resources on the Common
- Promote good animal health and optimum productivity for stock grazing within the defined "stock pasturage area" on the Common

4.1.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to pasturage of stock on the Willyama Common.

- ***The grazing of stock on the Common is confined to the stock pasturage area identified in this Plan of Management. Stock grazing on the stock pasturage areas must be owned by a Commoner and the stock must be recorded on the livestock register***

An area suitable for stock pasturage has been identified after taking into account the following factors.



- ❑ Land suitability rankings for Mapping Areas 1 to 20 of the Land Assessment
- ❑ The location of existing infrastructure to support the Stock Pasturage Area (e.g. water supply pipeline, fencing)
- ❑ The current and likely future demand for stock pasturage by existing Commoners

The area selected for the Stock Pasturage Area corresponds in part with Mapping Area 1 of the Land Assessment and is illustrated on **Figure 2.1**. The area offers access to existing infrastructure for the provision of water for stock and is partially fenced off from the local road network. The Trust has agreed to complete fencing of this area in order to prevent stock from straying onto Nine Mile Road.

Land suitability rankings from the Land Assessment are presented below and highlight the generally low suitability of the “stock pasturage area” for environmental protection and recreation purposes.

- ❑ Environmental Protection Suitability - generally the area has low Catchment Protection and Nature Conservation Significance, although some areas have high Heritage Protection Significance due to the presence of Aboriginal heritage sites
 - ❑ Recreation Suitability - the area is suitable for natural and semi-natural recreation only, and has low suitability for intensive recreation
 - ❑ Agricultural Suitability - the area has low agricultural suitability
 - ❑ Mining / Extraction Suitability - the area has high mining / extraction suitability
- ***The number of stock that a Commoner can graze on the Stock Pasturage Area will be proportional to the number of enrolled Commoners, up to the maximum number of stock per Commoner permitted under the Local Rules***
- ***The Stock Pasturage Area should not be used by the general public unless authorised by the Trust***
- ***The Stock Pasturage Area may also be used for other purposes by the following user categories, as defined under Section 1 of the Management Plan***
1. ***The Trust***
 2. ***Persons or organisations authorised by the Trust***
 3. ***General public***
 4. ***Authorities under other legislation***



- ***The Trust will fulfil the statutory requirements of the Commons Management Act, 1989 and Commons Management Regulation, 2001***
- ***The use of the Common for pasturage and watering of stock will be regulated by the Trust in accordance with the Local Rules***

4.1.4 Actions

The following actions are proposed to assist the Trust with achieving the strategic objectives relating to pasturage of stock on the Willyama Common.

- The Trust shall review the stocking rate when warranted due to changing seasonal conditions to ensure that the soil, water and vegetation characteristics of the Stock Pasturage Area are not adversely impacted upon by grazing
- The Trust shall ensure that livestock on the Stock Pasturage Area are prevented from moving onto public roads, railways, urban areas or neighbouring properties, through the erection and maintenance of fences
- The Trust shall develop a plan for improvements including fencing, selective clearing and improved grazing management
- The Trust shall budget and prioritise for improvement activities on the Stock Pasturage Area
- The Trust shall consult with Commoners prior to undertaking improvement activities on the Stock Pasturage Area
- The Trust shall coordinate contractors and voluntary labour to undertake maintenance improvements and herd management consistent with the Local Rules
- The Trust shall review the Local Rules on a bi-annual basis

4.1.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.

- Name and address of all Commoners recorded on the Commoner's Roll
- Quarterly livestock numbers and type recorded on the Common Herd Book
- Number and type of progeny dropped on the Common
- Number and type of livestock found outside the Stock Pasturage Area
- Number of musters and persons involved



- Stock-related vehicle accidents
- Complaints or disputes relating to livestock on the Common
- Meetings and attendance
- Register of maintenance activities and initiatives implemented by the Trust

All data collected will be included in the Annual Report for the Willyama Common for the respective year in which the data was collected.

4.2 Land Management and Conservation

4.2.1 Background

Management and conservation of the natural and cultural values of the Common is considered fundamental to the long-term sustainability of Common land for a variety of alternate land uses.

The land management and conservation strategy adopted by this Management Plan recognises that the arid environment of the Common is sensitive and prone to degradation as a result of land use activities unsuited to the environment. Consequently, the strategy places emphasis on the marriage of alternate land uses with areas of the Common that can support those alternate land uses, without experiencing degradation of their natural and cultural values.

