



21 April 2015

**ORDINARY MEETING OF COUNCIL
1.00pm Monday 27 April 2015**

Notice is hereby given that a meeting of the Council of Uralla will be held at Council Chambers, Salisbury Street, Uralla on **Monday, 21 April 2015 commencing at 1.00pm.**

Lunch will be provided for Councillors at 12.30pm prior to the commencement of the meeting.

Damien Connor
GENERAL MANAGER

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- BUSINESS AGENDA -
Ordinary Meeting of Council

1pm 27 April 2015

1. **Opening & Welcome**
2. **Prayer**
3. **Acknowledgement of Country**
4. **Apologies**
Requests for Leave of Absence for :
 - Cr Daphne Field
 - Cr Fred Geldof
 - Cr Michael Pearce
5. **Disclosures & Declaration of Interests**

6. **Confirmation of Minutes of Previous Meeting**
7. **Announcements**
8. **Tabling of Reports & Petitions**
9. **Presentations**
10. **Deputations**
11. **Urgent Supplementary & Late Items of Business**

12. **Written Reports from Delegates**
13. **Mayoral Minute (Closed)**
 - Annual Performance Review – General Manager

14. Recommendations for Items to be Considered in Confidential Section

Subject: Annual Performance Review – General Manager

- (2) The matters and information are the following:
(a) personnel matters concerning particular individuals (other than councillors).

Subject: Budget Variation – Library Employee Costs

- (2) The matters and information are the following:
(a) personnel matters concerning particular individuals (other than councillors).

Subject: Grace Munro Lease Arrangement

- (2) The matters and information are the following
(c) information that would, if disclosed, confer a commercial advantage on a person with whom the council is conducting (or proposes to conduct) business,
(d) commercial information of a confidential nature that would, if disclosed:
(i) prejudice the commercial position of the person who supplied it, or
(ii) confer a commercial advantage on a competitor of the council

15. Reports from the General Manager

Called:	Item 1	Audit and Risk Committee – Independent Representatives
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16. Reports from the Corporate & Community Committee

Called:	1.20.04.01	Revised Community Strategic Plan (CSP)
Called:	1.20.04.02	Amendment to Operational Plan

17. Reports from the Environment, Development & Infrastructure Committee

Called:	2.20.04.01	Naming of Bundarra Bridge
Called:	2.20.04.02	Uralla Community Recycling Centre and Landfill Operating Hours
Called:	2.20.04.03	Works Progress Report to 29 March 2015
Called:	2.20.04.04	Works Planning Report April 2015
Called:	2.20.04.05	Development Approvals and Refusals for March 2015
Called:	2.20.04.06	Uralla Landfill Environmental Monitoring Report-March 2015

18. Motions on Notice

Motion	Title
1.20.04.03	Biker Friendly Community
2.20.04.07	Traffic Calming NE Highway/Thunderbolts Way

19. Schedule of Actions – As at 21/04/2015

20. Confidential Business

Called:	1.20.04.04	Budget Variation – Library Employee Costs
Called:	1.20.04.05	Grace Munro Lease Arrangement

21. Authority to Affix the Common Seal

- DA-4-2015 – R & K Burnett – Division Decision
- DA-55-2014 – S A Gapes – Division Decision

22. Meeting Close

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REPORTS FROM THE
GENERAL MANAGER

23 March 2015

15. Reports from the General Manager

REPORTS FROM THE GENERAL MANAGER

REPORTS FROM THE GENERAL MANAGER

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REPORTS FROM THE GENERAL MANAGER



REPORT TO COUNCIL

Department:	Governance and Information
Submitted by:	Manager of Governance and Information
Reference:	Item Number 1
Subject:	Audit and Risk Committee – Independent Representatives

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	An effective and efficient organisation.
Strategy:	Operate in a financially responsible and sustainable manner.
Action:	Construct a Risk Management Policy, Audit Committee Charter and establish an Internal Audit Committee and function.

SUMMARY:

The purpose of this report is for Council to endorse the appointment of two independent Committee representatives to Council's Audit and Risk Committee in accordance with the Audit and Risk Committee Charter.

The representatives have been assessed as the preferred candidates by Council's evaluation committee, which used set criteria to assess applicants based on qualifications, experience and skills.

OFFICER'S RECOMMENDATION:

That Council appoint Mr Michael O'Connor and Mr Sean Johnston as the two Independent Audit and Risk Committee Representatives, as recommended by the evaluation committee.

BACKGROUND:

On 27 October 2014 the Audit and Risk Committee Charter was adopted at the Ordinary Council Meeting (Resolution No 329/14). This charter prescribes how the Audit and Risk Committee within Council will be governed.

On 2 March 2015 Uralla Shire Council released an Expression of Interest (EOI) to the market inviting applications for two Independent Representatives to sit on the Audit and Risk Committee. The EOI closed on 25 March 2015 and applications were received.

These applications were evaluated by the Evaluation Panel consisting of Mr Damien Connor, General Manager – Uralla Shire Council and Ms Rechelle Leahy – Governance and Information Manager. A simple ranking scale was used to decide the most suitable applicants – see **Attachment A**.

REPORT:

The Audit and Risk Committee will provide independent assurance and assistance to Uralla Shire Council on risk management, control, governance and external accountability responsibilities.

REPORTS FROM THE GENERAL MANAGER

The Committee will consist of Voting Members: the Mayor (Cr Michael Pearce), one (1) other Elected Member of Council (Cr Mark Dusting), two (2) Independent external members (not members of the Council), with one to be the Chairperson.

Other attendees (non-voting) will include the General Manager, the Manager Governance and Information and the Chief Financial Officer.

The independent external members will be appointed for the term of council, after which they will be eligible for extension or re-appointment following a formal review of their performance.

The members of the Committee, taken collectively, will have a broad range of skills and experience relevant to the operations of Uralla Shire Council. At least one member of the Committee shall have accounting or related financial management experience, with understanding of accounting and auditing standards in a public sector environment.

KEY ISSUES:

The two suitable applicants have strong financial, risk and compliance backgrounds across the Not for Profit sector and larger, diverse organisations including banking and defence.

CONCLUSION:

After the receipt of applications, the Evaluation Committee evaluated the applications and identified the two most suitable Independent Representatives, being Mr Michael O'Connor and Mr Sean Johnston.

The combined skills of the two applicants will provide the Audit and Risk Committee with a strong skill base to provide independent assurance and assistance to Uralla Shire Council on risk management, control, governance and external accountability responsibilities.

COUNCIL IMPLICATIONS:

1. Community Engagement/ Communication (per engagement strategy)

Council conducted an open expression of interest for the selection of independent members, which was advertised in the local media as well as on the Council website.

2. Policy and Regulation

- Risk Management Policy
- Audit and Risk Committee Charter

3. Financial (LTFFP)

Members' fees have been incorporated into existing budget allocations and staff resources to come from existing budget allocations. Funds will need to be committed to the carrying out of Internal Audit services in the future.

4. Asset Management (AMS)

N/A

5. Workforce (WMS)

N/A

6. Legal and Risk Management

The Local Government Act prescribes that risk management is an integral part of all Council systems. The Audit & Risk Committee will provide independent assurance and assistance to

REPORTS FROM THE GENERAL MANAGER

the Uralla Shire Council on risk management, control, governance, and external accountability responsibilities.

7. Performance Measures

N/A

8. Project Management

N/A

Rechelle Leahy

Governance and Information Manager

Prepared by staff member: Rechelle Leahy
Approved/Reviewed by Manager: Damien Connor
Department: Governance and Information
Attachments: A. Evaluation Criteria – Audit and Risk Committee Applicants

REPORTS FROM THE GENERAL MANAGER

Attachment A

Evaluation Criteria – Audit and Risk Committee Applicants

Ratings –Comparative Assessment and Ranking Method

Score	Rating Scale	Definition
8 - 10	Outstanding	Meets the requirement comprehensively in all respects, exceeds some requirements. Demonstrates innovation /improved service delivery with significant benefits to the Department. Displays a significant capacity to add value to the outcome through quality of people or processes or through specialist knowledge or experience
	Very superior	Meets requirements in all respects, exceeds some requirements and provides detailed evidence of a high level of innovation / adaptability. Displays a high level capacity to add value to the outcome through quality of people or processes or through specialist knowledge or experience
	Superior	Meets requirements in all respects, provides full details and there is evidence of a moderate level of innovation / adaptability. Displays a moderate capacity to add value to the outcome through quality of people or processes or through specialist knowledge or experience
6 - 7	Very Good	Fully meets the requirement, good probability of successful service delivery. Limited risk.
	Good	Meets the requirement with limited or manageable shortcomings. Low risk.
4 - 5	Satisfactory	Generally meets the requirement but with some shortcomings. Possible moderate risk.
	Marginal	Does not meet the requirement in some minor respect.
1 - 3	Poor	Does not meet some moderately important aspect of the requirement or has major shortcomings.
	Very Poor	Does not meet some major aspect of the requirement or has critical shortcomings.
	Unsatisfactory	Fails to meet all major aspects of the requirement.
0	Non-Compliant	Completely fails to meet the requirement.



REPORTS FROM THE
CORPORATE & COMMUNITY
COMMITTEE

27 April 2015

16. Reports from the Corporate & Community Committee

REPORTS FROM THE CORPORATE &
COMMUNITY COMMITTEE

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Nil	7

REPORTS FROM THE CORPORATE & COMMUNITY COMMITTEE



COMMITTEE REPORT

Department:	General Manager's Office
Submitted by:	General Manager
Reference:	1.20.04.01
Subject:	Revised Community Strategic Plan (CSP)

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	Council is operated efficiently and effectively.
Strategy:	Manage Council's operations in accordance with regulatory and statutory requirements.
Action:	Undertake a review of all of Council's strategic documents.

SUMMARY:

The purpose of this report is to present a revised Community Strategic Plan to Council for adoption and subsequent placing on public exhibition.

COMMITTEE'S RECOMMENDATION:

1. That Council adopts the revised version of the Community Strategic Plan and places the document on public exhibition for a period of 28 days.
2. That Council staff be commended on the production of a high quality document.

OFFICER'S RECOMMENDATION:

That Council adopts the revised version of the Community Strategic Plan and places the document on public exhibition for a period of 28 days.

BACKGROUND:

In June 2012 the Office of Local Government conducted a Better Practice Review on Council. As part of the findings of the review a number of actions were identified for rectification by Council. Amongst those were a number of actions related to Council's Community Strategic Plan.

REPORT:

The Community Strategic Plan (CSP) is a Council's highest level strategic document and is the central plank to everything that a Council does.

Following on from the directions of the Better Practice Review, further analysis of Council's Community Strategic Plan was undertaken earlier this financial year, and a number of areas for improved compliance with the Integrated Planning and Reporting guidelines were identified. Resultantly a project was planned for a major revision of the existing version of the plan to be delivered in time for adoption ahead of the 2015/16 financial year commencement.

REPORTS FROM THE CORPORATE & COMMUNITY COMMITTEE

During the scoping and subsequent rebuild of the Community Strategic Plan the following key objectives were pursued:

- The plan be a more strategic document;
- The plan be based on the quadruple bottom line;
- A more succinct explanation of IP&R be incorporated;
- The relationships between the CSP, Delivery Program and Operational Plan be clearly depicted;
- That Council's Values, Mission and Goals be strongly presented;
- Clear strategies to deliver each community goal be outlined and linked in the plan;
- Monitoring and reporting on the IP&R framework be outlined;
- Linkage to the State Plan and Regional Action Plan be included; and
- Social Justice Principles and Public Participation Principles be outlined in the plan and embedded in the process

Accordingly the attached Community Strategic Plan has been constructed, meeting all of the objectives as set out for the revision project.

COUNCIL IMPLICATIONS:

1. Community Engagement/ Communication

The Community Strategic Plan is constructed based on the goals and outcomes as determined by the community.

2. Policy and Regulation

- Local Government Act 1993;
- Local Government Regulations (General) 2005;
- Social Justice Principles;
- Public Participation Principles;
- Integrated Planning & Reporting Guidelines for local government in NSW.

3. Financial (LTFP)

The revised Community Strategic Plan was constructed by staff within already existing staff budget allocations.

A revised version of Council's LTFP is currently nearing completion with clear integration to this revised CSP.

4. Asset Management (AMS)

A revised version of Council's AMS is currently nearing completion with clear integration to the revised CSP.

5. Workforce (WMS)

A revised version of Council's WMS is currently nearing completion with clear integration to this revised CSP.

6. Legal and Risk Management

N/A

7. Performance Measures

N/A

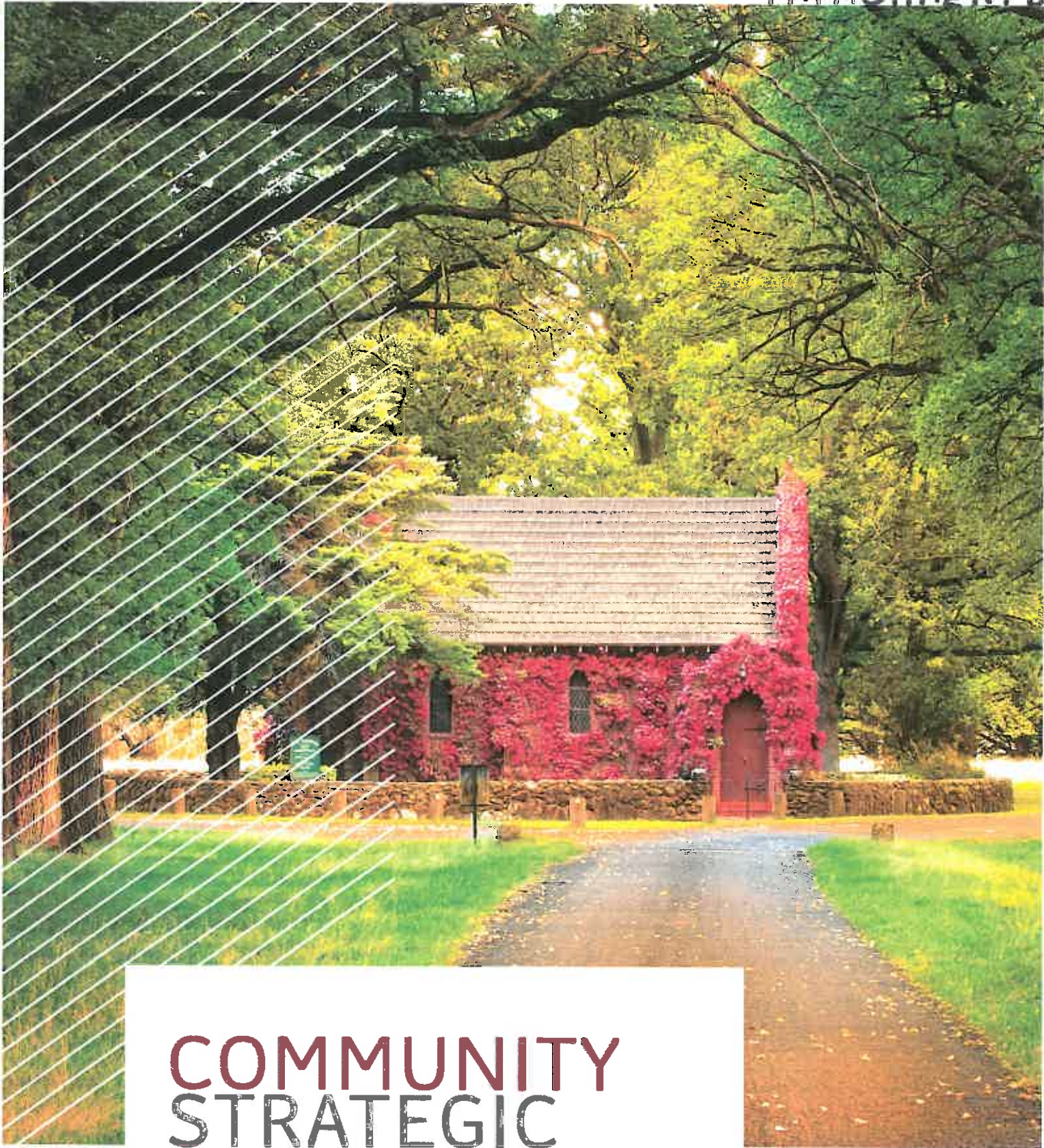
REPORTS FROM THE CORPORATE & COMMUNITY COMMITTEE

8. Project Management

N/A

Damien Connor
General Manager

Prepared by staff member:	Damien Connor
Approved/Reviewed by Manager:	Damien Connor
Department:	General Manager's Office
Attachments:	B Revised Community Strategic Plan



COMMUNITY STRATEGIC PLAN

2015-2025



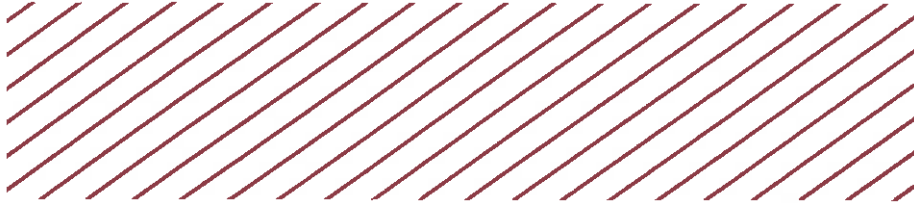


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INTRODUCTION

In 2025 the Uralla Shire will continue to be an active, prosperous, welcoming and environmentally aware community.

We will celebrate and take great pride in our unique communities and protect our beautiful natural surrounds. As an inclusive community we will embrace new residents, celebrate diversity and foster a culture of care and participation. We will build economic strength, diversity and resilience throughout the shire and encourage innovation and creativity.

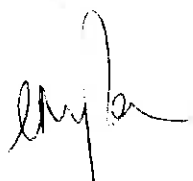
We are blessed with a natural environment that is as diverse as it is beautiful and a pride in our heritage that is interwoven into our character and culture, so we will continue to champion sustainable living practices, record and promote our heritage and in doing so continue to improve the overall health and well being of our community.

We will be a leading lifestyle region with vibrant public places, interconnected transport networks, vast education, sporting, recreation and cultural opportunities and an unmistakably unique built environment.

As we progress towards 2025 we will achieve all of this in parallel with an unwavering commitment to accountability, transparency and collaborative leadership.

The entire Uralla Shire community and our representatives will need to work together to make our vision for the region a reality, so it gives us great pleasure to fully commit Uralla Shire Councils support to delivering the Uralla Shire 2025 — Community Master Plan.

Clr Michael Pearce, Mayor



Damien Connor, General Manager



OUR MISSION

“The Uralla Shire Council is committed to creating a unique environment which offers an excellent quality of life and economic opportunities for its people.”

OUR VALUES

The Uralla Shire community strives to:

- enjoy a high quality of life
- have thriving business centres
- have educational and job opportunities available for people with a wide range of skills and aptitudes
- have an innovative, adaptive and diverse economy
- have access to good public services and relevant infrastructure
- have a continuing improvement in its socio-economic status
- treasure its natural and built heritage and continue to be progressive
- ensure sustainability
- provide security and safety for its residents
- have a growing population and a sound demographic structure; and
- retain its own independent community-based local government authority



SHIRE SNAPSHOT

- **Population** — 6,300
- **Area** — 3,230sqm
- **Population Density** — 1.95 per/sqm
- **Population (%)**
 - 19 or less — 27.3%
 - 20 to 59 — 49.2%
 - Above 60 — 23.5%
- **5 year Population Growth** — 5.9%
- **Largest Employment Sector** — Agriculture, Forestry & Fishing
- **Average Family Size** — 3.0
- **Unemployment Rate** — 5.1%
- **Council Composition**
 - Clr Michael Pearce (Mayor)
 - Clr Bob Crouch (Deputy Mayor)
 - Clr Leanne Cooper
 - Clr Karen Dusting
 - Clr Mark Dusting
 - Clr Daphne Field
 - Clr Fred Geldof
 - Clr Isabel Strutt
 - Clr Kevin Ward
- **Region** — New England
- **State Electorate** — Northern Tablelands (Adam Marshall)

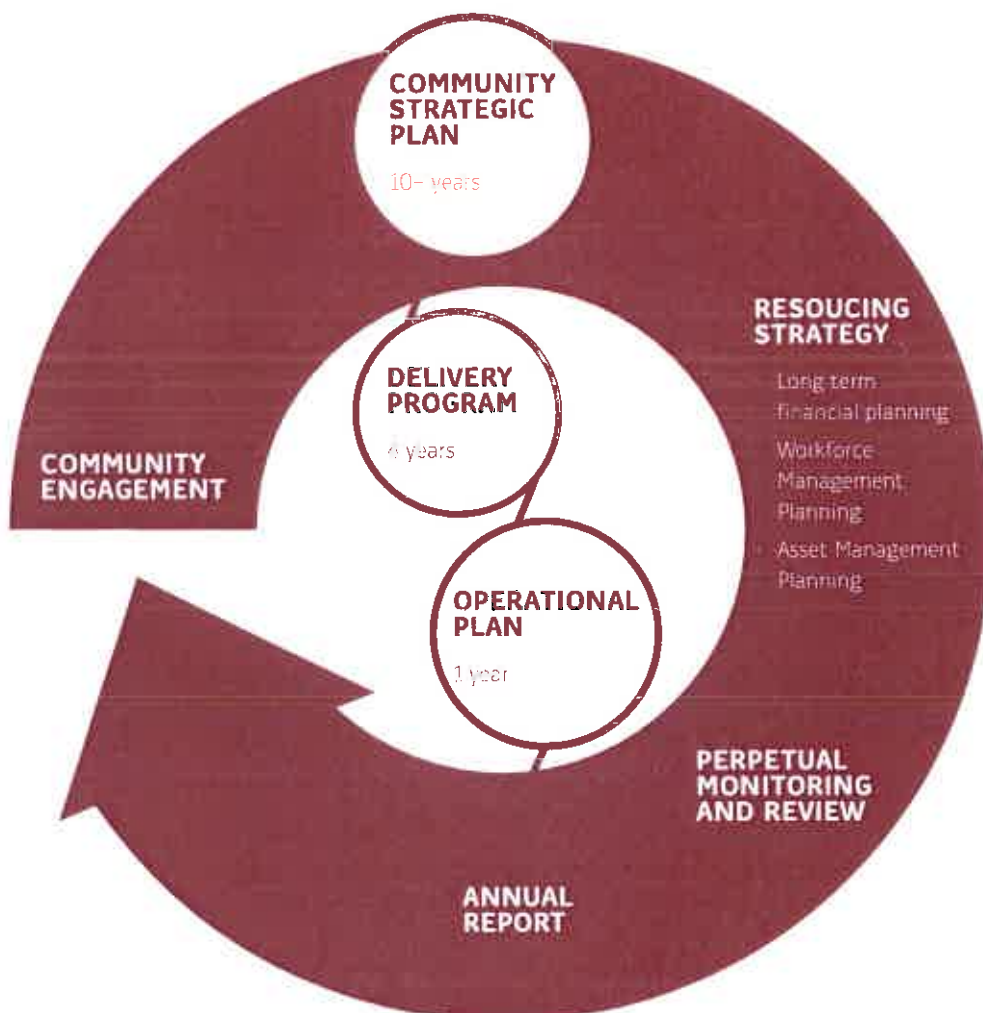
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OVERVIEW OF INTEGRATED PLANNING & REPORTING (IP&R)

What's new?

On 1 October 2009, the NSW Government's new framework for integrated planning and reporting for local councils came into effect.

Each council must now prepare a number of plans, which provide details on how the council intends to deliver services and infrastructure in the short and long term, based on community priorities that have been identified through community consultation and engagement.



INTEGRATED PLANNING AND REPORTING

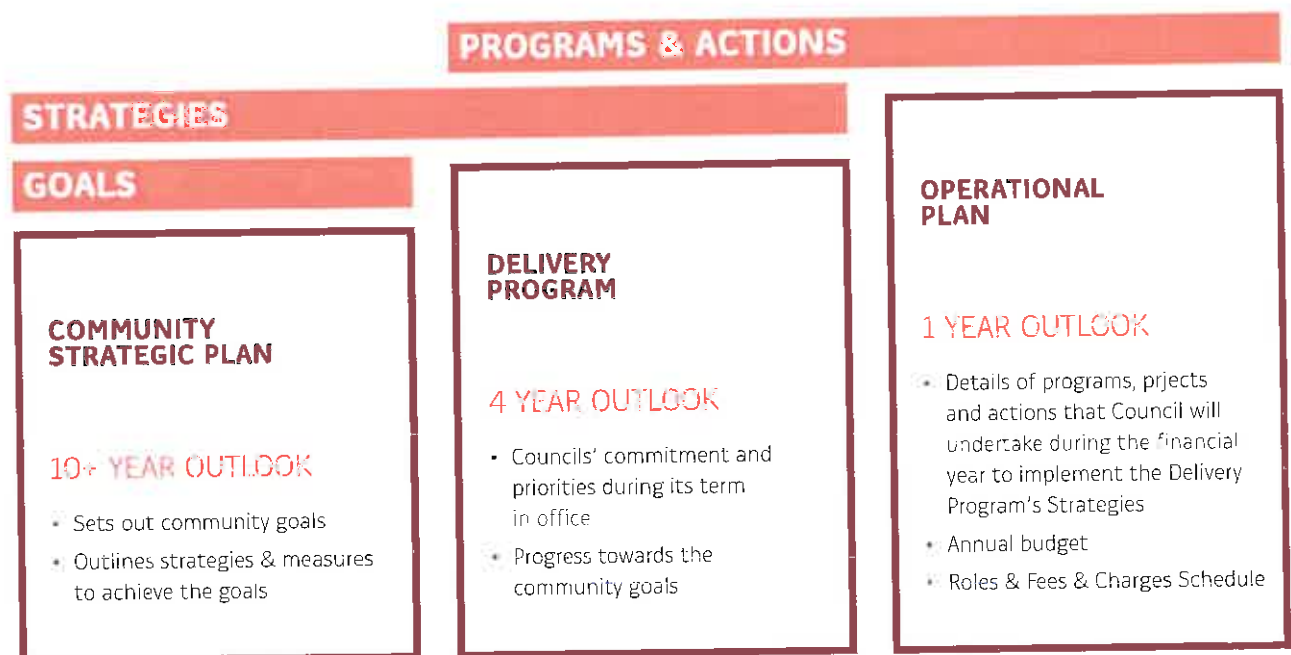
THE RELATIONSHIP BETWEEN THE PLANS

The framework requires councils to better integrate their various plans to plan holistically for the future. It requires councils and their communities to have important discussions about funding priorities, acceptable service levels and preserving local identity and to plan in partnership for a more sustainable future.

The framework is a better way of doing business. It ensures all the council's plans and reports work together to achieve community outcomes. The framework is designed to help improve the sustainability of the community, the local government area, and the Council using the 'quadruple bottom line' approach. This is made up of four pillars — Leadership, Society, Economy and Environment.

- The Community Strategic Plan (CSP) (this plan) identifies long term goals and priorities for the community and the local government area.
- The Delivery Program (DP) identifies what parts of the Community Strategic Plan the Council is responsible for, and allows the Council to set out specific priorities for the term of office (4 years).
- The Operational Plan (OP) specifies the actions and programs to be undertaken each year in support of the delivery program and Community Strategic Plan.
- The Resourcing Strategy holistically describes the key resourcing requirements and it is made up of the Long term financial plan; the workforce management strategy and asset management strategy.

THE RELATIONSHIP BETWEEN THE PLANS:





OUR COMMUNITY GOALS

- 1 A proud, unique and inviting community
- 2 A safe, active and healthy shire
- 3 A diverse and creative culture
- 4 Access to and equity of services
- 5 An attractive environment for business, tourism and industry
- 6 Growing and diversified employment, education and tourism opportunities
- 7 A safe and efficient network of arterial roads and supporting infrastructure; and town streets, footpaths and cycleways that are adequate, interconnected and maintained



- 8 Communities that are well serviced with essential infrastructure
- 9 To preserve, protect and renew our beautiful natural environment
- 10 Maintain a healthy balance between development and the environment
- 11 Reuse, recycle and reduce wastage
- 12 Secure, sustainable and environmentally sound water-cycle infrastructure and services
- 13 A strong, accountable and representative Council
- 14 An effective and efficient organisation
- 15 Deliver the goals and strategies of the Community Strategic Plan





3

OUR SOCIETY

WHAT'S IMPORTANT TO US

The quality of our community life is determined by the people who make up our community and the places in which we live.

When we live in harmonious communities we feel safe and welcome, trust and respect each other, volunteer more and work cooperatively towards common community goals.

We want to live in well serviced neighbourhoods that provide access and equity to even our most vulnerable community members.

A changing demographic profile, increasing community expectation, limited resources and competing priorities have all put pressure on existing community networks and Council services. The challenge ahead is how we adapt to the changing requirements of our evolving community whilst continuing to provide quality social services in an equitable and affordable manner.

GOALS & STRATEGIES FOR OUR SOCIETY

1.1 A proud, unique and inviting community

- 1.1.1 Provide vibrant and welcoming town centres, streets and meeting places
- 1.1.2 Embellish our community with parks, paths, cycleways, facilities, and meeting places
- 1.1.3 Respect the heritage of the region and highlight and enhance our unique characteristics
- 1.1.4 Support, encourage and celebrate community participation and volunteerism

1.2 A safe, active and healthy shire

- 1.2.1 Provide and maintain accessible quality sport and recreation facilities that encourage participation
- 1.2.2 Partner with health agencies and community organisations in promoting healthy lifestyles and better health outcomes
- 1.2.3 Continue to lobby the State Government for the major reconstruction of the Armidale Hospital
- 1.2.4 Work with key partners and the community to lobby for adequate health services in our region
- 1.2.5 Provide, maintain and develop children's play and recreational facilities that encourage active participation
- 1.2.6 Provide, maintain and develop passive recreational facilities and parklands to encourage greater utilisation and active participation
- 1.2.7 Partner with police, community organisations and the community to address crime, anti social behaviour and maintain community safety
- 1.2.8 Provide effective regulatory, compliance and enforcement services for the community

1.3 A diverse and creative culture

- 1.3.1 Provide enhanced and innovative library services that support and encourage lifelong learning
- 1.3.2 Work with the community and other partners to develop major cultural and community events and festivals
- 1.3.3 Lobby government, companies and other individuals to secure funding for cultural and creative expression fields

1.4 Access to and equity of services

- 1.4.1 Provide and maintain the McMaugh Gardens Aged Care Facility to allow older residents to remain closer to their families
- 1.4.2 Provide quality Community Care, Ageing and Disability services
- 1.4.3 Create a better understanding within the community of the services and facilities council provides
- 1.4.4 Provide opportunities for residents to enjoy access to arts, festivals, sporting activities, recreation, community and cultural activities
- 1.4.5 Lobby government to maintain and improve community and public transport services and infrastructure
- 1.4.6 Work towards achieving the status of a Disability Friendly community through the provision of accessible facilities and services

SERVICES THAT COUNCIL PROVIDES

COMMUNITY SERVICES THAT COUNCIL CURRENTLY PROVIDES INCLUDE:

- Parks, Gardens and Open Spaces
- Sporting Facilities and Amenities
- Community Centres and Halls
- Aquatic Facility
- Community Care Services
- Community and Cultural Development
- Libraries
- Local Events
- Children and Youth Services
- Disability and Access Services

WHAT YOU CAN DO

- Attend and participate in festivals and events
- Use local facilities and services
- Participate in local healthy lifestyle activities
- Participate in a community or sporting group
- Be aware of your safety and look out for the safety of others
- Report crimes and anti-social behaviour to the police



4

OUR ECONOMY

WHAT'S IMPORTANT
TO US

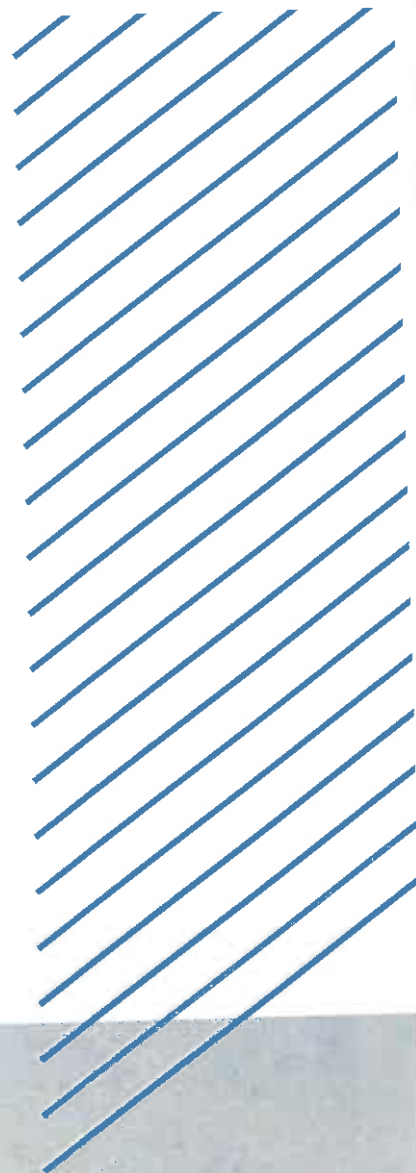
Our local economy needs to be strong and diversified in order to provide a broad range of services to our community and to provide employment opportunities for our residents. The residents, businesses and industries of our Shire also provide a significant contribution to the state and national economies and the overall prosperity of both.

The availability of employment is vital to our community to being able to retain our youth in the community, to attract skilled workers and their families to the area and to minimise overall unemployment and resultantly increase community well-being.

Council's primary roles in fostering economic growth and diversity are; providing supporting infrastructure; develop land use planning that facilitates commercial and industrial development; and promoting our community for business investment.

Our community wants to pay our fair share for the usage of long life assets and provide inter-generational equity by handing forward infrastructure to future generations that is at least the equal of what was afforded to us. We also expect other levels of government and private industries to contribute their fair share towards the consumption of infrastructure that benefits them directly.

The enormity of our essential infrastructure creates a significant challenge in being able to fund the maintenance and renewal expenditure required to ensure that assets are maintained at desirable levels of service.



GOALS & STRATEGIES FOR OUR ECONOMY

2.1 An attractive environment for business, tourism and industry

- 2.1.1 Promote the New England region as a wonderful place to live, work, visit and invest
- 2.1.2 Promote the Uralla Shire to business and industry and increase recognition of the areas strategic advantages
- 2.1.3 Lobby for government- funded infrastructure and services to match business and industry development in the region (education, transport, health)
- 2.1.4 Implement tools to simplify development processes and encourage quality commercial, industrial and residential development
- 2.1.5 Develop the skills of businesses to maximise utilisation of new technologies and the emerging broadband and telecommunications networks

2.2 Growing and diversified employment, education and tourism opportunities

- 2.2.1 Provide land use planning that facilitates employment creation
- 2.2.2 Support and encourage existing business and industry to develop and grow
- 2.2.3 Support the attraction of new businesses, including sustainable employment generating projects
- 2.2.4 Partner with neighbouring Councils to effectively market the unique natural characteristics and diverse tourism opportunities available within the New England region
- 2.2.5 Facilitate major social and cultural events being staged in our shire and our region
- 2.2.6 Identify partnerships and innovative funding approaches to provide for new and upgraded infrastructure for event hosting and tourism expansion

2.3 A safe and efficient network of arterial roads and supporting infrastructure; and town streets, footpaths and cycleways that are adequate, interconnected and maintained

- 2.3.1 Provide an effective road network that balances asset conditions with available resources and asset utilisation
- 2.3.2 Maintain, renew and replace Council bridges and culverts as required
- 2.3.3 Ensure road network supporting assets (signs, posts, lighting, guardrails, etc.) are maintained adequately and renewed as scheduled
- 2.3.4 Provide a network of town and village streets that balances asset conditions with available resources and asset utilisation
- 2.3.5 Maintain existing walking and cycling networks across the region
- 2.3.6 Facilitate the enhancement and expansion of accessible walking and cycling networks where strategically identified and interconnect them with other transport and recreation facilities
- 2.3.7 Implement and maintain developer contribution plans that require appropriate contributions towards each developments holistic impact on infrastructure
- 2.3.8 Provide the required public transport infrastructure and work with key partners to expand the provision of cost-effective public transport

2.4 Communities that are well serviced with essential infrastructure:

- 2.4.1 Developing a strategically-located network of quality, accessible and safe public amenities that are adequately maintained and renewed
- 2.4.2 Implement Council's strategic asset management plans and continuing to develop asset systems, plans and practises for infrastructure assets to minimise whole of life costs
- 2.4.3 Provide the infrastructure to embellish public spaces, recreation areas and parkland areas
- 2.4.4 Continue to lobby to the State and Federal Governments for the upgrade at the Armidale airport
- 2.4.5 Ensure adequate public car-parking and kerb and gutter infrastructure is provided, maintained and renewed

SERVICES THAT COUNCIL PROVIDES

ECONOMIC SERVICES THAT COUNCIL CURRENTLY PROVIDES INCLUDE:

- Tourism, Promotion and Visitor Facilities
- Land Use Planning
- Economic Development
- Sealed Regional Roads — 131.8 kms
- Sealed Local Roads — 304.0 kms
- Unsealed Regional Roads — 9.4 kms
- Unsealed Local Roads — 515.7 kms
- Bridges — Regional Roads — concrete -29, timber -1
- Bridges — Local Roads — concrete -44, timber -2
- Footpaths and cycleway networks
- Car Parking Facilities
- Kerb and Guttering
- Public Amenities
- Bus Stops and Transport Facilities
- Street Lighting and Street Signage
- Street Furniture

WHAT YOU CAN DO

- Shop locally to support our economy
- Create opportunities for traineeships, work experience and apprenticeships
- Report safety and maintenance issues to Council regarding infrastructure
- Obey load limits on roads and bridges
- Drive to the conditions of the road
- Report vandalism or loitering around public facilities

5

OUR ENVIRONMENT

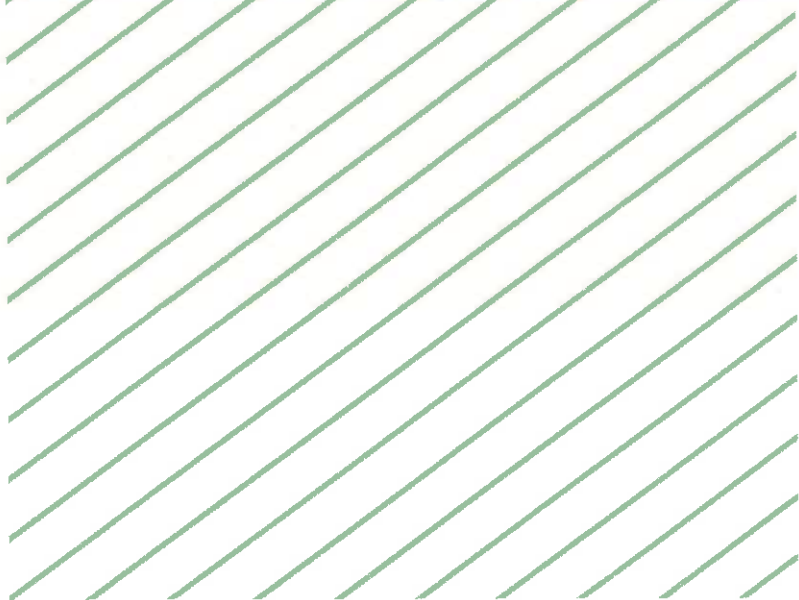
WHAT'S IMPORTANT TO US

Our natural environment in the New England Region is as diverse as it is beautiful and is intrinsic to our character and culture. Our natural surrounds are also the basis for much of our economic and recreational activity, whilst the quality of our air, water, flora and soils are inextricably linked to our health and well-being.

Our environment in so many unique forms is the defining characteristic of our shire, towns and villages and is undoubtedly a way in which our shire is commonly identified by others and how we identify ourselves.

Work currently underway for the development of a case study based on the town of Uralla becoming Australia's first zero net energy town puts our community at the forefront in the pursuit of more sustainable living and reduced impact on our environment.





