INVERELL
SHIRE COUNCIL

BUSINESS PAPER

Civil and Environmental Services Committee Meeting

Wednesday, 9 June 2021

INVERELL SHIRE COUNCIL

NOTICE OF CIVIL AND ENVIRONMENTAL SERVICES COMMITTEE MEETING

4 June, 2021

A Civil and Environmental Services Committee Meeting will be held in the Committee Room, Administrative Centre, 144 Otho Street, Inverell on Wednesday, 9 June, 2021, commencing at **9.00AM**.

Your attendance at this Civil and Environmental Services Committee Meeting would be appreciated.

Please Note: Under the provisions of the Code of Meeting Practice the proceedings of this meeting (including presentations, deputations and debate) will be webcast. An audio recording of the meeting will be uploaded on the Council's website at a later time. Your attendance at this meeting is taken as consent to the possibility that your voice may be recorded and broadcast to the public.

I would like to remind those present that an audio recording of the meeting will be uploaded on the Council's website at a later time and participants should be mindful not to make any defamatory or offensive statements.

P J HENRY PSM

GENERAL MANAGER

Agenda

1 Apologies 5

2 Confirmation of Minutes 5

3 Disclosure Of Conflict Of Interests/Pecuniary And Non-Pecuniary Interests 9

4 Public Forum 9

5 Destination Reports 10

5.1 Inverell Sewage Treatment Plant Nutrient Stripping Investigations 10

5.2 Bonshaw Raw Water Supply Drought Security 16

6 Information Reports 24

6.1 Works Update 24

Ethical Decision Making and Conflicts of Interest

A guiding checklist for Councillors, officers and community committees

Ethical decision making

- Is the decision or conduct legal?
- Is it consistent with Government policy, Council's objectives and Code of Conduct?
- What will the outcome be for you, your colleagues, the Council, anyone else?
- Does it raise a conflict of interest?
- Do you stand to gain personally at public expense?
- Can the decision be justified in terms of public interest?
- Would it withstand public scrutiny?

Conflict of interest

A conflict of interest is a clash between private interest and public duty. There are two types of conflict:

- ***Pecuniary*** – regulated by the *Local Government Act 1993* and Office of Local Government
- ***Non-pecuniary*** – regulated by Codes of Conduct and policy. ICAC, Ombudsman, Office of Local Government (advice only). If declaring a Non-Pecuniary Conflict of Interest, Councillors can choose to either disclose and vote, disclose and not vote or leave the Chamber.

The test for conflict of interest

- Is it likely I could be influenced by personal interest in carrying out my public duty?
- Would a fair and reasonable person believe I could be so influenced?
- Conflict of interest is closely tied to the layperson's definition of 'corruption' – using public office for private gain.
- Important to consider public perceptions of whether you have a conflict of interest.

Identifying problems

1st Do I have private interests affected by a matter I am officially involved in?
2nd Is my official role one of influence or perceived influence over the matter?
3rd Do my private interests conflict with my official role?

Local Government Act 1993 and Model Code of Conduct

For more detailed definitions refer to Sections 442, 448 and 459 or the *Local Government Act 1993* and Model Code of Conduct, Part 4 – conflictions of interest.