The strategy also provides for the remediation of Common land adversely affected by past land use activities, and encourages Community support in the ongoing management of issues, such as those listed below.

- Control and eradication of introduced **weeds** like African Boxthorn, Mesquite, Camel Thorn, Bathurst Burr, Noogoora Burr and Prickly Pear
- Control of introduced **pests** like foxes, rabbits, hares, feral cats and feral goats
- Maintenance of **vegetation** cover to ensure soil stability and minimise land degradation
- Remediation of **erosion** areas, particularly related to abandoned mining sites, creek beds, areas currently used by recreational vehicles and animal tracks
- Ongoing monitoring of **grazing** activities and stock carrying capacity in order to maintain adequate vegetation cover and species mix
- Identification of sites of **Aboriginal heritage** significance and protection of known Aboriginal Sites



- Recognition of **biodiversity** and management habitats to ensure that biodiversity is maintained
- Removal and correct disposal of **waste** materials

4.2.2 Objectives

The following strategic management objectives apply to management of land and conservation issues for the Willyama Common.

- Protect and enhance the natural and cultural aspects of the Common through the implementation of sound management policies relating to pasturage of stock and other approved land uses
- Preserve and maintain the natural biodiversity of the Common and improve and maintain the natural habitats
- Locate and protect Aboriginal and European cultural and heritage sites
- Define areas within the Common that due to their natural and/or cultural values are capable of supporting alternate land uses, without experiencing degradation of those natural or cultural values
- Maintain the visual amenity of the Common by promoting alternate land uses in areas of lower visual amenity significance

4.2.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to of land management and conservation on the Willyama Common.

- ***Use of the Common for land uses other than the grazing of stock on the Stock Pasturage Area is restricted to those land uses listed under Part A of the Management Plan***
- ***Land uses listed under Part A of the Management Plan can only be conducted by the relevant user groups, listed under Part B of the Management Plan***
- ***Land uses listed under Part A of the Management Plan may only be conducted on specific areas of the Common, identified by the Trust as being suitable for that specific land use***
- ***Recreational users of the Common will be subject to guidelines published by the Trust as information leaflets to ensure adequate control and to protect against land and vegetation degradation on the Common***



- ***The Trust will promote land management and conservation programs relating to the natural and cultural aspects of the Common, involving Commoners, licencees, lessees and the Community and bona-fide groups or agencies***
- ***The dumping of rubbish, litter, refuse, dead animals, offal or other waste on the Common, is strictly prohibited and will incur the maximum penalty that applies to this offence(s)***
- ***The Trust will fulfil the statutory requirements of the Commons Management Act, 1989 and the Commons Management Regulation, 2001***

4.2.4 Actions

The following actions are proposed to assist the Trust with achieving the strategic management objectives relating to land management and conservation on the Willyama Common.

- The Trust shall publish guidelines covering the use of Common land for recreational and purposes in information leaflets titled:
 - ❑ “Guidelines for Recreational Activities on the Willyama Common”
 - ❑ “Guidelines for the use of Motorbikes and Motor Vehicles on the Willyama Common”
- The Trust shall consult with the National Parks and Wildlife Service and the Aboriginal Land Council in relation to the management and protection of Aboriginal relics and sites
- The Trust shall promote involvement with bona-fide groups or agencies wishing to initiate land management and/or Landcare activities
- The Trust shall ensure that it complies with its statutory requirements relating to the management and control of fire, pests and weeds on the Common
- The safe carrying capacity of the Stock Pasturage Area shall be regularly reviewed to take into account the condition of soil and vegetation cover
- The Trust shall erect appropriate fencing and signage around areas of natural and / or cultural sensitivity
- The Trust shall undertake remediation of abandoned mining sites in consultation with the Department of Mineral Resources to remove potential hazards associated with user activities



- The Trust shall budget and prioritise for the maintenance and improvement of land affected adversely by past land use activities
- The Trust shall develop a surveillance and action plan for the prevention of unlawful activities on the Common and the removal of unauthorised structures

4.2.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.

- Land management and Landcare achievements, e.g. cost of weed and pest control, number and type of pests eradicated
- Noxious plants and feral animals identified
- Number of coordinated control programs
- Project initiated by students or interest groups

All data collected will be included in the Annual Report for the Willyama Common for the respective year in which the data was collected.

4.3 Mining and Extractive Industries

4.3.1 Background

The management strategy adopted by the Trust in relation to activities of the Mining and Extractive Industries on Common land acknowledges:

- (i) mineral resources on Common land are owned by the Crown and their removal is subject to the approval of the Department of Mineral Resources and other relevant Government Authorities; and
- (ii) community requirements for sand and gravel for infrastructure development and maintenance.