GOALS & STRATEGIES FOR OUR ENVIRONMENT

Goal	Strategy	Measure
3.1 To preserve, protect and renew our beautiful natural environment	3.2 Maintain a healthy balance between development and the environment	3.3 Reuse, recycle and reduce wastage
3.1.1 Record and promote the region's heritage in partnership with the community	3.2.1 Retain open space and greenbelts that are accessible to everyone	3.3.1 Promoting recycling, reusing and providing regular and efficient waste and recycling services
3.1.2 Naturally beautify our parks, gardens, open spaces, town entrances & street scapes	3.2.2 Educate the community about sustainable practises in the home, at work and in public places	3.3.2 Providing education to the community on ways to minimise the waste produced by households
3.1.3 Protect the shires historic buildings and sites, recognising their value to the community	3.2.3 Ensure that Uralla Shire is sufficiently prepared to deal with natural disasters including bushfires, major storms and flood events	3.3.3 Implementing initiatives to reduce illegal dumping and providing community education to prevent litter
3.1.4 Protect and maintain a healthy catchment and waterways		3.3.4 Identifying and implementing water conservation and sustainable water usage practises in council operations
3.1.5 Raise community awareness of environmental and biodiversity issues		3.3.5 Identifying technologies in Council's facilities, infrastructure and service delivery to reduce our ecological footprint

3.4 Secure, sustainable and environmentally sound water-cycle infrastructure and services

3.4.1 Maintain and renew water network infrastructure to ensure the provision of secure, quality and reliable drinking water supplies

3.4.2 Maintain and renew the sewerage network infrastructure to ensure the provision of efficient and environmentally-sound sewerage services

3.4.3 Ensure adequate stormwater and drainage infrastructure is provided, maintained and renewed

SERVICES THAT COUNCIL PROVIDES

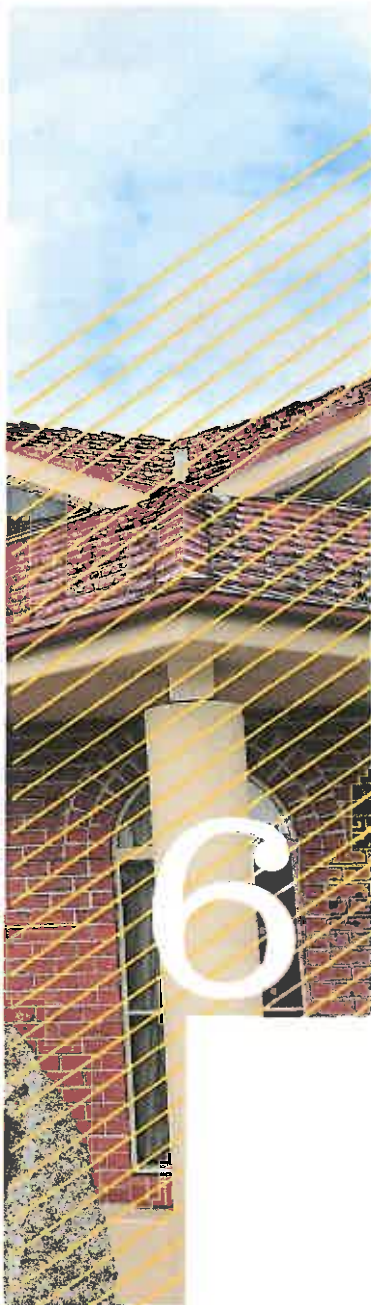
ENVIRONMENTAL SERVICES COUNCIL PROVIDES INCLUDE:

- Waste management and recycling
- Water supplies
- Sewerage Services
- Stormwater management
- Natural resource management
- Environmental planning
- Development control planning
- Reserves and open spaces

WHAT YOU CAN DO

- Reduce consumption of fossil fuels, water and consider alternate and renewable resources
- Install energy efficient fixtures and appliances at your home
- Participate in recycling and minimise your waste going to landfill
- Plant and or retain vegetation and trees on private property
- Consider alternative transport options, particularly for short distances





OUR LEADERSHIP

WHAT'S IMPORTANT TO US

The elected representatives of our community pursue the overall direction and long term priorities for the Uralla Shire in accordance with the vision, goals and strategies detailed in our community strategic plan.

Effective civic leadership is under-pinned by informed and transparent decision making which is reliant on effective community engagement and the highest quality professional services and advice.

Councillors are required to provide leadership to the broad community and strategic direction to an organisation that will be relied upon to deliver quality services and infrastructure within Councils available resources and in-line with established service levels.

GOALS & STRATEGIES FOR OUR LEADERS

4.1 A strong, accountable and representative Council

- 4.1.1 Provide clear direction for the community through the development of the Community Strategic Plan, Delivery Program and Operational Plan
- 4.1.2 Engage with the community effectively and use community input to inform decision making
- 4.1.3 Provide open, accountable and transparent decision making for the community
- 4.1.4 Provide strong representation for the community at the regional, state and federal levels
- 4.1.5 Undertake the civic duties of Council with the highest degree of professionalism and ethics

4.2 An effective and efficient organisation

- 4.2.1 Provide a range of services that meet benchmarks determined with the community, having regard to quality and cost
- 4.2.2 Operate in a financially responsible and sustainable manner
- 4.2.3 Develop and consistently apply an asset management framework that ensures existing and future infrastructure is affordable, funded and maintained to ensure inter-generational equity and sustainability
- 4.2.4 Establish Uralla Council as an employer of choice that trains, recruits and retains talented staff and facilitates a diverse workforce
- 4.2.5 Provide customer service excellence
- 4.2.6 Identify and manage risk associated with all Council activities and ensures a safe and healthy work environment
- 4.2.7 Ensure compliance with regulatory and statutory requirements and that operations are supported by effective corporate governance

4.3 Deliver the goals and strategies of the Community Strategic Plan

4.3.1 Resource the organisation of Council adequately to provide the services and support functions required to deliver the goals and strategies detailed in this plan

4.3.2 Implement and maintain a performance management framework to enable clear reporting on progress against milestones and key indicators in Council's strategic planning documents

SERVICES THAT COUNCIL PROVIDES

LEADERSHIP AND ORGANISATIONAL SERVICES COUNCIL PROVIDES INCLUDE:

- Civic services and representation
- Strategic Planning
- Financial Services
- Governance
- Customer services
- Communication and community engagement
- Human resource management
- Information and technology services
- Performance management
- Risk management
- Regulation and enforcement

WHAT YOU CAN DO

- Stand for election to Council and represent your region
- Participate on a Community consultative panel
- Regularly visit Council's website and read/ listen to local media to keep up-to-date with Council's activities
- Contribute to community engagement programs run by Council
- Provide feedback to Council regarding services and customer service
- Volunteer and take part in community groups



COUNCIL SERVICES

SOCIETY

- Library Services
- Community Development
- Ageing and Disability Services
- Community Transport
- McMaugh Gardens Aged Care Facility
- Swimming Complex
- Sporting Grounds and Facilities
- Public Buildings and Amenities
- Public Health
- Cemeteries
- Regulation and Animal Control
- Emergency Services

ECONOMY

- Tourism & Promotion
- Economic Development
- Land Use Planning
- Sealed Road Network
- Unsealed Road Network
- Bridges and Culverts
- Footpaths and Cycleways
- Quarries
- Plant & Equipment

ENVIRONMENT

- Environmental Management
- Waste Management
- Parks & Open Space
- Water Supplies
- Sewerage Services
- Stormwater and Drainage
- Development Control

GOVERNANCE

- Civic Leadership
- Communication and Community Engagement
- Finance & Procurement
- Rates and Revenue
- Human Resources
- Customer Service
- Corporate Governance
- Records and Information
- Technology and Innovation
- Operational Buildings



MONITORING, REPORTING & REVIEW

Councils are required to report on the progress of their Delivery Programs twice a year under the Integrated Planning & Reporting framework. This regular reporting helps ensure that the programs and actions being undertaken are in fact moving Council towards achieving the strategies, and ultimately the goals, of the Community Strategic Plan.

Council will report to the community on whether or not we have been able to move closer to achieving the desired goals and strategies for our society, economy, environment and leadership, using a 'traffic light system' of reporting on our programs and actions (the Delivery Program and Operational Plan). Green for those programs and actions achieved orange for those in progress and red for those not achieved. This simple, yet effective form of monitoring and reporting, makes for an easy review of whether or not the strategies and goals are being achieved and if not, the programs and actions can be reviewed to maximise the chances of a realising our goals over the longer term and achieving quadruple bottom line sustainability (QBL).





ADDRESSING THE QUADRUPLE BOTTOM LINE

The Integrated Planning & Reporting framework is designed to help improve the sustainability of the community, the local government area, and the Council using the 'quadruple bottom line' (QBL) approach. This is made up of four pillars — Society, Economy, Environment and Leadership.

Society also commonly referred to as community, is the physical and emotional health of the community and how they interact with each other within the community and with others who use and support the local services and facilities.

Economy is not financial management, it is about where Council spends the money, and how they provide connectivity, support the local economy and encourage investment and employment opportunities to the local government area.

Environment refers to ecological pressures and the state of natural resources. It is important to also remember that all environmental issues are interdependent.

Leadership also commonly known as governance relates not only to the way Council interacts and works with the community but also the way the community and other agencies might become involved with delivering some of the plans objectives. It also relates to democracy and the operations of the elected Council.

The quadruple bottom line approach was chosen to ensure that the Community Strategic Plan would be balanced and take a holistic view, rather than favouring one particular aspect. Our Community Strategic Plan has been designed to meet the quadruple bottom line requirements through the key themes of Society, Economy, Environment and Leadership.



LINKAGE TO THE NSW STATE PLAN

The NSW 2021 state government plan sets the governments' agenda for change in NSW. It is a 10 year plan to:

- Rebuild the Economy
- Return quality services
- Renovate infrastructure
- Restore Accountability to Government
- Protect our Environment and Communities

NSW 2021 – A PLAN TO MAKE NSW NUMBER ONE

REBUILD THE ECONOMY

- Regional Development Australia – Northern Inland – Regional Plan
- New England North West Strategic Land Use Plan

RETURN QUALITY SERVICES

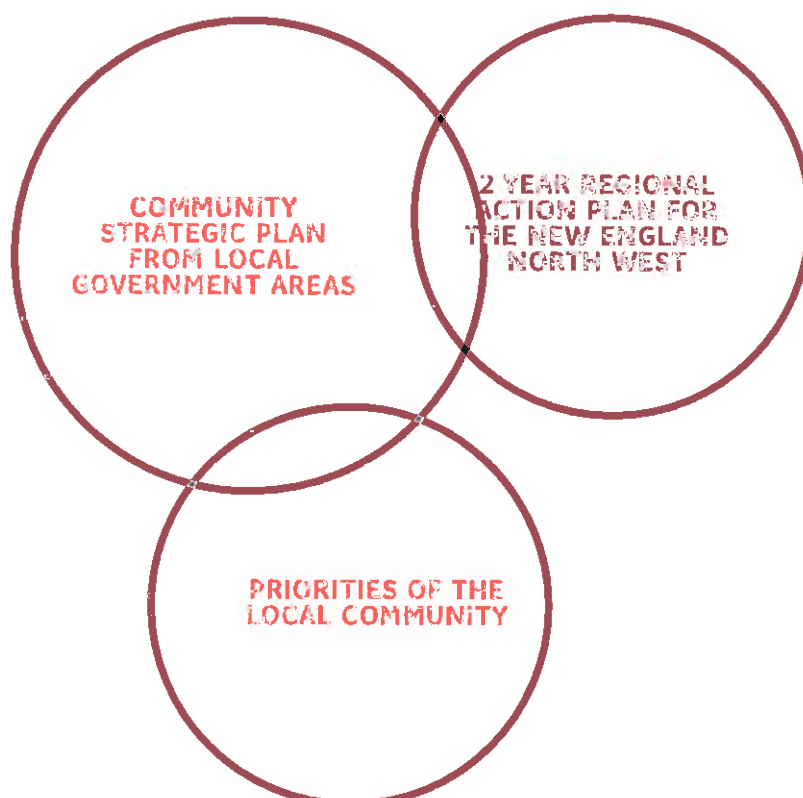
- New England Regional Transport Plan
- Hunter New England Local Health District Service Plan
- Hunter New England Local Health District Mental Health Clinical Services Plan (in development)
- Moree Shire Crime Prevention Plan
- Regional Homelessness Action Plan 2010-2014 – New England/North West

RENOVATE INFRASTRUCTURE

- Local Infrastructure Renewal Scheme

PROTECT OUR LOCAL ENVIRONMENT & COMMUNITY

- Namoi Catchment Action Plan (reviewed by 2013)
- Border Rivers Gwydir Catchment Action Plan (reviewed by 2013)
- Northern Rivers Catchment Action Plan (reviewed by 2013)

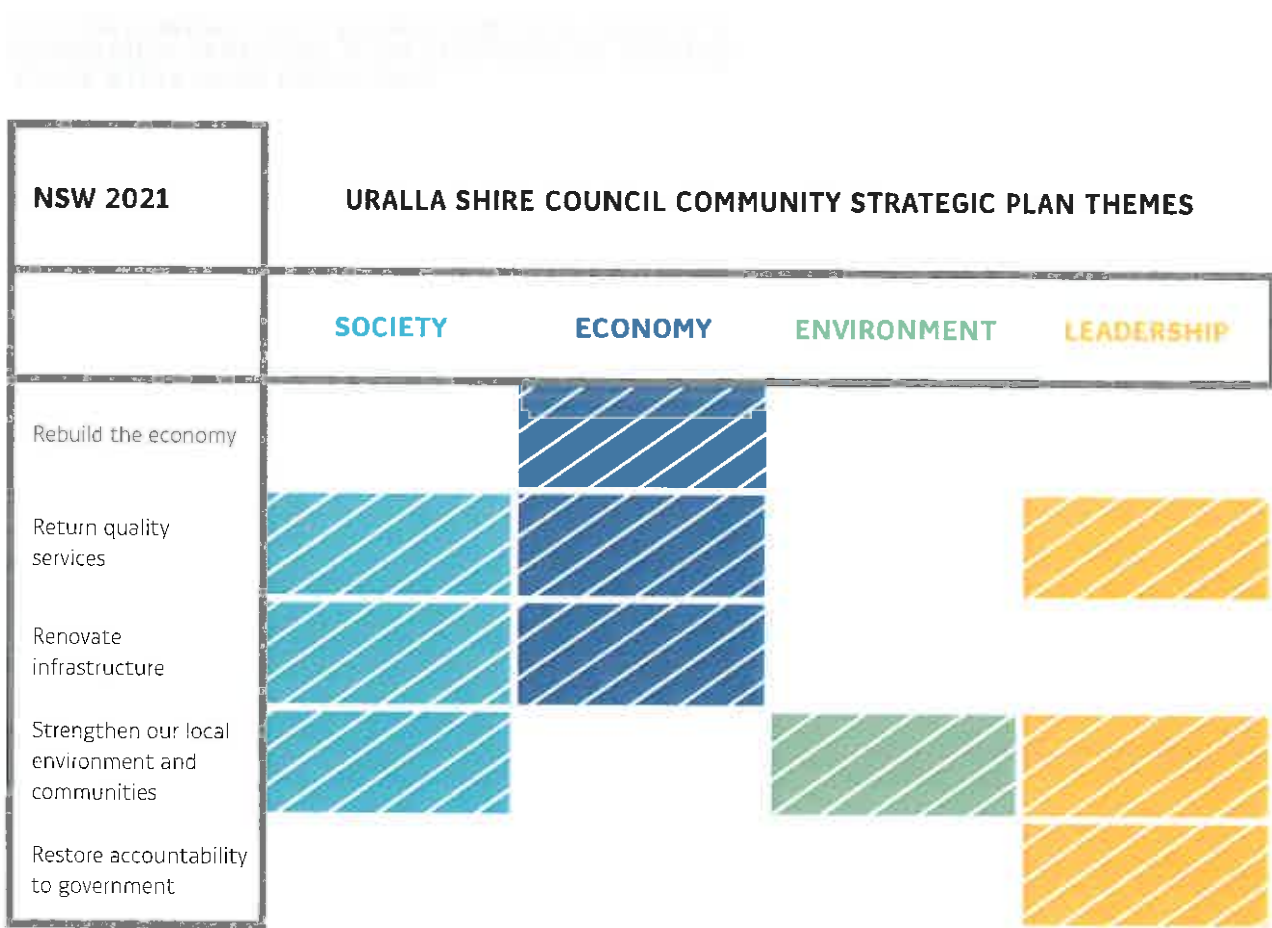


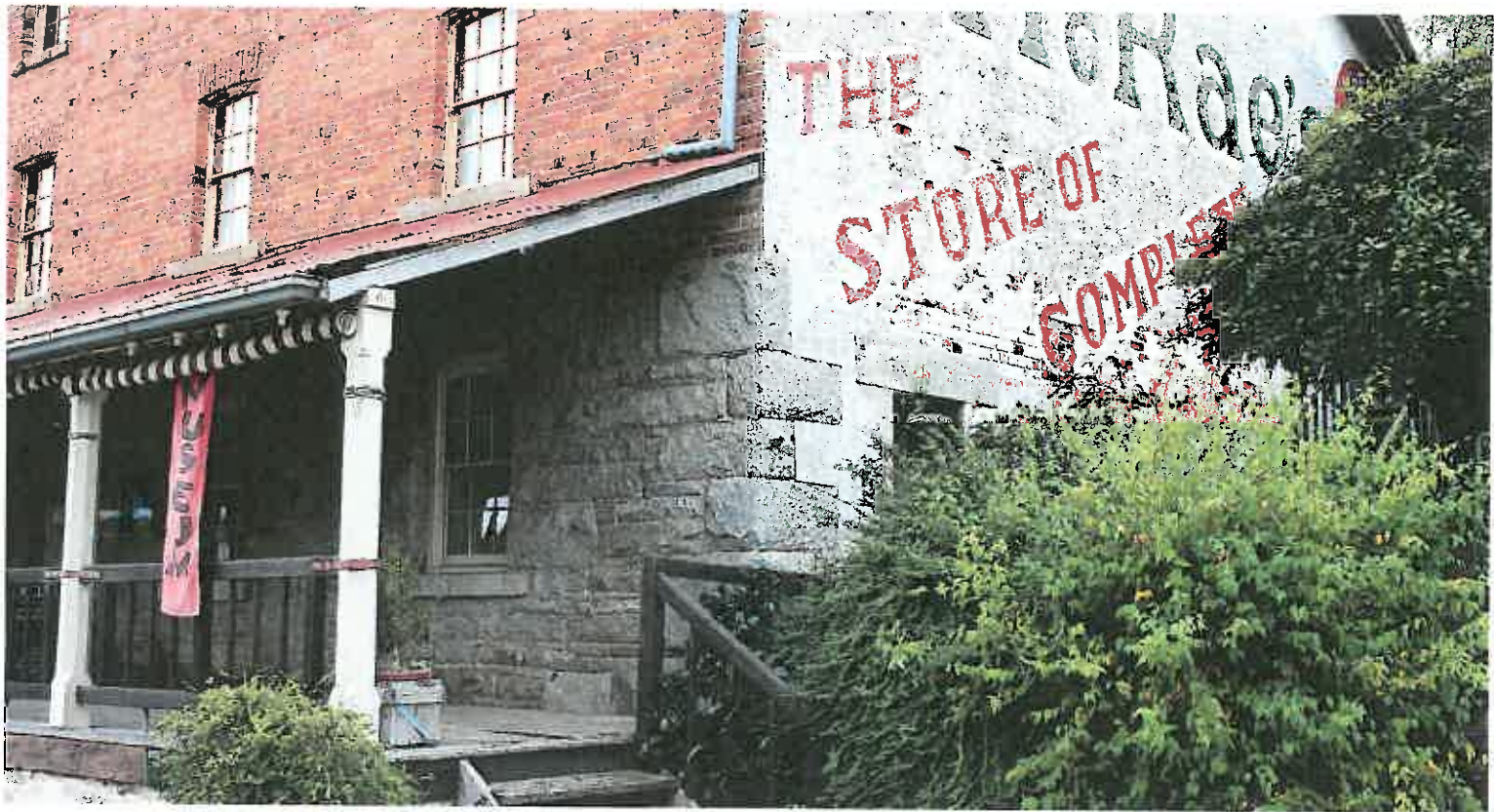
The New England/North West Regional Action Plan is aligned with the NSW 2021 Plan and identifies the immediate actions the NSW Government will prioritise.

Our region of NSW, includes the Local Government areas of Armidale Dumaresq, Glen Innes Severn, Tenterfield, Walcha, Uralla, Guyra, Tamworth Regional, Liverpool Plains, Gunnedah, Gwydir, Inverell, Moree Plains and Narrabri.

The priorities identified in the Regional Action Plan for the New England-North West Region include:

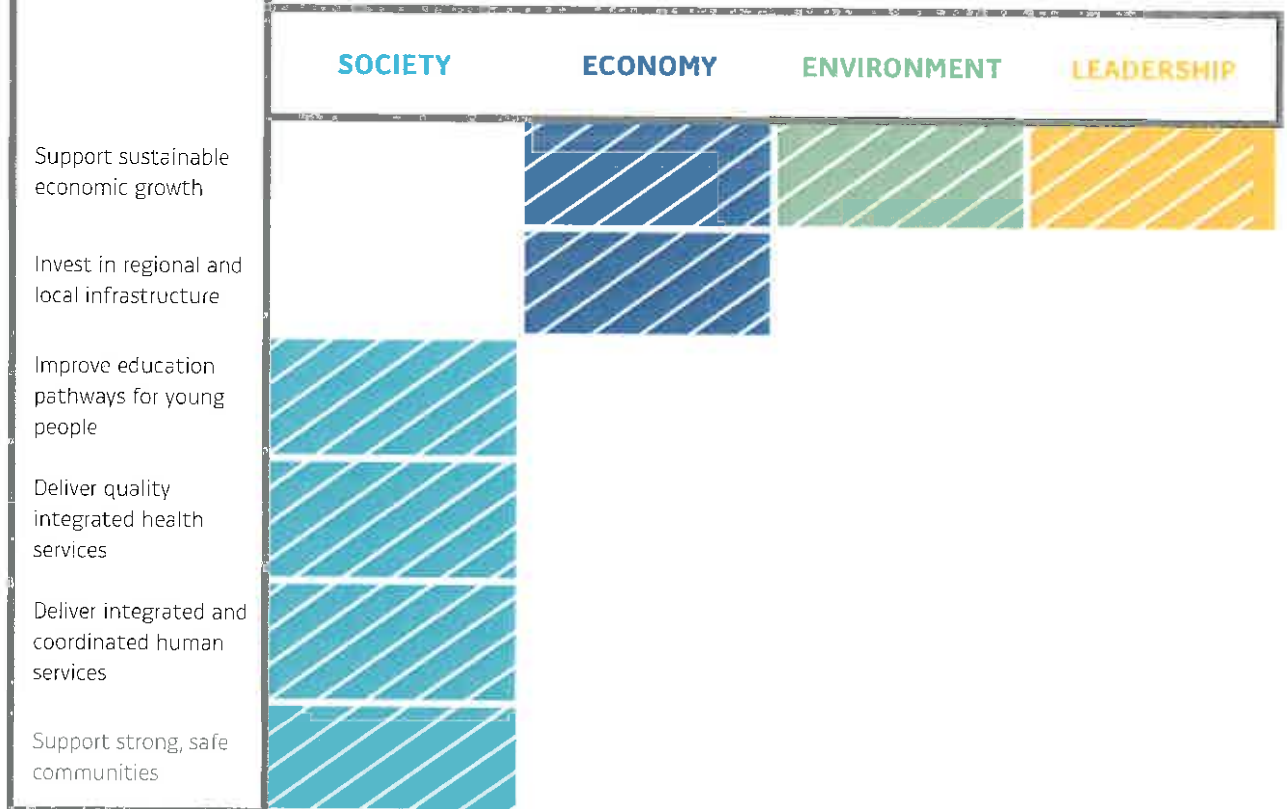
- Support sustainable economic growth
- Invest in regional and local infrastructure
- Improve education pathways for young people
- Deliver quality integrated health services
- Deliver integrated and coordinated human services
- Support strong safe communities





**NEW ENGLAND
NORTH WEST
REGIONAL
ACTION PLAN**

URALLA SHIRE COUNCIL COMMUNITY STRATEGIC PLAN THEMES



11

ENGAGEMENT, COMMUNITY ENGAGEMENT STRATEGY & SOCIAL JUSTICE PRINCIPLES

The Community Strategic Plan will guide the community, its development, and direction to the year 2025. It is a critical document which expresses the views and vision of the Uralla Shire community.

The Community Engagement Strategy outlines the process for involving the Uralla Shire community in Councils' strategic planning and decision-making processes, including the construction of the Community Strategic Plan.

Uralla Shire Council has recently revised its Community Strategic Plan to ensure that our goals and strategies are in line with what the community desires and what is achievable given the resources available.

THE COMMUNITY ENGAGEMENT STRATEGY:

- 1 Defines community engagement and identifies the methods of engagement Council uses for the key stages of engagement — inform, consult, involve collaborate and empower;
- 2 Identifies the broad categories of Council projects which require engagement; and
- 3 Provides an Engagement Matrix to align the methods of engagement with the category of Council projects.

SOCIAL JUSTICE PRINCIPLES:

The Local Government Act also stipulates that the Community Strategic Plan should reflect the principles of Social Justice and that these social considerations are adequately addressed in the planning and development process. The principles for social justice are:

Equity There should be fairness in decision making, prioritising and allocation of resources, particularly for those in need. Everyone should have a fair opportunity to participate in the future of the community. The planning process should take particular care to involve and protect the interest of people in vulnerable circumstances.

Access All people should have fair access to services, resources and opportunities to improve their quality of life.

Rights Equal rights should be established and promoted, with opportunities provided for people from diverse linguistic, cultural and religious backgrounds to participate in community life.



RELATED DOCUMENTS

- 1 Uralla Shire Council Resourcing Strategy
- 2 Uralla Shire Council Delivery Plan
- 3 Uralla Shire Council Operational Plan

The Community Strategic Plan provides Council with a way to express long-term community aspirations. However, these will not be achieved without sufficient resources — time, money assets and people — to actually carry them out, which leads us to Council's Resourcing Strategy.

The Resourcing Strategy consists of three components: Long Term Financial Planning, Workforce Management Planning and Asset Management Planning.

Once Council has defined its Resourcing Strategy it is then able to develop the Delivery Plan and Operational Plan which is the point where the community's strategic goals are systematically translated into actions that Council has determined they have the resources available to undertake and deliver successfully.



**COMMUNITY
STRATEGIC
PLAN**

2015-2025

REPORTS FROM THE CORPORATE & COMMUNITY COMMITTEE



REPORT TO COMMITTEE

Department:	Community and Culture
Submitted by:	Olivia Wood
Reference:	1.20.04.02
Subject:	Amendment to Operational Plan

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	The provision of community planning and project implementation aimed at maximising social and recreation opportunities for all residents in our shire
Strategy:	Assist the community to develop groups, events and functions
Action:	Develop and implement a Community Development Strategy Develop and implement a Youth and Children Plan Cultural Plan developed Tourism Website revamped

SUMMARY:

The purpose of this report is to seek Council's approval to defer four actions in the 2014/15 Operational Plan: the Community Development Strategy, Youth and Children Plan, Cultural Plan and Tourism website redevelopment.

The current resources allocated to Community Development are not sufficient for the successful development of these three plans/strategies in 2014-15. It is therefore recommended that the abovementioned actions be deferred from the 2014-15 Operational Plan schedule of deliverables and incorporated into the draft 2015-16 Operational Plan.

COMMITTEE'S RECOMMENDATION:

That the Community Development Strategy, Youth and Children Plan, Cultural Plan and Tourism website redevelopment be deferred from the 2014-15 Operational Plan into the Draft 2015-16 Operational Plan.

OFFICER'S RECOMMENDATION:

That the Community Development Strategy, Youth and Children Plan, Cultural Plan and Tourism website redevelopment be deferred from the 2014-15 Operational Plan.

BACKGROUND:

The 2014-15 Operational Plan contains actions including the developing of a Community Development Strategy, a Youth and Children Plan, and a Cultural Plan and redeveloping the Uralla Tourism website.

REPORTS FROM THE CORPORATE & COMMUNITY COMMITTEE

REPORT:

The current resourcing for these community development actions is inadequate in both time and staffing. Accordingly adequate notice is now being given to Council recommending that these actions be deferred from the 2014-15 Annual Operations Plan.

The Community Development Strategy, Youth and Children Plan and Cultural Plan as outlined in the Operational Plan are important plans to facilitate Council's work; each of these areas requires further development and the plans in themselves are important and will be a useful resource for Council and the community.

The key issue is that considerable work is occurring in these areas and will continue to; however, the development of comprehensive plans is not feasible in the current financial year, with a number of other competing priorities taking precedence. The removal of these deliverables from the 2014-15 Operational Plan will allow time for further development and work in these areas that is required to develop robust plans; including adequate community consultations and research.

Development work is already well underway in each of these domains through the Community Consultative Panels. The following progress has been made:

- Youth Week development is well underway, with greater involvement of Council in planning and coordinating events including the hosting of a sports event and two creative workshops.
- The Cultural Plan is listed on the Uralla Shire Council's organisational development plan, with a completion date of December 2015

The revamp of the Tourism website is listed as a deliverable for 2014-15; however, no budget allocation has been made for this. With the recent Council resolution that a review of Tourism be prepared and reported, a revamp of the Uralla Tourism website is not recommended at this stage until the recommendations of the abovementioned report are considered.

KEY ISSUES:

- Limited resource allocation in 2014-15 for development of significant Council plans
- Background work already progressing in each of these areas
- Website revamp not supported by adequate Tourism budget allocation

CONCLUSION:

Work is underway in each of these areas; however, significant allocation of time and resources would be required to develop formal plans in these areas by end June 2015. Thus the recommendation is that these plans stay on the agenda, but be removed as key deliverables from the 2014-15 Operational Plan.

COUNCIL IMPLICATIONS:

1. **Community Engagement/ Communication (per engagement strategy)**
Current consultation with relevant groups through Community Consultative Panels
2. **Policy and Regulation**
NA

REPORTS FROM THE CORPORATE & COMMUNITY COMMITTEE

3. Financial (LTFP)

Budget requirements for 2015/16 Operational Plan to deliver actions is to be incorporated in the draft version.

4. Asset Management (AMS)

N/A

5. Workforce (WMS)

N/A

6. Legal and Risk Management

N/A

7. Performance Measures

N/A

8. Project Management

N/A

Prepared by staff member:	Olivia Wood
Approved/Reviewed by Manager:	Damien Connor
Department:	Community and Culture
Attachments:	Nil



REPORTS TO THE
ENVIRONMENT, DEVELOPMENT
& INFRASTRUCTURE COMMITTEE

**17. Reports to the Environment, Development &
Infrastructure Committee**

**REPORTS TO THE ENVIRONMENT, DEVELOPMENT
& INFRASTRUCTURE COMMITTEE**

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

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REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE



REPORT TO COMMITTEE

Department:	Infrastructure and Regulation
Submitted by:	Director Infrastructure and Regulation
Reference:	2.20.04.01
Subject:	Naming of Bundarra Bridge

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	Uralla Shire has safe and effective transport systems.
Strategy:	Maintain and upgrade bridges to improve longevity and safety.
Action:	Maintain culverts and bridges to established services and intervention points

SUMMARY:

The purpose of this report is for Council to give consideration to a request received to name the bridge beside the Bundarra Central School from the Student Representative Council and the Principal of the school.

COMMITTEE'S RECOMMENDATION:

That:

1. Council support the name of the bridge as "Lone Pine Bridge, Bundarra"
2. Council forward an application to the Geographic Names Board for approval of the new name.

OFFICER'S RECOMMENDATION:

That:

1. Council support the name of the bridge as "Lone Pine Bridge, Bundarra"
2. Council forward an application to the Geographic Names Board for approval of the new name.

BACKGROUND:

Council resolved to name the bridge and advertise its decision at its February meeting. Council received two objections. These are attached to this report. It is hoped that the inclusion of Bundarra in the proposed name will reduce the objectors' concerns.

The Roads and Maritime Services and the National Trust were both advised of this proposal.

REPORT:

Council received a request to name the previously unnamed bridge beside Bundarra Central School from the Student Representative Council and the Principal of Bundarra Central School. This bridge is owned and managed by Roads and Maritime Services. The objections were that it had always been known as the Bundarra Bridge. The inclusion of Bundarra in the name should alleviate this concern.

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

Once an application is forwarded to the Geographic Name Board for approval it will again be advertised by them for 28 days for public comment.

KEY ISSUES:

- Name proposed by Student Representative Council at Bundarra Central School.
- Presentation by Mr Rick Sullivan of a seedling propagated from the original Lone Pine to coincide with Anzac Day commemorations.
- Two objections based on bridge always known as Bundarra Bridge

CONCLUSION:

The new proposed name should be supported and the students be congratulated on this positive initiative.

COUNCIL IMPLICATIONS:

1. **Community Engagement/ Communication (per engagement strategy)**
Newsletter, Media campaign and letters to major stakeholders.
2. **Policy and Regulation**
Nil
3. **Financial (LTFP)**
Two new signs to be funded from within the existing budget.
4. **Asset Management (AMS)**
Nil
5. **Workforce (WMS)**
Nil
6. **Legal and Risk Management**
Nil
7. **Performance Measures**
Nil
8. **Project Management**
Nil

Robert Bell
Director Infrastructure and Regulation

Prepared by staff member: Robert Bell
TRIM Reference: U07/766
Approved/Reviewed by Manager:
Department: Infrastructure and Regulation
Attachments: C Letter from Bundarra Central School
D Letter from Mr John and Mrs Lorna Harper
E Letter from Mr M Eckert
F Letter from Bundarra P&A & Rodeo Society
G Proof of the proposed signage for the bridge from Road Management Solutions

BUNDARRA CENTRAL SCHOOL



Bowline Street

BUNDARRA NSW 2359

Phone 0267237102 Fax 02 6723 7387

Email Address bundarra-c.school@det.nsw.edu.au

All young people deserve opportunities and support to succeed in life.

February 9, 2015

To Uralia Council

Dear Sir,

The school's ANZAC Ceremony for 2015 will take place on Wednesday 22nd April 2015 at Bundarra Central School. Mr Rick Sullivan will be attending our service and presenting the school with a seedling propagated from the original Lone Pine at Gallipoli. His relatives Thomas Joseph Sullivan and Ernst Lawrence Sullivan both served at Gallipoli and their service records show they were members of the Bundarra Community and attended our school (we are still researching old school files).

The Student Representative Council has enquired about the name of the bridge crossing Gwydir River next to the school and have discovered it is not named. We have discussed the possibility of naming the bridge "The Lone Pine Bridge" to commemorate the military service members of the Bundarra Community have done for Australia.

We respectfully request the Uralia Council consider naming the Bridge as we have described. We will as a part of the SRC plans to publish our proposal in the next school newsletter to allow for any consultation with our community.

Yours faithfully

T. Grant

Tom Grant
SRC President

D Bieler
Principal

Attachment D

NAMING OF THE BRIDGE NEAR BUNDARRA CENTRAL SCHOOL

Dear Shire Councillors,

I object to the renaming of the Bundarra Bridge.

It has been known since it was built as "THE BUNDARRA BRIDGE"

I guess the "Lone Pine Bridge" idea is a tribute to the ANZACS?

I applaud any recognition of our Defence Forces – but— The Bundarra Bridge has served us well for many years and we should recognise its history too.

On a realistic level the name change would cause confusion to motorists.

"The Bundarra Bridge is to be closed on the night of 18th March 2015."

Travellers know what this means.

If "The Lone Pine Bridge" is to be closed, it could be anywhere.

The meaning of the word Bundarra is a little confused but it is to do with Grey Kangaroos

My Father was born in Bundarra in 1877. He told me it meant "Camping Ground of Kangaroos"

We have a long grey bridge and the connection with grey kangaroos; I think this is a wonderful part of our history and would make a good tourist attraction.

I feel our local history is so important and for this reason I refer you to two lines from a poem I wrote that was published in "Bundarra Stepping Stone to the Gwydir" written by Clair Schofield and published in the 1970's

Bundarra

"The wide main street was straightened and a railway line was planned

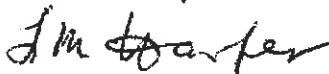
And the waters of the Gwydir by a shining bridge were spanned"

There will be costs associated with a name change.

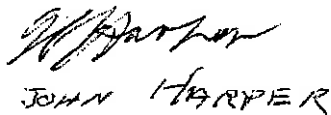
Signs and changes to maps all cost ratepayer money..

It may be renamed— but it will always be BUNDARRA BRIDGE over the Gwydir at Bundarra.

Yours sincerely



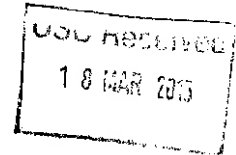
Lorna Harper



JOHN HARPER

544 Karingal Rd

. Camerons Creek 2359



16/03/15

Attachment E

G. Lakkar

Bundarra 2359

23-03-15

Ullalla Shire Council

Ullalla, 2358

Dear Sir/Madam

In response to the proposal to name the Bundarra Bridge next to the Bundarra Central School "The Lone Pine Bridge"

I strongly object to such a proposal. The said bridge has always been known as the Bundarra Bridge since its erection well over 100 years ago, in my grandparents day, and well before "Lone Pine" made history.

There is no intention by myself to lessen my utmost respect & gratitude to those who fought and died at Lone Pine in 1915, but to suddenly apply a name other than the Bundarra Bridge is inappropriate, in my view.

I do hope U.S.C. will reconsider the proposal.

Mr. H.R. Eckert

Yours faithfully,

Mr H R Eckert. M D. Eckert
1015 Georges Creek Rd.
BUNDARRA.

67 237363

BUNDARRA P&A & RODEO SOCIETY

PO BOX 55

BUNDARRA NSW 2359

01/04/215

THE PRINCIPAL

BUNDARRA CENTRAL SCHOOL

BOWLINE STREET

BUNDARRA NSW 2359

Dear David,

I am writing this letter in regards to the notification in the school newsletter from Student Representative Council and yourself about the naming of the bridge spanning the Gwydir River.

This matter was brought up in our last meeting in March and was discussed at length, a motion was moved that we write to you that we don't agree with the naming the bridge Lone Pine Bridge. The bridge has always been known as Bundarra Bridge.

As a community we have nothing in common with the name Lone Pine and we strongly object to naming the bridge this name.

I hope you and the Student Representative Council try to understand our concern.

Regards



Esme Garrad

Secretary



FINAL APPROVAL CHECKLIST



The following ARTWORK is submitted for your APPROVAL. NO FURTHER WORK WILL BE PERFORMED WITHOUT THE SIGNING OF THIS DOCUMENT (Including modifications).

ARTWORK BY: K.HOTZ



COMMENTS _____

PLEASE TICK THE FOLLOWING BOXES AS APPROVAL OF EACH COMPONENT OF YOUR ARTWORK:

- Check spelling, grammar & punctuation
- Check colours (& logo format)
- Position of holes
- Allow someone that is unfamiliar with the job to check over it
- Background & legend materials
- Size & layout

PLEASE TICK, SIGN AND FAX BACK

All is OK, proceed with order Alter as per my changes then re-submit

Printed Name: _____ Signature: _____ Date: _____

(Office Use ONLY) File saved as :

URALLA SHIRE - 291723

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE



REPORT TO COMMITTEE

Department:	Infrastructure and Regulation
Submitted by:	Director Infrastructure and Regulation
Reference:	2.20.04.02
Subject:	Uralla Community Recycling Centre and Landfill Operating Hours

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

- Objective:** Uralla's natural beauty and distinct natural environment are protected for future generations.
- Strategy:** Plan and coordinate resource recovery under the Waste and Recycling Management Plan.
- Action:** Waste Management Business Plan

SUMMARY:

The purpose of this report is to propose a change in the public opening hours for the Uralla Community Recycling Centre. The proposed change follows a review of operational requirements and subsequent examination of vehicle flow at the Uralla Community Recycling Centre and Landfill.

COMMITTEE'S RECOMMENDATION:

That:

1. the Uralla Community Recycling Centre and Landfill opening hours be altered to be opened to the public Monday, Tuesday, Thursday and Friday from 8am to 4pm, and Saturday and Sunday from 9am to 2pm, with the facilities to be closed on Christmas Day, Good Friday and Anzac Day.
2. Subsequent information be prepared with regard to a possible further reduction in opening hours.
- 3.

OFFICER'S RECOMMENDATION:

That the Uralla Community Recycling Centre and Landfill opening hours be altered to be opened to the public Monday, Tuesday, Thursday and Friday from 8am to 4pm, and Saturday and Sunday from 9am to 2pm, with the facilities to be closed on Christmas Day, Good Friday and Anzac Day.