Disclosure of pecuniary interests / non-pecuniary interests

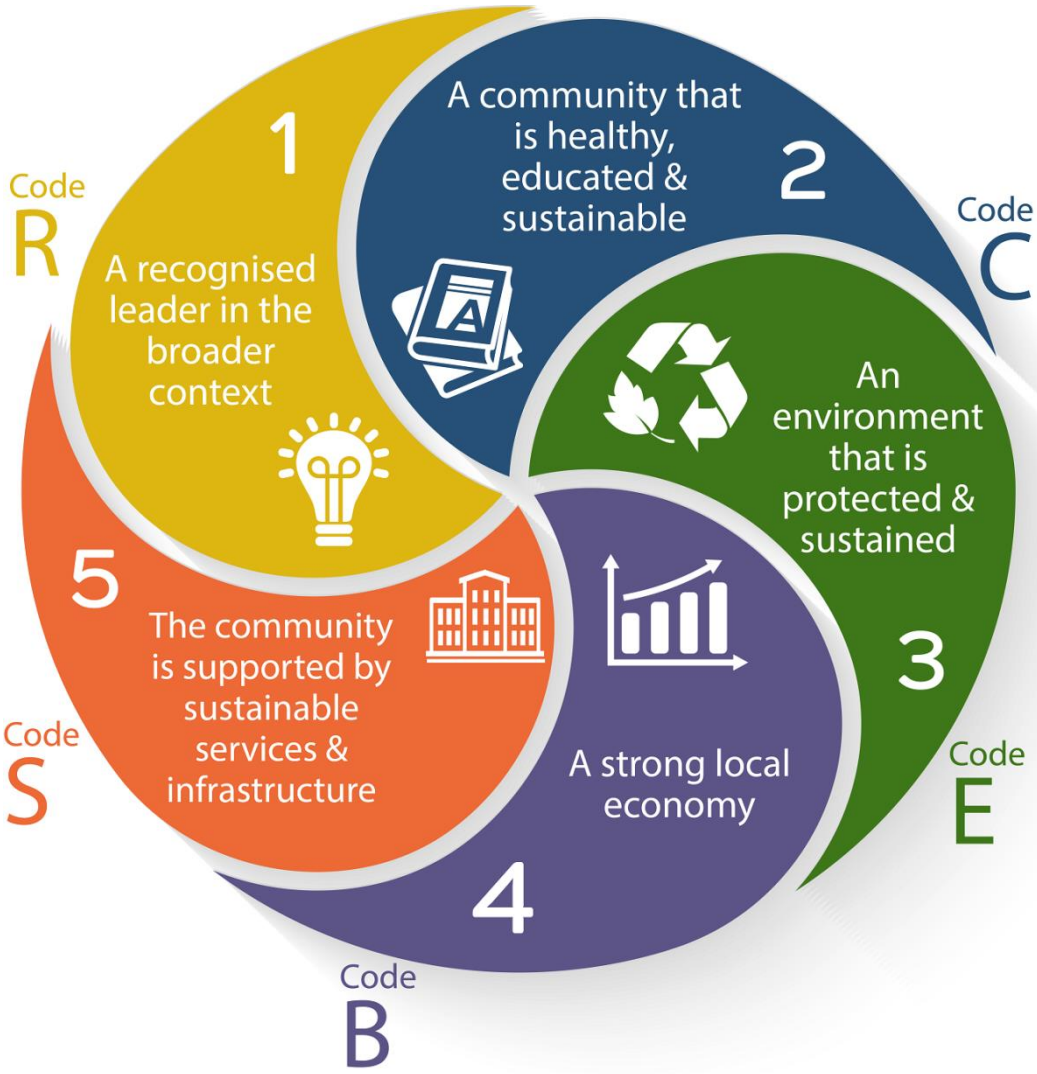
Under the provisions of Section 451(1) of the *Local Government Act 1993* (pecuniary interests) and Part 4 of the Model Code of Conduct prescribed by the Local Government (Discipline) Regulation (conflict of interests) it is necessary for you to disclose the nature of the interest when making a disclosure of a pecuniary interest or a non-pecuniary conflict of interest at a meeting.

A Declaration form should be completed and handed to the General Manager as soon as practible once the interest is identified. Declarations are made at Item 3 of the Agenda: Declarations - Pecuniary, Non-Pecuniary and Political Donation Disclosures, and prior to each Item being discussed: The Declaration Form can be downloaded at Declaration Form

Quick Reference Guide

Below is a legend that is common between the:

- Inverell Shire Council Strategic Plan;
- Inverell Shire Council Delivery Plan; and
- Inverell Shire Council Operational Plan.