Consequently, the Trust aims to work cooperatively with all Government Authorities and the Mining and Extractive Industries, whilst serving to represent the best interests of the Common and Community in ensuring that the natural and conservation values of the Common are preserved.

Removal of commercial quantities of sand and gravel from the Common will require development consent under the *Broken Hill Local Environment Plan, 1996* as amended on the 21 March 2001 (Amendment No. 2) and a lease or licence from the Trust. Several areas within the Common have been identified to provide for this activity.



Any rental or royalty payable to the Trust will be used for financing land management activities on the Common.

4.3.2 Objectives

The following strategic management objectives relate to the activities of Mining and Extractive Industries on the Willyama Common.

- Provide orderly access to Crown mineral resources consistent with Government Authority requirements, environmental planning constraints and the land management and conservation strategy of the Willyama Common Management Plan
- Provide orderly access to construction materials consistent with Local Government requirements, environmental planning constraints and the land management and conservation strategy of the Willyama Common Management Plan
- Ensure that abandoned mine sites on Common land are made safe to minimise the risk to the Community and stock grazing on the Common
- Ensure that abandoned mine sites on Common land are rehabilitated in order to return the land to it's pre-mining land use capability and maintain the visual amenity values of the Common
- Utilise sites of historical value to the mining industry for low-impact tourism purposes
- Supplement the income of the Trust to offset the management costs associated with operation and maintenance of the Common

4.3.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to the activities of Mining and Extractive Industries on the Willyama Common.

- ***The Trust will cooperate with the Department of Mineral Resources in relation to approved activities of the Mineral Exploration and Mining Industry on the Common***
- ***The Trust will ensure that it receives fair and reasonable compensation from the Mineral Exploration and Mining Industry in relation to any activity by that industry on Common land where compensation is duly payable***



- ***The Trust will ensure that any remediation or rehabilitation works undertaken by the Mineral Exploration and Mining Industry on Common land are completed to standards that:***
 - ❑ ***will assist with the return of the land to a condition equivalent to or better than the pre-disturbance condition;***
 - ❑ ***prevent further degradation of the land;***
 - ❑ ***assist with the preservation of the natural character and visual amenity of the Common; and***
 - ❑ ***are completed in priority of safety, environmental impact and historical value***
- ***The Trust will work together with the Department of Mineral Resources to assist with the remediation of abandoned mine sites in order that the land is returned to a post-mining land use capability, consistent with the land management and conservation strategy of the Management Plan***
- ***The Trust will issue leases or licences for all activities associated with the commercial removal of sand, gravel or other natural commodities from the Common***
- ***The Trust will collect from all lessees or licencees a market-based rental and royalty, payable to the Trust***
- ***The Trust will be responsible for issuing approvals to local residents for the removal of small volumes (less than 3 cubic metres) of sand and gravel from designated parts of the Common upon request. Such removals will not be the responsibility of the Trust and will be self-loaded (shovel and utility/trailer)***

4.3.4 Actions

The following actions are proposed to assist the Trust with the implementation of policies relating to the activities of Mining and Extractive Industries on the Willyama Common.

- The Trust shall issue leases or licences for commercial sand and gravel removals and monitor compliance with conditions
- The Trust shall maintain records of material removed and royalties received in accordance with the Commons Management Act and Regulations
- The Trust shall compile an inventory of abandoned mine sites and prioritise sites for rehabilitation, restoration and tourism



- The Trust shall develop funding opportunities for rehabilitation of mined lands in cooperation with the Department of Mineral Resources, Department of Infrastructure, Planning and Natural Resources and other sources

4.3.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.

- Number of licensed operators
- Income from extractive industries
- Volume of material removed
- Compliance with conditions
- Number of hazardous sites identified
- Number of sites rehabilitated, including area and cost
- External funding received

All data collected will be included in the Annual Report for the Willyama Common for the respective year in which the data was collected.

4.4 Recreation and Tourism

4.4.1 Background

The Willyama Common Trust recognises the recreational needs of the Broken Hill Community and proposes that the following recreational and tourist activities be permitted, providing they do not serve to diminish the natural or heritage values of the Common.