BACKGROUND:

The current opening times for the Uralla Community Recycling Centre and Landfill are:

- Monday to Friday 8 am to 4pm, and daylight saving Monday to Friday 8am to 5pm; and
- Saturday and Sunday 9am to 4pm.

REPORT:

Operational site maintenance activities include:

- transportation and application of cover material;

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

- stormwater management;
- maintenance of material piles;
- site litter collection;
- movement of baled recycled material;
- waste cell maintenance, creation, cover;
- machinery cleaning and maintenance; and
- shed cleaning and maintenance.

These activities are able to be undertaken more efficiently and with less risk when the site is closed to the public.

A 12 month survey of vehicle arrivals at the Uralla Community Recycling Centre and Landfill, conducted from August 2013 to August 2014, was used to determine the most popular days and times the facility is used by the public. The total vehicle counts for each day over a 12 month period were:

Day of the Week	Number of vehicles for Year
Monday	1,972
Tuesday	1,816
Wednesday	1,635
Thursday	1,746
Friday	2,079
Saturday	2,882
Sunday	3,462

The examination showed the most popular times of the day were between 10 and 2pm. In daylight saving the facility is opened an additional hour at the end of the day. The lowest vehicles counts were recorded between 4 and 5pm. Operationally there are issues with staffing the facility for the additional 30 minutes in daylight saving time, because staff members are scheduled to finish work at 4.30pm.

There are operational reasons to close the facility to the public. There is currently only five hours per week when the facility is staffed and not opened to the public. Whilst the site is opened to the public there are certain site maintenance activities which cannot occur, due to risk of a member of the public being injured or their property being damaged. The tip truck that is used for the public to deposit waste into cannot be used for any operational purposes whilst the facility is opened. When the facility is closed to the public the tip truck can be utilised for operational purposes and bulky material can be moved.

It is proposed that the site be closed to the public on a Wednesday, which is the Uralla township kerbside collection day. Wednesday has the greatest movement of heavy vehicles. Wednesday can become the nominated day for servicing of facilities, such as the new Community Recycling Centre and tyre recycling collection.

Mechanised recycling facility (MRF) operations are frequently interrupted to service members of the public. If the facility were to be closed to the public for one day per week, this would allow for greater efficiency of MRF operations on that day and allow additional time for recycling catch-up. In addition, having the facility closed to the public would allow for material bailing, maintenance, cleaning, heavy vehicle movement and any necessary staff training.

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

In the area of waste management labour costs are significant. There is a need to make cost savings across all waste operations where possible. The proposed changes will reduce opening hours from 54 hours to 42 hours per week. Reduced opening hours will result in a reduction of required labour hours at the facility and equate to a saving of \$524.02 per week, which is \$27,249 p.a. (This calculation does not include allowances).

As part of the NSW EPA Waste Less Recycle More initiative, Council successfully received funding to upgrade recycling facilities at Uralla for household items. In addition to the original grant funding received Council has been allocated funding to promote the upgraded recycling centre, which includes facility signage and community engagement. Any changes to facility opening hours at this time will be able to be included on the new facility signage and promotion of the Community Recycling Centre upgrade.

KEY ISSUES:

It is proposed that the Uralla Community Recycling Centre and Landfill operating hours be changed to 8am to 4 pm Monday, Tuesday, Thursday and Friday and from 9am to 2pm on Saturday and Sunday. The facility will be **CLOSED** on Wednesdays. These hours will apply all year, with no change in opening times for daylight saving.

This will result in estimated cost saving of \$524.02 per week- \$27,249 p.a. and provide necessary downtime for additional operations at the site.

CONCLUSION:

It is proposed that the Uralla Community Recycling Centre and Landfill operating hours be changed to reflect public usage times and to assist with improvements to operational efficiencies, and eliminate risk of injury or damage to members of the public during specific operational tasks, and decrease operational costs of the facility.

COUNCIL IMPLICATIONS:

1. Community Engagement/ Communication (per engagement strategy)

Advanced public notification of changes required. Public notification proposed to occur in the Council newsletter, community posters, school newsletters, Council website, and facility signage.

2. Policy and Regulation

Nil

3. Financial (LTFP)

Estimated cost saving of \$524.02 per week- \$27,249 p.a. in reduced labour hours. This calculation does not include any calculation of productivity improvements.

4. Asset Management (AMS)

Uralla Landfill operational improvement will increase capacity.

5. Workforce (WMS)

Reduced labour hours required at Uralla Community Recycling Centre and Landfill. No affect on permanent staff and their required minimum hours.

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

6. Legal and Risk Management

Site being closed to the public reduces risk when operating heavy machinery and moving material onsite.

7. Performance Measures

N/A

8. Project Management

Nil

Prepared by staff member:	Manager Waste and Resource Recovery
TRIM Reference:	U14/6423
Approved/Reviewed by Manager: Department:	Director Infrastructure and Regulation Infrastructure and Regulation
Attachments:	Nil

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE



REPORT TO COMMITTEE

Department:	Infrastructure & Regulation
Submitted by:	Director Infrastructure & Regulation
Reference:	2.20.04.03
Subject:	Works Progress Report to 29 March 2015

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	Uralla Shire has safe and effective transport systems
Strategy:	Provide, maintain, renew and replace Council's transport network including urban streets and sealed and unsealed roads
Action:	Undertake maintenance program in-line with established service levels and intervention points

SUMMARY:

The purpose of this report is to inform Council of the works that have been completed or progressed for the previous month.

COMMITTEE'S RECOMMENDATION:

That the report be received and noted for the works completed or progressed during March 2015.

OFFICER'S RECOMMENDATION:

That the report be received and noted for the works completed or progressed during March 2015.

REPORT:

- 1. Main Road Maintenance**

MR73 North and South	Patching, Mowing, Resealing
MR124	Patching, Mowing, Pavement Rehabilitation, Resealing
MR132	Maintenance
- 2. Sealed Roads Maintenance**

Uralla Streets	Patching, heavy patching, Resealing
Bundarra Town Area	Patching
Invergowrie Area	Patching, Heavy Patching, Resealing
Kentucky/Wollun Area	Patching, Resealing
Kingstown Road	Resealing
Sealed Rural Roads	Shoulder mowing, Resealing

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

3. Unsealed Roads Maintenance

Grading

Bingara Road	Graded
Johnsons Road	Graded
Bakers Creek Road	Grading stopped as no water available
Bindawalla Road	Graded
Bergen Road	Graded
Warrembah Road	Graded
Lindon Road	Graded
Athol Road	Graded
Balala Road	Grading
Westvale Road	Graded
Rose Hill Road	Regravel 450m
Lawson Road	Graded
Mundays Lane	Graded
Ferris Lane	Graded

4. Construction Crew

MR73 Thunderbolts Way	Continued construction of approaches for the new Emu Crossing bridge.
MR124 Bundarra Road	Complete Repair Program Project West from Saumarez Creek Bridge

5. Bridge / Sign Crew

Abington Bridge MR73	Maintenance
MR73 Thunderbolts Way	Emu Crossing Bridge. Continue rock work abutment protection

6. Town Area

Uralla	General maintenance
--------	---------------------

KEY ISSUES:

- Maintenance grading and construction works are being severely restricted due to the drought conditions and water not being available for road works in many areas.

Alan Harvey

Manager Infrastructure & Works

Prepared by staff member:	Manager Infrastructure & Works
TRIM Reference:	U07/3041
Approved/Reviewed by Manager:	Director Infrastructure & Regulation
Department:	Infrastructure & Regulation
Attachments:	Nil

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE



REPORT TO COMMITTEE

Department:	Infrastructure & Regulation
Submitted by:	Director Infrastructure & Regulation
Reference:	2.20.04.04
Subject:	Works Planning Report April 2015

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	Uralla Shire has safe and effective transport systems.
Strategy:	Provide, maintain, renew and replace Council's transport network including urban streets and sealed and unsealed roads.
Action:	Undertake maintenance program in-line with established service levels and intervention points.

SUMMARY:

The purpose of this report is to inform Council of the following works, which are proposed to be carried out or continued in the next month.

COMMITTEE'S RECOMMENDATION:

That the report be received and noted for the works planned for April 2015.

OFFICER'S RECOMMENDATION:

That the report be received and noted for the works planned for April 2015.

REPORT:

1. **Main Road Maintenance**
 - Bitumen patching
 - Guide posting
 - Sign maintenance
 - Heavy patching
 - Reseal program
 - Shoulder mowing

2. **Sealed Roads Maintenance**
 - Bitumen patching
 - Guide posting
 - Terrible Vale Road shoulder grading
 - Reseal Program
 - Shoulder mowing

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

3. **Unsealed Roads Maintenance**

Rocky River Area	Grade
Bakers Creek Road	Grade when water is available
Invergowrie Area	Grade
Balala Road	Grade
Baldersleigh Road	Grade

4. **Bridge/Sign Crew**

Emu Crossing	Rock Abutment protection construction
Enmore Road	Maintenance
General maintenance	

5. **Construction**

MR73 Thunderbolts Way	Emu Crossing Bridge - bridge contractor to continue on site
MR73 Thunderbolts Way	Pavement Rehabilitation - Williams Road
Bingara Road	Commence construction project

6. **Town Works**

Routine maintenance	
---------------------	--

KEY ISSUES:

- The effects of the planned works on the environment have been reviewed. No significant effect is likely.

Alan Harvey

Manager Infrastructure & Works

Prepared by staff member:	Manager Infrastructure & Works
TRIM File Reference:	U07/3041
Approved/Reviewed by Manager:	Director Infrastructure & Regulation
Department:	Infrastructure & Regulation
Attachments:	Nil

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE



REPORT TO COMMITTEE

Department:	Infrastructure & Regulation
Submitted by:	Director of Infrastructure & Regulation
Reference:	2.20.04.05
Subject:	Development Approvals and Refusals for March 2015

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

- Objective:** To ensure that Development Applications and land use enquiries are dealt with as expeditiously as possible.
- Strategy:** Actively encouraging the utilisation of Complying Development, by delegations of authority to planning staff, where appropriate.
- Action:** Use of Delegation of Authority reported to management and Council monthly.

SUMMARY:

The purpose of this report is to provide details of the development approvals issued by Council and by private certification for March 2015 for the entire Local Government Area. A listing of development applications outstanding with a status as at the end of March 2015 has also been provided.

For information purposes a summary of the development values is provided from January 2006 until the end of March 2015. Similarly, a summary of the number of dwellings approved within the Local Government Area from 1 January 2000 until the end of March 2015 is provided.

The number of applications lapsing in September 2015 is also listed for information purposes.

COMMITTEE'S RECOMMENDATION:

That the development approvals and refusals for March 2015 be received and noted.

OFFICER'S RECOMMENDATION:

That the development approvals and refusals for March 2015 be received and noted.

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

REPORT:

Development Applications			
Approvals:			
Development Application Number	Applicant	Property	Development
DA-55-2014	Boresch Project Services	14 Marsh Street, Uralla	Dwelling under Clause 4.6 of the Uralla LEP
DA-91-2014	Ms S Parker	29 Rowan Avenue, Uralla	Double Carport & Rear Deck
DA-4-2015	New England Surveying & Engineering	44 Barleyfields Road, Uralla	60 Lot Staged Subdivision
DA-5-2015	Mr B & Mrs T Booth	65 Barloo Road, Invergowrie	2 Lot Subdivision
DA-6-2015	Mrs L McFarlane	32 McCrossin Street, Uralla	Extension to Existing Shed
DA-9-2015	Mr C & Mrs L Borger	62 Mount Butler Road, Invergowrie	2 Lot Subdivision
DA-11-2015	Mr M Ball	293 Wollun Road, Wollun	Demolition of House
DA-12-2015	Ms K Smith	55 Budumba Road, Invergowrie	Conversion of Shed to Dwelling
DA-14-2015	Mr L Herbert & Ms T Bunham	43 Andersons Road, Rocky River	Dwelling
DA-82-2008-2	Mr W Lulham	Lot 245 Dorlie Lane, Kentucky	Modification to Dwelling
Monthly Estimated Value of Approvals: \$1,216,870.00			

Refusals: Nil

Comparison to March 2014:

March 2014:	\$245,253.00	March 2015:	\$1,216,870.00
Year to date: (Calendar Year)	\$1,004,303.00	Year to date: (Calendar Year)	\$1,975,370.00

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

Development Applications Outstanding

Application Number	Applicant	Property	Development	Status
DA-77-2013	Boresch Project Services	51 Salisbury Street & 21 Queen Street, Uralla	Boundary Adjustment	Awaiting Applicant
DA-69-2014	Boresch Project Services	28 Stringybark Ridge Road, Invergowrie	3 Lot Subdivision	Awaiting Applicant
DA-69-2010-2	New England Surveying & Engineering	33-37 Queen Street, Uralla	Modification – Stage 1 – 2 Lot Subdivision	Awaiting Applicant
DA-2-2015	Mr D Williams	94 Quartz Gully Road, Uralla	Conversion of Shed to Dwelling	Awaiting Applicant
DA-12-2015	Ms K Smith	55 Budumba Road, Invergowrie	Conversion of Shed to Dwelling	Awaiting Applicant
DA-13-2015	Boresch Project Services	15 Wilkens Street, Uralla	3 Lot Subdivision	Awaiting RFS
DA-15-2015	Mr M Evans	42 Bridge Street, Uralla	Mobile Coffee Station within Commercial Premises	Under Assessment
DA-16-2016	Mr J Piddington	40 Kalinda Road, Invergowrie	2 Lot Subdivision	Under Notification
DA-17-2016	Mr R Moyle	Lot 144 Reeves Road, Kentucky South	Dwelling Entitlement	Under Assessment
Total:				9

Construction Certificates

Approved:

Application Number	Applicant	Property	Construction
CC-82-2008-2	Mr W Lulham	Lot 245 Dorlie Lane, Kentucky	Modification to Dwelling
CC-94-2014	Mr R McDonald	189 Balala Road, Balala	Garage
CC-11-2015	Mr M Ball	293 Wollun Road, Wollun	Demolition of House
Monthly Estimated Value of Approvals: \$114,045.00			

Issued by Private Certifier:

Application Number	Applicant	Property	Construction
CC-65-2014	Mr M & Mrs J Hodge	3 Roman Street, Uralla	Dual Occupancy & Shed
CC-77-2014	Mr M & Mrs E Peterson	140 Devoncourt Road, Uralla	Shed
CC-6-2015	Mrs L McFarlane	32 McCrossin Street, Uralla	Shed Awning
CC-8-2015	Mr J Peirce	7 Depot Road, Uralla	Carport
Monthly Estimated Value of Approvals: \$116,500.00			

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

Complying Development Applications

Approvals: Nil

Refusals: Nil

Issued by Private Certifier:

Application Number	Applicant	Property	Development
CDC-5-2015	Mr R Jex	11 Elizabeth Street, Uralla	Roofed Pergola
CDC-6-2015	Mrs J Laing	133 Bilga Road, Invergowrie	Shade Structure over Existing Dwelling
CDC-9-2015	Mrs J Rediger	6 Gilmore Place, Uralla	Shed
Monthly Estimated Value of Approvals: \$34,000.00			

Comparison to March 2014:

March 2014:	\$10,000.00	March 2015:	\$34,000.00
Year to date: (Calendar Year)	\$41,700.00	Year to date: (Calendar Year)	\$1,112,500.00

Calendar Year Development Values

Year	Total Development Value \$	Average Development Value \$	Development Application Value \$	Complying Development Value \$
2006	6,310,059	42,349	6,310,059	-
2007	7,211,361	44,515	7,211,361	-
2008	9,155,533	56,169	7,393,239	1,762,294
2009	9,290,046	72,578	5,749,162	3,540,884
2010	10,586,972	80,817	5,958,887	4,628,085
2011	6,584,483	51,846	3,449,607	3,134,876
2012	11,390,780	104,503	6,158,718	5,232,062
2013	9,259,318	76,523	4,678,720	4,580,598
2014	8,246,689	69,300	5,657,845	2,588,844
2015	3,087,870	118,764	1,975,370	1,112,500

2015 to date

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

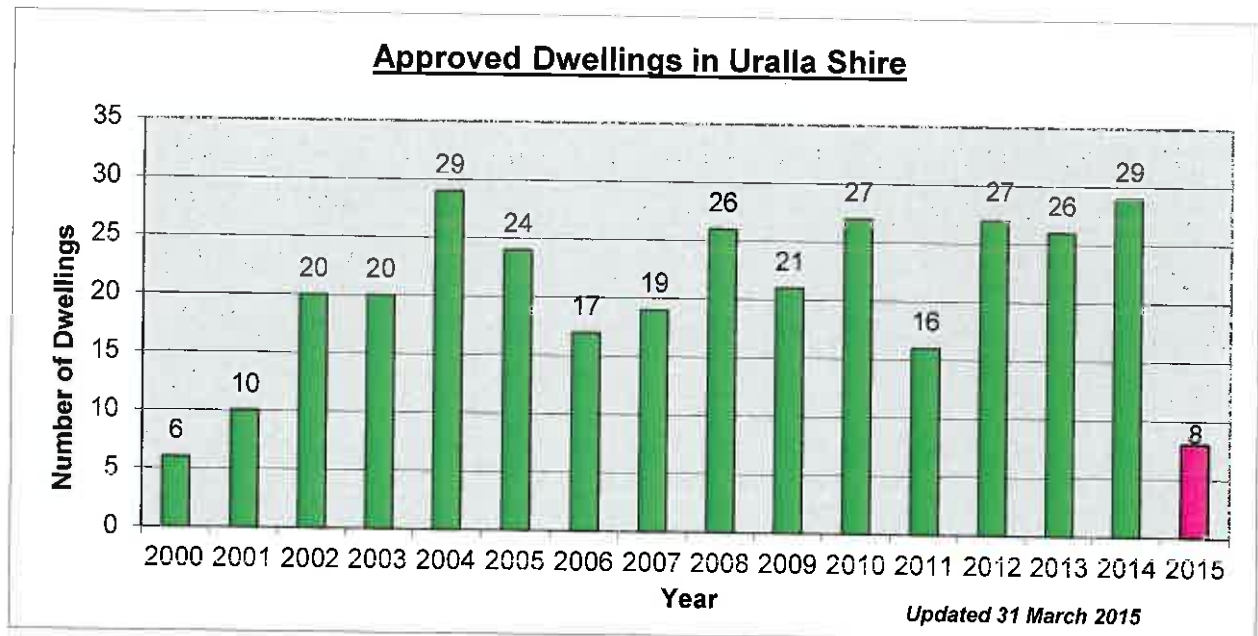
Financial Year Development Values

Year	Total Development Value \$	Average Development Value \$	Development Application Value \$	Complying Development Value \$
2005-2006	6,090,640	39,808	6,090,640	-
2006-2007	6,302,833	38,668	6,302,833	-
2007-2008	8,128,806	52,444	8,128,806	-
2008-2009	8,095,812	61,332	4,588,050	3,507,762
2009-2010	12,395,113	77,469	7,121,590	5,273,523
2010-2011	8,212,500	73,986	5,023,347	3,189,153
2011-2012	5,986,330	53,449	3,667,764	2,318,566
2012-2013	12,339,996	101,983	6,100,857	6,239,139
2013-2014	8,296,829	76,118	4,653,404	3,643,425
2014-2015	8,474,667	122,849	5,516,693	2,957,974

2014-2015 to date

Lapsing Applications

The review on expiring development and complying development applications has been carried out for those applications lapsing during September 2015. In September 2010 ten (10) applications were approved, with two (2) applications identified as possibly not commencing as at the end of March 2015.



REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

KEY ISSUES:

- Development Applications approved by Council for March 2015 – 10
- Development Applications refused by Council for March 2015 – 0
- Outstanding Development Applications as at 31 March 2015 – 9
- Construction Certificates approved by Council for March 2015 – 3
- Construction Certificates refused by Council for March 2015 – 0
- Construction Certificates issued by private certification for March 2015 – 4
- Complying Development Applications approved by Council for March 2015 – 0
- Complying Development Applications refused by Council for March 2015 – 0
- Complying Development Applications issued by private certification – 3
- Total Development Value for 2015 as at 31 March 2015 – \$3,087,870
- Average Development Value for 2015 as at 31 March 2015 – \$118,764
- Development Application Value for 2015 as at 31 March 2015 – \$1,975,370
- Complying Development Application Value for 2015 as at 31 March 2015 – \$1,112,500
- Applications lapsing in June 2015 that may not have commenced – 2
- Approved dwellings as at 31 March 2015 – 8

Elizabeth Cumming

Manager of Town Planning & Regulation

Prepared by staff member: Administration Officer
TRIM Reference Number: U12/168
Approved/Reviewed by Manager: Director of Infrastructure & Regulation
Department: Infrastructure & Regulation
Attachments: Nil

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE



REPORT TO COMMITTEE

Department:	Infrastructure and Regulation
Submitted by:	Director Infrastructure and Regulation
Reference:	2.20.04.06
Subject:	Uralla Landfill Environmental Monitoring Report-March 2015

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

- Objective:** Uralla's natural beauty and distinct natural environment are protected for future generations.
- Strategy:** Plan and coordinate resource recovery under the Waste and Recycling Management Plan
- Action:** Waste Management Asset Management Plan

SUMMARY:

The purpose of this report is to present Council with the latest Environmental Monitoring Report for Uralla Landfill. Uralla Shire Council landfill operates under an environment protection licence regulated by the NSW Environment Protection Authority (EPA). In accordance with license conditions the Uralla Landfill has a regular environmental monitoring program. The attached report is the Environmental Monitoring Report March 2015 by CodyHart Environmental.

COMMITTEE'S RECOMMENDATION:

That the report be received and noted.

OFFICER'S RECOMMENDATION:

That the report be received and noted.

BACKGROUND:

The aim of the environmental monitoring program is to assess present environmental health risks, due to methane emissions from surface areas and within buildings, and landfill leachate contamination of surface water and ground water. The Environmental Monitoring Report March 2015 Uralla Landfill is an environmental assessment monitoring of groundwater, leachate and methane in accordance with NSW EPA licence requirements. As a licensee, Council makes environmental monitoring data that is required under each licence publicly available. All environmental monitoring data is available from the hardcopy from the Council office or electronically on the Council website. This report is produced quarterly. An annual report is produced, which accompanies the NSW EPA Licences annual return.

REPORT:

No surface methane or building methane was detected in the March 2015 report. The northern cell gas vent internal methane emissions were measured, and methane was detected emitting at 1,750

REPORTS TO THE ENVIRONMENT, DEVELOPMENT & INFRASTRUCTURE COMMITTEE

ppm from the eastern gas vent. Smoking and open flames are not permitted at the landfill site. From 1 March 2015 the Uralla Landfill and Community Recycling Centre became a smoke free area.

Groundwater piezometric levels in all wells continue their rising trend. There is no sign of leachate contamination in wells UW1 and UW2. The nitrate + nitrite (NO_x) contamination in well UW3 is most probably due to the old night soil trenches situated up gradient. The increase in inorganic carbon since May 2012 remains.

KEY ISSUES:

The Environmental Monitoring Report March 2015, produced by Cody Hart Environmental, is produced in accordance with NSW EPA Licence conditions of Uralla Landfill. Environmental monitoring results for March 2015 are within normal limits and present no areas of concern.

COUNCIL IMPLICATIONS:

- 1. Community Engagement/ Communication (per engagement strategy)**
Environmental monitoring data is available to the public on the Council website.
- 2. Policy and Regulation**
NSW EPA Licence conditions for Uralla Landfill.
- 3. Financial (LTFP)**
Nil
- 4. Asset Management (AMS)**
Nil
- 5. Workforce (WMS)**
Nil
- 6. Legal and Risk Management**
Environmental Monitoring is conducted in accordance with licence conditions. Contamination levels and trends are recorded and action taken as required, minimising the likelihood of an environmental pollution incident.
- 7. Performance Measures**
N/A
- 8. Project Management**
N/A

Kath Little
Manager Waste Resource Recovery

Prepared by staff member: Manager Waste and Resource Recovery
TRIM Reference Number: U12/6423
Approved/Reviewed by Manager: Director Infrastructure and Regulation
Department: Infrastructure and Regulation
Attachments: H Environmental Monitoring March 2015 Uralla Landfill



Helping You Protect Your Environment

ENVIRONMENTAL MONITORING REPORT

URALLA LANDFILL

March 2015

for Uralla Shire Council

CodyHart Consulting Pty Ltd ACN: 076 662 989 ABN: 23 809 060 895
Trading as CodyHart Environmental
Groundwater and Landfill Environmental Monitoring Specialists

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APPENDICES

- Appendix A – Field Parameter Forms
- Appendix B – Chain of Custody Forms and Calibration Certificate
- Appendix C – Laboratory Reports

Presented by: Barbara Hart
Hydrogeologist & Environmental Scientist

Date: 28 March 2015
Report: CodyHart 15.2045.1

DISCLAIMER

CodyHart Consulting Pty Ltd has taken due care in ensuring the accuracy and applicability of its monitoring work, and the content, interpretation and advice provided in this report for the client.

Due to the specific nature of the report, the complexity of monitoring issues, unknowns concerning the site to which it applies, and the state of knowledge at the time of work and writing, this report is provided in good faith but without any express or implied warranty as to its accuracy or completeness or currency for the full site, land, subsurface, air, water, and persons or biota that may be impacted.

Changes to circumstances or facts after certain information or material has been submitted may impact on the accuracy, completeness or currency of the information or material.

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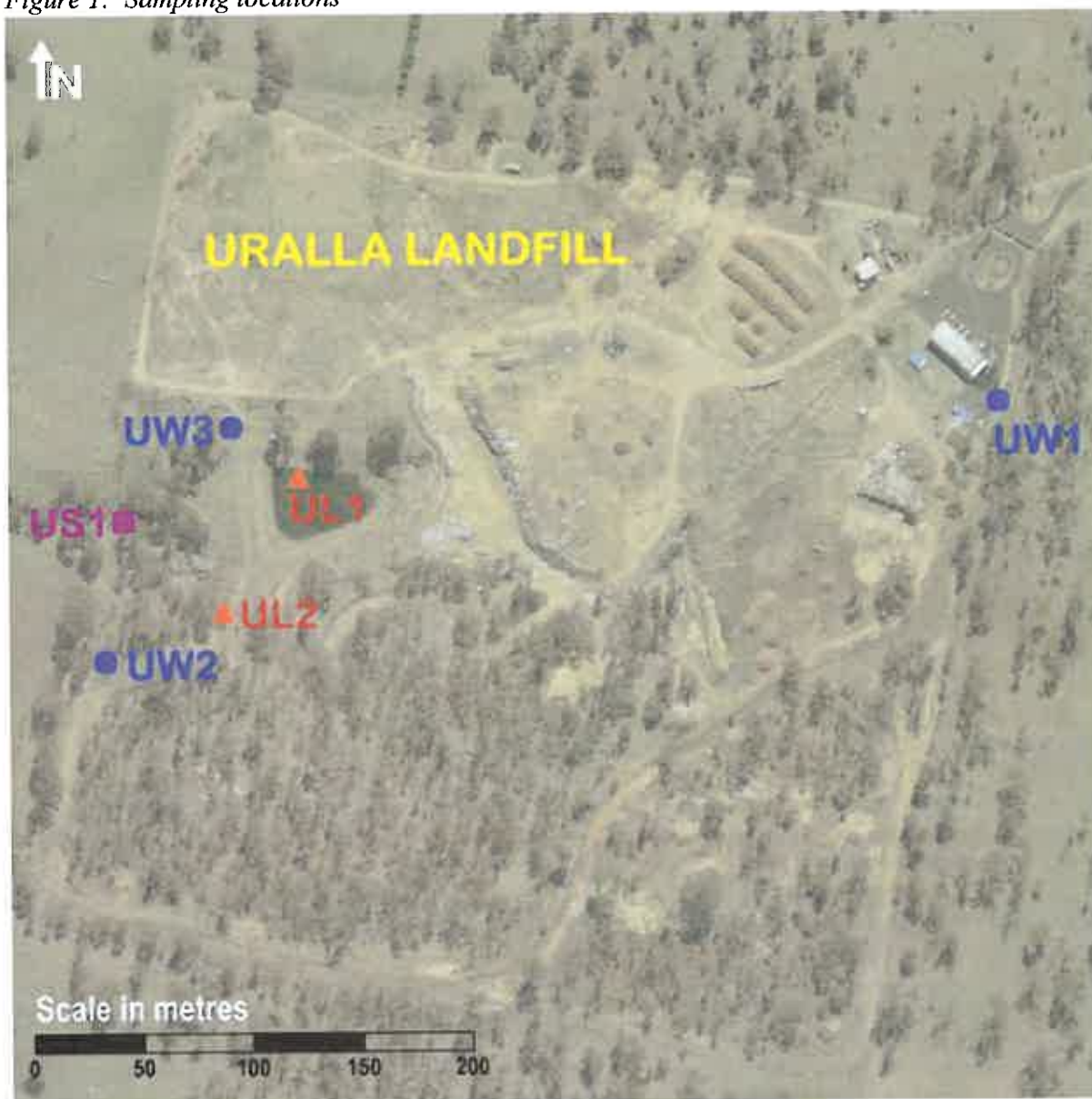
1. INTRODUCTION

This report concerns the March 2015 round of environmental assessment monitoring of groundwater, leachate and methane at the Uralla Landfill.

2. SAMPLING LOCATIONS

Figure 1 shows the sampling locations for methane, groundwater, surface water and leachate.

Figure 1: Sampling locations



Base map from SIX (Spatial Information Exchange) © NSW Dept of Lands 2006

3. AIM OF MONITORING

The environmental monitoring program aims to assess present environmental health risks due to methane emissions from surface areas and within buildings, and landfill leachate contamination of surface water and groundwater.

4. METHANE MONITORING

Quarterly surface monitoring and building monitoring for methane is being conducted at the Uralla Landfill as a precautionary measure against the environmental and occupational health and safety problems that may occur at landfills due to the methane component of landfill gas. Methane is a colourless, odourless gas that is flammable and explosive.

Benchmark Technique No. 17 for *Surface Gas Emission Monitoring* and Benchmark Technique No. 18 for *Gas Accumulation Monitoring* found in the NSW EPA (1996, p. 30) *Environmental Guidelines: Solid Waste Landfills* are followed. The surface methane monitoring is undertaken to demonstrate that the cover material is controlling the emission of landfill gas. Methane accumulation monitoring is undertaken in the site buildings to assure health and safety against asphyxiation and explosion.

CodyHart uses a Year 2010 model RKI Eagle™ portable gas meter. Its methane recalibration date is shown on the display screen and CodyHart conducts the gas recalibration when required. The methane channel is zero calibrated in fresh air by CodyHart before the start of sampling at each site.

4.1 Surface methane monitoring results

Methane sampling was conducted on 5 March 2015. The maximum wind gust measured at the time of sampling was 2.87 m/s (10.33 km/hr), which slightly exceeded the recommended 10 km/hr whilst conducting methane testing. However, the average wind speed was 0.92 m/s (3.31 km/hr). Furthermore, a protector was attached over the head of the gas inlet to protect the inlet from wind. Nil methane emissions were detected on a grid pattern across the covered area of the landfill. Since March 2003, there have been no surface methane detections above the NSW EPA (1996) 500 ppm threshold value for surface methane monitoring (Table 1). Northern cell, gas vent internal methane emissions are being recorded as an Occupational Health and Safety (OHS) alert. Methane at 1,750 ppm was detected in the eastern landfill gas vent; and none was detected in the western vent.

Table 1: Surface methane detections to date – Uralla Landfill

Date	Sampling location	ppm by vol in air	% CH ₄ by volume in air	% LEL (Lower Explosive Limit)
	Note:	500ppm CH ₄ by vol in air	= 0.05% = CH ₄ by vol in air	1% LEL
10/05/00	nil detects			
16/08/00	F1, depression below southern face	610 ppm	0.061%	1.22% LEL
16/02/01	J1 in fissure on western face	910 ppm	0.091%	1.82% LEL
16/02/01	J2 in fissure on western face	388 ppm	0.039%	0.78% LEL
16/02/01	J3 in fissure on western face	1000 ppm	0.1%	2.00% LEL
19/09/01	F1, depression below southern face	680 ppm	0.068%	1.36% LEL
05/12/01	nil detects			
06/03/02	nil detects			
23/05/02	nil detects			
03/09/02	nil detects			
09/12/02	F2, small washout	210 ppm	0.021%	0.42% LEL
06/03/03	E1, small washout	4,200 ppm	0.42%	8.4% LEL
11/06/03	nil detects			
08/09/03	nil detects			
03/12/03	nil detects			
03/03/04	nil detects			
28/05/04	nil detects			
17/09/04	nil detects			
28/11/04	nil detects			
09/03/05	nil detects			
18/06/05	nil detects			
15/09/05	nil detects			
18/01/06	nil detects			
21/03/06	nil detects			
21/07/06	nil detects			
14/09/06	nil detects			
06/12/06	nil detects			
20/04/07	nil detects			
27/07/07	nil detects			
14/10/07	nil detects			
18/02/08	nil detects			
11/04/08	nil detects			
22/06/08	nil detects			
13/09/08	nil detects			
11/01/09	nil detects			
08/04/09	nil detects			
05/07/09	nil detects			
23/10/09	nil detects			
05/03/10	nil detects on surface; <1000 ppm in gas vents			
03/05/10	nil detects on surface; 700-3,200 ppm in gas vents			
18/07/10	nil detects on surface; 1,850 ppm western gas vent			
15/10/10	nil detects on surface; 1,100 ppm western gas vent			
24/02/11	nil detects on surface; 35,550 ppm western gas vent			
25/06/11	nil detects on surface; 1,700 ppm western gas vent			
20/08/11	nil detects on surface; nil detects in gas vents			
13/10/11	nil detects on surface; 230 ppm western gas vent			
22/01/12	nil detects (including gas vents)			
10/05/12	nil detects on surface; 44,750 ppm eastern gas vent			
13/08/12	nil detects on surface; 2,700 ppm eastern gas vent			
09/10/12	nil detects on surface; 560 ppm eastern gas vent			
21/01/13	nil detects on surface; 6,000 ppm eastern gas vent			

Table 1 continued

Date	Sampling location	ppm by vol in air	% CH ₄ by volume in air	% LEL (Lower Explosive Limit)
	Note:	500ppm CH ₄ by vol in air	= 0.05% = CH ₄ by vol in air	1% LEL
19/04/13	nil detects on surface; 5,350 ppm eastern gas vent, 410 ppm far western vent			
17/06/13	nil detects on surface; 6,000 ppm eastern gas vent			
11/10/13	nil detects on surface; 220 ppm eastern gas vent, 7500 ppm far western vent			
08/12/13	nil detects on surface; 0 ppm eastern gas vent, 1900 ppm far western vent			
19/03/14	nil detects on surface; 0 ppm eastern & western gas vents			
05/07/14	nil detects on surface; 2,640 ppm eastern gas vent, 4,650 ppm far western vent			
24/09/14	nil detects on surface; 33,010 ppm eastern vent			
03/12/14	nil detects on surface; 1,270 ppm western vent			
05/03/15	nil detects on surface; 1,750 ppm eastern vent			

Notes:

- 100% LEL for methane (CH₄) = 5% CH₄ by volume in air (50,000 ppm by volume in air). Methane may explode in confined spaces or ignite in open spaces if ignited when CH₄ is 5% to 15% by volume in air. Oxygen levels should never fall below 18% by volume in air (180,000 ppm by volume in air) and carbon dioxide levels should not exceed 0.5% by volume in air (5000 ppm by volume in air) for an 8 hour working day (Gendebien *et al.*, 1992:282-284).
- NSW EPA (1996) surface methane monitoring threshold value = 0.05% CH₄ by volume in air = 500 ppm by volume in air = 1% LEL.
- NSW EPA (1996) methane accumulation threshold value in buildings = 1.25% CH₄ by volume in air = 12,500 ppm by volume in air = 25% LEL.
- EPA NSW (1996:31) notification level for surface, subsurface and building methane monitoring is 1.25% methane by volume in air, that is, 12,500 ppm.

4.2 Building methane monitoring results

High and low level sections of the recycling facility and its surrounds were tested. All methane readings were zero (Table 2).

Low sections of the building were tested because traces of methane may be trapped amongst high proportions of carbon dioxide that is denser than air and therefore heavier. High sections of the building were tested because methane is less dense and therefore lighter than air. Enclosed areas under equipment and in cupboards and external ducting areas such as water pipe inlets were also tested.

Table 2: Recycling shed methane detections to date – Uralla Landfill

Date	Sampling location	ppm by vol in air	% CH ₄ by volume in air	% LEL (Lower Explosive Limit)
	Note:	12,500ppm CH ₄ by vol in air	= 1.25% = CH ₄ by vol in air	25% LEL
10/05/00	Nil methane detected in and around recycling shed.			
16/08/00	Nil methane detected in and around recycling shed.			
16/02/01	Nil methane detected in and around recycling shed.			
19/09/01	Nil methane detected in and around recycling shed.			
05/12/01	Nil methane detected in and around recycling shed.			
06/03/02	Nil methane detected in and around recycling shed.			
23/05/02	Nil methane detected in and around recycling shed.			
03/09/02	Nil methane detected in and around recycling shed.			
09/12/02	Nil methane detected in and around recycling shed.			
06/03/03	Nil methane detected in and around recycling shed.			
11/06/03	Nil methane detected in and around recycling shed.			
08/09/03	Nil methane detected in and around recycling shed.			
03/12/03	Nil methane detected in and around recycling shed.			
03/03/04	Nil methane detected in and around recycling shed.			
28/05/04	Nil methane detected in and around recycling shed.			
17/09/04	Nil methane detected in and around recycling shed.			
28/11/04	Nil methane detected in and around recycling shed.			
09/03/05	Nil methane detected in and around recycling shed.			
18/06/05	Nil methane detected in and around recycling shed.			
15/09/05	Nil methane detected in and around recycling shed.			
18/01/06	Nil methane detected in and around recycling shed.			
21/03/06	Nil methane detected in and around recycling shed.			
21/07/06	Nil methane detected in and around recycling shed.			
14/09/06	Nil methane detected in and around recycling shed.			
06/12/06	Nil methane detected in and around recycling shed.			
20/04/07	Nil methane detected in and around recycling shed.			
27/07/07	Nil methane detected in and around recycling shed.			
14/10/07	Nil methane detected in and around recycling shed.			
18/02/08	Nil methane detected in and around recycling shed.			
11/04/08	Nil methane detected in and around recycling shed.			
22/06/08	Nil methane detected in and around recycling shed.			
13/09/08	Nil methane detected in and around recycling shed.			
11/01/09	Nil methane detected in and around recycling shed.			
08/04/09	Nil methane detected in and around recycling shed.			
05/07/09	Nil methane detected in and around recycling shed.			
23/10/09	Nil methane detected in and around recycling shed.			
05/03/10	Nil methane detected in and around recycling shed.			
03/05/10	Nil methane detected in and around recycling shed.			
18/07/10	Nil methane detected in and around recycling shed.			
15/10/10	Nil methane detected in and around recycling shed.			
24/02/11	Nil methane detected in and around recycling shed.			
25/06/11	Nil methane detected in and around recycling shed.			
20/08/11	Nil methane detected in and around recycling shed.			
13/10/11	Nil methane detected in and around recycling shed.			
22/01/12	Nil methane detected in and around recycling shed.			
10/05/12	Nil methane detected in and around recycling shed.			
13/08/12	Nil methane detected in and around recycling shed.			
09/10/12	Nil methane detected in and around recycling shed.			
21/01/13	Nil methane detected in and around recycling shed.			
19/04/13	Nil methane detected in and around recycling shed.			
17/06/13	Nil methane detected in and around recycling shed.			

Table 2 continued.

Date	Sampling location	ppm by vol in air	% CH ₄ by volume in air	% LEL (Lower Explosive Limit)
		Note: 12,500ppm CH ₄ by vol in air	= 1.25% = CH ₄ by vol in air	25% LEL
11/10/13	Nil methane detected in and around recycling shed.			
08/12/13	Nil methane detected in and around recycling shed.			
19/03/14	Nil methane detected in and around recycling shed.			
05/07/14	Nil methane detected in and around recycling shed.			
24/09/14	Nil methane detected in and around recycling shed.			
03/12/14	Nil methane detected in and around recycling shed.			
05/03/15	Nil methane detected in and around recycling shed.			

Note: EPA NSW (1996:31) notification level for surface, subsurface and building methane monitoring is 1.25% methane by volume in air, that is, 12,500 ppm.