1 APOLOGIES

2 CONFIRMATION OF MINUTES

RECOMMENDATION:

That the Minutes of the Civil and Environmental Services Committee Meeting held on 12 May, 2021, as circulated to members, be confirmed as a true and correct record of that meeting.

MINUTES OF INVERELL SHIRE COUNCIL
CIVIL AND ENVIRONMENTAL SERVICES COMMITTEE MEETING
HELD AT THE COMMITTEE ROOM, ADMINISTRATIVE CENTRE, 144 OTHO STREET, INVERELL
ON WEDNESDAY, 12 MAY 2021 AT 9.00AM

PRESENT: Cr Di Baker (Chair), Cr Paul Harmon (Mayor) and Cr Stewart Berryman.

IN ATTENDANCE: Cr Jacki Watts, Cr Kate Dight and Cr Paul King OAM.

Paul Henry (General Manager), Brett McInnes (Director Civil & Environmental Services), Paul Pay (Director Corporate and Economic Services), Anthony Alliston (Manager Development Services) and Justin Pay (Manager Civil Engineering).

1 APOLOGIES

COMMITTEE RESOLUTION

Moved: Cr Paul Harmon
Seconded: Cr Stewart Berryman

That the apologies received from Cr Mal Peters and Cr Neil McCosker for personal reasons be accepted and leave of absence granted.

CARRIED

2 CONFIRMATION OF MINUTES

COMMITTEE RESOLUTION

Moved: Cr Stewart Berryman
Seconded: Cr Paul Harmon

That the Minutes of the Civil and Environmental Services Committee Meeting held on 14 April, 2021, as circulated to members, be confirmed as a true and correct record of that meeting.

CARRIED

3 DISCLOSURE OF CONFLICT OF INTERESTS/PECUNIARY AND NON-PECUNIARY INTERESTS

Nil

4 PUBLIC FORUM

Nil

5 DESTINATION REPORTS

5.1 URBAN DRAINAGE RECONSTRUCTION - UPDATE S28.10.1

COMMITTEE RESOLUTION

Moved: Cr Paul Harmon
Seconded: Cr Stewart Berryman

That the Committee recommend to Council that:

i) The information regarding progress on the Gilgai urban drainage upgrade plan be received and noted;

ii) The project to upgrade drainage in Murray Street be included in Council's design priorities list;

iii) Design of appropriate drainage solutions for Byron Street from Lawrence Street to Mansfield Street be included in Council's design priorities list; and

iv) A further report be presented to Council outlining potential options and costing for a project to upgrade the drainage in Byron Street from Lawrence Street to Mansfield Street that incorporates appropriate tree pits for replacement edge plantings.

CARRIED

6 INFORMATION REPORTS

COMMITTEE RESOLUTION

Moved: Cr Stewart Berryman
Seconded: Cr Paul Harmon

That the information reports be received and noted.

CARRIED

6.1 UPDATE ON THE NSW HERITAGE ACT REVIEW AND DISCUSSION PAPER S18.6.12/14

6.2 WORKS UPDATE S28.21.1/14

6.3 PLANNING PROPOSAL - AMENDMENT TO INVERELL LOCAL ENVIRONMENTAL PLAN 2012 - CORNER GWYDIR HIGHWAY AND JARDINE ROAD, INVERELL S18.6.34/09

7 GOVERNANCE REPORTS

7.1 GOVERNANCE - PERFORMANCE REPORTING ON ROAD MAINTENANCE COUNCIL CONTRACTS S1.2.3/14

COMMITTEE RESOLUTION

Moved: Cr Paul Harmon
Seconded: Cr Stewart Berryman

That the information be received and noted.

CARRIED

The Meeting closed at 9.17am.

3 DISCLOSURE OF CONFLICT OF INTERESTS/PECUNIARY AND NON-PECUNIARY INTERESTS

4 PUBLIC FORUM

5 DESTINATION REPORTS

5.1 INVERELL SEWAGE TREATMENT PLANT NUTRIENT STRIPPING INVESTIGATIONS

File Number: **S29.5.5 / 21/19231**

Author: **Michael Bryant, Manager Environmental Engineering**

SUMMARY:

The purpose of this report is for the Committee to consider and make a recommendation to Council on the feasibility of chemical stripping of nutrients from treated effluent at the Inverell Sewage Treatment Plant prior to discharge to the Macintyre River.