- Passive recreation (walking, cycling picnicking and camping)
- Use of motorbikes in approved areas only
- Fossicking (mineral and relic)
- Horse riding
- Trotting horses and horse training
- Rifle ranges
- Gun clubs
- Archery clubs
- Model aircraft flying clubs
- Tourist and educational facilities



4.4.2 Objectives

The following strategic management objectives apply to the use of Common land for recreational and tourism activities.

- Define those areas within the Common that due to their natural and cultural values are capable of supporting approved recreational and tourism activities without experiencing degradation of those natural or cultural values
- Encourage the use of the Common for approved recreational activities
- Promote the eco-tourism potential of the Willyama Common
- Ensure that approved recreational and tourism activities do not negatively impact on, or compete with, existing adjacent land use activities, either on Common land or other adjacent landholdings
- Where applicable, regulate the issue of licences for recreational and tourism activities (e.g. recreational clubs) in accordance with demand and the presence or absence of similar facilities in the Broken Hill District

4.4.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to recreational and tourism activities on the Willyama Common.

- ***Use of Common land for recreational purposes will be restricted to those activities listed under Part A (Page A-2) of the Management Plan***
- ***Recreational activities listed under Part A of the Management Plan can only be conducted by those approved user groups, listed under Part B (Page A-3) of the Management Plan***
- ***Approved recreational activities are only permitted on approved areas of the Common, assessed as having the natural and cultural attributes capable of supporting those activities***

Assessment of the suitability of Common land for recreational activities has been determined using the findings of the Land Assessment study. In turn, the Management Plan has adopted the approach that recreational activities should only be approved for parts of the Common that can support those uses, without being adversely affected in terms of their natural or cultural values. Consequently, recreational activities have only been approved for those parts of the Common assessed to have:

- (i) moderate to very high Recreation Suitability; and



- (ii) generally low Environmental Protection suitability (i.e. low Catchment Protection, Nature Conservation and Heritage Protection significance).

The areas of the Common nominated for approved recreational activities are summarised below. The location of these areas is illustrated on **Figure 2.2**.

<u>Recreational Activities</u>	<u>Approved Land Use Area</u>
<ul style="list-style-type: none"> Passive recreation (walking, cycling, picnicking and camping) Motor vehicles (registered motor vehicles, only for the purpose of accessing the Common for passive recreational activities) Mineral fossicking Relic fossicking Horse riding Tourism and educational facilities 	<p>All parts of the Common except the Stock Pasturage Area, unless authorised by the Trust</p>
<ul style="list-style-type: none"> Motorbikes (only motorbikes with engine capacities less than or equal to 250cc) 	<p>“Motorbike Area” only</p>
<ul style="list-style-type: none"> Rifle ranges and Gun Clubs Model aircraft clubs Archery clubs 	<p>“Recreation Area A” only</p>
<ul style="list-style-type: none"> Trotting horses and horse training Temporary dwellings approved the Trust 	<p>“Recreation Area A and Recreation Area B”</p>

“Recreation Area A” covers Common land within Mapping Areas 5, 6 and 7 of the Land Assessment.



“**Recreation Area B**” covers Common land within Mapping Areas 16, 17 and 18 of the Land Assessment.

The “**Motorbike Area**” covers an area of degraded land within Mapping Area 1 of the Land Assessment that is currently used on a regular basis by a variety of recreational vehicles. The motorbike area will be fenced to exclude entry of stock from the adjacent Stock Pasturage Area and minimise the opportunity of injury to the general public.

- ***Recreational users of the Common will be subject to guidelines published by the Trust as information leaflets to ensure adequate control and to protect against land and vegetation degradation on the Common***
- ***The Trust will authorise commercial recreational activities and facilities by lease or licence***
- ***Use of Common land for commercial tourism purposes will be subject to the approval of the Trust***
- ***The Trust will authorise commercial tourism activities and facilities by lease or licence***

4.4.4 Actions

The following actions are proposed to assist the Trust with the implementation of the management strategy relating to recreation and tourism activities on the Common.

- The Trust shall identify and promote recreational and tourism opportunities for the Common
- The Trust shall plan for and investigate funding opportunities to develop recreational facilities
- The Trust shall promote the use of the Common in cooperation with various sporting, cultural and educational organisations
- The Trust shall publish guidelines covering the use of Common land for recreational and tourism purposes, in information leaflets titled:
 - ❑ “Guidelines for Recreational Activities on the Willyama Common”
 - ❑ “Guidelines for the use of Vehicles on the Willyama Common”
 - ❑ “Guidelines for eco-tourism on the Willyama Common”
- The Trust shall monitor the impact that recreational and tourism activities have on the natural and cultural values of the Common



4.4.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.

