Valuing Natural Assets

Through Parkes Shire Council's Integrated Water Infrastructure Renewal (IWIR) Project

It all adds up. PARKES | PARKES SHIRE COUNCIL

Photo credit: Christian Uhrig Photography

The IWIR Project

Project Background

- In 2014, Council commenced the planning and approvals process
- Infrastructure renewal activities included:

Upgrades to water extraction facilities

New pump stations and pipelines

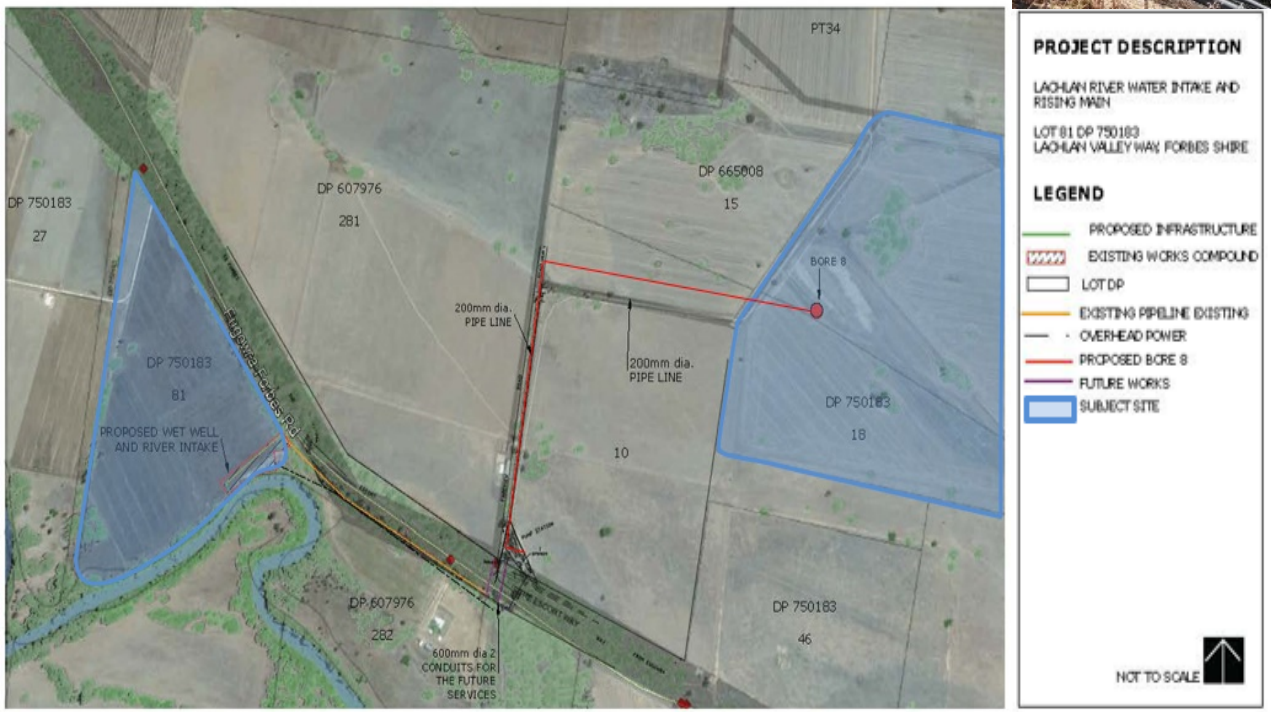
New Water Treatment Plant (WTP)

New Sewage Treatment Plant (STP)

Advanced Water Recycling Facility (AWRF)