RECOMMENDATION:

That the Committee recommend to Council that:

i) The information be received and noted; and

ii) No further action be taken on nutrient stripping of treated effluent at Inverell Sewage Treatment Plant at this point in time for the reasons outlined in the report.

COMMENTARY:

At the March 2020 meeting, Council resolved that a concept design, estimate and report be prepared for installing a chemical dosing facility at the Inverell Sewage Treatment Plant (STP) for nutrient stripping to improve the quality of treated effluent discharged into the Macintyre River and also reduce the annual EPA Load Based Licencing fees (LBL) payable by Council.

Background

During the recent extended severe drought Council considered various options for reusing treated effluent for irrigation of sport and recreational facilities around Inverell, including the Golf Club located south of Inverell. Investigations Identified that initial capital costs and ongoing operation and maintenance costs would be high, making such options non viable. Reuse of treated effluent for agricultural and horticultural purposes was also considered expensive when compared with the long standing practice of discharging treated effluent to the Macintyre River in accordance with an Environment Protection Authority (EPA) licence.

Investigations into Feasibility of Nutrient Stripping (Consultants Brief)

Consultants GHD were engaged to undertake a desktop study to ascertain the feasibility of nutrient stripping of treated effluent at Inverell STP. The investigations involved the following:

- Technical review of the STP process and influent wastewater quality results.
- Options of aluminium sulphate (alum) and ferric chloride (ferric) chemical dosing using BioWin 6.0 modelling to compare against the current practice of paying EPA LBL fees for discharge of nutrient rich effluent to the river.
- Assessment of impacts of metal dosing chemicals (alum and ferric) on sludge production/characteristics.
- Preparation of a preliminary feasibility/concept process flow diagram and general STP plant arrangement.
- Budget level cost estimates (CAPEX, OPEX and NPV).
- Assessment of non-cost criteria i.e. eutrophication of Macintyre River and implications on cost-to-benefit ratio of the project.

The LBL fees applied at the Inverell STP range from $65K to $92K per annum with high phosphate concentrations in the effluent accounting for 92% of the annual LBL fees. Phosphorous (P)