- Requests received from the Community or organisations for use of Common land for recreation and tourism purposes
- Liaison and cooperative projects with other local groups and Trusts
- Number of complaints and enquiries relating to recreational and tourism activities (including police statistics of nuisance and unauthorised usage)
- Number of commercial activities and income
- Achievements with planning/development

All data collected will be included in the Annual Report for the Willyama Common for the respective year in which the data was collected.

4.5 Commercial Agriculture and Horticulture

4.5.1 Background

The Willyama Common Trust has previously been approached by members of the Broken Hill Community in relation to the establishment of commercial agricultural/horticultural practices on Common land.

The Trust supports and is keen to promote the establishment of such activities, providing they do not serve to diminish the natural or heritage values of the Common.

4.5.2 Objectives

The following strategic management objectives apply to the use of Common land for commercial agricultural and horticultural activities.

- Define those areas within the Common that due to their natural and cultural values are capable of supporting approved agricultural and horticultural activities without experiencing degradation of those natural or cultural values
- Encourage the use of the Common for approved agricultural and horticultural activities
- Ensure that approved agricultural and horticultural activities do not negatively impact on adjacent existing land use activities, either on Common land or other adjacent landholdings



- Where applicable, regulate the issue of licences for agricultural and horticultural activities in accordance with demand and the presence or absence of similar activities in the Broken Hill District

4.5.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to agricultural and horticultural activities on the Willyama Common.

- ***Use of Common land for agricultural and horticultural activities will be restricted to activities evaluated by the Trust as being compatible with the natural and cultural values of the Common***
- ***The areas of the Common in which a particular agricultural or horticultural activity may occur will be determined by the Trust in accordance with the findings of the Land Assessment Study and only following a request from the Community for that particular activity to occur***
- ***Agricultural and horticultural activities will not be permitted in the Stock pasturage Area***
- ***The Trust will authorise commercial agricultural and horticultural activities by lease or licence***
- ***The Trust shall reserve the right to revoke a lease or licence for a commercial agricultural and horticultural activity, should that activity be demonstrated to have adverse impacts on the natural and cultural attributes of the Common***

4.5.4 Actions

The following actions are proposed to assist the Trust with the implementation of the management strategy relating to commercial agricultural and horticultural activities on the Common.

- The Trust shall issues leases or licences for commercial agricultural and horticultural activities
- The Trust shall monitor the impact that commercial agricultural and horticultural activities have on the natural and cultural values of the Common

4.5.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.



- Requests received from the Community or organisations for use of Common land for commercial agricultural or horticultural activities
- Number of complaints and enquires relating to commercial agricultural or horticultural activities

4.6 Licencing of Common Land for other Approved Land Use Activities

4.6.1 Background

The Willyama Common Trust acknowledges that demand exists within the Broken Hill Community for access to small parcels of land close to the edge of Broken Hill for a range of land use activities. Demand for such land has arisen as a result of the very limited freehold land that exists outside of the main town limits and in particular, the desire by many Community members to gain access to land close to the racecourse and horse training facilities, primarily for the stabling of horses.

The Trust recognises the Community demand for such land and will endeavour to facilitate access to Common land through the issue of fixed-term licences, providing such activities do not serve to diminish the natural or cultural values of the Common. Land adjacent to Racecourse Road has been identified as one suitable site for the issue of a number of small-acre land licences, due to the natural and cultural attributes of the land and its proximity to existing infrastructure and services.

4.6.2 Objectives

The following strategic management objectives apply to the use of small parcels of Common land which would be licenced by the Trust as small-acre land licences. .

- Define those areas within the Common that due to their natural and cultural values are capable of supporting those activities likely to be associated with small-acre land licences without experiencing degradation of those natural or cultural values
- Ensure that activities occurring on small-acre land licences do not negatively impact on, or compete with, existing adjacent land use activities, either on Common land or other adjacent landholdings

4.6.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to the issue and management of small-acre land licences.