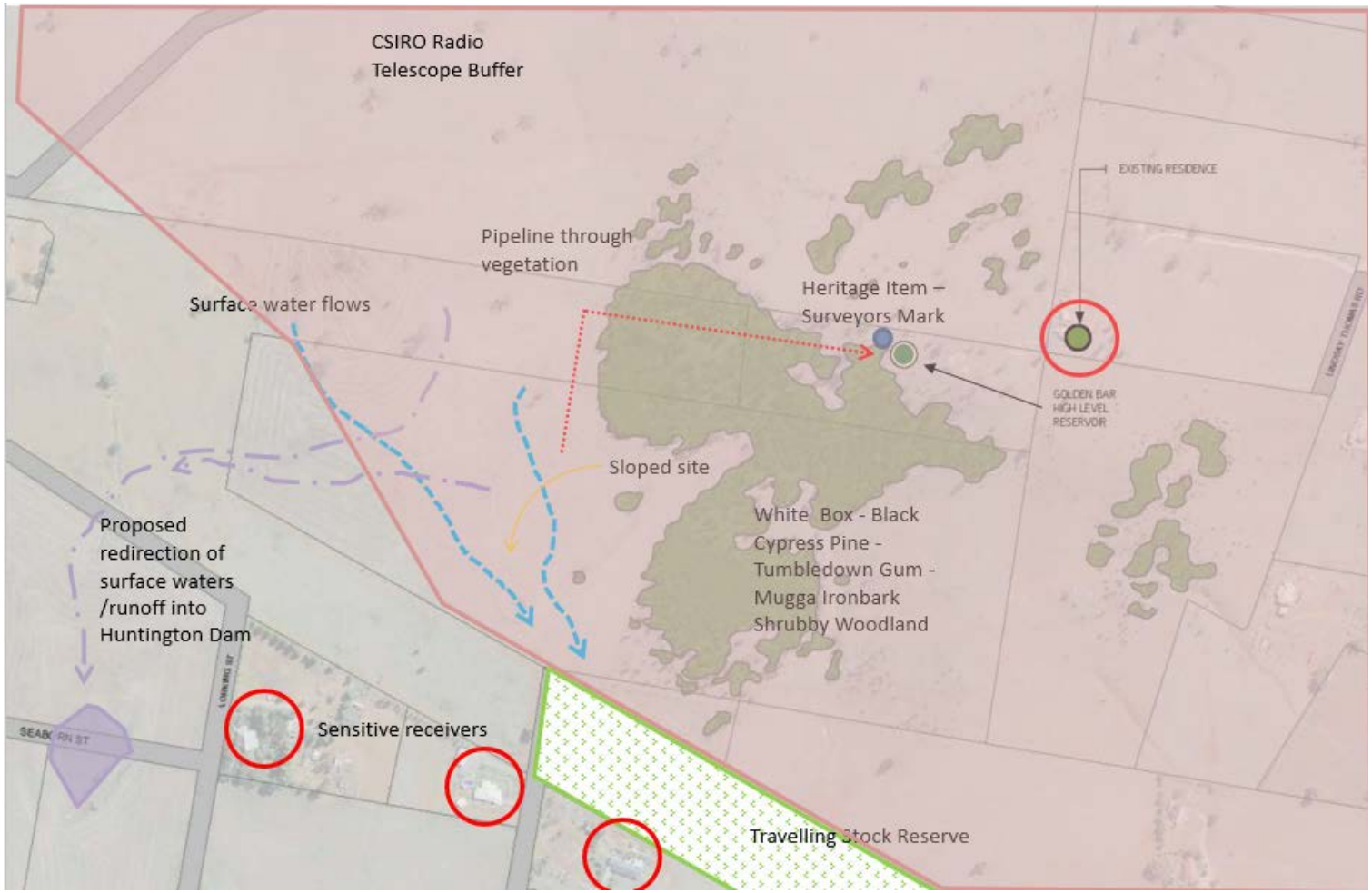
Project Components

Lachlan River Pump Station and Bore 8 Refurbishment (LRPS & B8)