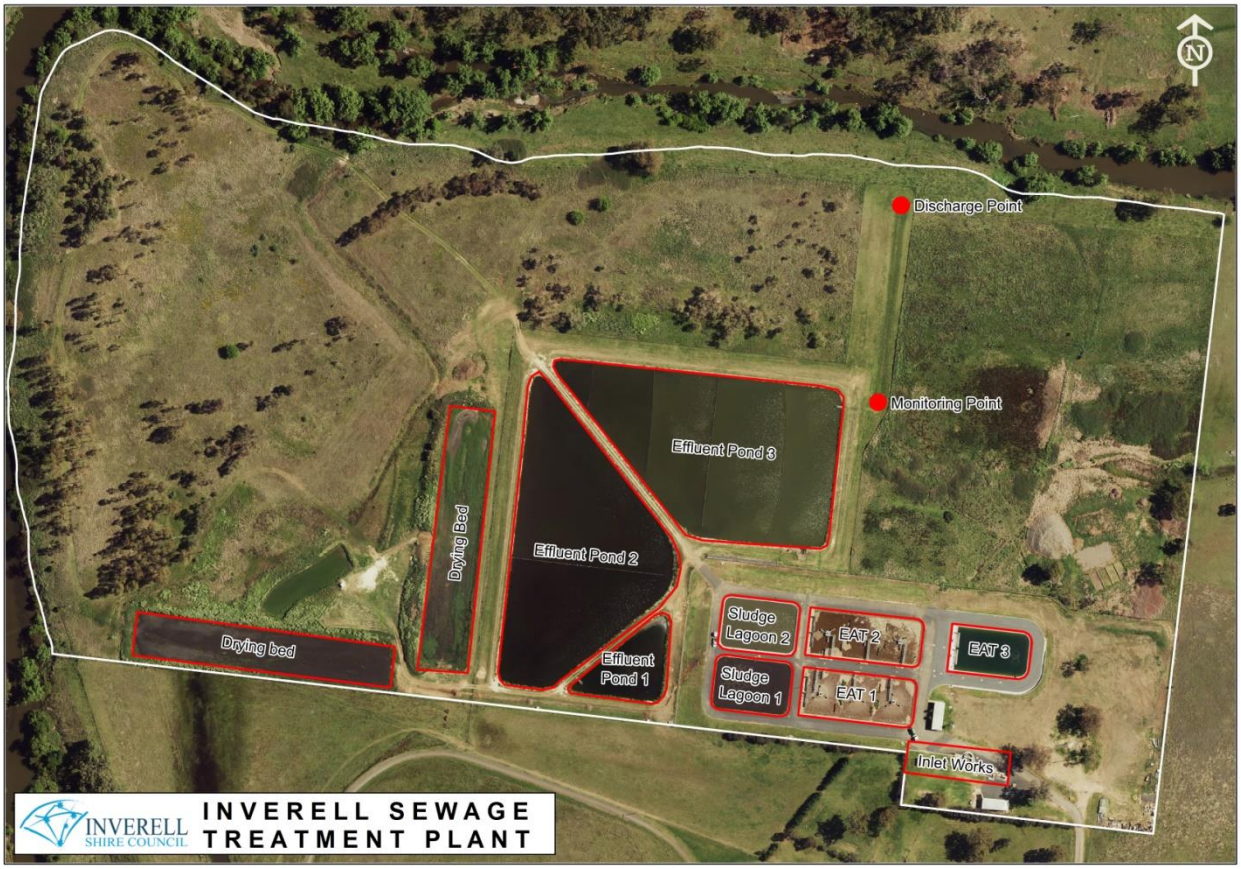
concentrations in the raw sewage entering the STP currently average 6mg/L with treated effluent discharged to the river averaging 4.9mg/L.

The aim of the investigation was to review the impacts (and merit) of reducing the P concentration below 1 mg/L which would translate to an approximate 80% reduction in LBL fees. Reduced LBL fees would assist in offsetting the cost of implementing chemical nutrient stripping.

The analysis assumes the 2020 average dry weather flow of 2.59ML/day will increase by 0.5% annually to 3.00ML/day over a 20 year period to 2040.

Figure 1 below depicts an aerial view of Inverell STP detailing the existing infrastructure and licensed discharge monitoring point associated with the EPA licence.