- ***Access to Common land will be restricted to areas close to the Broken Hill town limit, with the natural and cultural attributes capable of supporting activities likely to occur on the licenced land***



- ***The Trust will authorise access to Common land through the issue of fixed-term small-acre land licences***
- ***Horses or other stock stabled on small-acre land licences must be hand or trough fed and watered at all times***
- ***Erection of all structures or buildings on small-acre land licences will be subject to the approval of the Trust. No permanent structures or buildings may be erected on land covered by a small-acre land licence***
- ***Small-acre licence holders will be subject to guidelines published by the Trust as information leaflets, to ensure adequate control and protect against land and vegetation degradation on the Common***
- ***The Trust shall reserve the right to revoke a small-acre land licence if it can be demonstrated that the natural and cultural attributes of the licenced land are being degraded as a result of activities occurring on that land***
- ***The Trust shall ensure that any land use activity other than the depasturing of stock would adequately address any relevant issues associated with Native Title, prior to the issue of a small-acre land licence***

4.6.4 Actions

The following actions are proposed to assist the Trust with the implementation of the management strategy covering small-acre land licences.

- The Trust shall regularly inspect and monitor the impact that land use activities occurring on small-acre land licences have on the natural and cultural values of the Common land
- The Trust shall publish information leaflets explaining the environmental responsibilities of small-acre land licencees

4.6.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.

- Requests received from the Community for the issue of small-acre land licences
- Number of complaints and enquires relating to activities occurring on small-acre land licences



4.7 Services, Infrastructure and Utilities

4.7.1 Background

The Willyama Common Trust recognises that due to a shortage of unoccupied land in and around the City of Broken Hill, Common land may be required for a range of land use activities to provide for new, or support existing services, infrastructure and utilities used by the Broken Hill Community.

Consequently, the Trust is keen to ensure that adequate provision is made under the Management Plan to enable approval of such land use activities, should they be required.

4.7.2 Objectives

The following strategic management objectives apply to the use of Common land to provide for new, or support existing services, infrastructure and utilities.

- Provide for the use of Common land for such land use activities, should the demand arise
- Ensure that use of Common land for such land use activities do not negatively impact on either the natural and cultural values of the Common, or land use activities existing on adjacent Common land or other landholdings

4.7.3 Policies

The following policies have been adopted to assist the Trust in fulfilling the strategic management objectives relating to the use of Common land to provide for new, or support existing services, infrastructure and utilities.

- ***The Trust will assess all requests for use of Common land for such land use activities against the land capability rankings of the Willyama Common Land Assessment study***
- ***The Trust will issues leases or licences for Common land approved for such land use activities***
- ***The Trust will assess whether as a condition of the lease or licence, an Annual or Biennial Environmental Report is required, dependant on the nature of the land use activity and the impact on Common land***
- ***The Trust will ensure that use of Common land for such land use activities does not negatively impact on either the natural or cultural values of the Common, or land use activities existing on adjacent Common land or other landholdings***



4.7.4 Actions

The following actions are proposed to assist the Trust with the implementation of the management strategy relating to such land use activities.

- The Trust shall regularly inspect and monitor the impact that approved land use activities have on the natural and cultural values of the Common
- The Trust shall ensure that all lease or licence conditions are complied with by the lessee or licensee
- The Trust shall review and regularly audit the findings of Annual Environmental Reports

4.7.5 Evaluation

The following data will be collected to provide for assessment of the effectiveness of the proposed actions.

- Number of complaints and enquires relating to activities occurring on land leased or licenced for such land use activities
- Information relating to site inspections, environmental and other issues of non-compliance, remediation work required and findings of follow-up inspections

4.8 Urban Development

The use of Common land for urban development is not a permissible land use activity under the Management Plan for the Willyama Common. However, the Trust recognises that valid and warranted requests may be received in the future for the excise of parcels of Common land for urban development purposes. If such requests are received, the Trust shall work with Broken Hill City Council to facilitate the compulsory acquisition of such land by Council, providing such requests will not adversely affect the natural and cultural attributes of remaining Common Land.

4.9 Other Land Use Activities not defined under Part A of the Management Plan

The Trust recognises that requests for use of Common land for land use activities other than those listed under Part A of the Management Plan (refer Page A-2) may be received in the future. In instances where such requests relate to projects or infrastructure of significant importance to the Broken Hill Community, the Trust shall reserve the right to consider approval of such activities or land uses.



Any consideration of such activities or land uses will be undertaken in consultation with the relevant Government authorities and will draw upon the land capability ranking information in the Willyama Common Land Assessment to ensure that the natural and cultural values of the Common are maintained.



REFERENCES

Department of Agriculture, 1983, "Agriculture Suitability Maps", Agfacts, NSW Government, Sydney.

Department of Land and Water Conservation, 1999, "Draft Crown Land Assessment Manual", Department of Land and Water Conservation, Sydney.

Emery, K.A. 1985, "Rural Land Capability Mapping", Soil Conservation Service of NSW, Sydney.