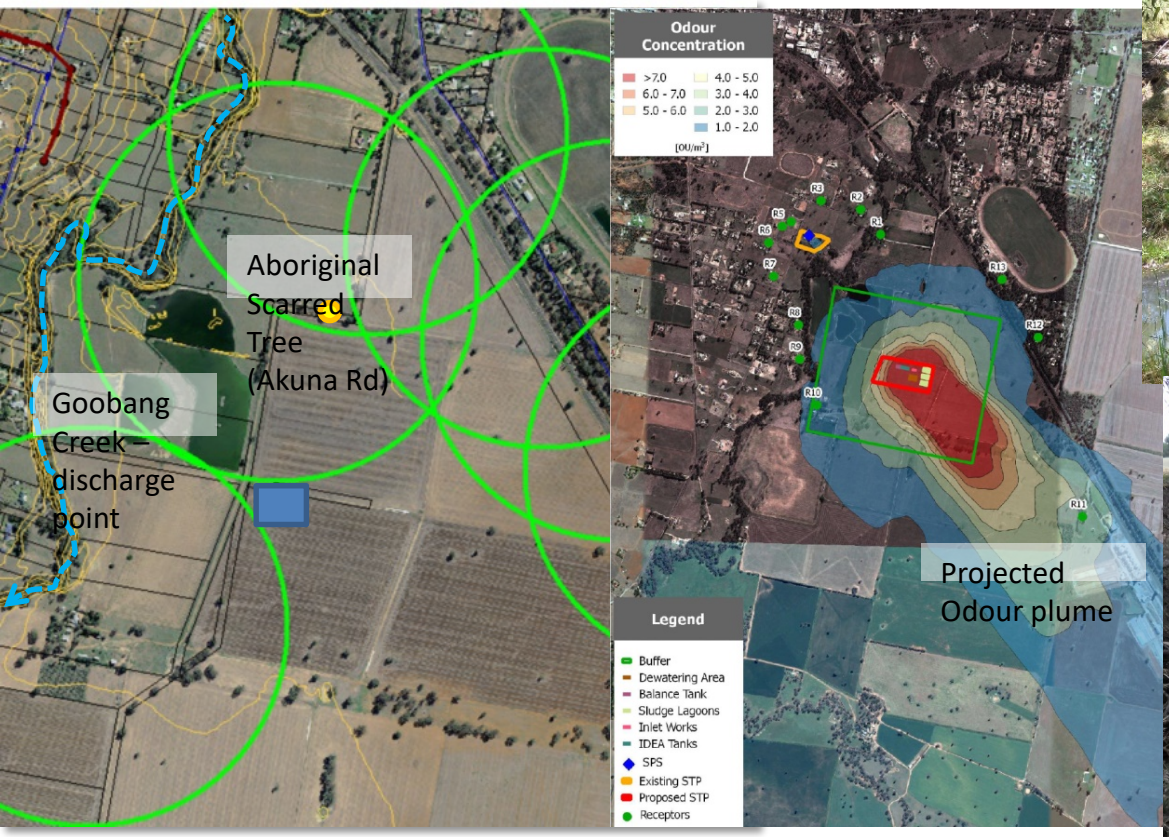
Project Components

New WTP and High Level Reservoir



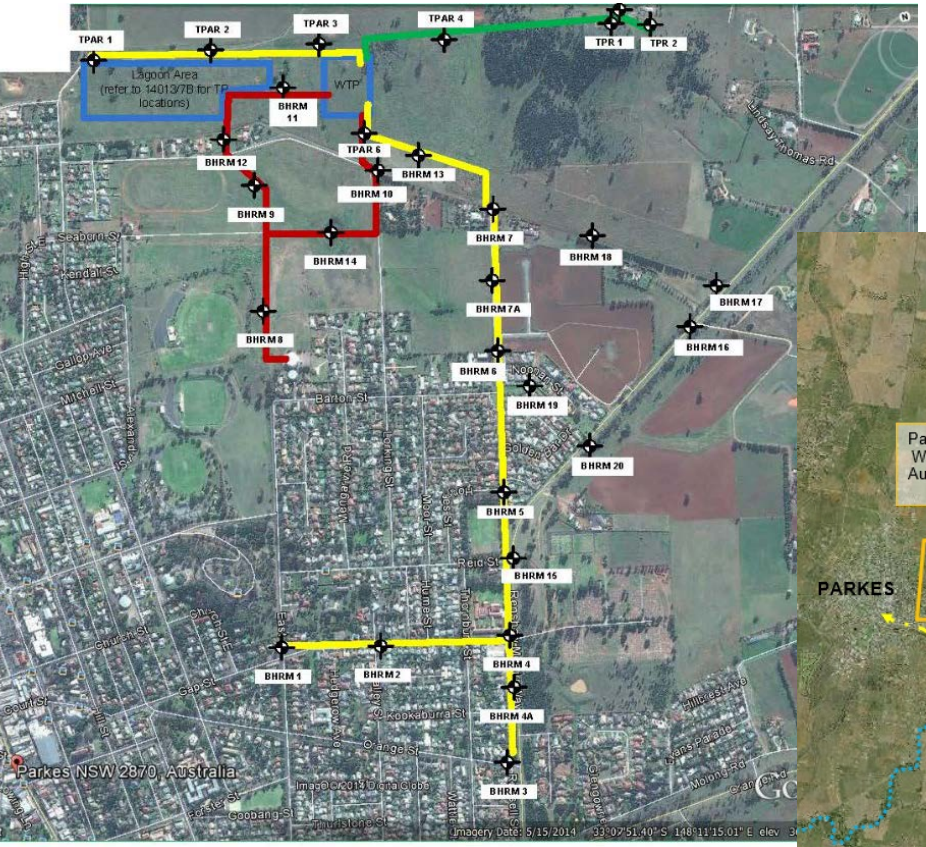