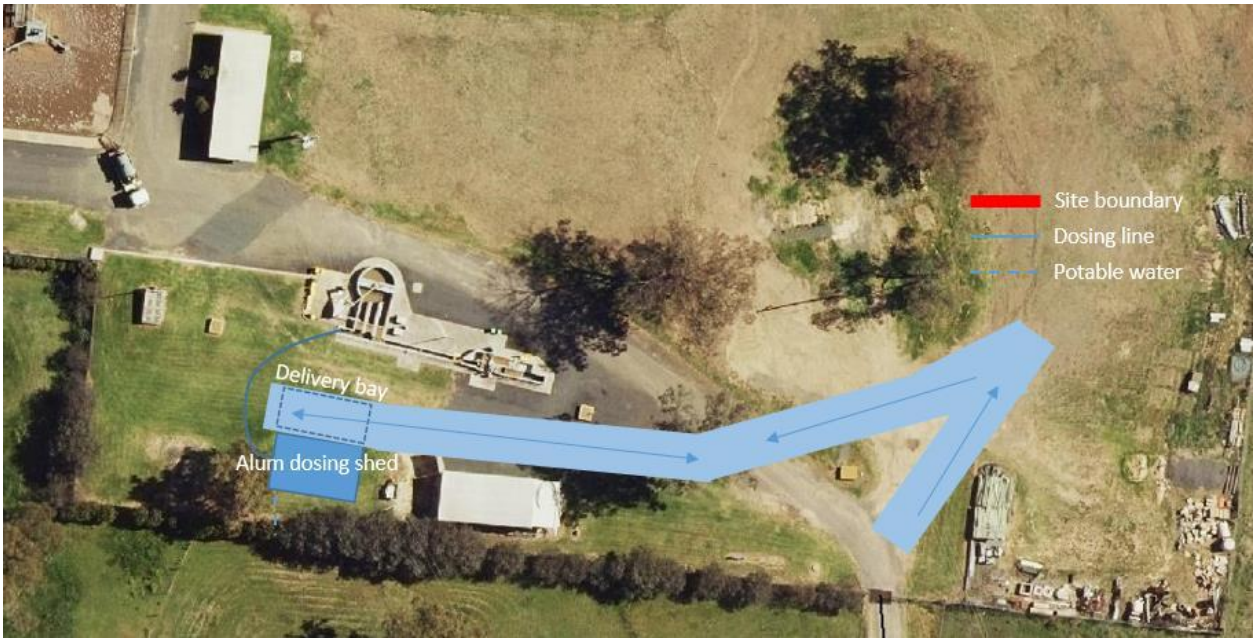
Figure 1 – Inverell Sewage Treatment Plant



Aluminium Sulphate Dosing Facility

Figure 2 below shows the general arrangement for new infrastructure required at the STP inlet works for liquid alum dosing. In summary, provision would be made for chemical delivery by semi-trailer, a 30kL storage tank, storage bund, covered shed, safety shower, static chemical mixer, plus associated civil, electrical, mechanical and plumbing works.

Figure 2 – Alum Dosing General Arrangement



Estimated capital cost to design and construct is $430K.

LBL fees $20K assumed to be increasing at 2% pa.

Estimated operation and maintenance cost $100K pa. This Includes power, chemicals, maintenance of chemical storage, dosing equipment and removal of dried sludge.

Ferric Chloride Dosing Facility

The ferric dosing system has a similar general arrangement as the alum dosing facility, however requires additional chemical handling and dosing equipment to dose caustic soda for pH correction of raw sewage being treated. A 30kL storage tank required for ferric and 12kL storage tank for caustic soda.

Estimated capital cost to design and construct is $680K.

LBL fees $20K assumed to be increasing at 2% pa.

Estimated operation and maintenance cost $100K pa. This includes power, chemicals, maintenance of chemical storage, dosing equipment and removal of dried sludge.

Base Case – No nutrient stripping

Nil capital cost.

LBL fees $92K assumed to be increasing at 2% pa.

Current cost of managing Biosolids (dried sludge) $4K pa.

Option Cost Summary

Table 1 below provides an options cost summary including a Net Present Value (NPV) analysis over 20 years for comparison purposes.

The NPV compares each of the three (3) options in present value terms comprising deployed capital, annual LBL fees, and estimated ongoing operation and maintenance cost over the 20 year period. For sensitivity purposes discount rates (interest rates) of 7%, 3% and 1% have been used to compare the three (3) options.

Table 1 Options Cost Summary 20 Years

Option	Capital cost	Average Annual cost	NPV 7%	NPV 3%	NPV 1%
Base case	Nil	$126,000	$1,420,000	$2,070,000	$2,580,000
Alum dosing	$430,000	$117,000	$1,750,000	$2,420,000	$2,840,000
Ferric dosing	$680,000	$126,000	$2,000,000	$2,650,000	$3,140,000

The average annual cost is the average of the operation and maintenance costs plus EPA LBL fees over the 20 year period.

The NPV analysis (excluding the high cost of upgrading of sludge handling facilities) indicates that for discount rates of 7%, 3% and 1% all favour the Base Option of no nutrient stripping.