5. WATER SAMPLING FIELD WORK

Sampling was conducted on 5 March 2015 at the following sampling points:

- Groundwater well UW1, UW2 and UW3
- Leachate UL1 at the leachate dam.

There was no flow at surface water sampling point US1. The licence requires that US1 be sampled six-monthly when it is flowing.

The YSI and TPS field labs used by CodyHart Environmental to take field temperature, pH, electrical conductivity (EC), redox potential (Eh) and dissolved oxygen (DO) readings were calibrated so that sampling was conducted within 24 hours of calibration.

For groundwater sampling, the water level was measured using an electronic dip meter and noted on the field parameter form (Appendix A). A decontaminated, stainless steel, bladder pump attached to ¼ inch OD LDPE tubing for compressed air and ¼ inch OD LDPE tubing for water, was used to pump groundwater to the surface. A set pump position, discharge/refill rate and psi, and purge volume is used each sampling round to suit the well's hydraulic characteristics. The aim is to minimise water level drawdown in a method called 'low-flow' groundwater sampling. Minimal drawdown means that the groundwater is less disturbed and samples are more likely to be representative of true groundwater quality. A flow-through cell is used to house field probes for measuring field analytes (EC/Temp, pH, Eh and DO) values (Appendix A). When purging was complete, sample containers were filled generally from the most volatile analyte to be sampled to the least. Metals and total organic carbon (TOC) samples were not filtered because the groundwater was clear.

After collection, the samples were cooled in an iced esky. They were later transported in an iced esky to reach the ALS laboratory well within holding time expiry.

An anemometer, thermometer and compass were used to determine air temperature, wind speed and wind direction and their values were noted on the field parameter form (Appendix A).

6. WATER MONITORING QUALITY ASSURANCE

A number of techniques are used, the aim being to assure a high quality of sampling and analyses.

- Sampling procedures documented by CodyHart Environmental were followed. These include tests of deionised water and field blanks to assure proper decontamination of equipment.
- Relative percentage differences (RPDs) of field analytes were reviewed and noted if the variance was greater than 20%. Only the DO in UW2 varied greater than 20% RPD. Dissolved oxygen (DO) and redox potential (Eh) tend to vary more than other field analytes when water is extracted from its normal environment.
- Chain of custody forms were completed to document the lack of tampering with sample containers and for the ALS laboratory to advise of sample receipt. (Appendix B)
- Calibration of the field labs was documented. A certificate is provided in Appendix B.
- Australian Laboratory Services (ALS), Stafford, Brisbane, conducted the majority of laboratory analyses. They are a global, Australian company who analyses a broad range of analytes and provides good service. In addition to the certificate of analysis and analytical results, ALS provide quality control reports for laboratory duplicates, method blank and laboratory control samples, matrix spikes, and a QA/QC Compliance Assessment for DQO Reporting that summarises the quality assurance findings (Appendix C). There were minor QA/QC issues. The recovery of one organophosphorus pesticide laboratory control spike was less than the lower control limit. No laboratory control duplicates or matrix spikes were conducted for pesticides. There were no other untoward QC issues.
- CodyHart conducted laboratory analyses (yellow sheet, Appendix C) that are best conducted on fresh samples – for alkalinity using the EPA approved method, and for free CO₂ using the APHA 4500-CO₂ C titration method.
- A duplicate sample (UD) was taken at well UW3 as a split sample, that is, two samples were taken for each analyte group from the same zip lock bag used to collect the sample as it discharged from the hose. It was sent to the laboratory to test concentrations of sulphate, chloride, iron and manganese, arsenic, nitrogen compounds, and total organic carbon (TOC). The laboratory was not given the time of sampling or the duplicate sampling point name. This assists impartial analysis because laboratory personnel do not know the duplicate's sampling point origin. All values were within the ALS quality control duplicate criteria except for total kjeldahl nitrogen whose concentrations were 3.3 mg/L and 5.2 mg/L.

7. WATER QUALITY RESULTS TO DATE

Complete historical results for each sampling point are provided in the following A4 portrait tables. A quick comparison of each analyte's historical results can be made by looking down each column. Appendix C has a copy of the detailed laboratory results for this monitoring round which include laboratory quality control reports. CodyHart laboratory results follow the QC reports.

8. GROUNDWATER RESULTS

Table 3: Analytes A – Groundwater monitoring well UW1

Measure	Field analytes					Laboratory leachate indicator analytes													
	DO mg/L	EC µS/cm	pH 1-14	Eh mV	Temp °C	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	SO ₄ mg/L	Cl mg/L	B mg/L	Fe mg/L	Mn mg/L	As mg/L	Br mg/L	Cu mg/L	Zn mg/L	Cr mg/L
Reporting Limit	0.01	1	0.01	1	0.1	1	1	1	1	1	1	0.2	0.01	0.01	0.1	0.1	0.001	0.001	0.01
19/09/01	0.94	1366	6.52	+133	18.2	80	56	103	12	176	146	<0.2	0.40	1.47	0.002	0.7	0.033	0.176	<0.01
05/12/01	1.62	1213	6.49	+83	24.3	71	49	87	11	135	117	<0.1	0.19	1.35	0.003	0.5	0.074	0.376	<0.01
06/03/02	3.50	1183	6.61	+119	19.4	73	52	85	12	118	108	<0.1	0.29	1.47	0.003	0.4	0.010	0.233	<0.001
23/05/02	0.93	1061	6.78	+83	17.1	69	51	80	12	94	99	<0.1	0.20	1.09	0.004	0.5	0.029	0.191	0.004
04/09/02	1.92	823	6.77	+290	17.9	55	45	61	11	37	79	<0.1	0.15	0.09	0.002	0.4	0.004	0.269	<0.001
09/12/02	0.93	912	6.63	+267	22.9	56	44	66	11	49	93	<0.1	0.25	0.43	0.002	0.4	0.009	0.289	0.001
07/03/03	4.95	807	7.20	+210	22.4	49	40	59	12	36	78	<0.1	0.09	0.23	0.002	0.6	0.019	0.109	0.001
11/06/03	0.77	920	6.94	+121	16.6	58	48	71	12	59	90	<0.1	0.07	0.28	0.002	0.4	<0.002	0.020	<0.001
07/09/03	1.32	924	6.82	+92	18.9	62	51	72	11	96	79	<0.1	0.07	0.27	0.002	0.3	0.003	0.014	<0.001
03/12/03																			
03/03/04	1.88	916	6.85	+57	17.2														
28/05/04																			
17/09/04	1.58	822	6.79	+96	20.1														
28/11/04																			
09/03/05	2.00	832	6.66	+121	20.2														
18/06/05																			
15/09/05	1.97	784	6.77	+144	17.9														
25/11/05																			
21/03/06	1.89	788	6.85	+92	20.6														
17/07/06																			
14/09/06	2.80	778	6.69	+181	19.0														
06/12/06																			
20/04/07	2.28	802	6.84	+131	20.0														
27/06/07																			
12/10/07	1.29	826	6.79	+124	22.8														
20/01/08																			
11/04/08	1.83	842	6.79	+106	21.7														
21/06/08																			
13/09/08	1.90	857	6.82	+112	20.3														
11/01/09																			
08/04/09	2.67	866	6.99	+92	16.0														
04/07/09																			
23/10/09	1.89	917	6.71	+156	23.1														
05/03/10																			
03/05/10	2.20	954	6.83	+134	18.2														
15/07/10																			
15/10/10	2.22	978	6.71	+122	20.4														
24/02/11																			
25/06/11	2.57	1001	6.81	+174	18.2														
20/08/11																			
13/10/11	2.74	1060	6.81	+236	17.7														
22/01/12																			
10/05/12	3.34	1109	6.71	+119	24.7														
13/08/12																			
09/10/12	3.01	1149	6.63	+91	19.2														
21/01/13																			
19/04/13	3.74	1213	6.67	+222	18.7														
17/06/13																			
11/10/13	3.64	1238	6.67	+161	21.8														
08/12/13																			
19/03/14	2.38	1349	6.40	+94	24.2														
05/07/14																			
24/09/14	3.26	1412	6.64	+75	21.8														
03/12/14																			
05/03/15	3.15	1420	6.74	+190	20.8														

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; Eh = redox potential; Temp = Temperature; Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; SO₄ = Sulphate; Cl = Chloride; B = Boron; Fe = Iron; Mn = Manganese; As = Arsenic; Br = Bromine; Cu = Copper; Zn = Zinc; Cr = Cr⁶⁺ Hexavalent Chromium first two sampling rounds, Total Chromium thereafter.

Table 4: Analytes B and water levels – Groundwater monitoring well UW1

Measure	Nutrients							Carbon						Water levels	
	NH ₃ as N mg/L	TKN as N mg/L	NO _x as N mg/L	NO ₂ as N mg/L	NO ₃ as N mg/L	TotN mg/L	Tot P mg/L	Alk mg/L	Free CO ₂ mg/L	CO ₂ + Alk mg/L	TIC mg/L	TOC mg/L	TC mg/L	D m	RL m
Reporting Limit	0.01	0.01	0.01	0.001	0.01	0.1	0.01	1	1	1	1	1	1	0.01	0.01
19/09/01	0.06	0.06	0.01	<0.001	0.01	0.1	0.36	307				7	24.32	78.79	
05/12/01	0.08	0.4	0.02	<0.001	0.02	0.4		313				4	24.09	79.02	
06/03/02	0.05	6.67	0.02	0.005	0.01	6.7	0.31	305				48	23.99	79.12	
23/05/02	0.05	0.4	0.03	<0.001	0.03	0.4	0.63	317				<1	23.85	79.26	
04/09/02	0.04	<0.1	4.12	0.007	4.11	4.1	0.36	310				21	23.69	79.42	
09/12/02	0.01	0.3	0.03	<0.001	0.03	0.3	0.12	316	75			4	23.57	79.54	
07/03/03	0.02	<0.1	0.05	0.016	0.03	<0.1	0.17	446	37	98	5	7	12	23.48	79.63
11/06/03	0.02	0.1	0.06	0.007	0.05	0.2	0.40	315	94	88	52	<1	47	23.39	79.72
07/09/03	0.02	0.9	0.07	0.001	0.07	1.0	0.32	330	92	90	62	8	70	23.26	79.85
03/12/03														23.18	79.93
03/03/04														23.16	79.95
28/05/04														23.12	79.99
17/09/04								380	92	100				22.92	80.19
28/11/04														22.84	80.27
09/03/05								280	94	81				22.77	80.34
18/06/05														22.65	80.46
15/09/05								303	91	84				22.56	80.55
25/11/05														22.46	80.65
21/03/06								288	82	79				22.47	80.64
17/07/06														22.25	80.86
14/09/06								283	82	78				22.33	80.78
06/12/06														22.29	80.82
20/04/07								300	67	77				22.05	81.06
27/06/07														21.93	81.18
12/10/07								288	76	77				21.89	81.22
20/01/08														21.74	81.37
11/04/08								281	50	69				21.83	81.28
21/06/08														21.83	81.28
13/09/08								273	73	74				21.76	81.35
11/01/09														21.63	81.48
08/04/09								290	88	81				21.63	81.48
04/07/09														21.50	81.61
23/10/09								267	88	77				21.41	81.70
05/03/10														21.22	81.89
03/05/10								267	73	72				21.23	81.88
15/07/10														21.09	82.02
15/10/10								250	88	73				21.03	82.08
24/02/11														20.91	82.20
25/06/11								242	73	68				20.91	82.20
20/08/11														20.81	82.30
13/10/11								258	79	72				20.71	82.40
22/01/12														20.64	82.47
10/05/12								263	73	72				20.58	82.53
13/08/12														20.49	82.62
09/10/12								243	73	68				20.39	82.72
21/01/13														20.30	82.81
19/04/13								260	73	71				20.21	82.90
17/06/13														20.12	82.99
11/10/13								237	82	69				20.19	82.92
08/12/13														20.13	82.98
19/03/14								240	82	70				20.10	83.01
05/07/14														19.95	83.16
24/09/14								233	76	67				19.92	83.19
03/12/14														19.91	83.20
05/03/15								250	88	73				19.77	83.34

Abbreviations: NH₃ = Ammonia as a measure of ammonium ions; TKN = Total Kjeldahl Nitrogen; NO_x = Nitrite + Nitrate; NO₂ = Nitrite; NO₃ = Nitrate; TotN = Total Nitrogen; Tot P = Total Phosphorus; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; Free CO₂ = Free Carbon Dioxide; Unfiltered C of (Alk + CO₂) = 12/61 Alk + 12/44 CO₂; TIC = Total Inorganic Carbon; TOC = Total Organic Carbon; TC = Total Carbon; D = Depth to water from top of internal well casing; RL = water level converted to Reduced Level relative to 100 m BMG (top of PVC casing RL = 103.111m).

Note: Approximate Grid Coordinates for UW1: E 354250; N 6607900.

Table 5: Analytes A – Groundwater monitoring well UW2

UW2 Measure	Field analytes					Laboratory leachate indicator analytes													
	DO mg/L	EC µS/cm	pH 1-14	Eh mV	Temp °C	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	SO ₄ mg/L	Cl mg/L	As mg/L	Mn mg/L	Fe mg/L	Br mg/L	Cu mg/L	Zn mg/L	Cr mg/L	B mg/L
Reporting Limit	0.01	1	0.01	1	0.1	1	1	1	1	1	1	0.1	0.01	0.01	0.1	0.001	0.001	0.01	0.2
17/09/01	insufficient groundwater					Well needed further development													
05/12/01	2.68	1249	6.71	+133	17.3	insufficient groundwater													
06/03/02	0.55	1257	6.65	+154	18.9	59	58	118	13	82	177	0.002	0.29	0.02	1.8	0.021	0.082	<0.001	<0.1
23/05/02	0.80	1194	7.03	+112	16.3	62	62	122	14	83	186	0.024	0.16	<0.01	1.6	0.027	0.221	0.005	<0.1
03/09/02	1.51	1194	6.86	+235	18.9	59	60	117	13	75	165	<0.001	0.12	0.04	1.7	0.022	0.122	<0.001	<0.1
09/12/02	2.12	1147	6.91	+338	19.1	54	56	104	12	71	166	<0.001	0.02	<0.01	1.5	0.018	0.128	<0.001	<0.1
06/03/03	1.59	1162	7.04	+218	17.6	56	58	108	13	83	695	0.001	0.02	<0.01	1.4	0.073	0.413	0.001	<0.1
11/06/03	1.68	1060	6.85	+156	16.2	56	60	108	12	82	141	0.003	0.07	<0.01	1.3	0.007	0.025	<0.001	<0.1
07/09/03	1.84	1084	7.07	+175	17.2	60	63	119	12	84	119	0.002	0.02	0.01	1.0	0.004	0.014	<0.001	<0.1
03/12/03																			
03/03/04	2.64	1022	7.07	-64	18.4					81.4	109	0.002	0.02	0.22					
28/05/04																			
16/09/04	3.50	999	7.00	+120	16.1					79	104	0.001	0.04	0.06					
28/11/04																			
09/03/05	3.48	988	6.91	+122	21.2					74	88	<0.001	0.02	<0.05					
18/06/05																			
15/09/05	3.48	926	7.00	+215	17.7					69	86	0.002	0.03	<0.05					
25/11/05																			
21/03/06	3.77	919	7.30	+40	15.9					67	70	0.002	0.05	0.17					
17/07/06																			
14/09/06	4.97	944	7.22	+124	15.0					58	75	0.002	0.04	0.37					
06/12/06																			
20/04/07	4.08	917	7.09	+168	17.2					52	79	<0.001	0.05	0.17					
27/06/07																			
12/10/07	4.35	1060	7.27	+109	16.0					49	75	0.003	0.23	1.45					
20/01/08																			
11/04/08	2.77	956	6.97	+126	19.9					47	73	0.002	0.09	0.25					
21/06/08																			
13/09/08	2.23	1001	7.01	+135	17.4					45	79	<0.001	0.06	0.10					
11/01/09																			
07/04/09	4.04	953	7.13	+110	16.2					43	81	0.003	0.06	0.21					
04/07/09																			
23/10/09	2.17	1007	6.92	+148	16.8					44	81	0.002	0.062	0.27					
05/03/10																			
03/05/10	3.15	1013	6.96	+147	17.0					40	85	0.003	0.039	0.23					
15/07/10																			
15/10/10	3.05	1032	6.97	+113	16.8					37	107	0.003	0.077	0.42					
24/02/11																			
25/06/11	2.49	1230	6.87	+145	15.3					34	136	<0.001	0.005	<0.05					
20/08/11																			
13/10/11	4.59	1363	6.93	+257	15.9					37	157	0.004	0.085	0.61					
22/01/12																			
10/05/12	2.07	1442	6.64	+145	17.1					50	162	0.004	0.121	0.55					
13/08/12																			
09/10/12	3.35	1455	6.69	+167	16.2					31	174	0.002	0.101	0.44					
21/01/13																			
19/04/13	1.11	1450	6.70	+234	16.0					31	170	0.004	0.057	0.28					
17/06/13																			
11/10/13	1.05	1390	6.86	+139	16.6					28	180	0.004	0.058	0.17					
08/12/13																			
19/03/14	4.50	1411	6.69	+97	17.1					25	159	0.003	0.018	0.11					
05/07/14																			
24/09/14	4.85	1419	6.95	+102	16.7					26	149	0.004	0.066	0.55					
03/12/14																			
05/03/15	2.32	1441	6.70	+50	18.0					24	154	0.004	0.017	0.10					

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; Eh = redox potential; Temp = Temperature; Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; SO₄ = Sulphate; Cl = Chloride; As = Arsenic; Mn = Manganese; Fe = Iron; Br = Bromine; Cu = Copper; Zn = Zinc; Cr = Total Chromium; B = Boron; Bold = non-filtered.

Table 6: Analytes B and water levels – Groundwater monitoring well UW2

UW2 Measure	Nutrients							Carbon						Water levels		
	NH ₃ as N mg/L	NO _x as N mg/L	TKN as N mg/L	TotN mg/L	NO ₂ as N mg/L	NO ₃ as N mg/L	Tot P mg/L	Alk mg/L	Free CO ₂ mg/L	CO ₂ + Alk mg/L	TIC mg/L	TOC mg/L	TC mg/L	D m	RL m	
Reporting Limit	0.01	0.01	0.01	0.1	0.001	0.01	0.01	1	1	1	1	1	1	0.01	0.01	
17/09/01	insufficient groundwater														11.49	76.37
05/12/01	0.08	0.04	2.0	2.0	0.008	0.03		257						11.44	76.42	
06/03/02	0.04	0.15	<0.1	0.2	0.001	0.15	0.13	290				48		11.45	76.41	
23/05/02	0.01	0.13	0.4	0.5	0.001	0.13	<0.01	318				<1		11.48	76.38	
03/09/02	0.02	0.17	0.1	0.3	0.004	0.17	0.07	338				41		11.53	76.33	
09/12/02	<0.01	0.25	0.4	0.6	0.005	0.24	0.44	341	70			7		11.57	76.29	
06/03/03	0.26	0.24	0.3	0.5	0.003	0.24	0.09	345	85	91	76	12	88	11.61	76.25	
11/06/03	0.02	0.32	<0.1	0.3	0.004	0.32	0.11	346	67	86	58	3	61	11.51	76.35	
07/09/03	0.01	0.35	1.4	1.8	0.002	0.35	0.28	368	67	91	58	8	66	11.44	76.42	
03/12/03														11.42	76.44	
03/03/04		0.30	0.8	1.1				445	63	109	85	8	93	11.39	76.47	
28/05/04														11.45	76.41	
16/09/04		0.30	1.3	1.6				410	73	101	5	88	93	11.32	76.54	
28/11/04														11.29	76.57	
09/03/05		0.218	0.3	0.5				340	70	86		9		11.28	76.58	
18/06/05														11.33	76.53	
15/09/05		0.410	<0.1	0.4				352	62	86		4		11.26	76.60	
25/11/05														11.19	76.67	
21/03/06		0.424	0.4	0.8				348	67	87		4		11.10	76.76	
17/07/06														11.08	76.78	
14/09/06		0.747	0.1	0.9				343	73	87		4		11.13	76.73	
06/12/06														11.09	76.77	
20/04/07		0.271	0.2	0.5				351	56	84		6		11.07	76.79	
27/06/07														11.00	76.86	
12/10/07		0.762	0.4	1.1				347	62	85		4		11.95	75.91	
20/01/08														10.72	77.14	
11/04/08		0.282	0.2	0.5				358	47	83		4		10.80	77.06	
21/06/08														10.83	77.03	
13/09/08		0.370	0.8	1.1				367	73	92		<1		10.82	77.04	
11/01/09														10.74	77.12	
07/04/09		0.520	0.9	1.4				420	73	103		7		10.75	77.11	
04/07/09														10.74	77.12	
23/10/09		0.320	0.3	0.6				355	73	90		15		10.77	77.09	
05/03/10														10.69	77.17	
03/05/10		0.61	0.3	0.9				355	73	90		6		10.69	77.17	
15/07/10														10.65	77.21	
15/10/10		0.14	0.2	0.3				355	103	98		8		10.56	77.30	
24/02/11														10.38	77.48	
25/06/11		0.10	0.4	0.5				430	103	113		34		10.28	77.58	
20/08/11														10.21	77.65	
13/10/11		0.06	0.3	0.4				480	111	125		1		10.14	77.72	
22/01/12														9.99	77.87	
10/05/12		0.05	0.5	0.6				600	123	152		3		9.90	77.96	
13/08/12														9.84	78.02	
09/10/12		0.09	0.5	0.6				500	117	130		6		9.81	78.05	
21/01/13														9.83	78.03	
19/04/13		0.11	0.7	0.8				567	132	148		3		9.83	78.03	
17/06/13														9.86	78.00	
11/10/13		0.06	0.5	0.6				561	132	146		3		9.84	78.02	
08/12/13														9.93	77.93	
19/03/14		0.06	0.5	0.6				548	117	140		22		9.94	77.92	
05/07/14														9.88	77.98	
24/09/14		0.12	0.5	0.6				540	88	130		14		9.90	77.96	
03/12/14														9.93	77.93	
05/03/15		0.06	0.6	0.7				533	123	139		12		9.84	78.02	

Abbreviations: NH₃ = Ammonia as a measure of ammonium ions; NO_x = Nitrite + Nitrate; TKN = Total Kjeldahl Nitrogen; TotN = Total Nitrogen; NO₂ = Nitrite; NO₃ = Nitrate; Tot P = Total Phosphorus; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; Free CO₂ = Free Carbon Dioxide; Unfiltered C of (Alk + CO₂) = 12/61 Alk + 12/44 CO₂; TIC = Total Inorganic Carbon; TOC = Total Organic Carbon; TC = Total Carbon; D = Depth to water from top of internal well casing; RL = water level converted to Reduced Level relative to 100m BMG (top of PVC casing RL = 87.862 m); Bold = non-filtered.

Note: Approximate Grid Coordinates for UW2: E 353850; N 6607750.

Table 7: Analytes A – Groundwater monitoring well UW3

UW3 Measure Reporting Limit	Field analytes					Laboratory leachate indicator analytes															Water Levels	
	DO mg/L	EC µS/cm	pH 1-14	Eh Mv	Temp °C	SO ₄ mg/L	Cl mg/L	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	As mg/L	Mn mg/L	Fe mg/L	B mg/L	Br mg/L	Cu mg/L	Zn mg/L	Cr mg/L	D m	RL m	
17/09/01	5.10	3433	6.45	+250	16.2	191	457	234	195	98	16	0.014	0.05	0.01	<0.2	1.3	0.070	0.429	<0.01	12.07	78.56	
05/12/01	5.76	2910	6.44	+220	20.2	218	392	223	186	96	15	0.017	0.08	<0.01	<0.1	1.2	0.079	0.329	<0.01	12.00	78.63	
06/03/02	5.16	2869	6.36	+239	17.7	219	379	220	187	94	15	0.022	0.05	<0.01	<0.1	1.2	0.022	0.141	0.001	12.07	78.56	
23/05/02	4.60	2857	6.55	+143	17.3	215	424	216	187	95	16	0.001	0.05	<0.01	<0.1	1.1	0.024	0.175	0.004	12.08	78.55	
03/09/02	5.83	2740	6.53	+208	16.6	221	370	210	184	96	16	0.024	0.03	<0.01	<0.1	1.2	0.019	0.128	<0.001	12.02	78.61	
10/12/02	5.93	2588	6.56	+299	15.6	201	362	195	166	88	15	0.022	0.05	0.03	<0.1	1.1	0.015	0.450	0.005	12.06	78.57	
07/03/03	5.45	2456	6.56	+226	17.8	237	357	207	169	93	16	0.030	0.07	<0.01	<0.1	1.3	0.038	0.285	0.001	12.14	78.49	
11/06/03	4.83	2490	6.73	+178	15.5	246	340	202	171	93	15	0.032	0.04	<0.01	<0.1	1.0	0.005	0.039	<0.001	12.21	78.42	
07/09/03	5.12	2424	6.62	+198	16.2	292	280	206	178	96	15	0.026	0.03	<0.01	<0.1	0.8	0.003	0.030	<0.001	12.21	78.42	
03/12/03	5.22	2338	6.66	+234	18.4	283	294					0.029	0.03	<0.01						12.24	78.39	
03/03/04	5.87	2220	6.62	+173	17.1	554	110					0.025	0.02	<0.01						12.33	78.30	
28/05/04	3.47	2435	6.72	+243	14.3	672	184					0.022	0.04	<0.01						12.06	78.57	
17/09/04	6.30	2324	6.66	+185	15.3	499	257					0.025	0.03	0.04						12.36	78.27	
28/11/04	4.73	2256	6.54	+184	20.2	501	219					0.027	0.04	0.01						12.35	78.28	
09/03/05	3.88	2215	6.47	+191	20.1	562	198					0.028	0.04	<0.05						12.37	78.26	
18/06/05	5.59	2137	6.60	+197	12.4	364	251					0.024	0.02	0.09						12.38	78.25	
15/09/05	5.44	2108	6.54	+246	17.5	532	203					0.032	0.03	<0.05						12.40	78.23	
25/11/05	5.26	2272	6.87	+235	15.5	518	175					0.031	0.04	<0.05						12.41	78.22	
21/03/06	7.64	1364	6.68	+151	17.8	270	146					0.024	<0.01	<0.05						12.43	78.20	
17/07/06	5.66	1939	6.50	+202	13.1	407	184					0.032	<0.01	<0.05						12.34	78.29	
14/09/06	5.52	1883	6.56	+192	15.7	419	196					0.029	0.01	<0.05						12.47	78.16	
06/12/06	4.73	1965	6.66	+264	18.6	353	198					0.029	0.02	<0.05						12.41	78.22	
20/04/07	5.66	1820	6.55	+174	20.0	384	203					0.031	0.04	<0.05						12.40	78.23	
27/06/07	5.81	1817	6.77	+145	7.7	507	148					0.030	0.02	<0.05						12.31	78.32	
12/10/07	4.21	1608	6.80	+130	17.7	441	136					0.044	<0.01	<0.05						12.32	78.31	
20/01/08	2.92	1084	6.50	+72	16.4	188	160	83	72	62	8	0.030	0.02	0.09						12.13	78.50	
11/04/08	2.81	1160	6.47	+119	18.6	182	148	87	73	61	9	0.031	<0.01	<0.05						12.23	77.40	
21/06/08	2.52	1095	6.60	+162	12.8	161	160	74	61	53	8	0.033	0.02	<0.05						12.28	78.35	
13/09/08	1.88	1242	6.50	+138	18.1	199	153	88	72	60	9	0.030	0.01	0.01						12.26	78.37	
11/01/09	2.06	1058	6.45	+140	21.0	142	135	70	58	55	8	0.036	0.01	<0.05						12.18	78.45	
07/04/09	2.49	1060	6.52	+119	17.6	154	168	77	56	54	7	0.037	<0.01	<0.05						12.21	78.42	
04/07/09	2.76	1415	6.49	+144	12.4	264	154	94	78	59	9	0.034	0.001	0.08						12.13	78.50	
23/10/09	4.48	1736	6.51	+162	18.8	226	212	127	109	74	10	0.048	0.002	0.23						12.06	78.57	
05/03/10	3.86	1470	6.53	+141	18.0	365	155	117	95	68	9	0.039	0.002	<0.05						11.88	78.75	
03/05/10	3.87	1538	6.53	+152	17.8	320	150	113	93	63	9	0.050	<0.001	<0.05						11.88	78.75	
15/07/10	4.02	1553	6.62	+138	13.9	343	169	118	97	68	9	0.049	<0.001	0.07						11.72	78.91	
15/10/10	3.11	1170	6.38	+174	17.0	161	165	82	70	66	7	0.044	0.002	<0.05						11.47	79.16	
24/02/11	2.28	1187	6.41	+164	20.2	124	173	77	62	66	8	0.047	<0.001	0.32						10.95	79.68	
25/06/11	5.73	1624	6.46	+198	16.0	256	209	127	102	72	10	<0.001	0.010	<0.05						10.67	79.97	
20/08/11	5.20	1899	6.55	+184	13.3	228	230	140	116	77	8	0.051	0.002	<0.05						10.51	80.12	
13/10/11	4.86	1832	6.50	+224	16.1	349	203	141	116	74	12	0.051	0.001	<0.05						10.39	80.24	
22/01/12	4.67	1617	6.44	+152	18.0	310	161	116	93	66	8	0.052	0.005	<0.05						10.09	80.54	
10/05/12	4.76	1882	6.47	+166	17.8	284	229	140	120	77	9	0.061	0.003	<0.05						12.01	78.62	
13/08/12	4.75	1899	6.50	+187	15.7	296	230	146	116	78	10	0.054	0.004	<0.05						9.46	81.17	
09/10/12	3.39	1958	6.38	+157	17.2	233	254	154	124	79	11	0.056	0.008	0.16						9.21	81.42	
21/01/13	2.28	1906	6.35	+191	21.8	150	275	132	109	75	10	0.063	0.008	<0.05						9.02	81.61	
19/04/13	2.10	1903	5.95	+140	15.7	157	285	136	115	72	10	0.054	0.007	0.06						8.88	81.75	
17/06/13	2.02	1955	6.21	+130	9.7	139	271	157	126	92	12	0.046	0.011	<0.05						8.80	81.83	
11/10/13	1.39	1655	6.35	+144	20.4	144	307	142	120	83	12	0.046	0.021	<0.05						8.80	81.83	
08/12/13	0.50	1779	6.29	+145	16.4	117	268	139	117	83	13	0.050	0.007	<0.05						8.92	81.71	
19/03/14	2.23	1884	6.15	+130	17.0	127	280	152	124	84	11	0.052	0.010	<0.05						9.04	81.59	
05/07/14	0.00	1900	6.31	+158	14.3	137	280	144	126	85	12	0.052	0.011	<0.05						9.06	81.57	
24/09/14	1.13	1892	6.32	+128	14.7	136	274	145	124	85	12	0.055	0.016	<0.05						9.22	81.41	
03/12/14	1.40	2011	6.42	+132	16.8	140	267	145	120	81	10	0.048	0.015	<0.05						9.29	81.34	
05/03/15	1.33	1897	6.24	+68	20.5	131	267	142	118	87	11	0.049	0.030	<0.05						9.30	81.33	

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; Eh = redox potential; Temp = Temperature; SO₄ = Sulphate; Cl = Chloride; Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; As = Arsenic; Mn = Manganese; Fe = Iron; B = Boron; Br = Bromine; Cu = Copper; Zn = Zinc; Cr = Cr^{VI} Hexavalent Chromium first two sampling rounds, Total Chromium thereafter; D = Depth to water from top of internal well casing; RL = water level converted to Reduced Level relative to 100m BMG (top of PVC casing RL = 90.627m); Bold = non-filtered.

Table 8: Analytes B and water levels – Groundwater monitoring well UW3

UW3 Measure	Nutrients							Carbon						Volatile Organic Compounds mg/L	Faecal Coliforms orgs/100ml	Caffeine mg/L
	NH ₃ as N mg/L	NO _x as N mg/L	TKN as N mg/L	TotN mg/L	NO ₂ as N mg/L	NO ₃ as N mg/L	Tot P mg/L	Alk mg/L	Free CO ₂ mg/L	CO ₂ + Alk mg/L	TIC mg/L	TOC mg/L	TC mg/L			
Reporting Limit	0.01	0.01	0.01	0.1	0.01	0.01	0.01	1	1	1	1	1	1	0.005 – 0.05	2	0.002
17/09/01	0.09	159.0	0.09	159.1	0.025	159.0	0.25	247				8				
05/12/01	<0.01	191.0	0.2	191.0	0.023	191.0		229				5		nil detected		
06/03/02	<0.01	159.0	19.8	179.0	0.008	159.0	0.15	227				51			<2	
23/05/02	<0.01	155.0	<0.1	155.0	0.006	155.0	0.04	233				<1				
03/09/02	0.02	140.0	<0.1	140.0	0.001	140.0	0.09	238				37				<LOR
10/12/02	0.02	173.0	<0.1	173.0	0.004	173.0	0.15	238	123	80		9			<2	<LOR
07/03/03	0.02	140.0	<0.1	140.0	0.022	140.0	0.05	238	133	83	5	9	14		<10	<LOR
11/06/03	0.01	142.0	<0.1	142.0	0.007	142.0	0.13	237	109	76	50	6	56	nil detected		
07/09/03	0.02	119.0	<0.1	119.0	0.009	119.0	0.12	253	113	81	46	8	54	nil detected		
03/12/03		127.0	<0.1	127.0				260	126	86	<1	8	8	nil detected		
03/03/04		82.4	<0.1	82.4				280	117	97	56	3	59			
28/05/04		82.4	<0.1	82.5				246	120	81	53	9	61			
17/09/04		110.0	<0.1	110.0				257	125	85	1	56	57			
28/11/04		83.7	<0.1	83.7				255	130	86	74	14	88			
09/03/05		80.9	<0.1	80.9				200	114	70		8				
18/06/05		98.2	0.1	98.3				227	106	74		3				
15/09/05		72.6	<0.1	72.6				214	117	74		5				
25/11/05		60.4	<0.1	60.4				313	103	90		9				
21/03/06		30.2	<0.1	30.2				188	85	60		2				
17/07/06		70.9	<0.1	70.9				206	109	70		3				
14/09/06		74.6	1.9	76.5				207	117	73		3				
06/12/06		59.3	<0.1	59.3				259	98	78		2				
20/04/07		57.7	0.6	58.2				203	94	66		6				
27/06/07		44.6	<0.1	44.6				187	103	65		2				
12/10/07		28.5	0.5	29.1				183	88	60		2				
20/01/08		13.8	0.7	14.6				171	97	60		1				
11/04/08		16.9	<0.1	16.9				158	67	49		2				
21/06/08		13.2	3.7	16.9				153	76	51		3				
13/09/08		11.5	1.9	13.4				157	81	53		2				
11/01/09		10.8	4.3	15.2				170	103	62		4				
07/04/09		14.2	2.2	16.3				177	95	61		<1				
04/07/09		14.0	<0.1	14.0				161	103	60		10				
23/10/09		5.66	1.1	6.7				237	103	75		11				
05/03/10		22.2	2.0	24.2				188	103	65		8				
03/05/10		33.1	4.5	37.6				154	88	54		4				
15/07/10		28.4	<0.1	28.4				177	97	61		9				
15/10/10		6.78	<0.1	6.8				167	117	65		5				
23/02/11		19.6	0.5	20.1				173	117	66		2				
25/06/11		34.5	0.4	34.9				243	132	84		11				
20/08/11		42.4	<0.1	42.4				293	176	106		16				
13/10/11		41.8	0.5	42.3				260	144	90		5				
22/01/12		21.8	0.4	22.2				188	110	67		<1				
10/05/12		31.8	3.7	35.5				323	235	128		2				
13/08/12		1.54	4.1	5.6				323	249	131		<1				
09/10/12		29.5	1.8	31.3				373	249	141		5				
21/01/13		29.9	0.8	30.7				410	264	153		<1				
19/04/13		23.5	2.5	26.0				423	235	147		<1				
17/06/13		23.0	2.1	25.1				410	308	165		34				
11/10/13		23.4	3.8	27.2				450	264	161		<1				
08/12/13		22.3	3.0	25.3				467	343	185		63				
19/03/14		21.2	4.4	25.6				473	323	181		19				
05/07/14		22.0	1.6	23.6				467	343	185		14				
24/09/14		22.5	4.2	26.7				480	340	187		13				
03/12/14		20.4	2.4	22.8				474	279	169		12				
05/03/15		19.3	3.3	22.6				467	249	160		<1				

Abbreviations: NH₃ = Ammonia as a measure of ammonium ions; NO_x = Nitrite + Nitrate; TKN = Total Kjeldahl Nitrogen; NO₂ = Nitrite; NO₃ = Nitrate; TotN = Total Nitrogen; Tot P = Total Phosphorus; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; Free CO₂ = Free Carbon Dioxide; Unfiltered C of (Alk + CO₂) = 12/61 Alk + 12/44 CO₂; TIC = Total Inorganic Carbon; TOC = Total Organic Carbon; TC = Total Carbon; LOR = Level of reporting; Bold = unfiltered.

Note: Approximate Grid Coordinates for UW3: E 353887; N 6607875.

8.1 Surface water results

Table 9: Field analytes, water level, nutrients, carbon – Surface water sampling point US1

US1	Field analytes					Water Flow depth		Nutrients						Carbon						
	DO	EC	pH	Eh	Temp	D	Flow	NH ₃	NO _x	TKN	TotN	TotP	NO ₂	NO ₃	Alk	Free CO ₂	CO ₂ + Alk	TIC	TOC	TC
Measure	mg/L	µS/cm	1-14	mV	°C	m	kL/day	as N mg/L	as N mg/L	as N mg/L	mg/L	mg/L	as N mg/L	as N mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Reporting Limit	0.01	1	0.01	1	0.1	0.01	0.01	0.01	0.01	0.1	0.1	0.01	0.01	0.01	1	1	1	1	1	1
23/11/99	NT	445	7.20	NT	NT	NT	-	<0.1	1.100	NT	NT	NT	0.200	0.90	115					NT
11/05/00	8.58	1134	7.91	+216	11.4	0.60	N	0.69	0.060	2.2	2.3	0.03	NT	NT	370					18
16/08/00	13.01	964	7.18	+96	6.5	0.30	N	NT	<0.010	1.1	1.1	0.07	NT	NT	179					8
16/11/00	6.60	290	6.89	+128	17.6	0.50	Y	0.25	0.910	3.4	4.3	0.35	0.010	0.90	62					19
16/02/01	3.66	917	7.66	+159	19.4	0.30	N	0.02	<0.010	1.5	1.5	<0.01	<0.010	<0.01	341					63
17/09/01	7.95	636	7.43	+145	15.4	0.30	0.01	0.06	<0.010	0.06	0.06	0.06	<0.001	<0.01	138					15
06/03/02	No water																			
23/05/02	No water																			
03/09/02	14.88	2212	4.29	+300	18.3	0.05	N	0.06	0.040	1.5	1.5	0.07	<0.001	0.04	<1					5
06/03/03	0.69	894	6.54	+21	21.6	0.30	N	0.20	<0.010	2.5	2.5	0.85	<0.001	<0.01	113	62	39	10	69	79
11/06/03	5.25	425	7.18	+162	9.5	0.01	2.16	0.03	0.060	0.4	0.5	0.06	0.003	0.06	99	13	23	13	17	30
03/12/03	7.12	276	6.96	+156	23.1	0.003	2.16		0.010	2.2	2.2	0.20			37	10	10	<1	14	14
28/05/04	5.65	1015	7.22	+244	7.7	0.30	N		0.020	1.4	1.4	0.04			372	43	85	89	26	115
28/11/04	4.26	737	7.00	+185	21.9	0.60	N		0.036	1.3	1.3	0.05			307	29	68	70	31	101
09/03/05	2.04	1008	7.11	+131	18.8	0.30	N		<0.010	3.4	3.4	0.10			373	41	85			38
18/06/05	3.36	637	6.32	+123	8.7	0.10	1.11		0.102	1.4	1.5	<0.01			109	44	33			14
25/11/05	2.90	709	7.38	+96	18.4	0.01	0.72		0.016	1.9	2.0	<0.01			247	210	106			26
17/07/06	7.05	750	6.77	+92	8.0	0.10	0.86		0.352	1.7	2.0	0.16			173	31	42			13
20/04/07	3.14	600	7.11	+210	12.5	0.25	N		<0.010	2.3	2.3	0.21			190	22	43			38
27/06/07	5.10	644	7.19	+135	5.7	0.10	0.17		0.018	1.5	1.5	0.20			181	25	42			19
20/01/08	6.89	653	7.34	+95	19.1	0.005	2.50		0.025	1.8	1.8	0.09			266	24	59			17
11/04/08	No flow																			
21/06/08	No flow																			
13/09/08	Insuff	icient	water																	
11/01/09	6.17	1187	7.53	+144	27.3	0.003	0.40		<0.010	2.0	2.0	<0.01			406	37	90			20
04/07/09	No flow																			
23/10/09	No flow																			
05/03/10	No flow																			
03/05/10	No flow																			
15/07/10	2.43	926	7.23	-13	11.0	0.02	1.80		0.050	1.3	1.4	0.15			28	65	23			36
15/10/10	No flow																			
24/02/11	No flow																			
25/06/11	9.54	1171	7.54	+172	9.0	0.04	0.03		5.32	7.3	12.6	0.15			363	29	79			48
20/08/11	No flow																			
13/10/11	1.62	1300	7.64	+141	12.1	0.005	1.44		0.49	7.2	7.7	0.10			483	44	107			21
22/01/12	1.12	1474	6.91	-135	18.4	0.01	0.86		<0.01	3.1	3.1	0.32			500	117	130			<1
10/05/12	No flow																			
13/08/12	No flow																			
09/10/12	No flow																			
21/01/13	No flow																			
19/04/13	1.69	1688	7.33	-135	13.6	0.05	0.22		0.86	10.5	11.4	<0.01			500	59	114			14
17/06/13	3.04	1181	7.35	-95	6.7	0.10	0.29		0.20	3.9	4.1	0.45			400	59	95			20
11/10/13	No flow																			
08/12/13	1.25	1127	6.84	-166	21.6	0.05	0.14		0.01	4.1	4.1	1.79			400	117	111			60
19/03/14	No flow																			
05/07/14	1.42	1405	7.11	-137	5.0	0.10	0.00		<0.01	1.5	1.5	0.27			487	117	128			26
03/12/14	No flow																			
05/03/15	No flow																			

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; Eh = Redox Potential; Temp = Temperature; D = Approximate depth of water at sampling point; NH₃ = Ammonia as a measure of ammonium ions; NO_x = Nitrite + Nitrate; TKN = Total Kjeldahl Nitrogen (organic nitrogen and ammonia); Tot N = Total Nitrogen; Tot P = Total Phosphorus; NO₂ = Nitrite; NO₃ = Nitrate; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; Free CO₂ = Free Carbon Dioxide; Unfiltered C of (Alk + CO₂) = 12/61 Alk + 12/44 CO₂; TIC = Total Inorganic Carbon; TOC = Total Organic Carbon; TC = Total Carbon; Bold = unfiltered; NT = Not tested.