Project Components

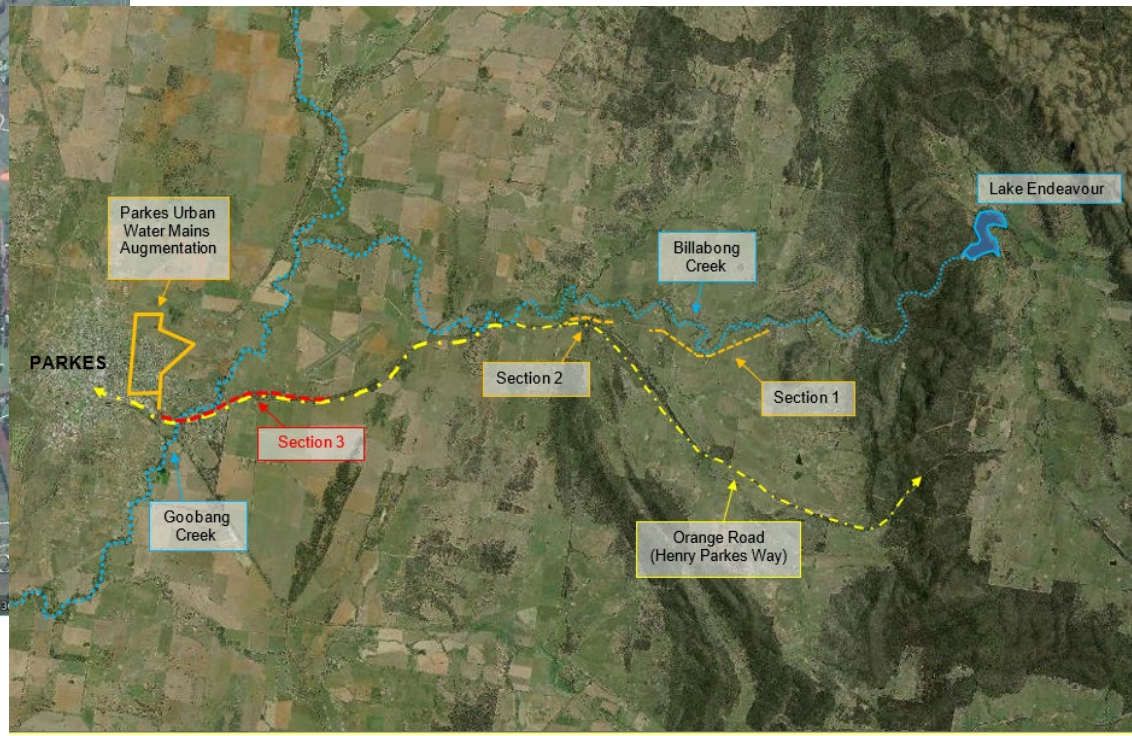
New STP and AWRF; Sewage Pump Station and Rising Main