The reason the Base Option is much more favourable is there is no capital investment, whereas the Alum Option has a capital cost of $430K and Ferric $660K. Both chemical dosing options have average annual operating and maintenance cost including LBL fees similar to the Base Option of $126K. Both chemical dosing options have chemical purchase costs of $75K per annum.

The STP process investigations have identified that chemical nutrient stripping is expected to increase sludge production by 30% for alum dosing and 43% for ferric chloride dosing, compared with the base option of no nutrient stripping. The STP existing sludge handling system comprising two (2) sludge lagoons and two (2) drying beds does not have capacity to handle significant increases in sludge production, and would require major augmentation at considerable expense. The cost of this is unknown and would be subject to further investigation, however could be in the order of $1M. Including this cost in the NPV analysis would make the base case option much more favourable over chemical nutrient stripping.

Non-cost Criteria Multi-criteria Analysis

A non-economic evaluation was undertaken for each of the options by Council and GHD staff, involving assessment of the merits and constraints of each of the proposed improvement methods.

The following assessment criteria for the proposed options were identified and applied:

A – Maximisation of P reduction (i.e. discharge to Macintyre River)

B – Minimisation of safety hazards (chemical handling)

C – Minimisation of impacts on sludge management (dewater ability, salinity, P binding etc.)

D – Minimisation of odour nuisance

E – Minimisation of community impact from trucking nuisance

F – Minimisation of complexity

Criteria weighting was undertaken by comparing each objective to each other objective, assessing which criteria is more important and by how much (points of 1 -3 were nominally used to assign little to significant extent of difference). Table 2 below presents the prioritising matrix.

Table 2 Criteria Weightings

Criteria	Weighting
Maximisation of P reduction (i.e. discharge to Macintyre River)	5.56
Minimisation of safety hazards (chemical handling)	1.48
Minimisation of impacts on sludge management	1.11

Minimisation of odour nuisance	0.74
Minimisation of community impact from trucking nuisance	0.37
Minimisation of complexity	0.74
Total	**10.00**

The most important criterion is the maximisation of P reduction to the Macintyre River with a weighting of 5.56 or 56% of the total of the weightings of 10. The overall ranking of the three (3) options for Non-economic (non-cost) evaluation is summarised in Table 3 below.

Table 3 Non-Economic Evaluation

Option	Non-economic score	Ranking
Base Case	20.00	3rd
Alum dosing option	42.22	1st
Ferric dosing option	37.41	2nd

As expected the non-economic evaluation favoured alum dosing to reduce P discharged to the river.

Other Factors for Consideration

The EPA was contacted to provide information on what the future holds for discharging treated effluent to the Macintyre River at Inverell. The advice is that Council can continue to discharge in accordance with the current Inverell STP licence and there are no moves afoot to change the current LBL arrangements.

The existing Inverell STP is approximately 40 years old reaching a stage where the two (2) existing aeration tanks need to be taken out of service for removal of the extensive build up of sediment plus reinstatement of floors and sloping concrete walls. The six aerators are approaching the end of their useful life and will also be replaced as part of the refurbishment. To facilitate this work Council has constructed a third aeration tank costing $2M which is to be used while each of the existing tanks are taken out of service. The final stage of this work costing in the order of $2M will be undertaken over the next two (2) years and needs to be finalised before any consideration can be given to introducing chemical nutrient stripping, which would place a much more significant load on the STP process and sludge handling capacity. As mentioned above upgrading of the sludge handling facility to handle a projected 30% increase in sludge volume could cost in the order of $1M.

The Department of Primary Industries & Environment (DPIE) is in the process of developing Regional Water Strategies for NSW catchments for the next 40 year period, and work undertaken to date encourages recycling of treated effluent. For this reason it is considered that Council not commit to nutrient stripping at this point in time, as nutrients contained in recycled effluent are beneficial for plant growth. Funds invested in nutrient stripping may not be fully utilised as the chemical dosing system would not be required.

Conclusion

The investigations provide information on the feasibility of introducing chemical stripping of nutrients from treated effluent by approximately 80% of current levels at Inverell STP, prior to discharge to the Macintyre River.