R.W. Corkery & Co. Pty Ltd, 2000, Willyama Common Land Assessment prepared for Broken Hill City Council

Soil Conservation Service of NSW, 1976, "Management Plan, Broken Hill Common" (Land Systems Map).

Solomon, R.J., 1988, "The Richest Lode : Broken Hill 1883 – 1988", Hale and Iremonger Pty Ltd, Sydney.

Stevens, B.P.J., and Strout, W.J., (eds), 1982, "Records of the Geological Survey of New South Wales", Vol 21, Part 1, New South Wales Department of Mineral Resources.

Turner, Brian and Associates Pty Ltd, 1983, "City of Broken Hill Strategy Plan", Prepared for City of Broken Hill by Brian Turner and Associates Pty Ltd, May 1983, South Australia.



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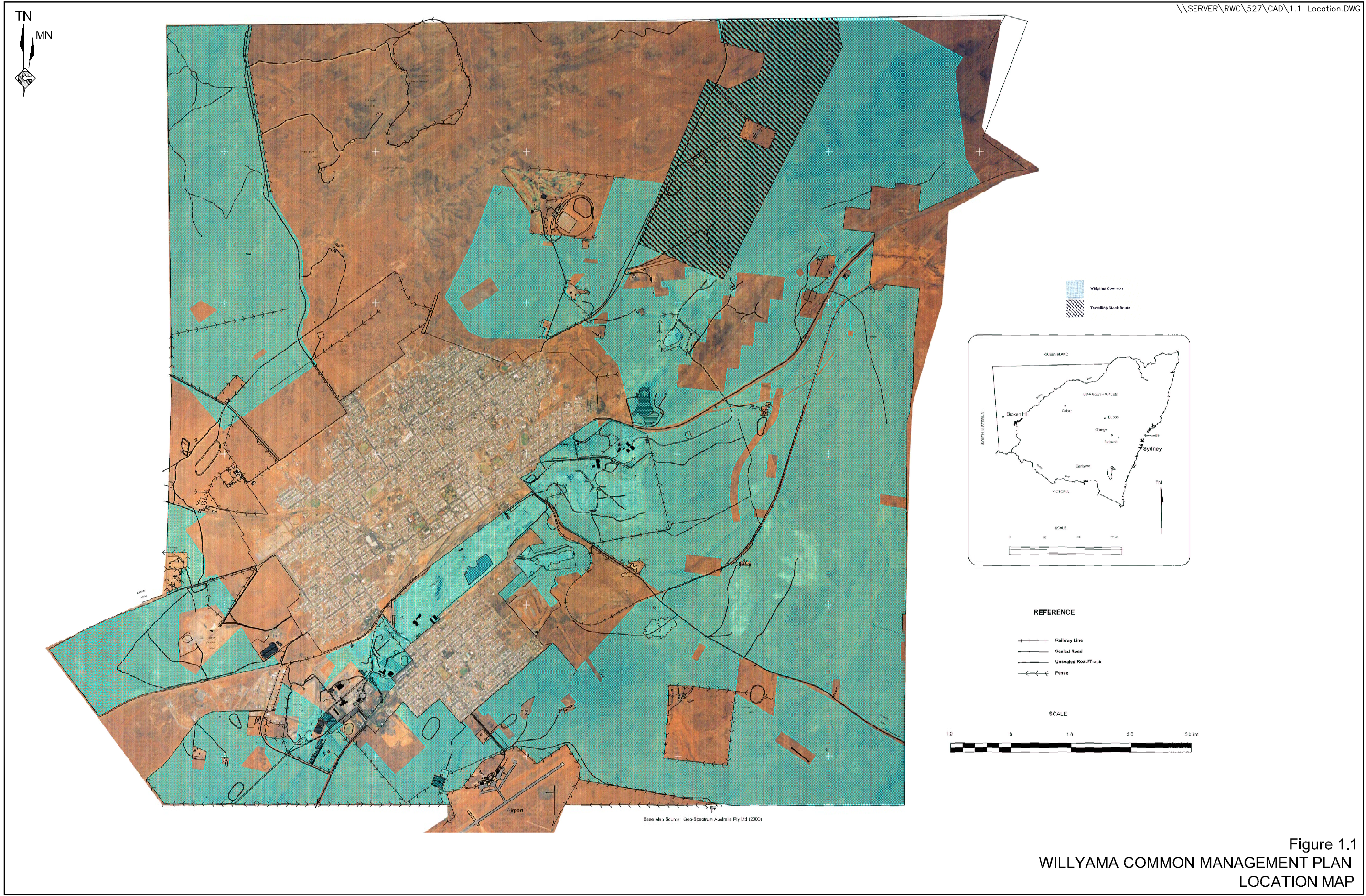