Table 10: Laboratory analytes, suspended solids, geochemical, metals, VOCs – Surface water US1

US1	Laboratory analytes – geochemical, metals, volatile organic compounds (VOCs)																			VOCs
	SS	Ca	Mg	Na	K	SO ₄	Cl	As	Cd	Cr	Cu	Pb	Mn	Se	Zn	Fe	Hg	B	Br	
Measure	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Reporting Limit	1	1	1	1	1	1	1	0.001	0.001	0.001	0.001	0.001	0.01	0.01	0.001	0.01	0.0005	0.2	0.1	various
23/11/99	NT	33	14	26	15	52	32	NT	NT	NT	<0.05	NT	0.40	NT	0.07	2.10	NT	NT	<1	not tested
11/05/00	13	81	50	79	9	96	87	0.002	<0.001	<0.001	0.012	0.002	3.90	<0.01	0.021	2.73	<0.0005	0.4	0.7	nil detected
16/08/00	11	122	54	84	12	360	95	<0.001	<0.001	<0.001	NT	<0.001	7.39	<0.01	0.338	2.51	<0.0005	0.2	0.6	nil detected
16/11/00	22	17	8	22	6	39	24	0.002	<0.001	0.003	0.008	0.005	0.96	<0.01	0.218	2.48	<0.0001	<0.1	0.1	nil detected
16/02/01	13	60	42	81	5	75	79	0.002	<0.001	<0.001	<0.001	<0.001	1.70	<0.01	0.018	1.30	<0.0001	0.1	0.8	not continuing
17/09/01	30	31	19	47	7	43	70	<0.001		<0.01	0.008		1.29		0.91				0.4	
06/03/02	No water																			
23/05/02	No water																			
03/09/02	12	255	63	117	22	1080	102	0.001		<0.001	0.038		51.10		28.600	6.55		0.2	1.1	
06/03/03	12	52	27	65	24	206	71	0.002		0.001	0.004		9.09		0.165	6.73			0.4	nil detected
11/06/03	4	24	14	49	9	22	65	0.001		<0.001	<0.001		0.10		0.006	0.38			0.3	
03/12/03	91						58	21	0.001		<0.001	0.008	0.01		0.152	0.51				
28/05/04	8						68	86	0.002		<0.001	0.004	2.21		0.018	0.33				
28/11/04	10						5	78	0.002		<0.001	<0.001	1.10		<0.005	2.14				
09/03/05	11						10	68	0.010		<0.001	<0.001	2.02		0.015	3.59				
18/06/05	7						122	64	<0.001		0.005	0.005	2.83		0.143	1.83				
25/11/05	26						26	49	0.003		0.002	0.001	1.08		0.016	2.04				
17/07/06	40						82	77	<0.001		0.004	0.002	0.94		0.023	3.94				
20/04/07	10						12	75	0.002		<0.001	0.002	0.56		0.010	3.99				
27/06/07	16						13	73	0.001		<0.001	0.001	0.513		0.026	1.77				
20/01/08	112						18	73	0.004		0.009	0.004	2.90		0.013	3.50				
11/04/08	No flow																			
21/06/08	No flow																			
13/09/08	No flow																			
11/01/09	7						4	123	<0.001	0.0001	<0.001	<0.001	<0.001	0.75	0.005	0.010	0.79			
04/07/09	No flow																			
23/10/09	No flow																			
05/03/10	No Flow																			
03/05/10	No Flow																			
15/07/10	29						5	109	0.002	<0.0001	0.002	0.002	<0.001	2.50	0.005	0.030	11.30			
15/10/10	No flow																			
24/02/11	No flow																			
25/06/11	89						26	123	0.005	<0.0001	0.003	0.002	<0.001	0.758	0.007	0.007	5.35			
20/08/11	No flow																			
13/10/11	31						19	123	0.001	<0.0001	0.003	0.003	<0.001	0.840	0.008	0.010	1.12			
22/01/12	77						<1	133	0.005	0.0014	0.003	0.002	<0.001	4.75	0.008	0.012	23.3			
10/05/12	No flow																			
13/08/12	No flow																			
09/10/12	No flow																			
21/01/13	No flow																			
19/04/13	51						22	240	0.004	<0.0001	<0.001	0.002	<0.001	1.92	0.012	0.009	1.74			
17/06/13	63						15	176	0.001	<0.0001	<0.001	0.002	<0.001	3.25	0.007	0.012	7.67			
11/10/13	No flow																			
08/12/13	205						<10	131	0.004	<0.0001	<0.001	0.004	<0.001	3.84	0.007	<0.005	19.1			
19/03/14	No flow																			
05/07/14	<5						6	202	<0.001	<0.0001	<0.001	<0.001	<0.001	2.41	0.013	<0.005	0.13			
03/12/14	No flow																			
05/03/15	No flow																			

Abbreviations: SS = Suspended solids; Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; SO₄ = Sulphate; Cl = Chloride; As = Arsenic; Cd = Cadmium; Cr = Total Chromium; Cu = Copper; Se = Selenium; Ni = Nickel; Pb = Lead; Zn = Zinc; Mn = Manganese; Fe = Iron; Hg = Mercury; B = Boron; Br = Bromine; VOC = Volatile organic compounds; NT = Not tested; Bold = unfiltered.
Note: Additional analytes tested 23/11/99: True colour 19 TCU; Turbidity 28 NTU; Fluoride 0.2 mg/L; Reactive phosphorus <0.01 mg/L; Calcium hardness as CaCO₃ 83 mg/L; Total hardness as CaCO₃ 140 mg/L; Silica 12 mg/L; Aluminium 0.56 mg/L.

Table 11: Field analytes, water level, VOCs, nutrients – Surface water sampling point US2

US2	Field analytes					Water depth D m	Volatile Organic Compounds (VOCs)				Nutrients						
	DO mg/L	EC µS/cm	pH 1-14	Eh mV	Temp °C		mg/L				NH ₃ as N mg/L	NO _x as N mg/L	TKN as N mg/L	TotN mg/L	TotP mg/L	NO ₂ as N mg/L	NO ₃ as N mg/L
Reporting Limit	0.01	1	0.01	1	0.1	0.01	various				0.01	0.01	0.1	0.1	0.01	0.01	0.01
23/11/99	NT	207	7.2	NT	NT	NT	Not tested				<0.1	0.1	NT	NT	NT	<0.1	0.1
11/05/00	8.88	829	7.77	+202	12.9	0.45	nil detected				0.06	0.02	0.9	0.9	<0.01	NT	NT
16/08/00	10.98	585	7.78	+117	6.6	0.35	nil detected				NT	0.01	0.6	0.6	0.05	NT	NT
16/11/00	8.52	253	7.57	+117	17.1	0.47	nil detected				0.12	0.5	3.4	3.9	0.37	0.004	0.5
16/02/01	1.87	626	7.54	+145	18.2	0.20	not continuing				0.06	<0.01	2.0	2.0	0.04	<0.01	<0.01
09/12/02	discontinued																0.013
06/03/03	7.32	863	7.04	+220	17.6	0.12					0.04	0.7	0.7			0.004	0.04

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; mV = mV; Eh = Redox Potential; Temp = Temperature; D = Approximate depth of water at sampling point; NH₃ = Ammonia as a measure of ammonium ions; NO_x = Nitrite + Nitrate; TKN = Total Kjeldahl Nitrogen (organic nitrogen and ammonia); Tot N = Total Nitrogen; Tot P = Total Phosphorus; NO₂ = Nitrite; NO₃ = Nitrate; NT = Not tested.

Table 12: Laboratory analytes – suspended solids, geochemical and metals – Surface water US2

US2	Laboratory analytes – geochemical and metals																												
	SS mg/L	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	Free CO ₂ mg/L	Alk mg/L	SO ₄ mg/L	Cl mg/L	B mg/L	Br mg/L	Fe mg/L	Mn mg/L	TOC mg/L	Cu mg/L	Cr mg/L	As mg/L	Cd mg/L	Pb mg/L	Se mg/L	Zn mg/L	Hg mg/L							
Reporting Limit	1	1	1	1	1	1	1	1	1	0.2	0.1	0.01	0.01	1	0.001	0.001	0.001	0.001	0.001	0.01	0.001	0.0005							
23/11/99	NT	10	7	20	2		61	12	17	NT	<1	1.3	0.07	NT	<0.05	NT	NT	NT	NT	NT	<0.05	NT							
11/05/00	9	51	25	76	10		177	81	101	0.8	0.4	0.71	0.60	14	0.001	<0.001	0.002	<0.001	<0.001	<0.01	0.008	<0.0005							
16/08/00	3	46	22	59	14		155	45	110	<0.2	0.7	0.50	0.25	10	<0.001	<0.001	<0.001	<0.001	<0.01	0.010	<0.0005								
16/11/00	14	15	7	20	6		63	23	21	<0.1	0.1	1.19	0.17	15	0.003	0.001	0.002	<0.001	0.002	<0.01	0.032	<0.0001							
16/02/01	9	37	20	74	8		215	45	59	<0.1	0.5	1.45	1.66	22	<0.001	<0.001	0.004	<0.001	0.001	<0.01	0.018	<0.0001							
09/12/02	discontinued																												
06/03/03								132																					
								7 67																					

Abbreviations: SS = Suspended solids; Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; Free CO₂ = Free Carbon Dioxide; Alk = Alkalinity measured as mg/L CaCO₃ equivalent; SO₄ = Sulphate; Cl = Chloride; B = Boron; Br = Bromine; Fe = Iron; Mn = Manganese; TOC = Total Organic Carbon; Cu = Copper; Cr = Chromium; As = Arsenic; Cd = Cadmium; Pb = Lead; Se = Selenium; Zn = Zinc; Hg = Mercury; NT = Not tested. Note: Additional analytes tested 23/11/99: True colour 73 TCU; Turbidity 38 NTU; Fluoride 0.2 mg/L; Reactive phosphorus 0.03 mg/L; Calcium hardness as CaCO₃ 25 mg/L; Total hardness as CaCO₃ 54 mg/L; Silica 13 mg/L; Aluminium 0.46 mg/L.

Table 13: Field analytes, water level, metals – Surface water sampling point USX

USX	Field analytes					Water depth D m	CCA metals			Sundry analytes			
	DO mg/L	EC µS/cm	pH 1-14	Eh mV	Temp °C		Cu mg/L	Cr mg/L	As mg/L	B mg/L	Fe mg/L	Mn mg/L	Se mg/L
Reporting Limit	0.01	1	0.01	1	0.1	0.01	0.001	0.001	0.001	0.1	0.01	0.01	0.01
23/11/99	NT	207	7.2	NT	NT	NT	<0.05	NT	NT				
11/05/00	10.19	121	7.74	+198	22.1	0.05	0.009	0.004	<0.001				
16/08/00	11.04	45	6.80	+118	6.5	0.05	<0.001	0.003	0.005				
16/11/00	10.80	55	7.27	+122	20.6	0.10	0.006	0.003	<0.001	<0.1	0.95	<0.01	<0.01
	discontinued												

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; mV = mV; Eh = Redox Potential; Temp = Temperature; D = Approximate depth of water at sampling point; Cu = Copper; Cr = Chromium; As = Arsenic.

8.2 Leachate results

Table 14: Field analytes, water level, VOCs, nutrients – Leachate sampling point UL1

UL1 Measure	Field analytes					Water depth D m	VOC / BTEX mg/L	Nutrients								
	DO mg/L	EC µS/cm	pH 1-14	Eh mV	Temp °C			NH ₃ as N mg/L	NO _x as N mg/L	TKN as N mg/L	TotN mg/L	TotP mg/L	NO ₂ as N mg/L	NO ₃ as N mg/L		
Reporting Limit	0.01	1	0.01	1	0.1	0.01	various	0.01	0.01	0.1	0.1	0.01	0.01	0.01	0.01	
23/11/99	NT	516	7.30	NT	NT	NT	Not tested	<0.1	1.4	NT	NT	NT	0.2	1.2		
11/05/00	9.84	620	8.56	+182	17.3	0.55	nil detected	0.08	0.02	1.1	1.1	0.03	<0.01	0.02		
16/08/00	9.60	1201	7.38	-69	7.4	0.15	nil detected	NT	11.8	1.6	13.4	0.10	0.02	11.7		
16/11/00	7.59	3035	6.15	+4	16.5	NA	0.012 mg/L toluene; 0.006 mg/L meta & para Xylene; 0.886 mg/L 2-butanone (methyl ethyl ketone – MEK)	88.0	1.0	108.0	109.0	7.15	<0.001	1.0		
16/02/01	7.46	1894	8.37	+146	18.9	NA	nil detected	10.0	<0.01	15.8	15.8	0.13	<0.01	<0.01		
17/09/01	3.67	5483	7.81	+18	11.3	NA	0.046 mg/L toluene; 1.530 mg/L 2-butanone (methyl ethyl ketone – MEK)	11.3	<0.01	20.2	20.2	8.50	<0.001	<0.01		
06/03/02	4.90	4140	8.32	+189	19.1	NA	nil detected	39.6	60.5	80.7	141.0	0.40				
04/09/02	10.47	3690	8.04	+258	10.3	NA	nil detected	42.5	54.9	53.0	108.0	0.15	4.0	50.9		
07/03/03	6.54	3255	8.26	+220	19.3	NA	nil detected	88.9	13.9	95.8	110.0	0.25	4.0	9.9		
07/09/03	11.72	2615	8.45	+193	10.1	NA	nil detected	68.4	9.4	70.8	80.2	0.13	1.0	8.4		
03/03/04	0.24	1035	7.71	-54	22.1	0.10	0.046 mg/L toluene	<0.01	15.8	16.8	2.01					
16/09/04							0.005 mg/L benzene; 0.27 mg/L toluene; 0.013 mg/L ethylbenzene; 0.054 mg/L L meta & para Xylene; 0.029 mg/L ortho-Xylene; 0.007 mg/L 1,2,4-trimethylbenzene; 18.8 mg/L 2-butanone (methyl ethyl ketone – MEK); 0.09 mg/L 4-Methyl-2-pentanone (MIBK); 0.017 mg/L 1,1-Dichloroethene.									
09/03/05	0.12	11,418	7.76	-194	21.1	NA	0.358 mg/L toluene; 0.022 mg/L ethylbenzene; 0.008 mg/L L meta & para Xylene; 0.005 mg/L ortho-Xylene.	0.046	495.0	495.0	8.60					
15/09/05	5.11	6233	8.01	+165	17.2	NA	nil detected	0.376	252.0	252.0	3.18					
21/03/06	3.00	10550	8.29	+52	19.7	NA	nil detected	4.0	972.0	976.0	8.69					
14/09/06	4.79	9550	8.22	+101	14.6	NA	nil detected	79.6	0.3	79.9	0.18					
20/04/07	4.00	9410	8.04	+128	17.2	NA	nil detected	95.3	439.0	535.0	4.83					
12/10/07	3.57	6925	7.75	+121	15.8	NA	nil detected	25.4	252.0	278.0	3.29					
11/04/08	4.39	7070	8.03	+47	16.6	NA	nil detected	85.8	282.0	368.0	2.01					
13/09/08	2.54	4730	7.63	+89	15.6	NA	nil detected	6.22	79.3	85.5	1.25					
07/04/09	2.36	6475	7.57	+85	20.0	NA	nil detected	0.24	352.0	352.0	4.22					
23/10/09	4.69	5490	7.45	+140	16.1	NA	nil detected	5.04	181.0	186.0	0.42					
03/05/10	2.63	5415	7.33	+139	18.9	NA	0.002mg/L benzene; 0.004mg/L ethylbenzene; 0.007mg/L meta-para-Xylene; 0.006mg/L ortho-Xylene; 0.008mg/L 1,2,4-Trimethylbenzene	0.22	203.0	203.0	2.85					
15/10/10	22.60	1692	8.67	+92	23.8	NA	nil detected	0.40	28.0	28.4	1.66					
25/06/11	5.98	1625	7.73	+186	11.4	NA	nil detected	1.55	39.4	41.0	0.14					
13/10/11	4.81	1534	7.94	+147	18.8	0.35	nil detected	1.10	27.5	28.6	0.10					
10/05/12	1.80	4466	7.03	-111	18.4	NA	Benzene 0.003mg/L; ortho-Xylene 0.007mg/L; 1,2,4-Trimethylbenzene 0.015mg/L; Chlorobenzene 0.005mg/L	0.02	183.0	183.0	2.26					
09/10/12	4.29	3740	7.27	-77	13.2	NA	Benzene 0.002mg/L	0.27	146.0	146.0	0.39					
19/04/13	5.15	4150	7.29	+74	15.2	NA	nil detected	15.5	143.0	158.0	0.29					
11/10/13	7.73	3055	7.53	+113	17.1	NA	nil detected	86.8	42.2	129.0	0.64					
19/03/14	3.35	3640	7.07	+99	19.2	NA	nil detected	55.2	99.6	155.0	0.18					
24/09/14	2.57	3242	7.32	+49	16.3	NA	nil detected	9.71	125.0	135.0	0.57					
05/03/15	1.94	3294	7.01	+62	25.9	NA	nil detected	0.06	135.0	135.0	2.55					

Abbreviations: DO = Dissolved Oxygen; EC = Electrical Conductivity also called specific conductance; Eh = Redox Potential; Temp = Temperature; D = Approximate depth of water at sampling point; NH₃ = Ammonia as a measure of ammonium ions; NO_x = Nitrite + Nitrate; TKN = Total Kjeldahl Nitrogen (organic nitrogen and ammonia); Tot N = Total Nitrogen; Tot P = Total Phosphorus; NO₂ = Nitrite; NO₃ = Nitrate; NT = Not tested; NA Not applicable.

Note: Sampling point 11/05/00 mid western boundary of leachate dam; 16/08/00 small pool eastern inlet to dam.

Table 15: Laboratory analytes – geochemical, metals, phenols – Leachate UL1

UL1	Laboratory analytes – geochemical, metals, phenols																			
	Ca	Mg	Na	K	SO ₄	Cl	As	Cd	Cr	Cu	Pb	Mn	Se	Zn	B	Fe	Hg	Br	Phenols	
Measure	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
Reporting Limit	1	1	1	1	1	1	0.001	0.001	0.001	0.001	0.001	0.01	0.01	0.001	0.2	0.01	0.0005	0.1	0.05	
23/11/99	42	15	28	20	58	34	NT	NT	NT	<0.05	NT	0.04	NT	0.060	NT	0.17	NT	<1		
11/05/00	41	22	41	13	74	56	0.002	<0.001	<0.001	0.003	0.002	0.18	<0.01	0.008	0.7	0.26	<0.0005	0.3		
16/08/00	183	38	73	48	256	146	0.001	<0.001	<0.001	0.010	<0.001	1.71	<0.01	0.297	0.3	5.16	<0.0005	0.7		
16/11/00	215	87	184	100	206	204	0.161	0.001	0.079	0.058	0.016	4.92	<0.01	3.330	0.7	43.9	<0.0001	0.9		
16/02/01	84	116	187	47	9	181	0.020	<0.001	0.009	0.003	0.001	0.85	<0.01	0.018	0.5	1.61	<0.0001	1.1		
17/09/01	299	184	352	94	22	537	0.016	<0.001	<0.01	0.011	0.007	6.54		0.413	0.6	23.5	<0.0001	2.1	0.3	
06/03/02	51	202	426	112	43	514	0.009	<0.001	0.019	0.026	0.002	0.12		0.139	1.0	1.24	<0.0001	2.2	<0.05	
04/09/02	88	181	371	80	104	459	0.006	<0.001	0.008	0.022	<0.001	1.07		0.050	0.9	0.31	<0.0001	2.4	0.10	
07/03/03	87	120	267	79	64	23	0.008	0.0002	0.011	0.014	<0.001	0.51		0.036	0.8	0.87	<0.0001	2.1	0.05	
07/09/03	32	133	221	60	29	213	0.003	0.0007	0.003	0.009	<0.001	0.46		0.028	0.3	0.24	<0.0001	1.1	<0.05	
03/03/04					60.7	110	0.002		<0.001	0.004	0.002	1.75		0.105	0.97	0.35		0.6		
16/09/04					157	903	0.029		0.144	0.009	0.002	29.1		0.508	1.9	17.9		2.9		
09/03/05					66	1020	0.037		0.135	0.021	0.018	3.40		1.730	2.3	13.2		5.0		
15/09/05					51	755	0.011		0.071	0.022	0.010	1.54		0.347	1.0	8.90		2.5		
21/03/06					144		0.036		0.243	0.028	0.013	1.25		0.346	2.3	2.79		5.1		
14/09/06					118	853	0.029		0.166	0.044	0.004	1.13		0.229	2.1	2.13		0.7		
20/04/07					96	1030	0.038		0.176	0.021	0.004	1.00		0.171	1.9	2.03				
12/10/07					74	651	0.034		0.069	0.007	0.001	2.38		0.063	1.1	1.27				
11/04/08					57	735	0.039		0.051	0.011	<0.001	2.54		0.077	1.4	0.93				
13/09/08					118	390	0.022		0.039	0.009	0.001	1.84		0.089	0.68	4.14				
					SO ₄	Cl	As	Cd	Cr	Cu	Ni	Pb	Zn	Mn	B	Fe				
Measure					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L				
Reporting Limit					1	1	0.001	0.001	0.001	0.001	0.01	0.001	0.001	0.01	0.2	0.01				
07/04/09					17	569	0.042	0.0005	0.058	0.012	0.052	0.002	0.162	1.36	1.15	3.50				
23/10/09					60	579	0.018	0.0014	0.022	0.008	0.063	<0.001	0.059	2.83	0.82	0.64				
03/05/10					25	466	0.042	0.0002	0.036	0.007	0.036	0.001	0.076	1.15	0.84	4.26				
15/10/10					36	161	0.006	<0.0001	0.020	0.013	0.015	0.002	0.044	1.44	0.47	5.58				
25/06/11					18	149	0.003	<0.0001	0.010	0.005	0.010	0.001	0.012	1.30	0.42	1.86				
13/10/11					26	117	0.002	<0.0001	0.005	0.008	0.009	<0.001	0.015	1.08	0.34	0.81				
10/05/12					<1	319	0.043	<0.0001	0.016	0.002	0.025	<0.001	0.035	1.34	0.60	28.2				
09/10/12					8	307	0.010	<0.0001	0.011	0.003	0.023	<0.001	0.023	1.01	0.58	6.73				
19/04/13					13	420	0.007	<0.0001	0.011	0.007	0.041	<0.001	0.019	1.12	0.51	3.32				
11/10/13					60	405	0.007	0.0002	0.011	0.010	0.037	<0.001	0.056	1.23	0.69	4.21				
19/03/14					11	346	0.004	0.0002	0.012	0.012	0.042	<0.001	0.052	1.26	0.76	0.64				
24/09/14					<1	236	0.012	<0.0001	0.010	0.005	0.023	<0.001	0.030	0.934	0.72	8.09				
05/03/15					<1	255	0.024	<0.0001	0.012	0.002	0.020	<0.001	0.015	0.718	0.71	26.0				

Abbreviations: Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; SO₄ = Sulphate; Cl = Chloride; As = Arsenic; Cd = Cadmium; Cr = Total Chromium; Cu = Copper; Ni = Nickel; Pb = Lead; Zn = Zinc; Mn = Manganese; B = Boron; Fe = Iron; Se = Selenium; Hg = Mercury; Br = Bromine; NT = Not tested; LOR = Level of Reporting.

Note: Additional analytes tested 23/11/99: True colour 20 TCU; Turbidity 14 NTU; Fluoride 0.3 mg/L; Reactive phosphorus 0.01 mg/L; Calcium hardness as CaCO₃ 105 mg/L; Total hardness as CaCO₃ 168mg/L; Silica 10 mg/L; Aluminium 0.13 mg/L.

Table 16: Carbon compounds – Leachate UL1

UL1 Measure	Carbon						Pesticides mg/L
	Alk mg/L	Free CO ₂ mg/L	CO ₂ + Alk mg/L	TIC mg/L	TOC mg/L	TC mg/L	
Reporting Limit	1	1	1	1	1	1	various
23/11/99	149				NT		
11/05/00	138				15		
16/08/00	290				11		
16/11/00	746				1030		<LOR
16/02/01	949				111		<LOR
17/09/01	2100				658		<LOR
06/03/02	817				241		<LOR
04/09/02	1177				106		<LOR
07/03/03	1215	38	249	117	113	230	<LOR
07/09/03	1229	<1	242	199	93	292	Diazinon 0.0029
03/03/04	382	22	81	80	36	116	<LOR
16/09/04	5253	807	1253	299	3780	4080	<LOR
09/03/05	5447	576	1229		570		<LOR
15/09/05	2965	125	617		561		<LOR
21/03/06	4650	<1	915		719		<LOR
14/09/06	5770	352	1231		420		<LOR
20/04/07	4400	38	876		324		0.0008 mg/L beta-BHC 0.0008 mg/L gamma-BHC
12/10/07	2613	176	562		201		<LOR
11/04/08	2436	62	496		158		<LOR
13/09/08	67	205	69		109		<LOR
07/04/09	3100	440	730		210		<LOR
23/10/09	1794	308	437		191		<LOR
03/05/10	1100	323	305		112		<LOR
15/10/10	588	<1	116		74		<LOR
25/06/11	627	50	137		74		<LOR
13/10/11	567	44	124		31		<LOR
10/05/12	2000	308	477		2		<LOR
09/10/12	1455	308	370		94		<LOR
19/04/13	1500	220	355		48		<LOR
11/10/13	736	100	172		115		<LOR
19/03/14	1225	235	305		113		<LOR
24/09/14	1410	191	329		49		<LOR
05/03/15	1300	205	312		76		<LOR

Abbreviations: Alk = Alkalinity measured as mg/L CaCO₃ equivalent; Free CO₂ = Free Carbon Dioxide; Unfiltered C of (Alk + CO₂) = 12/61 Alk + 12/44 CO₂; TIC = Total Inorganic Carbon; TOC = Total Organic Carbon; TC = Total Carbon; Pesticides = Organochlorine and Organophosphorus pesticides; Bold = non-filtered.

Table 17: Physical & organic analytes, nutrients, sediment – Leachate dam overflow event UL2

Measure	Physical			Organic	Nutrients					Sediment	Carbon
	EC μS/cm	pH 1-14	Alk mg/L		BTEX mg/L	NH ₃ as N mg/L	NO _x as N mg/L	TKN as N mg/L	TotN mg/L		
Reporting Limit	1	0.01	1	0.001 (Benzene) 0.002 (others)	0.01	0.01	0.1	0.1	0.01	1	1
25/01/04	548	7.60	177	Nil detected	0.99	<0.01	4.4	4.4	0.19	24	28
11/11/05	447	7.46	137	Nil detected	1.41	1.40	4.4	5.8	0.20	127	22
10/09/10	1540	8.24	480	Nil detected	15.8	3.32	25.6	28.9	0.50	76	63
16/09/10	1487	8.23	472	Nil detected	15.2	4.82	19.7	24.5	0.52	72	65
28/11/11	1260	7.71	448	Nil detected	29.2	<0.01	35.5	35.5	0.83	37	58

Abbreviations: EC = Electrical Conductivity also called specific conductance; BTEX = Benzene, Toluene, Ethyl benzene, Xylene; NH₃ = Ammonia as a measure of ammonium ions; NO_x = Nitrite + Nitrate; TKN = Total Kjeldahl Nitrogen (organic nitrogen and ammonia); Tot N = Total Nitrogen; Tot P = Total Phosphorus; SS = Suspended solids.

Table 18: Ion, metalloids, metals – Leachate dam overflow event UL2

Measure	Ions, metalloids, metals													Flow kL/day
	Ca mg/L	Mg mg/L	Na mg/L	K mg/L	SO ₄ mg/L	Cl mg/L	As mg/L	Cr mg/L	Cu mg/L	Zn mg/L	Mn mg/L	Fe mg/L	Br mg/L	
Reporting Limit	1	1	1	1	1	0.001	0.001	0.001	0.001	0.01	0.01	0.1		
25/01/04	44	15	41	25	52	48	0.002	0.08	0.004	0.043	0.72	0.34	0.2	861
11/11/05	25	13	40	15	37	29	0.002	0.007	0.016	0.014	0.11	0.14	0.2	1106
10/09/10	77	35	118	73	48	136	0.004	0.014	0.017	0.059	0.860	1.79	0.79	475
16/09/10	80	36	118	74	55	128	0.004	NT	NT	0.063	0.983	1.40	NC	30
28/11/11	65	23	84	64	44	99	0.009	0.030	0.049	0.157	2.46	4.63	NC	741

Abbreviations: Ca = Calcium; Mg = Magnesium; Na = Sodium; K = Potassium; SO₄ = Sulphate; Cl = Chloride; As = Arsenic; = Cr⁶⁺ Hexavalent Chromium first overflow event, Total Chromium thereafter Cr; Cu = Copper; Zn = Zinc; Mn = Manganese; Fe = Iron; Br = Bromine; Flow = Total flow averaged over number of days for which flow occurred.

Flow details for 25/01/04: Time of overflow—between 6 and 9 pm 25 January 2004. Flow volume estimates per day: Day 1 (26th) 1,663 kL; Day 2 (27th) 705 kL; Day 3 (28th) 215 kL.

Flow details for 11/11/05: 1769.5 kL over 1.6 days. Rough estimate of flow Sept 2010: ~1,000 kL over 6 days.

9. WATER QUALITY COMPARISONS

Table 19 is provided as an aid for reviewing environmental health risks.

Table 19: Environmental health warning limits - some landfill analytes

Analyte	Reason for Inclusion	Aquatic 1	Human 2	Irrigation 3	Livestock 4
Temperature	Biodegradation of waste increases temperature. Temp + EC have successfully defined a leachate plume (Scrudato & Pagano, 1994).	>80%ile <20%ile	NR	NR	NR
pH	varies from acidic to alkaline as waste decomposition progresses (Andreottola & Cannas, 1992:72). But pH levels in groundwater are often naturally low.	6.5 to 8.0 (2000); 6.5 – 9.0 (1992)	6.5 to 8.5 (pipe corrosion)	>6 limits corrosion of pipes	NR
Electric Conductivity (EC)	a general indicator that summarises the general trend of major cation and anion concentrations.	30 -350 µS/cm (2000); ≤1500 µS/cm (1992)	>1875 µS/cm (unpalatable)	varies, e.g., ≤1,000µS/cm carrots	≥3582 µS/cm analyse for specific ions which may affect
Alkalinity	Measures acid-neutralising capacity, a solution's ability to buffer, that is stop pH changing. Often high in leachate, but some groundwaters can also have high alkalinity.	NR	NR	NR	NR
Boron	High mobility in clay. Good tracer. Found in leachate (Bagchi, 1994:52). Found in fireproofing agents, preservatives, antiseptics, glass, enamels, cosmetics, cements, carpets, soaps, powders and ointments. Some crops are intolerant to boron (ANZECC, 1992:5-13).	≤0.37 mg/L	≤4.0 mg/L	≤0.5 mg/L (long term)	≤5mg/L
Bromine	Recently found to be a good leachate indicator (Baker, 1993). Used in bleaches; dyes; pharmaceuticals; pesticides; solvents for waxes, greases and oils; additives for motor oil and fuels; and used in photograph development.	NR	NR	NR	NR
Ammonium ions	From decaying plants and animals. May be high in leachate (Hancock & Phillips, 1992:22). Toxic to fish (ANZECC, 1992:2-30).	Table 8.3.7 ≤0.18 mg/L as N for pH 9.0; ≤0.9 mg/L as N pH 8.0; ≤2.18 mg/L pH 7.0.	≤0.04 mg/L as N (A – corrosion of copper pipes)	Nitrogen ≤5 mg/L (long term; 25-125 mg/L (short term – up to 20 years)	NR
Nitrate	From final stage of plant and animal decomposition or fertilisers. May be high in leachate (Canter <i>et. al</i> , 1997:6). Toxic to infants and livestock (ANZECC, 1992:4-10,5-23).	(Table 3.3.2 eutro - NO _x as N ≤0.015 mg/L; TN ≤0.25 mg/L; Table 3.4.1 Toxic ≤0.158 NO _x as N	≤11.3 mg/L as N (2011) for up to 3 month bottle fed babies. Others ≤22.6 mg/L as N.	As for ammonia	≤ 90 mg/L as N; Nitrite ≤9 mg/L as N
Phosphorus	Csuros (1994:228-229) explains that phosphorus occurs in animal, plant and mineral kingdoms. Its discharge to streams may stimulate growth of photosynthetic organisms especially if it is the nutrient whose low values are limiting the primary productivity of the water.	Total P ≤0.02 mg/L	NR	≤0.05 mg/L (long term to prevent clogging equipment; ≤0.8-12 mg/L (short term)	NR
Iron and manganese	High iron concentrations affect plant growth and high manganese concentrations clog irrigation equipment and are toxic to plants (ANZECC, 1992:5-15, 5-16).	Fe NR (2000), ≤1 mg/L (1992), Mn≤1.9mg/L	Fe 0.3 mg/L (A) Mn 0.1 mg/L (A), Health 0.5 mg/L	Fe & Mn 0.2 mg/L long term, 10 mg/L short term	not sufficiently toxic (2000); ≤17 mg/L for dairy cattle (1992)

Table 19 continued:

Analyte	Reason for Inclusion	Aquatic 1	Human 2	Irrigation 3	Livestock 4
VOCs	Good indicators of man-made pollutants found in landfill leachate (USEPA, 1991:51075). Toxic and carcinogenic to animals and humans.	varies for different compounds	varies for different compounds	NR	NR
Arsenic	Found in cattle dip soils; toxic, possibly carcinogenic (Manahan, 1990:150), toxic to livestock in high concentrations (ANZECC, 1992:5-25)	≤0.024 mg/L (III) form; ≤0.05 aquaculture	≤0.01 mg/L	≤0.1 mg/L long term; ≤2 mg/L short term	0.5 to 5 mg/L tolerated
Cadmium	Causes high blood pressure, kidney damage, destroys testicular tissue and red blood cells, toxic to aquatic biota (Manahan, 1990:150), toxic and carcinogenic to livestock (ANZECC, 1992:5-26)	≤0.0002 mg/L	≤0.002 mg/L	≤0.01 mg/L long term; ≤0.05 mg/L short term	≤0.01 mg/L
Chromium	Cr ⁺⁶ is possibly carcinogenic and is toxic to humans (anaemia, kidney disease, nervous system) (Manahan, 1990:150), reduces crop yield (ANZECC, 1992:5-14).	≤0.001 mg/L for Cr ⁺⁶	≤0.05 mg/L (Cr ⁺⁶)	≤0.1 mg/L long term; ≤1 mg/L short term	≤1 mg/L
Copper	Essential in small concentrations for plant growth and animals (ANZECC, 1992:5-15&5-27). Toxic to sensitive plants and animals and bioaccumulated.	0.0014 mg/L	≤2 mg/L (Health) ≤1 mg/L (A)	≤0.2 mg/L long term; ≤5 mg/L short term	<0.4 mg/L sheep, <1 mg/L cattle; <5 mg/L pigs and poultry
Lead	Wildlife destruction (Manahan, 1990:151), reduces plant growth (ANZECC, 1992:5-16). Decreases human intelligence, growth (Csuros, 1994:210).	≤0.0034 mg/L	≤0.01 mg/L	≤2 mg/L long term; ≤5 mg/L short term	≤0.1 mg/L
Mercury	Very toxic to humans - numbness, deafness, loss of muscle control (Csuros, 1994:212); toxic to fish (ANZECC, 1992:2-38).	NR (2000); ≤0.0001 mg/L (1992)	≤0.001 mg/L	≤0.002 mg/L	≤0.002mg/L
Selenium	Toxic to cattle, fish and humans (Manahan, 1990:151) Used in electronics, glass, ceramics, pigments, rubber (Csuros, 1994:213).	≤0.005 mg/L	≤0.01 mg/L	≤0.02 mg/L long term; ≤0.05 mg/L short term	≤0.02 mg/L
Zinc	Found both naturally (weathering & erosion) and from anthropogenic sources (ANZECC, 1992:2-42). Zinc coating used to protect iron, steel and brass; used in dry batteries, construction materials, printing processes (Csuros, 1994:215). One of seven analytes with greatest percentage increase from 71 unlined landfills in North Carolina, USA (Borden and Yanoschak, 1990:269). Also found by CodyHart in landfill ponds and leachate.	≤0.008 mg/L	≤3 mg/L (A)	≤2 mg/L long term; ≤5 mg/L short term	≤20 mg/L

1. from Tables 3.3.1, 3.3.2, 3.3.3 - Default trigger values for aquatic ecosystems in upland rivers of south-east Australia that are slightly-moderately disturbed; and Table 3.4.1 trigger values for toxicants 95% level aquatic ecosystem protection in 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', ANZECC & ARMCANZ 2000.

2. from 'Australian Drinking Water Guidelines 6' NHMRC & NRMCC 2011.

<<http://www.nhmrc.gov.au/guidelines/publications/eh52/>>.

3. from Tables 4.2.5, 4.2.10, 4.2.11, 4.2.14 and 4.2.15 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', ANZECC & ARMCANZ 2000.

4. from page 4.3-3 – 4.3-5 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality', ANZECC & ARMCANZ 2000.

NR - No recommendation

(A) aesthetic guideline rather than an environmental health guideline

(1992) refers to 1992 edition of the 'Australian and New Zealand Guidelines for Fresh and Marine Water Quality'.

10. CURRENT ENVIRONMENTAL MONITORING PROGRAM

The Uralla Landfill licence No. 5899 was re-archived on 5 February 2015 and is still current. A summary of the environmental monitoring requirements is given in Table 20 as a quick reference.