Project Components

Urban Water Mains Augmentation & Dam Pipeline Refurbishment

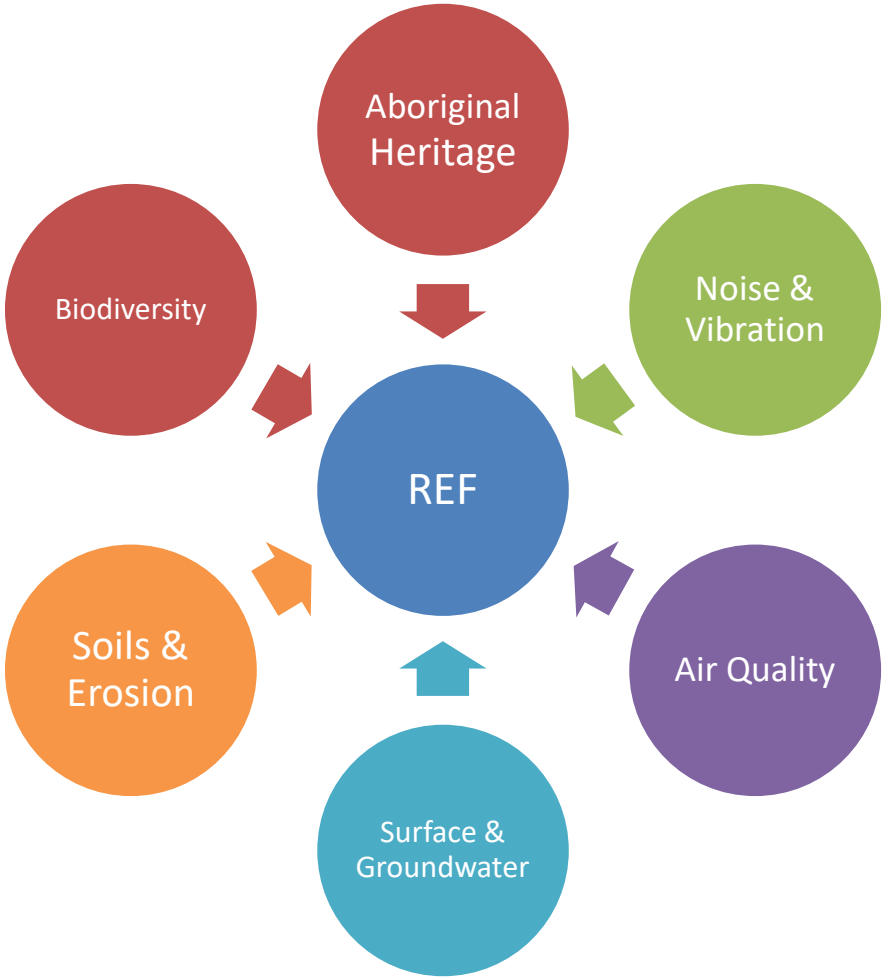




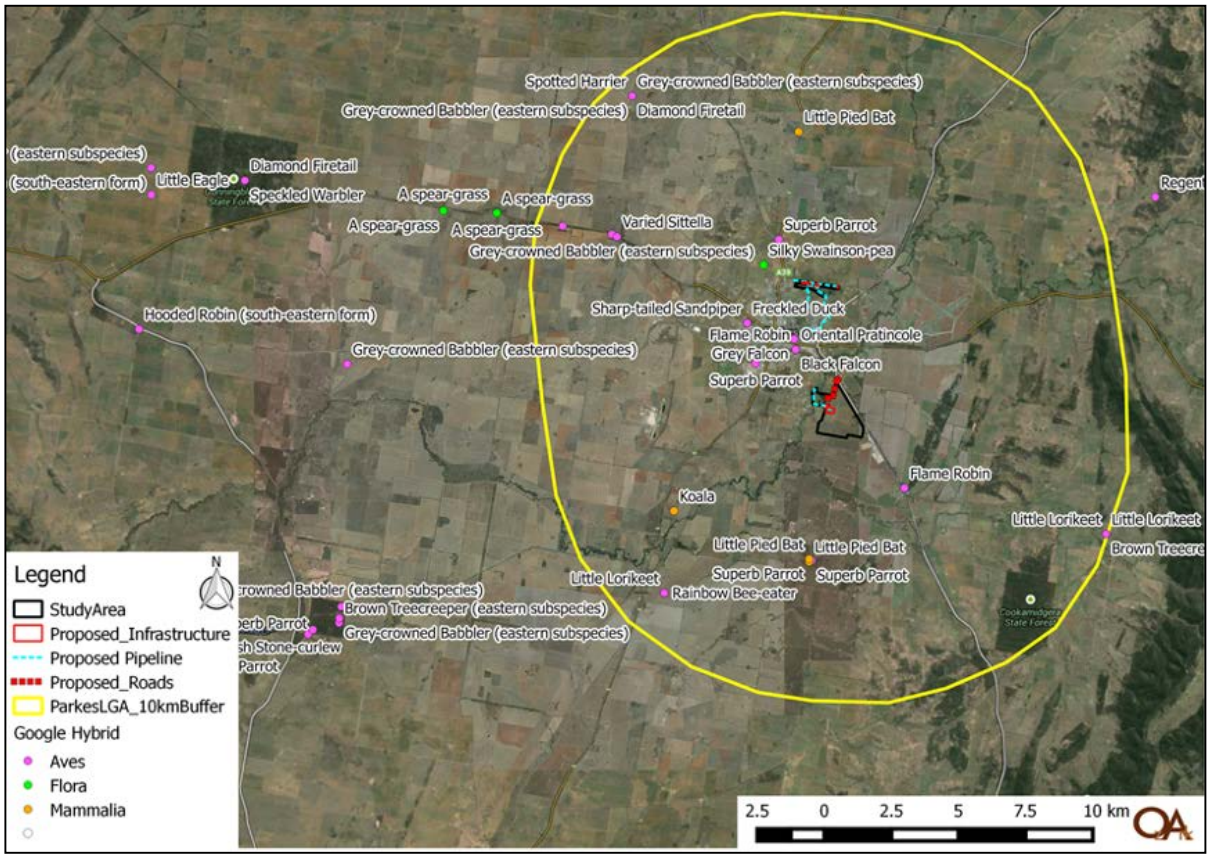
Cataloguing Environmental Assets

Range of sensitive environments, including:

- Riparian zones of Goobang Creek and the Lachlan River
- The Forbes borefields
- Remnant native vegetation throughout the Parkes township
- Roadside vegetation corridors



Ecological Investigations



Desktop analyses

- Identify threatened species, populations and ecological communities listed under the TSC Act (since rescinded),

  and

- Identify Matters of National Environmental Significance (MNES) listed under the EPBC Act

Ecological Investigations

Site investigations

- Surveys for each Study Area were completed by qualified ecologists in line with
  - NSW Office of Environment and Heritage (OEH) *Biodiversity Survey Guidelines Working Draft* (DEC 2004*),*
  - *Threatened Species Assessment Guidelines: Part 1 s5A of the EP&A Act 7-part Assessment of Significance (*DECC 2007*)* and
  - *OEH Field Survey Methods* (DECCW 2009*)*.
- Flora, Fauna targeted investigations
- No targeted investigations for Aquatic

Results

LRPS & B8R

- Lachlan River an endangered aquatic community listed in NSW
- Ground Water Dependant Ecosystem (GDE) :ID LA188 River Red Gum - Blakely's Gum grassy woodland
- Lachlan River water sampling point data indicates adjacent farming practices (elevated P and N)

Results

WTP and HLR

- Area heavily modified as a result of historical clearing
- High incidence of weeds (>70%) in groundcover
- Golden Bar Hill supports remnant vegetation – regional ‘stepping stone’ for species
- Rocky environs on Golden Bar Hill suitable for reptiles