Figure 1.1
WILLYAMA COMMON MANAGEMENT PLAN
LOCATION MAP

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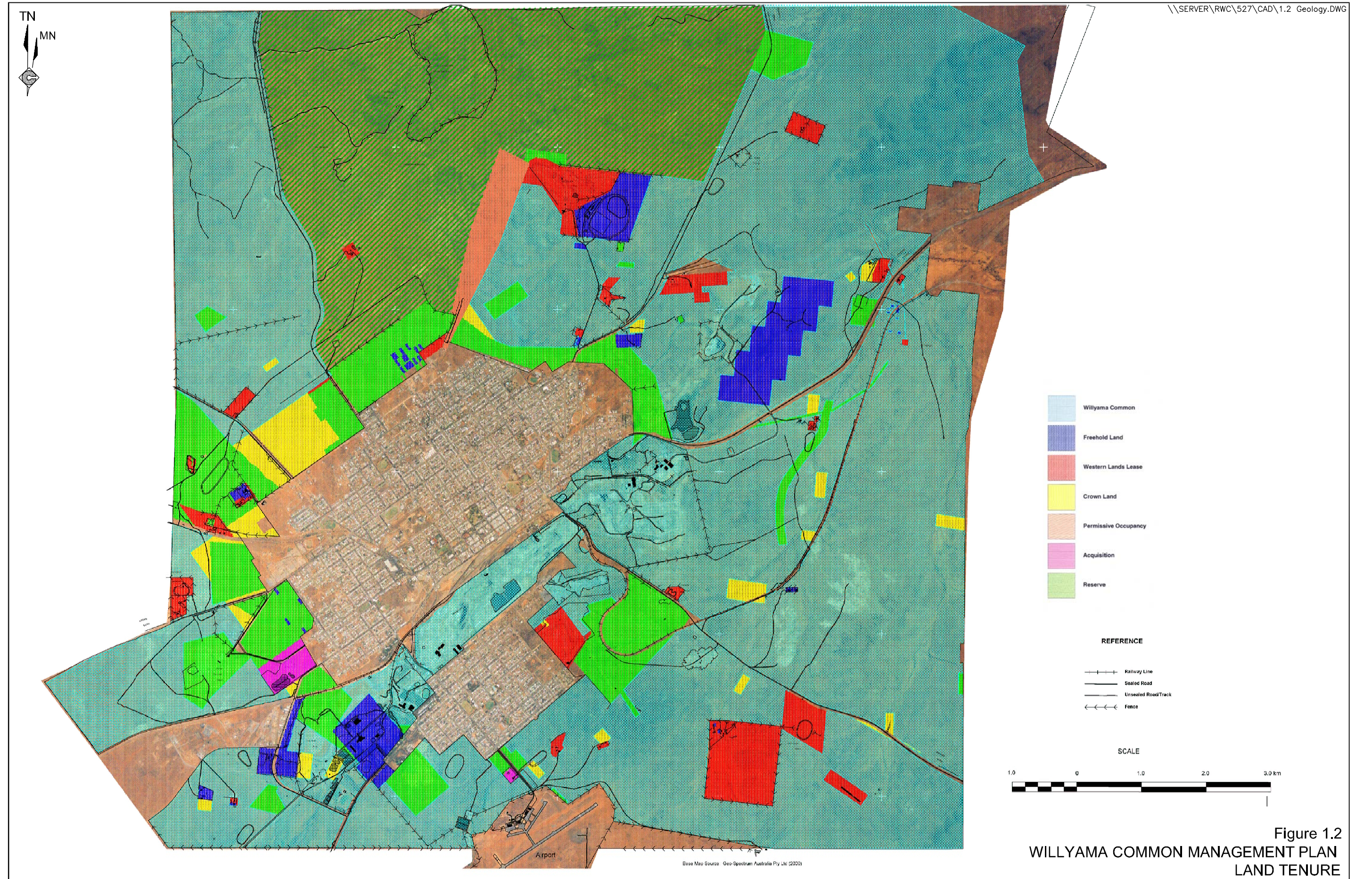


Figure 1.2
WILLYAMA COMMON MANAGEMENT PLAN
LAND TENURE