Table 20: Current Environmental Monitoring - Uralla Landfill

Groundwater	Surface Water	Leachate	Leachate dam overflow events
<p>Well UW1 (Point 4) Quarterly water level measurements.</p> <p>Six-monthly: Electrical conductivity Redox potential Temperature pH</p> <p>Well UW2 (Point 5) Quarterly water level measurements.</p> <p>Six-monthly: Alkalinity Arsenic Free CO₂ Chloride</p> <p>Conductivity (in situ) Dissolved oxygen (in situ) Iron Manganese Nitrate + Nitrite (NOx)</p> <p>Redox potential (in situ) Sulfate (NOT on licence) Temperature (in situ) Total Kjeldahl Nitrogen Total Organic Carbon</p> <p>pH (in situ)</p> <p>Well UW3 (Points 6) Quarterly water level measurements and quarterly analytes as for UW2.</p>	<p>Sampling points (US1) (Point 1)</p> <p>(six monthly)</p> <p>Alkalinity Arsenic</p> <p>Chloride Chromium (total) Conductivity (in situ) Copper Dissolved oxygen (in situ) Iron Manganese Nitrite + Nitrate (NOx) Phosphorus (total)</p> <p>Redox potential (in situ) Sulfate Temperature (in situ) Total Kjeldahl Nitrogen Total Organic Carbon Total Suspended Solids Volumetric flow rate Zinc pH (in situ)</p>	<p>Sampling points UL1 (Point 7)</p> <p>(six monthly)</p> <p>Alkalinity Arsenic Boron Chloride Chromium (total) Conductivity (in situ) Copper (NOT on licence) Dissolved oxygen (in situ) Iron Lead Manganese Nitrite + Nitrate (NOx) Organophosphate pesticides Phosphorus (total) Redox potential (in situ) Sulfate (NOT on licence) Temperature (in situ) Total Kjeldahl Nitrogen Total Organic Carbon VOCs Zinc pH (in situ)aq</p>	<p>Sampling point UL2 (Point 2 - spillway)</p> <p>(overflows only)</p> <p>Alkalinity Arsenic Benzene Calcium Chloride Chromium (total) Conductivity Copper Ethyl benzene Iron Magnesium Manganese Nitrite + Nitrate (NOx) Phosphorus (total) Potassium Sodium Sulfate Toluene Total Kjeldahl Nitrogen Total Organic Carbon Total Suspended Solids Volumetric flow rate Xylene Zinc pH</p>
<p>Methane monitoring: quarterly</p>			

11. COMMENTS ON WATER LEVELS AND WATER QUALITY

Water level and water quality results of note from the March 2015 sampling round are as follows:

Water levels in wells (piezometric levels)

With a 14 cm rise since December 2014, the water level in well UW1 continues its rising trend (4.55 m rise since September 2001). The water level in well UW2 has risen by 9 cm since December 2014, with an overall rise of a 1.65 m rise since September 2001. Well UW3 water level was relatively steady with a marginal fall of 0.01 cm since December 2014. Overall there has been a rise of 2.77 m rise since September 2001.

Groundwater quality

- UW1, upgradient well. Water quality in this well is tested six-monthly for only field analytes: dissolved oxygen, pH, Eh, EC, and temperature, and alkalinity and free carbon dioxide. All results are similar to previous rounds and show no sign of leachate contamination.
- UW2, a downgradient well on the south-western side of the landfill. Water quality in this well is tested six-monthly for a broader range of analytes: field analytes being tested in well UW1, plus nitrogen compounds, total organic carbon, sulphate, chloride, iron, manganese, and arsenic. There is no sign of leachate contamination in this well.
- UW3, northern downgradient well adjacent to the leachate dam wall. This well is being sampled quarterly because it is contaminated with nitrate. The nitrate + nitrite (NO_x) concentration this sampling round was 19.3 mg/L as N, and continues to indicate a decline in concentration since April 2013. This result is far less than the greatest NO_x concentration of 191 mg/L recorded in December 2001. The considerable overall decline is probably due to the excavation and removal of old night soil trenches and installation of leachate collection systems in the new cells. The increase in inorganic carbon since May 2012 remains - as indicated by alkalinity and free carbon dioxide concentrations.

Surface water quality

US1 – the discharge point of an ephemeral stream from the site. There was no discharge from the ephemeral stream. This is the second sampling round when there has been no discharge for sampling. A six-monthly sampling frequency is required by licence.

Leachate quality

UL1, concentrated leachate being piped into the leachate dam. There was leachate dripping from the western pipe, so the leachate sample was taken from here and was therefore concentrated. At 3,294 µS/cm the electrical conductivity was within the normal range for rural landfill leachate (2,000-4,000 µS/cm). At 135 mg/L the total nitrogen was midrange for Uralla Landfill leachate. Total kjeldahl nitrogen, which consists of organic nitrogen and ammonium compounds and indicates young leachate, predominated in the nitrogen compounds. No volatile organic compounds, or pesticides were detected. Metals were at low concentrations, except for iron, which was more concentrated this round at 26.0 mg/L. Nitrogen compounds are therefore the most likely indicators of landfill leachate contamination in surface water or groundwater at the landfill.

12. CONCLUSION

This report has detailed the results of Uralla Landfill environmental monitoring on 5 March 2015 for methane, groundwater and leachate quality.

- No surface methane or building methane was detected. Northern cell, gas vent internal methane emissions are being recorded as an Occupational Health and Safety (OHS) alert. Methane was detected emitting at 1,750 ppm from the eastern gas vent. There should be no open flames or smoking on the landfill.
- Overall, it can be said that since Year 2001 the groundwater piezometric levels in all wells continue their rising trend.
- Wells UW1 and UW2 show no sign of landfill leachate contamination.
- The nitrite + nitrate (NO_x) contamination in well UW3 is most probably due to the old night soil trenches situated upgradient. At 19.3 mg/L as N this sampling round it is still above background levels but compares favourably to the 191 mg/L as N in December 2001. The increase in inorganic carbon since May 2012 remains.
- The ephemeral stream sampling point US1 did not require sampling due to lack of water.
- The concentrated leachate dripping from the leachate pipe had mid-range electric conductivity (3,294 µS/cm) and mid-range total nitrogen (135 mg/L). No pesticides or volatile organic compounds (VOCs) were detected. Total nitrogen is the best indicator of landfill leachate intrusion into groundwater and surface water.

13. BIBLIOGRAPHY

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APPENDIX A

Field Parameter Forms



GROUNDWATER FIELD PARAMETER FORM (Monitoring wells)

Project: Uralla Shire Council - Uralla Landfill

SAMPLE POINT ID: UW1

PURGING INFORMATION

Pump type: bladder pump Tubing: LDPE

Total well depth (from top of casing) (m) 30.65

Air controller: QED MP10

Depth to groundwater (m) 19.77

Position pump at: 30.0 m (from top of PVC casing)

(from top of PVC casing) (RL top of internal casing = 103.111 m)

40 ← Geo Control

WATER COLUMN DEPTH (m) 10.88

Refill/discharge rate (secs): 20/30 psi: 50

(well depth minus depth to groundwater)

Purge volume: 3.0 L Date: 5.13.15 Start time: 8:00 (24 hr clock) Cycle vol: 100 mL Pump rate: 100 mL/min

FIELD ANALYTE VALUES

Table with 14 columns: Vol (L), DO (mg/L), EC (µS/cm), pH (STD), Eh (mV), Temp (°C), WL (m). Data rows show values for depths 0.5m to 3.0m, with a mean row at the bottom.

Mean of last four values (sampling mean) 3.15 1420 6.74 190 20.8 RPD

Notes:

Pump brand Sample Pro

EC standard 2760 µS/cm TPS field lab

Field analytes only, including Free CO2 and Alkalinity

SAMPLING INFORMATION

Pretest of distilled water 2.7 µS/cm at 25°C

Field blank EC 3.6 µS/cm at 25°C

Beaker material: polypropylene Sample composited (Y/N): N... Start sample: 8:30 (2400 hr clock)

Weather: (5 min. max. test at ground level at UW2) Rain NIL, Temp 23.2°C, Cloud cover 70%

Wind direction 230, Wind Speed 2.87m/s Upwind Activities recycling facility

Sample appearance: Odour Colour Light Yellow Turbidity Slight

Non-conformances of well condition (see 'Field checks') and equipment (Y/N): ? (If yes, write details and remedy or arrange remedy.)

Details: Bottomed (pump) at ~ 29m. Check tubing length. Otherwise sediment build up.

Purging and sampling procedures were those detailed by CodyHart Consulting Pty Ltd.

Name: Aaron Payne Signature: [Signature] Date: 5/3/15 Time: 9:30

Barbara Hart [Signature]

Notes: NIL GAS BUILDINGS + SURFACE NIL GAS WESTERN VENT 1750ppm (INTERNAL) EASTERN VENT



GROUNDWATER FIELD PARAMETER FORM (Monitoring wells)

Project: Uralla Shire Council - Uralla Landfill

SAMPLE POINT ID: UW3

PURGING INFORMATION

Pump type: bladder pump Tubing: LDPE

Total well depth (from top of casing) (m) 21.78

Air controller: QED MP10

Depth to groundwater (m) 19.30
(from top of PVC casing) (RL top of internal casing = 90.627 m)

Position pump at: 17.5 m (from top of PVC casing)

WATER COLUMN DEPTH (m) 12.48
(well depth minus depth to groundwater)

Refill/discharge rate (secs): 15/15 psi: 30-35
to increase volume → 20/15

Purge volume: 4.0 L Date: 5/3/15 Start time: 11:30 (24 hr clock) Cycle vol: 80 mL Pump rate: 137 mL/min

↓ 2.5L due to slow pump rate

FIELD ANALYTE VALUES

Vol (L)	DO (mg/L)	EC (µS/cm)	pH (STD)	Eh (mV)	Temp (°C)	WL (m)	Vol (L)	DO (mg/L)	EC (µS/cm)	pH (STD)	Eh (mV)	Temp (°C)	WL (m)
							0.5	1.37	1896	6.26	+74	19.9	
							1.0	1.32	1898	6.25	+73	19.7	
							1.5	1.35	1896	6.24	+67	20.3	
							2.0	1.31	1896	6.24	+65	21.1	
							2.5	1.32	1899	6.24	+67	20.8	
							3.0						9.42

Mean of last four values (sampling mean) 1.33 1897 6.24 +68 20.5
RPD ✓ ✓ ✓ ✓ ✓

Notes:

Pump brand CodyHart

Filtered Not filtered

Tick on metals bottle: Dissolved Total

EC standard 2760 µS/cm YSI field lab

SAMPLING INFORMATION

Pretest of distilled water 2.7 µS/cm at 25°C

Field blank EC 3.6 µS/cm at 25°C

Beaker material: polypropylene Sample composited (Y/N): N Start sample: 12:00 (2400 hr clock)

Weather: (5 min. max. test at ground level at UW2) Rain Nil, Temp 23.2°C, Cloud cover 70%
Av 0.92 m/s

Wind direction 230°, Wind Speed 2.87 m/s Upwind Activities paddock

Sample appearance: Odour - Colour clear Turbidity trace

Non-conformances of well condition (see 'Field checks') and equipment (Y/N): N (If yes, write details and remedy or arrange remedy.)

Details:

Purging and sampling procedures were those detailed by CodyHart Consulting Pty Ltd.

Name: Barbara Hart Signature: B Hart Date: 5/3/15 Time: 12:30

Duplicate as split.



SURFACE WATER / LEACHATE FIELD PARAMETER FORM

Project: Uralla Shire Council

SAMPLE POINT ID: ULI

SAMPLING INFORMATION

Pretest of deionised water 2.7 µS/cm at 25°C

Field blank EC 3.6 µS/cm at 25°C

DO mg/L	EC µS/cm	pH (STD)	Eh (mV)	Temp (°C)	Beaker material: polypropylene
1.94	3279	6.98	+67	25.6	Sample composited (Y/N): N
1.94	3309	7.03	+56	26.2	
1.94	3294	7.01	+62	25.9	
RPO ✓	✓	✓	✓		

Sample date: 5.1.15 Start sample: 12:30 (2400 hr clock)

Weather: (5 min. max. test at ground level at 11W2) Rain Nil, Temp 23.2°C, Cloud cover 70%

Wind direction 230°, Wind Speed 2.87 m/s, Upwind Activities leachate dam

Sample appearance: Odour -, Colour brown/orange, Turbidity sediment moderate

LOCATION INFORMATION

Grab sample collected from dripping leachate pipe closest to irrigation shed.

DEPTH INFORMATION

A. Estimated depth of water (m) NA

Non-conformances of sampling point (see 'Field checks') and equipment (Y/N): N (If yes, write details and remedy or arrange remedy.)

Details:

Sampling procedures were those detailed by CodyHart Consulting Pty Ltd.

Your name: Barbara Hart Signature: B Hart Date: 5/3/15 Time: 13:00

Filtered Not filtered

Tick on metals bottle: Dissolved Total

EC standard 2760 µS/cm YSI probe

APPENDIX B

Chain of Custody Forms and Calibration Certificate

Chain of Custody for sample containers - laboratory to site

CodyHart ordered sample containers from ALS laboratory, Stafford, Brisbane. When they were received they were stored in the locked and security monitored CodyHart office at Burleigh Heads, Queensland.

CodyHart labels were adhered to appropriate containers. The containers for each sampling point were placed into self sealing plastic bags, which were then labelled with the sampling point identity. The containers for each sampling point were then placed into CodyHart eskies and transported to the Uralla Landfill.

It is certified that the sample bottles were received in unbroken sealed containers from ALS, and that no tampering with the sample containers occurred when in CodyHart hands.

B F Hart

05/03/15

Calibration certificate for field lab

CodyHart uses either a TPS 90-FL Series field lab and/or a YSI Professional Plus handheld multi-parameter instrument to take field temperature, pH, electrical conductivity (EC), redox potential (Eh) and dissolved oxygen (DO) readings.

A yearly maintenance service is conducted on the TPS field lab by TPS Pty Ltd, Brisbane. The YSI Pro Plus is maintained and serviced in-house by CodyHart in accordance with manufacturer's directives.

It is certified that the relevant scientific instrument used was calibrated daily at Uralla so that sampling was conducted within 24 hours of field testing. The pH was recalibrated if any probe drift was noticed. The calibration process was documented and is available on request.

B F Hart

05/03/15

CHAIN OF CUSTODY TO LAB

CLIENT: *CodyHart Environmental*
 ADDRESS / OFFICE: 3/29 Township Drive, BURLLEIGH HEADS 4220 (PO Box 1073 BURLLEIGH HEADS 4220)
 PROJECT MANAGER (PM): *Barbara Hart*
 PROJECT ID: *Uralia 245*
 SITE: *Uralia Landfill*

SAMPLER: *B. Hart*
 MOBILE: *042 777 5120*
 PHONE:
 EMAIL REPORT TO: *pefican@codyhart.com.au*
 EMAIL INVOICE TO: (above)

P.O. NO.:
 QUOTE NO.: *BNBO/052/14*



RESULTS REQUIRED (if any):
 COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:
 PLEASE SCAN THIS FORM ON DAY OF ARRIVAL AND EMAIL

ANALYSES REQUIRED:

ALS ID	SAMPLE ID	MATRIX	DATE	Time	CONTAINER INFORMATION	No. bottles	ED04SP - Water Sulphate	ED04SP - Water Chloride (PC)	NT-1 - Water Major cations Ca, Mg, Na, K	EG020F - Water Fe Mn As (Dissolved ICPMS)	W-1F ICPMS Water - Diss PLUS Fe Mn	W-1T ICPMS Water - Total PLUS Fe Mn	W-1T ICPMS Water - Total PLUS Fe Mn Boron	NT-5 Water Total Nitrogen (TKN NOx)	EP005 - Water Total Organic Carbon (TOC)	EK067 - Water Total Phosphorus	NT-11 Water TKN + NOx + Total Phosphorus	EP074A-G - Water VOC SCAN	W-12 - Water OC/OP Pesticides	EA025 - Water Suspended Solids
	UW2	W	5/3/15	9:30	250ml Green, 60ml Red; 125 ml Purple, 40 ml Purple	4	X	X	X	X				X	X					
	UW3	W	5/3/15	12:00	250ml Green, 60ml Red; 125 ml Purple, 40 ml Purple	4	X	X	X	X				X	X					
	UD	W	5/3/15	NA	250ml Green, 60ml Red; 125 ml Purple, 40 ml Purple	4	X	X	X	X				X	X					
	UL1	W	5/3/15	12:30	250ml Green, 60ml Red, 2x 40ml Purple, 125 ml Purple, 40 ml Purple, 100ml Orange	7	X	X	X	X				X	X					

Environmental Division
Brisbane
 Work Order Reference
EB1514218



Telephone : +61-7-3243 7222

RELEASING BY:	RECEIVED BY:	DATE:	TIME:	DATE:	TIME:	METHOD OF SHIPMENT
Barbara Hart	<i>Jadee</i>	5/03/2015	16:00	6/3/15		Transport Co: TAMEX
CodyHart Environmental	ALS Laboratory, Brisbane			14:15		Con' Note No: 5526137
Signature: <i>B. Hart</i>	Signature: <i>[Signature]</i>					

Samples were despatched in CodyHart Esky/Esxies numbered: 25 plus small & 3 large CodyHart gel bricks

CodyHart Consulting Pty Ltd trading as CodyHart Environmental



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : **EB1514218**

Client	: CODYHART CONSULTING PTY LTD	Laboratory	: Environmental Division Brisbane
Contact	: MS BARBARA HART	Contact	: Customer Services EB
Address	: P O BOX 1073 BURLEIGH HEADS QLD, AUSTRALIA 4220	Address	: 2 Byth Street Stafford QLD Australia 4053
E-mail	: pelican@codyhart.com.au	E-mail	: ALSEnviro.Brisbane@alsglobal.com
Telephone	: +61 55205532	Telephone	: +61-7-3243 7222
Facsimile	: +61 07 55206531	Facsimile	: +61-7-3243 7218
Project	: Uralla 245	Page	: 1 of 2
Order number	: ---	Quote number	: EB2014CODCON0251 (BNBQ/052/14)
C-O-C number	: ---	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	: Uralla Landfill		
Sampler	: BARBARA HART		

Dates

Date Samples Received	: 06-Mar-2015	Issue Date	: 07-Mar-2015
Client Requested Due Date	: 13-Mar-2015	Scheduled Reporting Date	: 13-Mar-2015

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 3.6°C - Ice present
Receipt Detail	:	No. of samples received / analysed	: 4 / 4

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- Discounted Package Prices apply only when specific ALS Group Codes ('W', 'S', 'NT' suites) are referenced on COCs.
- Please direct any turn around / technical queries to the laboratory contact designated above.
- Sample Disposal - Aqueous (14 days), Solid (60 days) from date of completion of work order.
- Please direct any queries related to sample condition / numbering / breakages to John Pickering (John.Pickering@alsglobal.com).
- Analysis will be conducted by ALS Environmental, Brisbane, NATA accreditation no. 825, Site No. 818 (Micro site no. 18958).
- **Breaches in recommended extraction / analysis holding times (if any) are displayed overleaf in the Proactive Holding Time Report table.**



Sample Container(s)/Preservation Non-Compliances

All comparisons are made against pretreatment/preservation AS, APHA, USEPA standards.

- No sample container / preservation non-compliance exist.

Summary of Sample(s) and Requested Analysis

Some items described below may be part of a laboratory process necessary for the execution of client requested tasks. Packages may contain additional analyses, such as the determination of moisture content and preparation tasks, that are included in the package.

Matrix: WATER

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - ED041G Sulfate (Turbidimetric) as SO4 2; by Discrete	WATER - ED046G Chloride by Discrete Analyser	WATER - EG02DF Dissolved Metals by IC/PMS	WATER - EP005 Total Organic Carbon (TOC)	WATER - NT-01 Major Cations (Ca, Mg, Na, K)	WATER - NT-05 Total Nitrogen	WATER - W-01T 7 metals (Total)
EB1514218-001	05-Mar-2015 09:30	UW2	✓	✓	✓	✓	✓	✓	
EB1514218-002	05-Mar-2015 12:00	UW3	✓	✓	✓	✓	✓	✓	
EB1514218-003	[05-Mar-2015]	UD	✓	✓	✓	✓	✓	✓	
EB1514218-004	05-Mar-2015 12:30	UL 1	✓	✓		✓			✓

Matrix: WATER

Laboratory sample ID	Client sampling date / time	Client sample ID	WATER - EG020T Total Recoverable Metals by IC/PMS (including)	WATER - EP074 (water) Volatile Organic Compounds	WATER - NT-11 Total Nitrogen and Total Phosphorus	WATER - W-12 OC/OP Pesticides
EB1514218-004	05-Mar-2015 12:30	UL 1	✓	✓	✓	✓

Proactive Holding Time Report

Sample(s) have been received within the recommended holding times for the requested analysis.

Requested Deliverables

BARBARA HART

- *AU Certificate of Analysis - NATA (COA) Email pelican@codyhart.com.au
- *AU Interpretive QC Report - DEFAULT (Anon QCI Rep) (QCI) Email pelican@codyhart.com.au
- *AU QC Report - DEFAULT (Anon QC Rep) - NATA (QC) Email pelican@codyhart.com.au
- A4 - AU Sample Receipt Notification - Environmental HT (SRN) Email pelican@codyhart.com.au
- A4 - AU Tax Invoice (INV) Email pelican@codyhart.com.au
- Chain of Custody (CoC) (COC) Email pelican@codyhart.com.au
- EDI Format - ENMRG (ENMRG) Email pelican@codyhart.com.au
- EDI Format - XTab (XTAB) Email pelican@codyhart.com.au



APPENDIX C

Laboratory Reports



CERTIFICATE OF ANALYSIS

Work Order : **EB1514218** Page : 1 of 7

Client : **CODYHART CONSULTING PTY LTD** Laboratory : **Environmental Division Brisbane**

Contact : **MS BARBARA HART** Customer Services EB

Address : **P O BOX 1073** 2 Byth Street Stafford QLD Australia 4053

E-mail : **BURLEIGH HEADS QLD, AUSTRALIA 4220** E-mail : **ALSEnviro.Brisbane@alsglobal.com**

Telephone : **: +61 55205532** Telephone : **+61-7-3243 7222**

Facsimile : **: +61 07 55206531** Facsimile : **+61-7-3243 7218**

Project : **Uralla 245** QC Level : **NEPM 2013 Schedule B(3) and ALS QCS3 requirement**

Order number : **---** Date Samples Received : **06-Mar-2015 14:45**

C-O-C number : **---** Date Analysis Commenced : **07-Mar-2015**

Sampler : **BARBARA HART** Issue Date : **13-Mar-2015 13:37**

Site : **Uralla Landfill**

Quote number : **---** No. of samples received : **4**

No. of samples analysed : **4**

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results



WORLD RECOGNISED ACCREDITATION

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics
Andrew Epps	Senior Inorganic Chemist	Brisbane Inorganics
Kim McCabe	Senior Inorganic Chemist	Brisbane Inorganics
Ryan Story	2IC Organic Instrument Chemist	Brisbane Inorganics



Page : 2 of 7
Work Order : EB1514218
Client : CODYHART CONSULTING PTY LTD
Project : Uralla 245

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

Ø = ALS is not NATA accredited for these tests.



Analytical Results

Compound	CAS Number	LOR	Client sample ID		UW2	UW3	UD	UL1	Result
			Client sampling date / time	Unit					
Sub-Matrix: WATER (Matrix: WATER)									
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	05-Mar-2015 09:30	mg/L	24	05-Mar-2015 12:00	[05-Mar-2015]	05-Mar-2015 12:30	---
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	EB1514218-001	mg/L	154	EB1514218-002	EB1514218-003	EB1514218-004	---
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	Result	mg/L	142	Result	Result	Result	---
Magnesium	7439-95-4	1	24	mg/L	118	136	---	---	---
Sodium	7440-23-5	1	154	mg/L	87	266	---	---	---
Potassium	7440-09-7	1	11	mg/L	11	---	---	---	---
EG020F: Dissolved Metals by ICP-MS									
Arsenic	7440-38-2	0.001	05-Mar-2015 09:30	mg/L	0.004	05-Mar-2015 12:00	[05-Mar-2015]	05-Mar-2015 12:30	---
Manganese	7439-96-5	0.001	EB1514218-001	mg/L	0.017	EB1514218-002	EB1514218-003	EB1514218-004	---
Iron	7439-89-6	0.05	Result	mg/L	0.10	Result	Result	Result	---
EG020T: Total Metals by ICP-MS									
Arsenic	7440-38-2	0.001	Result	mg/L	---	Result	Result	Result	---
Cadmium	7440-43-9	0.0001	0.049	mg/L	0.048	0.030	0.028	0.024	---
Chromium	7440-47-3	0.001	0.030	mg/L	0.028	<0.05	<0.05	<0.0001	---
Copper	7440-50-8	0.001	<0.05	mg/L	---	---	---	0.012	---
Nickel	7440-02-0	0.001	---	mg/L	---	---	---	0.002	---
Lead	7439-92-1	0.001	---	mg/L	---	---	---	0.020	---
Zinc	7440-66-6	0.005	---	mg/L	---	---	---	<0.001	---
Manganese	7439-96-5	0.001	---	mg/L	---	---	---	0.015	---
Boron	7440-42-8	0.05	---	mg/L	---	---	---	0.718	---
Iron	7439-89-6	0.05	---	mg/L	---	---	---	0.71	---
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	---	0.01	19.3	mg/L	0.06	19.3	19.9	0.06	---
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	---	0.1	3.3	mg/L	0.6	3.3	5.2	135	---
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
Total Nitrogen as N	---	0.1	22.6	mg/L	0.7	22.6	26.1	135	---
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	---	0.01	---	mg/L	---	---	---	2.55	---
EP005: Total Organic Carbon (TOC)									
Total Organic Carbon	---	1	12	mg/L	12	<1	8	76	---
EP056A: Organochlorine Pesticides (OC)									



Analytical Results

Compound	CAS Number	LOR	Unit	Client sample ID				
				UW2	UW3	UD	UL 1	Result
Sub-Matrix: WATER (Matrix: WATER)				05-Mar-2015 09:30 EB1514218-001	05-Mar-2015 12:00 EB1514218-002	[05-Mar-2015] EB1514218-003	05-Mar-2015 12:30 EB1514218-004	
				Result	Result	Result	Result	Result
EP058B: Organophosphorus Pesticides (OP) - Continued								
Parathion	56-38-2	2	µg/L	---	---	---	<2.0	---
Firimphos-ethyl	23505-41-1	0.5	µg/L	---	---	---	<0.5	---
Chlorfenvinphos	470-90-6	0.5	µg/L	---	---	---	<0.5	---
Eromophos-ethyl	4824-78-6	0.5	µg/L	---	---	---	<0.5	---
Fenamiphos	22224-92-6	0.5	µg/L	---	---	---	<0.5	---
Frothifos	34643-48-4	0.5	µg/L	---	---	---	<0.5	---
Ethion	563-12-2	0.5	µg/L	---	---	---	<0.5	---
Carbophenothion	786-19-6	0.5	µg/L	---	---	---	<0.5	---
Azinphos Methyl	86-50-0	0.5	µg/L	---	---	---	<0.5	---
EP074A: Monocyclic Aromatic Hydrocarbons								
Enzente	71-43-2	1	µg/L	---	---	---	<1	---
Toluene	108-88-3	2	µg/L	---	---	---	<2	---
Ethylbenzene	100-41-4	2	µg/L	---	---	---	<2	---
meta- & para-Xylene	108-38-3 108-42-3	2	µg/L	---	---	---	<2	---
Styrene	100-42-5	5	µg/L	---	---	---	<5	---
ortho-Xylene	95-47-6	2	µg/L	---	---	---	<2	---
Isopropylbenzene	98-82-8	5	µg/L	---	---	---	<5	---
n-Propylbenzene	103-65-1	5	µg/L	---	---	---	<5	---
1,3,5-Trimethylbenzene	108-67-8	5	µg/L	---	---	---	<5	---
sec-Butylbenzene	135-98-8	5	µg/L	---	---	---	<5	---
1,2,4-Trimethylbenzene	95-63-6	5	µg/L	---	---	---	<5	---
tert-Butylbenzene	98-06-6	5	µg/L	---	---	---	<5	---
p-Isopropyltoluene	99-87-6	5	µg/L	---	---	---	<5	---
n-Butylbenzene	104-51-8	5	µg/L	---	---	---	<5	---
EP074B: Oxygenated Compounds								
Vinyl Acetate	108-05-4	50	µg/L	---	---	---	<50	---
2-Butanone (MEK)	78-93-3	50	µg/L	---	---	---	<50	---
4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	---	---	---	<50	---
2-Hexanone (MIBK)	591-78-6	50	µg/L	---	---	---	<50	---
EP074C: Sulfonated Compounds								
Carbon disulfide	75-15-0	5	µg/L	---	---	---	<5	---
EP074D: Fumigants								
2,2-Dichloropropane	594-20-7	5	µg/L	---	---	---	<5	---
1,2-Dichloropropane	78-87-5	5	µg/L	---	---	---	<5	---
cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	---	---	---	<5	---



Analytical Results

Compound	CAS Number	LOR	Unit	Client sample ID			
				Sub-Matrix: WATER (Matrix: WATER)	Client sampling date / time	Result	Unit
EP074D: Fumigants - Continued							
trans-1,3-Dichloropropylene	10061-02-5	5	µg/L	05-Mar-2015 09:30	05-Mar-2015 12:00	05-Mar-2015 12:30	---
1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	EB1514218-001	EB1514218-002	EB1514218-004	---
EP074E: Halogenated Aliphatic Compounds							
Dichlorodifluoromethane	75-71-8	50	µg/L	---	---	---	---
Chloromethane	74-87-3	50	µg/L	---	---	---	---
Vinyl chloride	75-01-4	50	µg/L	---	---	---	---
Bromomethane	74-83-9	50	µg/L	---	---	---	---
Chloroethane	75-00-3	50	µg/L	---	---	---	---
Trichlorofluoromethane	75-69-4	50	µg/L	---	---	---	---
1,1-Dichloroethene	75-35-4	5	µg/L	---	---	---	---
Iodomethane	74-88-4	5	µg/L	---	---	---	---
trans-1,2-Dichloroethene	156-60-5	5	µg/L	---	---	---	---
1,1-Dichloroethane	75-34-3	5	µg/L	---	---	---	---
cis-1,2-Dichloroethene	158-59-2	5	µg/L	---	---	---	---
1,1,1-Trichloroethane	71-55-6	5	µg/L	---	---	---	---
1,1-Dichloropropylene	563-58-6	5	µg/L	---	---	---	---
Carbon Tetrachloride	56-23-5	5	µg/L	---	---	---	---
1,2-Dichloroethane	107-06-2	5	µg/L	---	---	---	---
Trichloroethene	79-01-6	5	µg/L	---	---	---	---
Dibromomethane	74-95-3	5	µg/L	---	---	---	---
1,1,2-Trichloroethane	79-00-5	5	µg/L	---	---	---	---
1,3-Dichloropropane	142-28-9	5	µg/L	---	---	---	---
Tetrachloroethene	127-18-4	5	µg/L	---	---	---	---
1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	---	---	---	---
trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	---	---	---	---
cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	---	---	---	---
1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	---	---	---	---
1,2,3-Trichloropropane	96-18-4	5	µg/L	---	---	---	---
Pentachloroethane	76-01-7	5	µg/L	---	---	---	---
1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	---	---	---	---
Hexachlorobutadiene	87-68-3	5	µg/L	---	---	---	---
EP074F: Halogenated Aromatic Compounds							
Chlorobenzene	108-90-7	5	µg/L	---	---	---	---
Bromobenzene	108-86-1	5	µg/L	---	---	---	---
2-Chlorotoluene	95-49-8	5	µg/L	---	---	---	---



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)	Client sample ID	WU2	WU3	UD	UL 1	Result			
Compound	CAS Number	LOR	Unit	Client sampling date / time	WU2	WU3	UD	UL 1	Result
EP074F: Halogenated Aromatic Compounds - Continued									
4-Chlorotoluene	106-43-4	5	µg/L	05-Mar-2015 12:00	EB1514218-001	EB1514218-002	EB1514218-003	05-Mar-2015 12:30	---
1,3-Dichlorobenzene	541-73-1	5	µg/L		---	---	---	<5	---
1,4-Dichlorobenzene	106-46-7	5	µg/L		---	---	---	<5	---
1,2-Dichlorobenzene	95-50-1	5	µg/L		---	---	---	<5	---
1,2,4-Trichlorobenzene	120-82-1	5	µg/L		---	---	---	<5	---
1,2,3-Trichlorobenzene	87-61-8	5	µg/L		---	---	---	<5	---
EP074G: Trihalomethanes									
Chloroform	67-66-3	5	µg/L		---	---	---	<5	---
Bromodichloromethane	75-27-4	5	µg/L		---	---	---	<5	---
Dibromochloromethane	124-48-1	5	µg/L		---	---	---	<5	---
Bromoform	75-25-2	5	µg/L		---	---	---	<5	---
EP074H: Naphthalene									
Naphthalene	91-20-3	5	µg/L		---	---	---	<5	---
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		---	---	---	99.2	---
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		---	---	---	111	---
EP074S: VOC Surrogates									
1,2-Dichloroethane-D4	17060-07-0	5	%		---	---	---	81.4	---
Toluene-D8	2037-26-5	5	%		---	---	---	88.7	---
4-Bromofluorobenzene	460-00-4	5	%		---	---	---	82.4	---



Environmental

QUALITY CONTROL REPORT

Work Order : EB1514218

Client : CODYHART CONSULTING PTY LTD
Contact : MS BARBARA HART
Address : P O BOX 1073
BURLLEIGH HEADS QLD, AUSTRALIA 4220
pelican@codyhart.com.au
+61 55205532
+61 07 55206531
Uralla 245

Laboratory : Environmental Division Brisbane
Contact : Customer Services EB
Address : 2 Byth Street Stafford QLD Australia 4053
E-mail : ALSEnviro.Brisbane@alsglobal.com
Telephone : +61-7-3243 7222
Facsimile : +61-7-3243 7218
QC Level : NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Date Samples Received : 06-Mar-2015
Date Analysis Commenced : 07-Mar-2015
Issue Date : 13-Mar-2015
No. of samples received : 4
No. of samples analysed : 4

Order number :
C-O-C number :
Sampler : BARBARA HART
Site : Uralla Landfill
Quote number :

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD), and Acceptance Limits
• Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
• Matrix Spike (MS) Report; Recovery and Acceptance Limits



WORLD RECOGNISED ACCREDITATION

Signatories

NATA Accredited Laboratory 825

Accredited for compliance with ISO/IEC 17025.