Results

STP, AWRF and SPS&RM

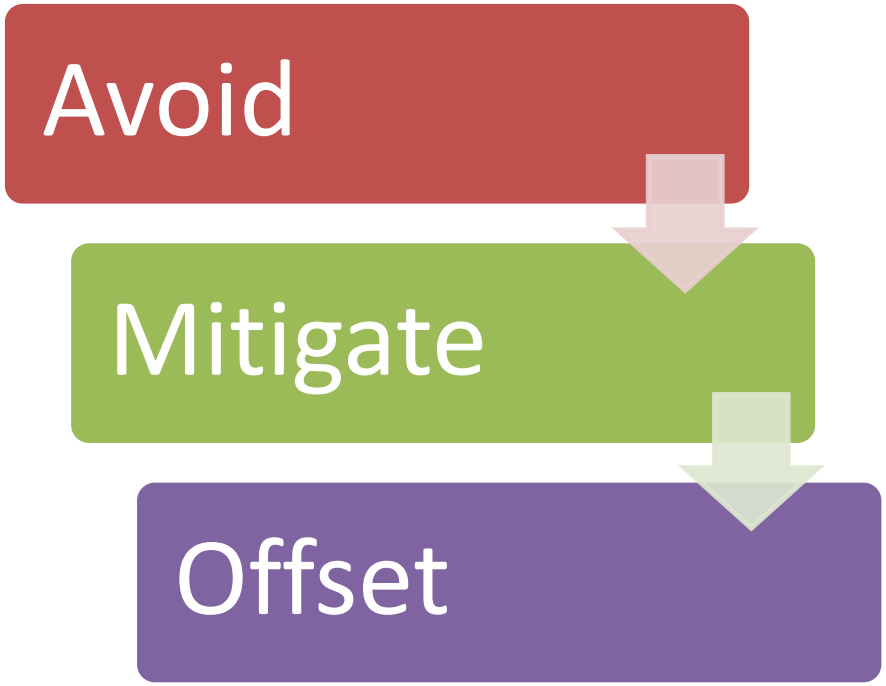
- Predominantly cleared, with high incidence (>70%) exotic species in the groundcover
- STP discharge point in Goobang Creek surrounded by River Red Gum – Blakely's Gum Grassy Woodland riparian vegetation
- Sparse remnant Fuzzy Box Woodland EEC (TSC Act)
- Tertiary treatment ponds supported habitat for threatened species

Results

UWMA and Dam Mains Refurbishment

- Parkes urban area cleared and disturbed; not considered to align with a Biometric vegetation community
- Dam mains refurbishment included Inland Grey Box Woodland EEC along Henry Parkes Way
- >70% understorey native

Project Environmental Outcomes



Avoid, mitigate and offset potential environmental damage through development of REF Safeguards to

- Include in construction contracts
- Use for site inspection benchmarks
- Guide progressive remediation activities

Limitations

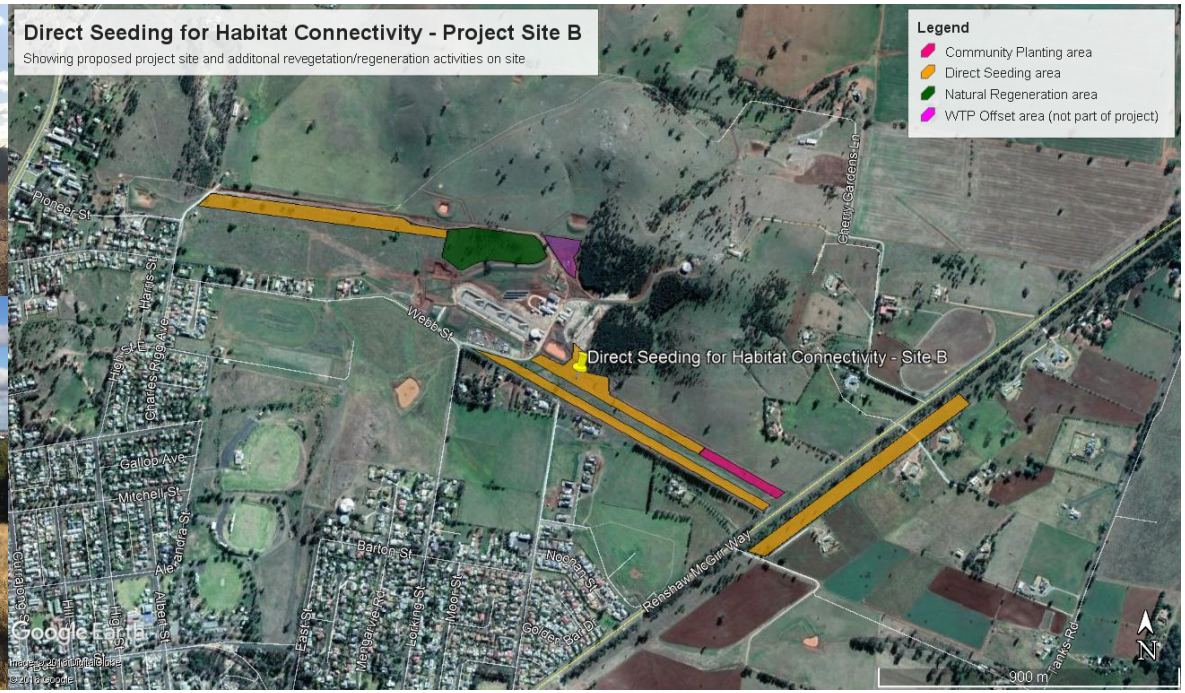
- Precautionary Principle
- Inclement weather
- Weed Control

Ecological Enhancement

- Woodland Connectivity Plantings – WTP

Offset revegetation of Black Cypress woodland along Golden Bar Hill.