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Table with 2 columns: Signatories (Andrew Epps, Andrew Epps, Kim McCabe, Ryan Story) and Position (Senior Inorganic Chemist, Senior Inorganic Chemist, Senior Inorganic Chemist, 2IC Organic Instrument Chemist)

Table with 2 columns: Accreditation Category (Brisbane Inorganics, Brisbane Organics, Brisbane Inorganics, Brisbane Organics)

Page : 2 of 14
Work Order : EB1514218
Client : CODYHART CONSULTING PTY LTD
Project : Uralla 245



General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high

Key :

Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot

CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

RPD = Relative Percentage Difference

= Indicates failed QC



Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report		RPD (%)	Pass/Fail (Y/N)
						Original Result	Duplicate Result		
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 71796)									
EB1514201-001	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	28	29	0.00	0% - 20%
EB1514201-011	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	851	716	17.2	0% - 20%
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QC Lot: 71798)									
EB1514273-024	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	491	492	0.272	0% - 20%
EB1514218-003	UD	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	136	120	12.8	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 71795)									
EB1514201-001	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	16	16	0.00	0% - 50%
EB1514201-011	Anonymous	ED045G: Chloride	16887-00-6	1	mg/L	355	352	1.01	0% - 20%
ED045G: Chloride by Discrete Analyser (QC Lot: 71797)									
EB1514218-003	UD	ED045G: Chloride	16887-00-6	1	mg/L	266	268	0.809	0% - 20%
ED093F: Dissolved Major Cations (QC Lot: 71596)									
EB1514218-002	UW3	ED093F: Calcium	7440-70-2	1	mg/L	142	138	3.05	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	118	115	2.36	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	11	11	0.00	0% - 50%
		ED093F: Sodium	7440-23-5	1	mg/L	87	85	2.33	0% - 20%
		ED093F: Calcium	7440-70-2	1	mg/L	605	606	0.00	0% - 20%
		ED093F: Magnesium	7439-95-4	1	mg/L	139	138	0.933	0% - 20%
		ED093F: Potassium	7440-09-7	1	mg/L	56	56	0.00	0% - 20%
		ED093F: Sodium	7440-23-5	1	mg/L	116	115	0.00	0% - 20%
EG020F: Dissolved Metals by ICP-MS (QC Lot: 71599)									
EB1514218-003	UD	EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.048	0.048	0.00	0% - 20%
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.028	0.028	0.00	0% - 20%
		EG020A-F: Iron	7439-99-6	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG020A-F: Arsenic	7440-38-2	0.001	mg/L	0.001	0.001	0.00	No Limit
		EG020A-F: Manganese	7439-96-5	0.001	mg/L	0.068	0.070	2.92	0% - 20%
		EG020A-F: Iron	7439-99-6	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EG020T: Total Metals by ICP-MS (QC Lot: 71602)									
EB1514207-006	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.006	0.00	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.007	0.006	0.00	No Limit
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.014	0.014	0.00	No Limit



Laboratory Sample ID	Client Sample ID	Method/Compound	CAS Number	LOR	Unit	Laboratory Duplicate (DUP) Report			Recovery Limits (%)
						Original Result	Duplicate Result	RPD (%)	
Sub-Matrix: WATER									
EG020A-T: Total Metals by ICP-MS (QC Lot: 71502) - continued									
EB1514207-006	Anonymous	EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	<0.05	0.00	No Limit
EB1514208-003	Anonymous	EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	0.00	No Limit
		EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Copper	7440-50-8	0.001	mg/L	0.006	0.005	18.4	No Limit
		EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	0.00	No Limit
		EG020A-T: Manganese	7439-96-5	0.001	mg/L	0.716	0.654	9.11	0% - 20%
		EG020A-T: Nickel	7440-02-0	0.001	mg/L	0.005	0.004	0.00	No Limit
		EG020A-T: Zinc	7440-66-6	0.005	mg/L	0.011	0.006	54.6	No Limit
		EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	<0.05	0.00	No Limit
		EG020A-T: Iron	7439-89-6	0.05	mg/L	0.49	0.38	25.5	No Limit
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QC Lot: 71959)									
EB1514218-001	LW2	EK059G: Nitrite + Nitrate as N	---	0.01	mg/L	0.06	0.06	0.00	No Limit
EB1514301-003	Anonymous	EK059G: Nitrite + Nitrate as N	---	0.01	mg/L	0.09	0.09	0.00	No Limit
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QC Lot: 71782)									
EB1514208-001	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.4	0.4	0.00	No Limit
EB1514208-011	Anonymous	EK061G: Total Kjeldahl Nitrogen as N	---	0.1	mg/L	0.6	0.5	0.00	No Limit
EK067G: Total Phosphorus as P by Discrete Analyser (QC Lot: 71783)									
EB1514208-001	Anonymous	EK067G: Total Phosphorus as P	---	0.01	mg/L	0.03	0.04	0.00	No Limit
EB1514208-011	Anonymous	EK067G: Total Phosphorus as P	---	0.01	mg/L	0.03	0.03	0.00	No Limit
EP005: Total Organic Carbon (TOC) (QC Lot: 72506)									
EB1514107-001	Anonymous	EP005: Total Organic Carbon	---	1	mg/L	2	1	0.00	No Limit
EB1514107-007	Anonymous	EP005: Total Organic Carbon	---	1	mg/L	3	6	59.4	No Limit
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 72387)									
EB1514218-004	UL 1	EP074: Benzene	71-43-2	1	µg/L	<1	<1	0.00	No Limit
		EP074: Ethylbenzene	100-41-4	2	µg/L	<2	<2	0.00	No Limit
		EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	<2	0.00	No Limit
			106-42-3						
		EP074: ortho-Xylene	95-47-6	2	µg/L	<2	<2	0.00	No Limit
		EP074: Toluene	108-88-3	2	µg/L	<2	<2	0.00	No Limit
		EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Butylbenzene	104-51-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: n-Propylbenzene	103-65-1	5	µg/L	<5	<5	0.00	No Limit
		EP074: p-Isopropyltoluene	99-87-6	5	µg/L	<5	<5	0.00	No Limit
		EP074: sec-Butylbenzene	135-98-8	5	µg/L	<5	<5	0.00	No Limit
		EP074: Styrene	100-42-5	5	µg/L	<5	<5	0.00	No Limit
		EP074: tert-Butylbenzene	98-06-6	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: WATER		Laboratory Duplicates (DUP) Report					
Laboratory sample ID	Client sample ID	CAS Number	Unit	Original Result	Duplicate Result	MSD (%)	Recovery Limit (%)
EP074A: Monocyclic Aromatic Hydrocarbons (QC Lot: 72387) - continued							
EB1514345-003	Anonymous	71-43-2	µg/L	<1	<1	0.00	No Limit
		100-41-4	µg/L	<2	<2	0.00	No Limit
		108-38-3	µg/L	<2	<2	0.00	No Limit
		106-42-3					
		95-47-6	µg/L	<2	<2	0.00	No Limit
		108-88-3	µg/L	<2	<2	0.00	No Limit
		95-63-6	µg/L	<5	<5	0.00	No Limit
		108-67-8	µg/L	<5	<5	0.00	No Limit
		98-82-8	µg/L	<5	<5	0.00	No Limit
		104-51-8	µg/L	<5	<5	0.00	No Limit
		103-65-1	µg/L	<5	<5	0.00	No Limit
		99-87-6	µg/L	<5	<5	0.00	No Limit
		135-98-8	µg/L	<5	<5	0.00	No Limit
		100-42-5	µg/L	<5	<5	0.00	No Limit
		98-06-6	µg/L	<5	<5	0.00	No Limit
EP074B: Oxygenated Compounds (QC Lot: 72387)							
EB1514218-004	UL 1	78-93-3	µg/L	<50	<50	0.00	No Limit
		591-78-6	µg/L	<50	<50	0.00	No Limit
		108-10-1	µg/L	<50	<50	0.00	No Limit
		108-05-4	µg/L	<50	<50	0.00	No Limit
		78-93-3	µg/L	<50	<50	0.00	No Limit
		591-78-6	µg/L	<50	<50	0.00	No Limit
		108-10-1	µg/L	<50	<50	0.00	No Limit
		108-05-4	µg/L	<50	<50	0.00	No Limit
EP074C: Sulfonated Compounds (QC Lot: 72387)							
EB1514218-004	UL 1	75-15-0	µg/L	<5	<5	0.00	No Limit
EB1514345-003	Anonymous	75-15-0	µg/L	<5	<5	0.00	No Limit
EP074D: Fumigants (QC Lot: 72387)							
EB1514218-004	UL 1	106-93-4	µg/L	<5	<5	0.00	No Limit
		78-87-5	µg/L	<5	<5	0.00	No Limit
		594-20-7	µg/L	<5	<5	0.00	No Limit
		10061-01-5	µg/L	<5	<5	0.00	No Limit
		10061-02-6	µg/L	<5	<5	0.00	No Limit
		106-93-4	µg/L	<5	<5	0.00	No Limit
		78-87-5	µg/L	<5	<5	0.00	No Limit
		594-20-7	µg/L	<5	<5	0.00	No Limit
		10061-01-5	µg/L	<5	<5	0.00	No Limit
		10061-02-6	µg/L	<5	<5	0.00	No Limit
EP074E: Halogenated Aliphatic Compounds (QC Lot: 72387)							
EB1514218-004	UL 1	630-20-6	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: WATER		Laboratory Duplicate (DUP) Report									
Laboratory sample ID	Client sample ID	Method Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)		
EE1514218-004	UL 1	EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Carbon Tetrachloride	58-23-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Tetrachloroethane	127-18-4	5	µg/L	<5	<5	0.00	No Limit		
		EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit		
		EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit		
		EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit		
		EPC74: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit		
EPC74: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit				
EPC74: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit				
EB1514345-003	Anonymous	EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1,1-Trichloroethane	71-55-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,2-Dichloroethane	107-06-2	5	µg/L	<5	<5	0.00	No Limit		
		EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	<5	0.00	No Limit		
		EP074: Carbon Tetrachloride	58-23-5	5	µg/L	<5	<5	0.00	No Limit		
		EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	<5	0.00	No Limit		
		EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	<5	0.00	No Limit		



Laboratory sample ID		Client sample ID	Fishhook Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
Sub-Matrix: WATER										
Laboratory sample ID Client sample ID Fishhook Compound										
EP074E: Halogenated Aliphatic Compounds (QC Lot: 72387) - continued										
EB1514345-003		Anonymous	EP074: Dibromomethane	74-95-3	5	µg/L	<5	<5	0.00	No Limit
			EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	<5	0.00	No Limit
			EP074: Iodomethane	74-88-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: Pentachloroethane	76-01-7	5	µg/L	<5	<5	0.00	No Limit
			EP074: Tetrachloroethane	127-18-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	<5	0.00	No Limit
			EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	<5	0.00	No Limit
			EP074: Trichloroethene	79-01-6	5	µg/L	<5	<5	0.00	No Limit
			EP074: Bromomethane	74-83-9	50	µg/L	<50	<50	0.00	No Limit
			EP074: Chloroethane	75-00-3	50	µg/L	<50	<50	0.00	No Limit
			EP074: Chloromethane	74-87-3	50	µg/L	<50	<50	0.00	No Limit
			EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	<50	0.00	No Limit
			EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	<50	0.00	No Limit
			EP074: Vinyl chloride	75-01-4	50	µg/L	<50	<50	0.00	No Limit
EP074F: Halogenated Aromatic Compounds (QC Lot: 72387)										
EB1514218-004		UL 1	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
			EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
			EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
			EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
			EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
EB1514345-003										
		Anonymous	EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	<5	0.00	No Limit
			EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	<5	0.00	No Limit
			EP074: 4-Chlorotoluene	106-43-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: Bromobenzene	108-86-1	5	µg/L	<5	<5	0.00	No Limit
			EP074: Chlorobenzene	108-90-7	5	µg/L	<5	<5	0.00	No Limit
EP074G: Trihalomethanes (QC Lot: 72387)										
EB1514218-004		UL 1	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit
			EP074: Chloroform	67-68-3	5	µg/L	<5	<5	0.00	No Limit
			EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
		Anonymous	EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	<5	0.00	No Limit
			EP074: Bromoform	75-25-2	5	µg/L	<5	<5	0.00	No Limit



Sub-Matrix: WATER									
Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Recovery Limits (%)
EP074G: Trifluoromethanes (QC Lot: 72387) - continued									
EB1514345-003	Anonymous	EP074: Chloroform	67-66-3	5	µg/L	<5	<5	0.00	No Limit
		EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	<5	0.00	No Limit
EP074H: Naphthalene (QC Lot: 72387)									
EB1514218-004	UL 1	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit
EB1514345-003	Anonymous	EP074: Naphthalene	91-20-3	5	µg/L	<5	<5	0.00	No Limit



Method Blank (MB) and Laboratory Control Spike (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Method Blank (MB) Report				Laboratory Control Spike (LCS) Report			
Method/Compound	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
						LCS	Low High
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 71796)							
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.4	85 118
				<1	100 mg/L	91.1	85 118
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 71798)							
ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	25 mg/L	98.7	85 118
				<1	100 mg/L	96.6	85 118
ED045G: Chloride by Discrete Analyser (QCLot: 71795)							
ED045G: Chloride	15887-00-6	1	mg/L	<1	10 mg/L	98.8	90 115
				<1	1000 mg/L	99.4	90 115
ED045G: Chloride by Discrete Analyser (QCLot: 71797)							
ED045G: Chloride	15887-00-6	1	mg/L	<1	10 mg/L	91.7	90 115
				<1	1000 mg/L	98.6	90 115
ED093F: Dissolved Major Cations (QCLot: 71596)							
ED093F: Calcium	7440-70-2	1	mg/L	<1	—	—	—
ED093F: Magnesium	7439-95-4	1	mg/L	<1	—	—	—
ED093F: Potassium	7440-09-7	1	mg/L	<1	—	—	—
ED093F: Sodium	7440-23-5	1	mg/L	<1	—	—	—
EG020F: Dissolved Metals by ICP-MS (QCLot: 71699)							
EG020A-F: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	95.4	88 116
EG020A-F: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	92.0	82 114
EG020A-F: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	91.0	89 120
EG020T: Total Metals by ICP-MS (QCLot: 71602)							
EG020A-T: Arsenic	7440-38-2	0.001	mg/L	<0.001	0.1 mg/L	96.8	88 112
EG020A-T: Boron	7440-42-8	0.05	mg/L	<0.05	0.5 mg/L	94.6	82 128
EG020A-T: Cadmium	7440-43-9	0.0001	mg/L	<0.0001	0.1 mg/L	97.8	88 111
EG020A-T: Chromium	7440-47-3	0.001	mg/L	<0.001	0.1 mg/L	98.1	89 115
EG020A-T: Copper	7440-50-8	0.001	mg/L	<0.001	0.2 mg/L	100	88 116
EG020A-T: Iron	7439-89-6	0.05	mg/L	<0.05	0.5 mg/L	104	82 118
EG020A-T: Lead	7439-92-1	0.001	mg/L	<0.001	0.1 mg/L	93.9	89 112
EG020A-T: Manganese	7439-96-5	0.001	mg/L	<0.001	0.1 mg/L	99.3	88 114
EG020A-T: Nickel	7440-02-0	0.001	mg/L	<0.001	0.1 mg/L	95.6	88 116
EG020A-T: Zinc	7440-66-6	0.005	mg/L	<0.005	0.2 mg/L	98.7	84 114
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 71969)							
EK059G: Nitrite + Nitrate as N	—	0.01	mg/L	<0.01	0.5 mg/L	101	89 115
EK059G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 71782)							



Sub-Matrix: WATER

Method	Compound	CAS Number	LOR	Unit	Result	Laboratory Control Spike (LCS) Report			
						Spike Concentration	Spike Recovery (%)	Recovery Limits (%)	
Method Blank (MB) Report						Low	High		
EK051G: Total Kjeldahl Nitrogen By Discrete Analyser (OCLot: 71752) - continued									
EK061G	Total Kjeldahl Nitrogen as N	---	0.1	mg/L	<0.1	10 mg/L	86.7	70	111
EK067G: Total Phosphorus as P by Discrete Analyser (OCLot: 71781)									
EK067G	Total Phosphorus as P	---	0.01	mg/L	<0.01	4.42 mg/L	83.9	77	109
EP005: Total Organic Carbon (TOC) (OCLot: 72506)									
EP005	Total Organic Carbon	---	1	mg/L	<1	10 mg/L	102	79	113
EP058A: Organochlorine Pesticides (OC) (OCLot: 71998)									
EP068	4,4'-DDD	72-54-8	0.5	µg/L	<0.5	5 µg/L	75.7	52	124
EP068	4,4'-DDE	72-55-9	0.5	µg/L	<0.5	5 µg/L	78.7	56	122
EP068	4,4'-DDT	50-29-3	2	µg/L	<2.0	5 µg/L	130	35	131
EP068	Aldrin	309-00-2	0.5	µg/L	<0.5	5 µg/L	78.3	52	123
EP068	alpha-BHC	319-84-6	0.5	µg/L	<0.5	5 µg/L	82.6	45	125
EP068	alpha-Endosulfan	959-98-8	0.5	µg/L	<0.5	5 µg/L	79.0	54	128
EP068	beta-BHC	319-85-7	0.5	µg/L	<0.5	5 µg/L	76.3	39	122
EP068	beta-Endosulfan	33213-85-9	0.5	µg/L	<0.5	5 µg/L	80.9	50	126
EP068	cis-Chlordane	5103-71-9	0.5	µg/L	<0.5	5 µg/L	83.5	51	125
EP068	delta-BHC	319-86-8	0.5	µg/L	<0.5	5 µg/L	91.6	53	112
EP068	Dieldrin	60-57-1	0.5	µg/L	<0.5	5 µg/L	81.7	50	124
EP068	Endosulfan sulfate	1031-07-8	0.5	µg/L	<0.5	5 µg/L	82.1	37	124
EP068	Endrin	72-20-8	0.5	µg/L	<0.5	5 µg/L	100	47	129
EP068	Endrin aldehyde	7421-93-4	0.5	µg/L	<0.5	5 µg/L	119	49	131
EP068	Endrin ketone	53494-70-5	0.5	µg/L	<0.5	5 µg/L	88.1	45	129
EP068	gamma-BHC	58-89-9	0.5	µg/L	<0.5	5 µg/L	79.0	42	119
EP068	Heptachlor	76-44-8	0.5	µg/L	<0.5	5 µg/L	109	45	118
EP068	Heptachlor epoxide	1024-57-3	0.5	µg/L	<0.5	5 µg/L	86.9	52	124
EP068	Hexachlorobenzene (HCB)	118-74-1	0.5	µg/L	<0.5	5 µg/L	74.5	41	121
EP068	Methoxychlor	72-43-5	2	µg/L	<2.0	5 µg/L	120	32	135
EP068	Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.5	µg/L	<0.5	---	---	---	---
EP068	Sum of DDD + DDE + DDT	---	0.5	µg/L	<0.5	---	---	---	---
EP068	Total Chlordane (sum)	---	0.5	µg/L	<0.5	---	---	---	---
EP068	trans-Chlordane	5103-74-2	0.5	µg/L	<0.5	5 µg/L	85.0	48	125
EP068B: Organophosphorus Pesticides (OP) (OCLot: 71998)									
EP068	Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	5 µg/L	80.0	44	130
EP068	Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	5 µg/L	85.6	52	124
EP068	Carbophenothion	786-19-6	0.5	µg/L	<0.5	5 µg/L	95.0	48	128
EP068	Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	5 µg/L	96.6	50	127
EP068	Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	5 µg/L	85.0	54	119
EP068	Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	5 µg/L	94.3	50	118



Sub-Matrix: WATER		Method Blank (MB) Report				Laboratory Control Spike (LCS) Report			
Method	CAS Number	LOR	Unit	Result	Spike Concentration	Spike Recovery (%)	LCS	Low	High
Method: Organophosphorus Pesticides (OP) (QCLot: 71938) - continued									
EP068: Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	5 µg/L	100	100	44	118
EP068: Diazinon	333-41-5	0.5	µg/L	<0.5	5 µg/L	72.8	72.8	44	129
EP068: Dichlorvos	62-73-7	0.5	µg/L	<0.5	5 µg/L	82.7	82.7	49	115
EP068: Dimethoate	60-51-5	0.5	µg/L	<0.5	5 µg/L	65.8	65.8	41	111
EP068: Ethion	563-12-2	0.5	µg/L	<0.5	5 µg/L	89.2	89.2	50	127
EP068: Fenamiphos	22224-92-6	0.5	µg/L	<0.5	5 µg/L	93.8	93.8	43	121
EP068: Fenthion	55-38-9	0.5	µg/L	<0.5	5 µg/L	92.8	92.8	49	121
EP068: Malathion	121-75-5	0.5	µg/L	<0.5	5 µg/L	99.5	99.5	51	122
EP068: Monocrotophos	6923-22-4	2	µg/L	<2.0	5 µg/L	# 14.0	# 14.0	16	49
EP068: Parathion	56-38-2	2	µg/L	<2.0	5 µg/L	118	118	43	123
EP068: Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	5 µg/L	86.4	86.4	52	126
EP068: Prothiofos	34643-46-4	0.5	µg/L	<0.5	5 µg/L	86.4	86.4	53	126
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 72387)									
EP074: 1,2,4-Trimethylbenzene	95-63-6	5	µg/L	<5	10 µg/L	104	104	84	118
EP074: 1,3,5-Trimethylbenzene	108-67-8	5	µg/L	<5	10 µg/L	96.4	96.4	83	119
EP074: Benzene	71-43-2	1	µg/L	<1	10 µg/L	106	106	86	116
EP074: Ethylbenzene	100-41-4	2	µg/L	<2	10 µg/L	104	104	84	116
EP074: Isopropylbenzene	98-82-8	5	µg/L	<5	10 µg/L	97.6	97.6	84	118
EP074: meta- & para-Xylene	108-38-3	2	µg/L	<2	20 µg/L	104	104	83	119
EP074: n-Butylbenzene	106-42-3	5	µg/L	<5	10 µg/L	85.9	85.9	80	122
EP074: n-Propylbenzene	104-51-8	5	µg/L	<5	10 µg/L	101	101	80	120
EP074: ortho-Xylene	103-65-1	2	µg/L	<2	10 µg/L	100.0	100.0	83	120
EP074: p-Isopropyltoluene	95-47-6	5	µg/L	<5	10 µg/L	102	102	81	121
EP074: sec-Butylbenzene	99-87-6	5	µg/L	<5	10 µg/L	102	102	82	122
EP074: Styrene	135-98-8	5	µg/L	<5	10 µg/L	108	108	76	119
EP074: tert-Butylbenzene	100-42-5	5	µg/L	<5	10 µg/L	99.7	99.7	81	121
EP074: Toluene	98-06-6	5	µg/L	<5	10 µg/L	109	109	82	120
EP074: Toluene	108-88-3	2	µg/L	<2	10 µg/L				
EP074B: Oxygenated Compounds (QCLot: 72387)									
EP074: 2-Butanone (MEK)	78-93-3	50	µg/L	<50	100 µg/L	94.3	94.3	67	127
EP074: 2-Hexanone (MBK)	591-78-6	50	µg/L	<50	100 µg/L	104	104	65	131
EP074: 4-Methyl-2-pentanone (MIBK)	108-10-1	50	µg/L	<50	100 µg/L	103	103	64	126
EP074: Vinyl Acetate	108-05-4	50	µg/L	<50	100 µg/L	103	103	65	131
EP074C: Sulfonated Compounds (QCLot: 72387)									
EP074: Carbon disulfide	75-15-0	5	µg/L	<5	10 µg/L	102	102	72	128
EP074D: Fumigants (QCLot: 72387)									
EP074: 1,2-Dibromoethane (EDB)	106-93-4	5	µg/L	<5	10 µg/L	97.1	97.1	78	122
EP074: 1,2-Dichloropropane	78-87-5	5	µg/L	<5	10 µg/L	109	109	83	117



Sub-Matrix: WATER

Method/Compound	CAS Number	LOR	Unit	Method Blank (MB) Report Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)	
						LCS	Low	High	
EP074D: Fumigants (QCLot: 72387) - continued									
EP074: 2,2-Dichloropropane	594-20-7	5	µg/L	<5	10 µg/L	94.3	71	139	
EP074: cis-1,3-Dichloropropylene	10061-01-5	5	µg/L	<5	20 µg/L	103	75	123	
EP074: trans-1,3-Dichloropropylene	10061-02-8	5	µg/L	<5	20 µg/L	104	69	127	
EP074E: Halogenated Aliphatic Compounds (QCLot: 72387)									
EP074: 1,1,1,2-Tetrachloroethane	630-20-6	5	µg/L	<5	10 µg/L	92.6	78	120	
EP074: 1,1,1-Trichloroethane	71-55-8	5	µg/L	<5	10 µg/L	84.7	79	121	
EP074: 1,1,2,2-Tetrachloroethane	79-34-5	5	µg/L	<5	10 µg/L	103	77	124	
EP074: 1,1,2-Trichloroethane	79-00-5	5	µg/L	<5	10 µg/L	97.5	81	122	
EP074: 1,1-Dichloroethane	75-34-3	5	µg/L	<5	10 µg/L	96.9	76	123	
EP074: 1,1-Dichloroethene	75-35-4	5	µg/L	<5	10 µg/L	95.3	75	127	
EP074: 1,1-Dichloropropylene	563-58-6	5	µg/L	<5	10 µg/L	92.2	83	117	
EP074: 1,2,3-Trichloropropane	96-18-4	5	µg/L	<5	10 µg/L	97.7	71	129	
EP074: 1,2-Dibromo-3-chloropropane	96-12-8	5	µg/L	<5	10 µg/L	76.5	64	134	
EP074: 1,2-Dichloroethane	107-08-2	5	µg/L	<5	10 µg/L	98.8	82	120	
EP074: 1,3-Dichloropropane	142-28-9	5	µg/L	<5	10 µg/L	99.9	82	121	
EP074: Bromomethane	74-83-9	50	µg/L	<50	100 µg/L	100	58	135	
EP074: Carbon Tetrachloride	56-23-5	5	µg/L	<5	10 µg/L	89.7	77	125	
EP074: Chloroethane	75-00-3	50	µg/L	<50	100 µg/L	95.1	69	129	
EP074: Chloromethane	74-87-3	50	µg/L	<50	100 µg/L	102	57	135	
EP074: cis-1,2-Dichloroethene	156-59-2	5	µg/L	<5	10 µg/L	102	83	119	
EP074: cis-1,4-Dichloro-2-butene	1476-11-5	5	µg/L	<5	10 µg/L	92.3	58	135	
EP074: Dibromomethane	74-95-3	5	µg/L	<5	10 µg/L	107	78	122	
EP074: Dichlorodifluoromethane	75-71-8	50	µg/L	<50	100 µg/L	95.0	42	140	
EP074: Hexachlorobutadiene	87-68-3	5	µg/L	<5	10 µg/L	96.9	67	137	
EP074: Iodomethane	74-88-4	5	µg/L	<5	10 µg/L	104	52	135	
EP074: Pentachloroethane	76-01-7	5	µg/L	<5	10 µg/L	94.5	67	127	
EP074: Tetrachloroethene	127-18-4	5	µg/L	<5	10 µg/L	94.6	83	119	
EP074: trans-1,2-Dichloroethene	156-60-5	5	µg/L	<5	10 µg/L	88.0	77	123	
EP074: trans-1,4-Dichloro-2-butene	110-57-6	5	µg/L	<5	10 µg/L	119	56	135	
EP074: Trichloroethene	78-01-8	5	µg/L	<5	10 µg/L	97.6	84	118	
EP074: Trichlorofluoromethane	75-69-4	50	µg/L	<50	100 µg/L	86.8	70	132	
EP074: Vinyl chloride	75-01-4	50	µg/L	<50	100 µg/L	90.0	48	145	
EP074F: Halogenated Aromatic Compounds (QCLot: 72387)									
EP074: 1,2,3-Trichlorobenzene	87-61-6	5	µg/L	<5	10 µg/L	101	78	123	
EP074: 1,2,4-Trichlorobenzene	120-82-1	5	µg/L	<5	10 µg/L	100	79	121	
EP074: 1,2-Dichlorobenzene	95-50-1	5	µg/L	<5	10 µg/L	110	85	115	
EP074: 1,3-Dichlorobenzene	541-73-1	5	µg/L	<5	10 µg/L	101	85	117	
EP074: 1,4-Dichlorobenzene	106-46-7	5	µg/L	<5	10 µg/L	99.6	85	117	
EP074: 2-Chlorotoluene	95-49-8	5	µg/L	<5	10 µg/L	98.7	84	118	



Method: Compound	CAS Number	LOR	Unit	Method Blank (MS) Report	Laboratory Control Spike (LCS) Report		
					Spike Concentration	Spike Recovery (%)	Recovery Limits (%)
Sub-Matrix: WATER							
Method: Compound							
EP074F: Halogenated Aromatic Compounds (QCLot: 72387) - continued							
EP074: 4-Chlorotoluene	108-43-4	5	µg/L	<5	10 µg/L	85	
EP074: Bromobenzene	108-86-1	5	µg/L	<5	10 µg/L	83	
EP074: Chlorobenzene	108-90-7	5	µg/L	<5	10 µg/L	84	
EP074G: Trihalomethanes (QCLot: 72387)							
EP074: Bromodichloromethane	75-27-4	5	µg/L	<5	10 µg/L	79	
EP074: Bromoform	75-25-2	5	µg/L	<5	10 µg/L	74	
EP074: Chloroform	67-66-3	5	µg/L	<5	10 µg/L	81	
EP074: Dibromochloromethane	124-48-1	5	µg/L	<5	10 µg/L	77	
EP074H: Naphthalene (QCLot: 72387)							
EP074: Naphthalene	91-20-3	5	µg/L	<5	10 µg/L	75	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Spike Concentration	Matrix Spike (MS) Report		Recovery Limits (%)
					Spike Recovery (%)	MS	
Sub-Matrix: WATER							
Method: Compound							
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 71795)							
EB1514201-002	Anonymous	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	101	70	130
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA (QCLot: 71798)							
EB1514218-004	UL 1	ED041G: Sulfate as SO4 - Turbidimetric	14808-79-8	20 mg/L	87.2	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 71795)							
EB1514201-002	Anonymous	ED045G: Chloride	16887-00-6	400 mg/L	102	70	130
ED045G: Chloride by Discrete Analyser (QCLot: 71797)							
EB1514218-004	UL 1	ED045G: Chloride	16887-00-6	400 mg/L	92.2	70	130
EG020F: Dissolved Metals by ICP-MS (QCLot: 71599)							
EB1514201-014	Anonymous	EG020A-F: Arsenic	7440-38-2	0.1 mg/L	95.6	70	130
		EG020A-F: Manganese	7439-96-5	0.1 mg/L	85.6	70	130
EG020T: Total Metals by ICP-MS (QCLot: 71602)							
EB1514207-007	Anonymous	EG020A-T: Arsenic	7440-38-2	1 mg/L	91.8	70	130
		EG020A-T: Cadmium	7440-43-9	0.5 mg/L	95.0	70	130
		EG020A-T: Chromium	7440-47-3	1 mg/L	94.8	70	130
		EG020A-T: Copper	7440-50-8	1 mg/L	95.2	70	130
		EG020A-T: Lead	7439-92-1	1 mg/L	89.4	70	130
		EG020A-T: Manganese	7439-96-5	1 mg/L	93.1	70	130
		EG020A-T: Nickel	7440-02-0	1 mg/L	90.6	70	130



Laboratory sample ID		Client sample ID	Method: Compound	CAS Number	Spike Concentration	MS Spike Recovery(%)	Recovery Limits (%)
					Low	High	
Sub-Matrix: WATER							
EG020T: Total Metals by ICP-MS (QCLot: 71602) - continued							
EB1514207-007	Anonymous	7440-66-6	EG020A-T: Zinc		1 mg/L	95.0	70 130
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser (QCLot: 71959)							
EB1514218-002	UW3		EK059G: Nitrite + Nitrate as N		0.4 mg/L	# Not Determined	70 130
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser (QCLot: 71782)							
EB1514208-002	Anonymous		EK061G: Total Kjeldahl Nitrogen as N		5 mg/L	102	70 130
EK067G: Total Phosphorus as P by Discrete Analyser (QCLot: 71781)							
EB1514208-002	Anonymous		EK067G: Total Phosphorus as P		1 mg/L	109	70 130
EP005: Total Organic Carbon (TOC) (QCLot: 72506)							
EB1514107-002	Anonymous		EP005: Total Organic Carbon		100 mg/L	101	70 130
EP074A: Monocyclic Aromatic Hydrocarbons (QCLot: 72387)							
EB1514275-001	Anonymous	71-43-2	EP074: Benzene		10 µg/L	116	70 130
		108-88-3	EP074: Toluene		10 µg/L	104	70 130
EP074E: Halogenated Aliphatic Compounds (QCLot: 72387)							
EB1514275-001	Anonymous	75-35-4	EP074: 1,1-Dichloroethene		10 µg/L	113	70 130
		79-01-6	EP074: Trichloroethene		10 µg/L	107	70 130
EP074F: Halogenated Aromatic Compounds (QCLot: 72387)							
EB1514275-001	Anonymous	108-90-7	EP074: Chlorobenzene		10 µg/L	100	70 130

Work Order	: EB1514218	Page	1 of 7
Client	CODYHART CONSULTING PTY LTD	Laboratory	Environmental Division Brisbane
Contact	MS BARBARA HART	Telephone	+61-7-3243 7222
Project	Uralla 245	Date Samples Received	06-Mar-2015
Site	Uralla Landfill	Issue Date	13-Mar-2015
Sampler	BARBARA HART	No. of samples received	4
Order number	---	No. of samples analysed	4

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist Internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **Laboratory Control outliers exist - please see following pages for full details.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **Quality Control Sample Frequency Outliers exist - please see following pages for full details.**



Outliers : Quality Control Samples
 Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Laboratory Control Spike (LCS) Recoveries							
EP068B: Organophosphorus Pesticides (OP)	QC-71988-002	--	Monocrotophos	6923-22-4	14.0 %	16-49%	Recovery less than lower control limit
Matrix Spike (MS) Recoveries							
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Ar EB1514218-002	UW3		Nitrite + Nitrate as N	--	Not Determined	--	MS recovery not determined, background level greater than or equal to 4x spike level.

Outliers : Frequency of Quality Control Samples

Quality Control Sample Type	Count		Rate (%)		Quality Control Specification
	QC	Regular	Actual	Expected	
Laboratory Duplicates (DLP)	0	1	0.00	10.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	0	1	0.00	5.00	NEPM 2013 Schedule B(3) and ALS QCS3 requirement

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive of Vinyl Chloride and Styrene are not key analytes of interest/concern.

Method	Container / Client Sample ID(s)	Sample Date	Extraction / Preparation		Analysis	
			Date extracted	Due for extraction	Date analysed	Due for analysis
ED041G: Sulfate (Turbidimetric) as SO4 z-by DA						
Clear Plastic Bottle - Natural (ED041G)	UW3, UL 1	05-Mar-2015	--	--	09-Mar-2015	02-Apr-2015 ✓
ED045G: Chloride by Discrete Analyser						
Clear Plastic Bottle - Natural (ED045G)	UW3, UL 1	05-Mar-2015	--	--	09-Mar-2015	02-Apr-2015 ✓
ED049F: Dissolved Major Cations						
Clear Plastic Bottle - Nitric Acid; Filtered (ED049F)	UW3	05-Mar-2015	--	--	10-Mar-2015	02-Apr-2015 ✓

Matrix: WATER
 Evaluation: * = Holding time breach ; ✓ = Within holding time.



Matrix: **WATER**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample Dst	Sample Date	Extraction / Preparation		Analysis		
		Date extracted	Due for extraction	Date analysed	Due for analysis	
EG020E: Dissolved Metals by ICP-MS Clear Plastic Bottle - Nitric Acid; Filtered (EG020A-F) UW2, UD	05-Mar-2015	---	---	10-Mar-2015	01-Sep-2015	✓
EG020T: Total Metals by ICP-MS Clear Plastic Bottle - Nitric Acid; Unfiltered (EG020A-T) UL 1	05-Mar-2015	07-Mar-2015	01-Sep-2015	10-Mar-2015	01-Sep-2015	✓
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser Clear Plastic Bottle - Sulfuric Acid (EK059G) UW2, UD	05-Mar-2015	---	---	10-Mar-2015	02-Apr-2015	✓
EK061G: Total Kjeldahl Nitrogen by Discrete Analyser Clear Plastic Bottle - Sulfuric Acid (EK061G) UW2, UD	05-Mar-2015	09-Mar-2015	02-Apr-2015	10-Mar-2015	02-Apr-2015	✓
EK067G: Total Phosphorus as P by Discrete Analyser Clear Plastic Bottle - Sulfuric Acid (EK067G) UL 1	05-Mar-2015	09-Mar-2015	02-Apr-2015	10-Mar-2015	02-Apr-2015	✓
EP005: Total Organic Carbon (TOC) Amber VOC Vial - Sulfuric Acid (EP005) UW2, UD	05-Mar-2015	---	---	11-Mar-2015	02-Apr-2015	✓
EP008B: Organophosphorus Pesticides (OP) Amber Glass Bottle - Unpreserved (EP068) UL 1	05-Mar-2015	09-Mar-2015	12-Mar-2015	10-Mar-2015	18-Apr-2015	✓
EP074C: Sulfonated Compounds Amber VOC Vial - Sulfuric Acid (EP074) UL 1	05-Mar-2015	11-Mar-2015	19-Mar-2015	11-Mar-2015	19-Mar-2015	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **WATER**

Evaluation: * = Quality Control frequency not within specification; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)		Evaluation	Quality Control Specification
		QC	Regular	Actual	Expected		
Laboratory Duplicates (DUP)							
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	2	19	10.53	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	2	19	10.53	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	2	16	12.50	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	0	1	0.00	10.00	✗	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP005	2	19	10.53	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	2	17	11.76	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Laboratory Control Samples (LCS)							
Chloride by Discrete Analyser	ED045G	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.26	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	6.25	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	1	100.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	2	20	10.00	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP005	2	19	10.53	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.88	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Method Blanks (MB)							
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.26	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Major Cations - Dissolved	ED093F	1	19	5.26	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	6.25	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	1	1	100.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP005	2	19	10.53	10.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.88	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Matrix Spikes (MS)							
Chloride by Discrete Analyser	ED045G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Matrix: WATER
 Evaluation: x = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)		Evaluation	Quality Control Specification
		QC	Regular	Actual	Expected		
Matrix Spikes (MS) - Continued							
Dissolved Metals by ICP-MS - Suite A	EG020A-F	1	19	5.26	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK059G	1	16	6.25	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Pesticides by GCMS	EP068	0	1	0.00	5.00	x	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Metals by ICP-MS - Suite A	EG020A-T	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Organic Carbon	EP005	1	19	5.26	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Total Phosphorus as P By Discrete Analyser	EK067G	1	20	5.00	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Volatile Organic Compounds	EP074	1	17	5.88	5.00	✓	NEPM 2013 Schedule B(3) and ALS QCS3 requirement



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Sulfate (Turbidimetric) as SO4 2- by Discrete Analyser	ED041G	WATER	In house: Referenced to APHA 21st ed., 4500-SO4. Dissolved sulfate is determined in a 0.45um filtered sample. Sulfate ions are converted to a barium sulfate suspension in an acetic acid medium with barium chloride. Light absorbance of the BaSO4 suspension is measured by a photometer and the SO4-2 concentration is determined by comparison of the reading with a standard curve. This method is compliant with NEPM (2013) Schedule B(3)
Chloride by Discrete Analyser	ED045G	WATER	In house: Referenced to APHA 21st ed., 4500 Cl - G. The thiocyanate ion is liberated from mercuric thiocyanate through sequestration of mercury by the chloride ion to form non-ionised mercuric chloride. In the presence of ferric ions the liberated thiocyanate forms highly-coloured ferric thiocyanate which is measured at 480 nm APHA 21st edition seal method 2 017-1-L april 2003
Major Cations - Dissolved	ED083F	WATER	In house: Referenced to APHA 3120 and 3125; USEPA SW 846 - 6010 and 6020; Cations are determined by either ICP-AES or ICP-MS techniques. This method is compliant with NEPM (2013) Schedule B(3)
Dissolved Metals by ICP-MS - Suite A	EG020A-F	WATER	Sodium Adsorption Ratio is calculated from Ca, Mg and Na which determined by ALS in house method QWI-EN/ED093F. This method is compliant with NEPM (2013) Schedule B(3) Hardness parameters are calculated based on APHA 21st ed., 2340 B. This method is compliant with NEPM (2013) Schedule B(3)
Total Metals by ICP-MS - Suite A	EG020A-T	WATER	In house: Referenced to APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. Samples are 0.45 um filtered prior to analysis. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements, ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Nitrite and Nitrate as N (NOx) by Discrete Analyser	EK069G	WATER	In house: Referenced to APHA 21st ed., 3125; USEPA SW846 - 6020, ALS QWI-EN/EG020. The ICPMS technique utilizes a highly efficient argon plasma to ionize selected elements. Ions are then passed into a high vacuum mass spectrometer, which separates the analytes based on their distinct mass to charge ratios prior to their measurement by a discrete dynode ion detector.
Total Kjeldahl Nitrogen as N By Discrete Analyser	EK061G	WATER	In house: Referenced to APHA 21st ed., 4500-NO3- F. Combined oxidised Nitrogen (NO2+NO3) is determined by Chemical Reduction and direct colourimetry by Discrete Analyser. This method is compliant with NEPM (2013) Schedule B(3)
Total Nitrogen as N (TKN + Nox) By Discrete Analyser	EK062G	WATER	In house: Referenced to APHA 21st ed., 4500-Norg / 4500-NO3-. This method is compliant with NEPM (2013) Schedule B(3)
Total Phosphorus as P By Discrete Analyser	EK067G	WATER	In house: Referenced to APHA 21st ed., 4500-P H, Jirka et al (1976), Zhang et al (2006). This procedure involves sulphuric acid digestion of a sample aliquot to break phosphorus down to orthophosphate. The orthophosphate reacts with ammonium molybdate and antimony potassium tartrate to form a complex which is then reduced and its concentration measured at 880nm using discrete analyser. This method is compliant with NEPM (2013) Schedule B(3)



Analytical Methods	Method	Matrix	Method Descriptions
Total Organic Carbon	EP005	WATER	In house: Referenced to APHA 21st ed., 5310 B, The automated TOC analyzer determines Total and Inorganic Carbon by IR cell. TOC is calculated as the difference. This method is compliant with NEPM (2013) Schedule B(3)
Pesticides by GCMS	EP068	WATER	USEPA SW 846 - 8270D Sample extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Volatile Organic Compounds	EP074	WATER	USEPA SW 846 - 8260B Water samples are directly purged prior to analysis by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM (2013) Schedule B(3)
Preparation Methods	Method	Matrix	Method Descriptions
TKN/TP Digestion	EK061/EK067	WATER	APHA 21st ed., 4500 Norg - D; APHA 21st ed., 4500 P - H. This method is compliant with NEPM (2013) Schedule B(3)
Digestion for Total Recoverable Metals	EN25	WATER	USEPA SW846-3005 Method 3005 is a Nitric/Hydrochloric acid digestion procedure used to prepare surface and ground water samples for analysis by ICPAES or ICPMS. This method is compliant with NEPM (2013) Schedule B(3)

Due to holding time problems if sent to a NATA registered laboratory, CodyHart conducts laboratory analyses for alkalinity and free CO₂ on-site or on the evening of the sampling day. The analyses are more accurate when conducted on fresh samples. Alkalinity has always been regarded as a 'field analyte' in the literature.

- For alkalinity, CodyHart uses titration and/or colour change, on site or on the evening of sampling, to endpoint pH 4.5 as detailed in APHA (1998) section 2320, which is the NSW EPA approved method. The colour change method adopted uses a mixed indicator alkalinity (Bromocresol Green – Methyl Red) indicator solution (APHA 1992, 2-25, 2-27) which in combination with titration changes the sample colour from blue to wild moss green at approximately pH 4.5.
- High concentrations of free CO₂ indicate that landfill gas may be permeating groundwater. The APHA 4500-CO₂ C titration method is used as detailed in *Standard Methods for the Examination of Water and Wastewater*, 18th edition 1992:4-17, and/or a phenolphthalein indicator colour method which in combination with titration changes the sample colour from clear to mid-pink (APHA 1992, 2-25, 2-27) at approximately pH 8.3.

A round of comparative testing at a number of landfill sites in June 2008 indicated that alkalinity lab results versus field results had an RPD of <20%. In most cases the alkalinity field results were greater. It was decided that the colour change method was the most efficient, but was inappropriate for deeply coloured samples. (Most groundwater and surface water samples are clear or slightly cloudy white.) For free CO₂, the colour change method was the most efficient.

Results 05/03/15:

	UW1	UW2	UW3	US1	US2	UL1
Alkalinity (mg/L) (titration & colour change)	250	533	467	NR	NR	1300
Free CO ₂ (mg/L) (titration & colour change)	88	123	249	NR	NR	205

NR = Not required



MOTIONS ON NOTICE

27 April 2015

18. Motions on Notice

NOTICE OF MOTION

MOTIONS ON NOTICE

27 April 2015

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NOTICE OF MOTION
20 April 2015



NOTICE OF MOTION

Department:	Notice of Motion
Submitted by:	Cr F. Geldof
Reference:	1.20.04.03
Subject:	Biker Friendly Community

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective: Promote and support commercial and tourism opportunities to attract visitors and permanent residents to the Shire.

Strategy: Support new developers and businesses.

Action: New marketing initiatives.

SUMMARY:

The purpose of this Notice of Motion is to promote tourism and identify Uralla Shire as a biker friendly community.

COMMITTEE'S RECOMMENDATION:

That Uralla Shire Council investigate the promotion of Uralla as a Biker friendly destination.

COUNCILLOR'S RECOMMENDATION:

That Uralla Shire Council investigate the promotion of Uralla as a Biker friendly destination.

BACKGROUND:

Uralla has already established itself as a Recreational Vehicle (RV) friendly location. Council has signage and a sewerage dump point to demonstrate the community's commitment to this initiative.

It is becoming obvious that more and more bikers are travelling throughout northern NSW and Uralla needs to take advantage of this trend.

REPORT:

Texas Qld has already identified itself as a biker friendly location, being the first in Queensland to do so.

Unlike grey nomads who tend to be self-sufficient, bikers do not have motor homes or caravans, nor are they able to carry many provisions. This means they purchase accommodation and meals and use the facilities of a location, and more importantly inject income in to the economy they are visiting. Whilst not stereotyping this group, many are professionals or self-employed business persons, some are semi-retired, some travel alone, however many travel in groups, some take their partners, and other rely on the companionship of their mates.

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This group is not considered to be associated with colours, and see their pleasure as some may enjoy fishing, camping or boating.

Uralla is fortunate to be on the fringe of many popular bike rides, including Waterfall Way and Thunderbolt's Way, as well as the Oxley Highway. In addition Uralla has the ability to establish a base for riders wishing to explore the area, and it is not unusual for bikers to return to a base and spend a number of days in a locality.

Texas has identified tourist attractions and rides that may appeal to the demographic that identify themselves as bikers.

Copies of material used by Texas form part of this Notice of Motion.

KEY ISSUES:

- Identifying suitable tourist rides to retain the bikers in this locality for as long as possible.
- Marketing through biker specific magazines and similar minded localities.
- Flyers and brochures at facilities known to be used by bikers.
- Perception by some of the association with bikie groups.
- Establishing a working relationship with adjoining shires
- Establishing a relationship with biker groups

CONCLUSION:

This is an opportunity for Uralla to be on the front foot to establish itself as the biker capital of New England.

Although I operate a business that may benefit from this initiative, I do not see this notice of motion as a conflict of interest, as this is an initiative that will benefit the community, including like businesses that are in direct competition.

STAFF COMMENTS

As a member of Inland NSW, Uralla Shire Council contributes to the New England High Country campaigns. Recently the Councils involved (Walcha, Guyra, Armidale and Uralla) have pooled funds to apply for a campaign for New England High Country with matching funds from Destination NSW.

In recent discussions with Inland NSW, they have pitched a motorcycle marketing campaign as the best use of funds. The announcement for the campaign is considered imminent, with the contribution of \$158,500 from New England High Country Councils to be matched by Destination NSW.

Some background research on the motorcycle tours is attached.

COUNCIL IMPLICATIONS:

1. **Community Engagement/ Communication (per engagement strategy)**
Promotion and Marketing materials to be developed for campaign
2. **Policy and Regulation**
N/A

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3. Financial (LTFP)

USC contributed to the New England High Country Campaign – discussions have centred on this being a motorcycle marketing campaign. The allocation is within current budget allocations.

4. Asset Management (AMS)

N/A

5. Workforce (WMS)

N/A

6. Legal and Risk Management

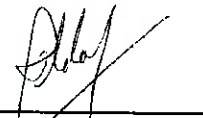
N/A

7. Performance Measures

N/A

8. Project Management

N/A



Fred Geldof
Councillor

Approved/Reviewed by Manager: Olivia Wood
Department: Community and Culture
Attachments: I Inland NSW Research – New England High Country
Recreation Motorcycle Campaign
J Texas: A Motorcycle Friendly Town

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ATTACHMENT I

*Quarantined RVEF 2014/15 – RESEARCH PRELIMINARY
New England High Country Recreation Motorcycle Campaign*



What is the size of the motorcycle touring market in NSW?

The Motorcycle Council of NSW is an internationally recognised umbrella group for motorcycle clubs, associations and ride groups, in the state of New South Wales, Commonwealth of Australia. It represents over **41 clubs across NSW, with more than 36,000 riders**.

It is not known how many bike owners or riders are in NSW, or southern Queensland.

Is New England considered a prime motorcycle-riding location?

New England is already known for its scenic drives through many key National Parks

<http://www.experiencethehighs.com.au/experiences/scenic-drives>

http://www.newenglandnorthwest.com.au/content_common/pg-drives-trails-touring-maps.seo

1. Tourist Drive 3

Focuses on the historic stomping grounds of miners, bushrangers and farmers. It begins in Armidale, taking in some of the city's finest heritage buildings, including the cathedrals, Folk Museum, Town Hall and old Teachers College. Then, you motor through farmland peppered with cattle and sheep to the tiny village of Arding, past orchards and on to Rocky River, where gold was discovered in the 1870s. Next stop is Uralla, a charming town that prospered during the gold rush era and was also a haunt of the notorious bushranger Captain Thunderbolt. The drive loops back to Armidale via Saumarez Homestead, a gracious late 19th-century pastoral home built for the White family, now a National Trust property.

2. On Tourist Drive 19

From Uralla, the elm tree-lined approach to the photogenic vine-covered Gostwyck Chapel remarkably resembles the English countryside the region was named after. From there, the route passes over a narrow wooden bridge, transporting you straight back into the Australian bush, past historic Deeargee Station's huge 19th-century wool shed and eventually to the Dangar's Gorge and Falls turnoff. Picnic and hike along the gorge rim for amazing views of the waterfalls.

3. Tourist Drive 21 - The Pioneer Trail

Starts at Uralla, over the hills to the lovely Banalasta lavender and eucalyptus farm, old Bendemeer coach stop and the tiny hamlet of Woolbrook, where you can fish for trout in the crystal clear waters of the McDonald River. The route then winds through Walcha, the first town settled in the region (early 1800s), and along Thunderbolt's Way back to Uralla.

4. Tourist Drive 17

Another great drive is named the Best of New England for good reason. From Armidale, winds along the picturesque Waterfall Way and through World Heritage-listed national parks to the most spectacular gorges, waterfalls, crystal clear streams and views in the region. Highlights of this expedition include Gara Gorge and Wollomombi Falls in the Oxley Wild Rivers National Park, Point Lookout in the New England

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Quarantined RVEF 2014/15 – RESEARCH PRELIMINARY
New England High Country Recreation Motorcycle Campaign



National Park, massive boulders in the Cathedral Rock National Park and Ebor Falls. You also pass through the once thriving mining towns of Hillgrove and Metz, visit a trout hatchery and stop by Malpas Dam, where you might catch a yacht race in action.

5. Waterfall Way

www.visitwaterfallway.com.au

A well-known drive, that is also appreciated by motorbike riders.

6. Aboriginal and Cultural Heritage Drive

99km route within New England High Country. Not specific to motorbike riders

7. Oxley highway

“There’s not much to beat this in Australia. 200km of motorcycling bliss. Tight hairpins through the forest section in the middle and long sweeping curves on the flats at either end. Road in good condition for the majority of the route, which is pretty unusual for this part of the world. Stay at the Royal Cafe in Walcha, Toni & Brad are bikers and there’s a lock-up for your bike in the evening”.

<http://www.dailytelegraph.com.au/travel/get-your-motor-running/story-e6freznr-1225928877971>

“The run from Port Macquarie to Walcha has almost everything, from the tight and twisty curves climbing the mountains to the higher-speed sweeping roads once you burst out of the bush at the top of the range.”

<http://www.walchansw.com.au/attractions/motor-cycle-adventures.php>

8. Thunderbolts Way

It may be short, but it is sweet. Heading back towards Sydney from Walcha, the road - named after the bushranger - sweeps from cambered bend to cambered bend. It doesn't get better than this.

9. Grafton to Armidale

The ride from Grafton to Armidale is about a two and a half hour ride that is considered one of the most popular routes for motorcyclists in NSW. The ride takes you Southwest from Grafton through the Cathedral Rock, Nymbobinderay, and Chaelundi National Parks. This is a ride full of natural wonder and is well worth the ride.

The ride begins with a few gentle curves on a fast paced road through some very scenic farmland areas. Once you reach Nymboida you begin to ascend the hills and the roads tighten up a bit and the amount of livestock increases, so use caution! From Ebor to Armidale the road straightens out and you will increase your pace as you ride down a very beautiful, old country road. The ride is very easy on most bikes from this point on, but the scenery is downright gorgeous!

<http://www.motorcyclrides.com.au/motorbike-rides/australia/nsw/northern-rivers/grafton-to-armidale.html>

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Quarantined RVEF 2014/15 – RESEARCH PRELIMINARY



Other New England motorcycle attractions

[The Powerhouse Motorcycle Museum](#): located in Tamworth, NSW, the museum is a must see for any bike enthusiast. The museum houses a private collection of over 50 motorcycles in pristine working order from the 50s, 60s, 70s and 80s. The collection of bikes includes Ducati, Triumph, Honda, Velocette, Laverda and an extremely rare limited edition F4 MV Agusta Series ORO.

[National Transport Museum](#): located within Inverell. With over 200 members and 120 vehicle exhibits, ranging from Vintage, Veteran, Classic and Motorcycles, the National Transport Museum has become a valuable tourist attraction for the North West and New England area.

Tour Operators that already drive within/via New England

[Bike Scape Tours](#)

[BikeRoundOz](#)

[UralofOz](#)

Texas revelling in motorcycle 'friendly' status

ABC News Toowoomba Updated 30 Jun 2014 11:16pm
MAP: [Texas 4385](#)

A Goondiwindi regional councillor says the Queensland Government crackdown on outlaw bkie gangs has not affected Australia's "number one motorcycle friendly town".

Texas, on the southern border, was given the accolade by a prestigious biker magazine last year.

About the same time, the Newman Government gave police sweeping powers to [investigate](#) and detain members of criminal motorcycle gangs.

Some law-abiding motorcyclists complained of harassment but Cr David McMahon says that has not happened in Texas.

"The feedback I've got is that those from Queensland are saying it's having little effect as well because really these are the motorcyclists, these aren't the bikies or the bikers," he said.

Cr McMahon says the magazine accolade has brought about \$300,000 into the town.

"One particular [business](#) wouldn't employ the [number](#) of staff they did without the motorcyclists coming through, so I think that's a ringing endorsement for making Texas the number one motorcycle friendly town in Australia and that's a real endorsement when you have businesses saying they employ people because of the number of tourists coming through."

Topics: [tourism](#), [travel-and-tourism](#), [texas-4385](#), [goondiwindi-4390](#), [toowoomba-4350](#)

First posted 30 Jun 2014 11:16pm
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News

Motorcycle Friendly Towns

July 26, 2013

Found at:

<http://www.ulyssesclub.org/News/tabid/83/articleType/ArticleView/articleId/4389/Motorcycle-Friendly-Towns.aspx>

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Recently some of the NatCom members attended the inauguration of the first motorcycle friendly town in mainland Australia; Texas in SW Queensland in the Goondiwindi Shire. This initiative was launched as the catalyst to encourage other towns and cities to join in offering dedicated motorcycle parking, a range of fuels to suit all makes and models of [motorcycles](#) as well as encouraging the shopkeepers and traders to offer special deals and a friendly welcome to those of us on two wheels. There were about 150 motorcyclists attending along with the local townspeople turning out for a civic welcome and [sausage](#) sizzle to hear some words from the local mayor State politicians and a Goondiwindi Shire Councillor. From the National Committee's point of view we hope this initiative gathers momentum in all states.

Posted in: [National Committee](#), [The Club](#)

Goondiwindi Shire



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Riding

TEXAS

We welcome all bike riders to Texas, Qld.

This guide contains details of loop rides around our town and no matter what type of bike you ride: a cruiser, a street bike, an adventure bike or a road trail, you'll find routes here to suit your riding style, your bike and your experience.*

You'll be riding some great roads through wonderful scenery, and no matter which loop you take, you'll end up back in Australia's Number One Motorcyclist Friendly Town... Texas 4385.

Please enjoy our roads but remember that recent good seasons have been good also for the wildlife and you may encounter native and wild animals on the road at any time of the day.

So keep the rubber side down and be prepared to enjoy classic back road touring!

** For maps of other rides around Texas, please ask for maps at The Stockman Hotel.*

TEXAS

WESTERN LOOP GREEN OPTION

1. Leaving the Stockman Hotel, head east for 100m on High St, turn right at the Cultural Centre in the middle of High St and then head back to the western end of High St.
2. Turn right onto Texas High Wood Rd and continue north for a bit over 28km where you'll have the left turn for Yabberoo.
3. Enjoy our beautiful back roads. After about 29km you'll come to Beebo and see a left turn for Curragh Plains. Well, this is a great spot for a swim, a picnic and for fishing with access on the east of the road on both sides of the river. If you have only a little time you can cross the river back into NSW, turn left at the Bend and then head back to town.
4. Otherwise, continue along Texas-Yabberoo Rd for a total of about 10km until you take the left at Cunningham Hwy.
5. Just beyond Yabberoo take the left for the road that runs rather than the sweeping right for Glenlyon Rd.
6. You'll pass the Welcome to Spinifex Country Sign and then 8km down you'll see the turn for the Historic Kestah Bridge where you can turn left.
7. The Old Kestah Bridge crossing is an other great camping spot at a time with access on the west of the NSW side of the river.
8. Once you've had your swim or your drink, go about 10km south for a total of 70km and then turn east onto the Curragh Creek Road.
9. You have about 14 km of gravel to go ignoring the bit that is for 28km of the right along sealed road with great visibility before you get to the Bruxner.
10. Turn left onto the Bruxner and then continue for 30km until you turn right onto Old Texas Rd which you'll have back to town.

TOTAL: 137KM

EASTERN LOOPS - CLOCKWISE

BLUE OPTION

The Basic Route.

1. From the Stockman Hotel, head east on High St.
2. Turn right and immediately bear left on Stanthorpe-Texas Rd and continue for a bit over 28km.
3. Turn Right onto Glenlyon Dam Rd signposted Glenlyon Dam and continue south for around 16.5km and you'll see the turn right for Glen Lyon Dam.
4. Continue south to the Bruxner Hwy where you turn right onto the Bruxner Hwy.
5. Head west for 6km until you see the right turn for Jim Hynes bridge signposted for Riverton.
6. Take the right, cross the river and then turn left onto Riverton Rd.
7. You'll get in about 7km of sealed riding before an 11km stretch of innocuous gravel. The rest of the road is backroads country riding at its best.
8. Follow Riverton Rd for around 70km all the way to Texas-Stanthorpe Rd where you turn left and coast into Texas.

TOTAL: 142KM**GREY OPTION**

1. Follow steps 1-3 in the basic route.
4. Turn right for Glenlyon Dam. A bit over 7.5km from the turn the tar finishes and you have about 10km of challenging dirt mainly downhill. Best avoided in the wet, but in the dry a good ride on an Adventure Bike or Hybrid. Probably not suitable for road bikes or cruisers. At the end of the dirt you'll have 6km of sealed section before coming to a T.
5. Turn right onto Dumaresq River Rd and rejoin the blue route for 21km of wonderful backroads sealed riding.

TOTAL: 31KM**PINK OPTION**

1. Follow steps 1-5 in the basic blue route.
6. Do not turn at Hynes Bridge but rather continue west on the Bruxner for another 50km where you'll slow for Bonshaw.
7. 7 km past the town turn right for Bonshaw Weir. (The Weir is a great spot for a swim and fishing).
8. You have just 3km of easy dirt although there is a section in the middle which is often wet a soggy.
9. After 3km turn left at the T onto Dumaresq River Rd for 20 km of clean air country riding on the tar.
10. Turn left onto Texas-Stanthorpe and coast into Texas.

TOTAL: 78KM

NOTICE OF MOTION



NOTICE OF MOTION

Department:	Notice of Motion
Submitted by:	Cr F. Geldof
Reference:	1.20.04.07
Subject:	Traffic Calming NE Highway/Thunderbolts Way

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective: Uralla Shire has a safe and effective transport system.

Strategy: Provide, maintain, renew and replace Council's transport networks including urban streets and sealed and unsealed roads.

Action: Traffic Management Issues considered by Uralla Local Traffic Committee.

SUMMARY:

The purpose of this motion is to improve the safety of traffic and pedestrians in the Business Precinct of Uralla.

COMMITTEE'S RECOMMENDATION:

That the traffic management committee, in conjunction with the RMS and New England Local Area Command (LAC), investigate measures to improve traffic management on the New England Highway/Thunderbolts Way between Hill St and Salisbury St, Uralla.

COUNCILLOR'S RECOMMENDATION:

That the traffic management committee, in conjunction with the RMS and New England Local Area Command (LAC), investigate measures to improve traffic management on the New England Highway/Thunderbolts Way between Hill St and Salisbury St, Uralla.

BACKGROUND:

Although I am not aware of a recent traffic count on the New England Highway between Hill and Salisbury Streets Uralla, there appears to be a significant increase in the amount of traffic using both the New England Highway and Thunderbolts Way.

There are a number of reasons for this increase including:

- The completion of the Hunter Expressway. This expressway has alleviated the congestion that occurred between Hexham and Blandford. Travellers from Newcastle and further south now see the New England Highway as a viable alternative to the Pacific Highway when travelling north.
- Significant roadwork on the Pacific Highway, resulting in reduced speed limits.
- Improvements on the Thunderbolt' Way.

NOTICE OF MOTION

- Increased tourism and marketing, not only in Uralla but throughout New England/North West.

REPORT:

I have seen many near misses and heavy braking by vehicles when people reverse park in Bridge St. This has a snowball effect as traffic builds, often creating short queues. In many cases heavy vehicles are caught up in these queues. I have also noted that in the main the drivers of heavy vehicles are more understanding and considerate than the everyday motorist in such circumstances.

Excessive speed is also a contributing factor.

It is also obvious that many do not allow sufficient space between themselves and the vehicle in front, and quite often a driver has to abandon their attempt to park due to the inconsideration of another motorist not allowing enough room. This appears to be more predominant with southbound traffic.

In addition to my observations I have fielded many comments from residents voicing their concerns regarding the near misses.

Uralla's business precinct is quite often bustling, has heritage and has charm. These factors combined create a further distraction for motorists travelling through Uralla.

There is also increased traffic on Thunderbolts Way. It is not unusual for a line of traffic to build when accessing the common part of the New England Highway/Thunderbolts Way from Hill St and also Salisbury St. Bear in mind that in both cases traffic has to turn right and across a lane of vehicles travelling in the opposite direction to their intended route.

Finally, there is limited parking available in Bridge St between Hill and Salisbury Streets. Travellers feel intimidated by the 45° angle parking, and there are no signs to direct these potential visitors to alternate parking places.

To manage these issues, to improve the safety of our residents and visitors, as well as to encourage a traveller to stop, traffic calming measures need to be deployed.

Members of the community have suggested

- roundabouts at the two intersections of the New England Highway and Thunderbolts Way. (This is my preferred option, as it will allow for easier traffic access to the New England Highway from Thunderbolt' Way)
- Signs indicating a common traffic/pedestrian zone.
- Reducing the speed limit.

KEY ISSUES:

- Convincing the RMS of the issues and that something needs to be done.
- Funding

STAFF COMMENTS:

It is recommended that the Uralla Local Traffic Committee considers this matter at its next meeting, scheduled for Tuesday 5 May 2015.

CONCLUSION:

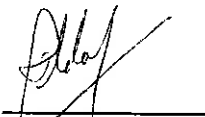
With increased traffic using the New England Highway, continued improvements on Thunderbolt' Way including Emu Crossing and Abington Bridge, increased use of both roads by heavy vehicles,

NOTICE OF MOTION

especially B Doubles, the time has come to address the potential risk to our community and travellers when traversing our town.

COUNCIL IMPLICATIONS:

- 1. Community Engagement/ Communication (per engagement strategy)**
Uralla Local Traffic Committee needs to consider the issue.
- 2. Policy and Regulation**
Transport Administration Act
- 3. Financial (LTFP)**
Dependent on determination by Uralla Local Traffic Committee]
- 4. Asset Management (AMS)**
Nil
- 5. Workforce (WMS)**
Nil
- 6. Legal and Risk Management**
Nil
- 7. Performance Measures**
N/A
- 8. Project Management**
N/A



Fred Geldof
Councillor

Approved/Reviewed by Manager: Robert Bell
Department: Infrastructure and Regulation
Attachments: Nil



SCHEDULE OF ACTIONS

27 April 2015

19. Schedule of Actions

SCHEDULE OF ACTIONS

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key: A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
	156/14	NSW Officer of Water 2012–2013 Water Supply and Sewerage Performance (ii) That Council continues to work on the Best Practice Management Framework.	DES					Report to September 2014 Council Meeting	C	
23JUN	219/14	Works Progress Advisory Unit 1. Council note the minutes of the meeting of the Works progress Advisory Unit held on 11th June 2014. 2. That Council note the Plant Replacement list 3. That Council note the Black Spot funding offered by the Federal Government and write to the local Federal member thanking him for his support. 4. That Council meet with residents to discuss tree and shrub clearing and property addresses. 5. That council apply to have a 40km/hr speed limit placed on Andersons Road.							C C C C C C	
			DES					Traffic count complete. Refer to Uralla Local Traffic Committee Letters sent to all Anderson Road residents.	C C C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
28JUL	254/14	DA 28/2014 – Ness That Council endorse the fixing of the Council Seal on the Section 88b Instrument relating to Development Application 28/2014 on land known as 47 John Street, Uralla being Lot 4 DP 825763.	MP				31/7/14	Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	
28JUL	255/14	DA 27/2014 – Adams That Council endorse the fixing of the Council Seal on the Section 88b Instrument relating to Development Application 27/2014 on land known as 17 Bridge Street, Uralla being Lot 13 Section 14 DP 759022 and Lot B DP160554.	MP				31/7/14	Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
22SEPT	321/14	DA 74/2013 – Stace That Council endorse the fixing of the Council Seal on the Section 88b Instrument relating to Development Application 74/2013 on land known as 78 Quartz Gully Road, Uralla being Lot 498 DP 755846.	MP				13/11/14	Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	
27OCT	361/14	Application of Council Seal to Section 88b instrument – DA 53/2014 – Mr M & Mrs B Baker That Council endorse the fixing of the Council Seal on the Section 88b Instrument relating to Development Application 53/2014 on land known as 38 Plane Avenue, Uralla, being Lots 12, 13 & 14 Sec A DP 6763.	MP				13/11/14	Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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24 Nov 14	377/14	<p>Visitor Information Centre (VIC) Refurbishment</p> <p>That:</p> <ol style="list-style-type: none"> 1. The attached plans for the VIC Refurbishment project be received and noted; 2. Project costings be presented back to Council once they have been received. 	MCC		N	N	January 2015	Proposal included in March Council papers for discussion	B	
24 Nov 14	395/14	<p>Application of Council Seal to Section 88b Instrument – DA 49/2014 – B Hambrook & A Harker</p> <p>That Council endorse the fixing of the Council Seal on the Section 88b Instrument relating to Development Application 49/2014 on land known as 52 Budumba Road, Invergowrie being Lot 10 DP 246614.</p>	MP				16/2/15	Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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24 Nov 14	396/14	<p>Application of Council Seal to Section 88b instrument – DA 42/2014 – JP & EJ Croft</p> <p>That Council endorse the fixing of the Council Seal on the Section 88b Instrument relating to Development Application 42/2014 on land known as 4 Gostwyck Street, Uralla being Lot 8 Sec 31 DP 759022.</p>	MP				23/12/14	<p>Waiting on developer to submit Section 88b Instrument.</p> <p>88b instrument not yet received.</p>	B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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	392/14	<p>Regional Assessment Centres</p> <p>That:</p> <ol style="list-style-type: none"> Uralla Shire Council (USC) investigate being a party to a submission of a Tender for Regional Assessment Service(s) for New England and any other suitable regions; Council investigate partnerships and explore proposed options for Consortium partners with a view to forming a Consortium to tender for the New England region and any other suitable regions. A subsequent report be presented to Council once more information has been obtained and options identified. 	Manager Community Care				Dec 2014	Grant announced USC was not in successful in any of the three consortiums it was part of	C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Feb 14	5.02/15	Bundarra Bridge Naming That Council resolve to name this bridge and to advertise this decision, together with the suggested name in the Bundarra Central School newsletter, the Council newsletter and the Inverell Times and allow 28 days for comments and suggestions.	DIR						B	
23 Feb 14	10.02/15	Fit for the Future That: 1. Council address the Fit for the Future program as Uralla Shire Council alone and not pursue a voluntary merger; 2. Council acknowledges that in order to pursue this approach it will need to meet all of the programs criteria, which will require council to increase annual income, decrease expenditure or a combination of both, by an amount currently estimated to be equivalent	GM GM	Yes	Yes			Community engagement program developed. Information leaflet and community survey developed. Facilities booked for town hall meetings. Information distributed to all residents mail by 23 rd March. Workshops completed successfully.	C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Feb	11.02/15	<p>Administration of 2016 Local Government Election That The Uralla Shire Council ("the Council") resolves:</p> <ol style="list-style-type: none"> pursuant to s. 296(2) and (3) of the Local Government Act 1993 (NSW) ("the Act") that an election arrangement be entered into by contract for the Electoral Commissioner to administer all elections of the Council; pursuant to s. 296(2) and (3) of the Act, as applied and modified by s. 18, that a council poll arrangement be entered into by contract for the Electoral Commissioner to administer all council polls of the Council; 	GM	N/A	No		March 3rd	NSW Election Commission notified of Councils resolution.	C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Feb	12.02/15	Draft Community Engagement Strategy That Council adopts the attached Community Engagement Strategy and places the document on public exhibition for a period of 14 days.	SE & CC				2 March 2015	Community Engagement Strategy placed in reception area of USC Admin Building & on website. Also advertised in USC newsletter. No submissions received. Strategy adopted.	C	
23 Feb	13.02/15	Acquired Brain Injury Facility Concept 1. That Support be provided in the form of a letter stating Uralla Shire Council is supportive of the concept of an Acquired Brain Injury unit being built in Uralla Shire Council. No land provision for the facility be committed to at this stage; however Council commits to reviewing land availability should funding to deliver the concept become available.						Letter provided to Mr Fuller. Various press undertaken by Mayor – Radio, newspaper and television.	C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Feb	14.02/15	<p>Request for Donation - Seasons of New England</p> <p>That:</p> <ol style="list-style-type: none"> Uralla Shire Council provide in-kind support for the Seasons of New England in the form of: <ul style="list-style-type: none"> Supply and erection of the 3 Council owned marquees for the event; Promotion in Council's Newsletter (content provided by Seasons of New England); Supply bins, barrier mesh & banners for the event; Waive the cost of hire of the venue; That all other services be provided at cost recovery; 	EM – C & C					Communicated with Seasons of New England	C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Feb	17.02/15	<p>2014/15 Second Quarter Budget Review Statements</p> <p>That:</p> <ol style="list-style-type: none"> 1. That the second quarter budget review summary for the 2014/15 financial year be received and noted; and 2. That the adjustments to budget allocations, including transfers to and from reserves, be adopted. 	FM						C	
								Adjustments processed	C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Feb	29.02/15	Affixing of Council Seal to Section 88b instrument – DA 74/2014 – J F Kennedy That Council endorse the affixing of the Council Seal on the Section 88b Instrument relating to Development Application 74/2014 on land known as 1202 Bakers Creek Road, Bundarra, being Lots 7, 8 & 29 DP 753657.	MTP & R					Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	
23 Feb	30.02/15	Affixing of Council Seal to Section 88b instrument – DA 8/2014 – Mr S & Mrs L Grills That Council endorse the affixing of the Council Seal on the Section 88b Instrument relating to Development Application 8/2014 on land known as 7 Salisbury Street, Uralla being Lot 18 Sec 34 DP 759022.	MTP & R						C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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23 Feb	31.02/15	<p>Affixing of Council Seal to Section 88b instrument – – DA 15/2014 – Mr N Cordery</p> <p>That Council endorse the fixing of the Council Seal on the Section 88b instrument relating to Development Application 15/2014 on land known as 24 Gostwyck Street, Uralia being Lot 3 DP 6974.</p>	MTP & R					<p>Waiting on developer to submit Section 88b instrument.</p> <p>88b instrument not yet received.</p>	B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	7.03/15	Development Application - Burnett That Council approve Development Application 4/2015, being for a residential subdivision consisting of 60 lots on land known as 44 Barleyfields Road, Uralla, being Lots 81, 462 & 543 DP 755846 under the ownership of R & K Burnett subject to the conditions.	MTP&R						C	
	12.03/15	Visitor Information Centre (VIC) Upgrade That The General Manager be requested to bring back a report on future options for tourism services holistically, including a further break down of the costs associated with the refurbishment of the Visitor Information Centre.	EM – C&C					Councillor workshop planned for May 2015	B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	18.03/15	Namoi Water Alliance Deed of Agreement That Council authorises the affixing of the Common Seal of the Council to the Deed of Novation	DIR						C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

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Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	19.03/15	<p>Abington Creek Bridge</p> <p>That:</p> <ol style="list-style-type: none"> 1. Council accept the \$705,000 from the Australian Government under the Bridges Renewal Programme. 2. Council accept the \$705,000 from the NSW Government under the Fixing Country Roads Programme. 3. Council affix its seal to the Restart NSW Funding Deed. 4. That Council thank The Hon. Duncan Gay MLC, The Hon. Warren Truss MP, Adam Marshall MP, and Barnaby Joyce MP, Inverell Shire Council, Bindaree Beef, Australian Trucking Association, Stockmaster, James Harris, Forster & Sons, & Kelly's Transport for their support. 	DIR						C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key: A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	20.03/15	Draft Drought Management Plan That Council adopt the draft Drought Management Plan and place on the Council website and advertise in Council's newsletter for 28 public comment for 28 days.	DIR						C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	21.03/15	<p>Planning Proposal: Uralla Flood Planning Map</p> <p>That:</p> <ol style="list-style-type: none"> 1. the Planning Proposal to seek inclusion of the flood planning areas as per the Rocky and Uralla Creeks Study be forwarded to NSW Planning and Environment for a Gateway Determination; 2. the General Manager be given delegated authority to make any minor alterations requested by NSW Planning and Environment; and 3. the Planning Proposal be advertised as per the provisions of Section 57 of the <i>Environmental Planning & Assessment Act, 1979</i> once a Gateway Determination has been issued. 	MTPR						C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	22.03/15	<p>Planning Proposal: Boundary Adjustment Clause and Rural Detached Occupancy Dwellings</p> <p>That:</p> <ol style="list-style-type: none"> the Planning Proposal for Boundary Adjustments and Detached Dual Occupancy Dwellings for Certain Rural and Environmental Zoned Land be forwarded to NSW Planning and Environment for a Gateway Determination, the General Manager be given delegated authority to make any minor alterations requested by NSW Planning and Environment; and the Planning Proposal is advertised as per the provisions of Section 57 of the <i>Environmental Planning & Assessment Act, 1979</i> once a Gateway Determination has been issued. 	MTPR							

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	23.03/15	<p>Uralla Development Control Plan 2011 Amendments That Council:</p> <ol style="list-style-type: none"> 1. Endorse amendments to the Uralla Development Control Plan 2011; 2. Publicly exhibit the amended DCP for a period of 28 days 3. Give the General Manager delegated authority to adopt the Uralla Development Control Plan 2011 as amended if no submissions are received. 	MTPR							

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	24.03/15	<p>Dwelling under Clause 4.6Urall Local Environmental Plan – SA Gapes</p> <p>That Council approve the Clause 4.6 Development Application 55/2014, being for a variation of minimum lot size and the construction of a dwelling on land known as Thunderbolts Way, Uralla, being Lot 74 DP 3378 under the ownership of S Gapes, subject to the conditions listed in the minutes.</p>	MTP&R						C	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	26.03/15	<p>Land Disposal - Karava Place, Uralla</p> <p>That Council:</p> <ol style="list-style-type: none"> 1. Notify all affected landowners of the completion to Amendment 2 of the Uralla Local Environmental Plan 2012; 2. Offer Option 5 to all affected landowners being purchaser payment consisting of a peppercorn payment of \$1.00, conveyancing costs and a percentage of the surveying relating to the area of land being purchased; 3. Give the General Manager delegation to negotiate payment options; and 4. Endorse the fixing of the Council Seal on any necessary documentation relating to the subdivision and sale. 	MTPR						B	

SCHEDULE OF ACTIONS – COUNCIL MEETINGS

Key: A: Action Required B: Being Processed C: Completed

Meeting Date	Business Minute Item No.	Report Title and Council Resolution	Responsible Officer	Community Engagement Assessment Completed	Media Release Required	Budget Variation Completed	Action Date	Comments	Status	Minute No. TRIM
23 Mar	28.03/15	Affixing of Council Seal to Section 88b instrument – DA-21-2013 – A & K Wilkinson That Council endorse the affixing of the Council Seal on the Section 88b Instrument relating to Development Application 21/2013 on land known as 41 Budumba Road, Invergowrie being Lot 13 DP 246614.	MTP&R					Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	
23 Mar	29.03/15	Affixing of Council Seal to Section 88b instrument – DA-76-2013 – R Howlett - Division Decision That Council endorse the affixing of the Council Seal on the Section 88b Instrument relating to Development Application 76/2013 on land known as 64 Hill Street, Uralla being Lot 3 Section 3 DP 759022.	MTP&R					Waiting on developer to submit Section 88b Instrument. 88b instrument not yet received.	B	



AUTHORITY TO AFFIX
THE COMMON SEAL

27 April 2015

21. Authority to Affix the Common Seal

AUTHORITY TO AFFIX THE COMMON SEAL

AUTHORITY TO AFFIX THE COMMON SEAL

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AUTHORITY TO AFFIX THE COMMON SEAL



REPORT TO COUNCIL

Department:	Infrastructure & Regulation
Submitted by:	Director of Infrastructure & Regulation
Reference:	Item 1
Subject:	Affixing of Council Seal to Section 88b instrument – DA-4-2015 – R & K Burnett – Division Decision

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	To ensure that Development Applications and land use enquiries are dealt with as expeditiously as possible.
Strategy:	By delegations of authority to planning staff, where appropriate.
Action:	Use of Delegation of Authority reported to management and Council monthly.

SUMMARY:

The purpose of this report is to gain Council's approval to affix the Common Seal to Section 88b instrument – DA-4-2015 – R & K Burnett. A section 88b Instrument needs to be prepared as per the requirements of the *Conveyancing Act 1919* to finalise the subdivision certificate and it will require the Council Seal.

OFFICER'S RECOMMENDATION:

That Council endorse the affixing of the Council Seal on the Section 88b Instrument relating to Development Application 4/2015 on land known 44 Barleyfields Road, Uralla being Lots 81, 462 & 543 DP 755846.

BACKGROUND:

Council has approved a development approval for a subdivision requiring a condition to enforce maintenance provisions for an access handle and the future design of infrastructure being water, sewer and drainage, which will require easements.

REPORT:

As part of a subdivision for R & K Burnett on land known as 44 Barleyfields Road, Uralla being Lots 81, 462 & 543 DP 755846, a Section 88b land use restriction is required to ensure compliance with the development approval. The development approval required a Section 88b instrument for:

- Creation of a maintenance agreement for an access handle
- Restriction for future subdivision
- Easements for provisions of infrastructure supply

AUTHORITY TO AFFIX THE COMMON SEAL

The condition reads:

47. Maintenance provisions between Lots 609 and 610 for the access and the associated handle are to be provided for within a Section 88b Instrument under the *Conveyancing Act 1919*. This instrument is further to restrict any other lot from gaining access by the use of this access handle.
48. Lots 609 and 610 are not to be subdivided further. A restriction under the *Conveyancing Act 1919* is to be placed on the land to ensure this is noted for perpetuity.

Further conditions have been placed on the development for the design of infrastructure being water, sewer and drainage supply. This will require easements once the design has been completed.

Council's Seal needs to be affixed to the Section 88b instrument to allow registration with the Land Titles Office. The *Local Government Act 1993* requires a resolution of Council to allow the seal to be affixed.

KEY ISSUES:

- Application of the Council Seal to the Section 88b Instrument is required to finalise the subdivision.

CONCLUSION:

The Council Seal is to be affixed to the Section 88b Instrument, which has been prepared as per the provisions of the *Conveyancing Act 1919*.

COUNCIL IMPLICATIONS:

1. **Community Engagement/ Communication (per engagement strategy)**
Nil
2. **Policy and Regulation**
Conveyancing Act 1919
Uralla Local Environmental Plan 2012
Uralla Development Control Plan 2011
Local Government Act 1993
Environmental Planning & Assessment Act 1979
3. **Financial (LTFP)**
Nil
4. **Asset Management (AMS)**
Nil
5. **Workforce (WMS)**
Nil
6. **Legal and Risk Management**
Nil
7. **Performance Measures**
Nil

AUTHORITY TO AFFIX THE COMMON SEAL

8. Project Management

Nil

Elizabeth Cumming

Manager of Town Planning & Regulation

Prepared by staff member:	Manager of Town Planning & Regulation
TRIM Reference Number:	DA-4-2015
Approved/Reviewed by Manager:	Director Infrastructure & Regulation
Department:	Regulation & Infrastructure
Attachments:	Nil

AUTHORITY TO AFFIX THE COMMON SEAL



REPORT TO COUNCIL

Department:	Infrastructure & Regulation
Submitted by:	Director of Infrastructure & Regulation
Reference:	Item 2
Subject:	Application of Council Seal to Section 88b instrument – DA-55-2014 – S A Gapes – Division Decision

LINKAGE TO INTEGRATED PLANNING AND REPORTING FRAMEWORK

Objective:	To ensure that Development Applications and land use enquiries are dealt with as expeditiously as possible.
Strategy:	By delegations of authority to planning staff, where appropriate.
Action:	Use of Delegation of Authority reported to management and Council monthly.

SUMMARY:

The purpose of this report is to gain Council's approval to affix the Common Seal to Section 88b instrument – DA-55-2014 – S A Gapes. A section 88b Instrument needs to be prepared as per the requirements of the *Conveyancing Act 1919* to finalise the subdivision certificate and it will require the Council Seal.

OFFICER'S RECOMMENDATION:

That Council endorse the affixing of the Council Seal on the Section 88b Instrument relating to Development Application 55/2014 on land known 3941 Thunderbolts Way, Uralla being Lot 74 DP 3378.

BACKGROUND:

Council has placed a development approval condition on a subdivision requiring a condition for an easement to be created over a sewer main, access provision and maintenance.

REPORT:

As part of a subdivision for S A Gapes on land known as 3941 Thunderbolts Way, Uralla being Lot 74 DP 3378, Council has placed a development approval condition requiring an easement to be placed over a sewer main, maintenance and creation of a right of carriageway and its maintenance. A Section 88b land use restriction is required to ensure compliance.

The condition reads:

18. A sewer main extension is required for a distance of 90 metres @ \$110.00 totalling \$9,900 for the extension. At the time of registration of the Plan of Survey at the Land Titles Office, the applicant shall dedicate a 3 metre wide easement over the sewer main, in favour of Council, and at no cost to Council.

Please Note: This cost is current for a 90 day period as at the date of the development consent.

AUTHORITY TO AFFIX THE COMMON SEAL

29. A right of carriageway is to be created over either of the lots for access, a notation is placed on the title of every benefitting lot such that maintenance of the right-of-carriageway is required, to a maintained trafficable standard suitable at all times for two-wheel drive vehicles, with the cost being borne proportionally by each owner based on the distance of the access point of their allotment to the public road.

Council's Seal needs to be affixed to the Section 88b instrument to allow registration with the Land Titles Office. The *Local Government Act 1993* requires a resolution of Council to allow the seal to be affixed.

KEY ISSUES:

- Application of the Council Seal to the Section 88b Instrument is required to finalise the subdivision.

CONCLUSION:

The Council Seal is to be applied to the Section 88b Instrument, which has been prepared as per the provisions of the *Conveyancing Act 1919*.

COUNCIL IMPLICATIONS:

1. Community Engagement/ Communication (per engagement strategy)

Nil

2. Policy and Regulation

Conveyancing Act 1919

Uralla Local Environmental Plan 2012

Uralla Development Control Plan 2011

Local Government Act 1993

Environmental Planning & Assessment Act 1979

3. Financial (LTFP)

Nil

4. Asset Management (AMS)

Nil

5. Workforce (WMS)

Nil

6. Legal and Risk Management

Nil

7. Performance Measures

Nil

8. Project Management

Nil

Elizabeth Cumming

Manager of Town Planning & Regulation

AUTHORITY TO AFFIX THE COMMON SEAL

Prepared by staff member:	Manager of Town Planning & Regulation
TRIM Reference Number:	DA-55-2014
Approved/Reviewed by Manager:	Director Infrastructure & Regulation
Department:	Regulation & Infrastructure
Attachments:	Nil