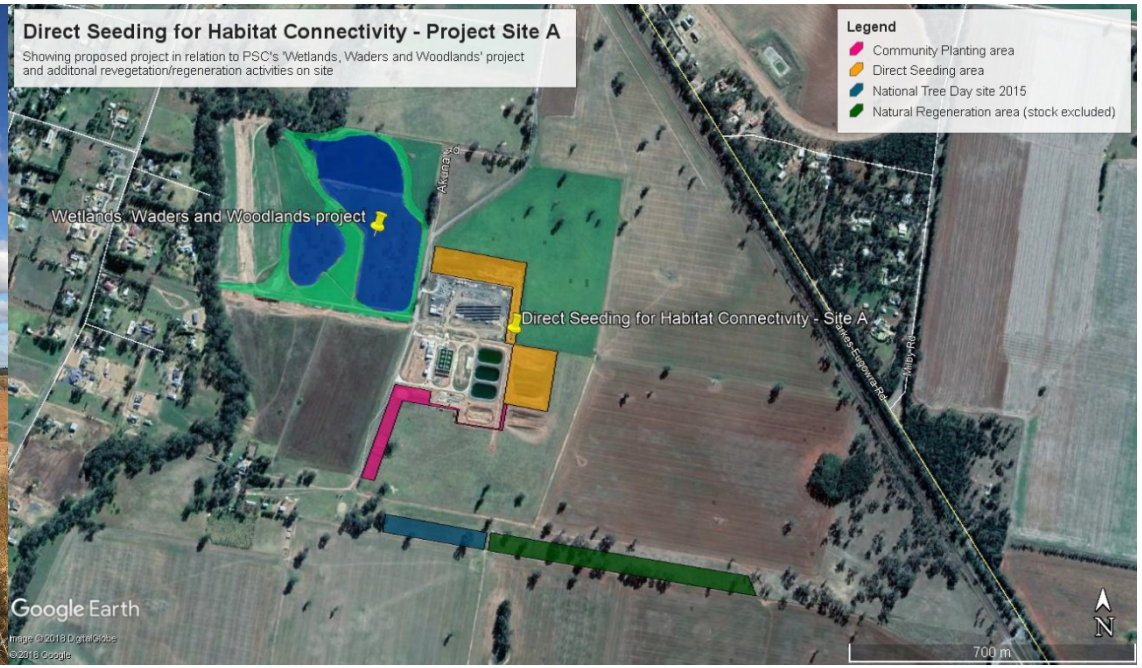
Planting to increase connectivity of habitats in the landscape, using cleared areas to the southeast of Golden Bar Hill totaling 3.3 hectares.



Ecological Enhancement

- Woodland Connectivity Plantings – STP

17.5ha Fuzzy Box Woodland habitat connectivity planting along Akuna Road; rehabilitation of effluent ponds as wetlands.



Ecological Enhancement

- Design and installation of a fish ladder in Goobang Creek to improve ecological function

Conclusion

- Hurdles will be encountered despite thorough planning, resulting in design changes and unforeseen impacts- reactive management required.
- Commitment to ecological enhancement actions important to avoid ‘death by a thousand cuts’.
- Must catalogue thoroughly in the beginning, and incorporate environmental expertise into planning and management; provides justification for environmental enhancement efforts beyond project completion – builds the ESD ‘business case’.

Acknowledgements

We would like to thank the following people for their support and input throughout the projects: Kent Boyd (General Manager) and Andrew Francis (Director Infrastructure);

Jason Myers and the entire Parkes Shire Council PMO team, past and present; and

OzArk Environment and Heritage Management who contributed to the ecological assessment.