The non-economic evaluation favours alum dosing to remove phosphorous from the river, which is to be expected. It should be noted that the greatest impact on the riverine environment is during drought when the Macintyre River flow declines and nutrient concentrations become more prominent.

The NPV analysis strongly favours the base option of continuing to discharge nutrient rich treated effluent to the Macintyre River, particularly when the additional capital cost of duplication of the

STP sludge handling system is also factored in to handle the predicted 30% increase in sludge volume associated with alum dosing. Other factors include retaining the ability to introduce effluent reuse sometime in the future, EPA licencing conditions, the emerging 40 year Regional Water Strategies across NSW and the refurbishment of the STP aeration tanks currently underway.

On balance it is recommended that Council not pursue nutrient stripping at Inverell STP at this point in time.

RISK ASSESSMENT:

Nil

POLICY IMPLICATIONS:

Nil

CHIEF FINANCIAL OFFICERS COMMENT:

Nil

LEGAL IMPLICATIONS:

Nil

ATTACHMENTS:

Nil

5.2 BONSHAW RAW WATER SUPPLY DROUGHT SECURITY

File Number: **S32.13.2 / 21/19304**

Author: **Michael Bryant, Manager Environmental Engineering**

SUMMARY:

This report updates Council on the progress with Council's application for Drought Emergency Funding to improve the security of the Bonshaw raw water supply. The Committee is being asked to consider a course of action now that financial assistance has been received.

RECOMMENDATION:

The Committee recommend to Council that:

1. *The report be received and noted;*
2. *Council adopt the following priorities for investigation and augmentation works to improve drought security of the Bonshaw restricted flow raw water supply within the total budget of $190K including up to $114K of NSW Government drought emergency funding:*

   Priority 1 – Establish a more secure source of ground water; and

   Priority 2 – Increase the village reservoir storage capacity and pressure in the reticulation mains; and
3. *The progress of investigations be reported to a future Civil & Environmental Services Committee meeting.*

COMMENTARY:

The extended drought over the past few years associated with periods of no flow in the Dumaresq River catchment resulted in the water table associated with the Bonshaw raw water supply dropping to a low level, unable to meet demand. Restrictions were put in place to limit demand to a sustainable level.

In response to a report on the operational issues associated with the Bonshaw water supply, Council, at the November 2020 Ordinary Council meeting resolved that:

1. *The report be received and noted;*
2. *That Council make an application to the Minister for Water and Housing under the Emergency Drought Financial Assistance Program for the following works:*

   a. *Sink a back up bore in proximity to the existing facility;*

   b. *Identification of an alternative site for a sustainable bore within a reasonable distance from the existing infrastructure;*

   c. *Enlarge the water storage facility at Bonshaw and increase the elevation of that facility;*
3. *That a report be prepared for Council on the costs of the above projects and the outcome of the application to the Minister for Financial for assistance prior to proceeding with any work; and*
4. *On application of the project, Council adopt an amended raw water charge for users of the upgraded water scheme.*

A copy of the November 2020 report has been included in Attachment 1 for background information for the Committee.

It was reported to the April 2021 Council meeting that the Hon. Melinda Pavey, Minister for Water, Property & Housing had approved up to $114K in drought emergency financial assistance towards works estimated to cost $190K to improve the security of the Bonshaw raw water supply. The funding is on a 60% NSW Government / 40% Council basis.

It is proposed that the project would involve undertaking investigations and implementation of a more reliable water supply in the following order of priority, within the total project budget of $190K.

Priority 1 – Establish a More Secure Source of Water

Undertake desktop investigations into what groundwater aquifers / bores exist in the local area to ascertain the potential for a new bore to supplement the existing village bore. Undertake drilling of test holes and if a reliable source of good quality water is encountered within cost effective pumping distance, proceed to constructing and equipping the bore. Attachment 2 is a map showing the existing Bonshaw water supply infrastructure.

The Minister's letter has indicated that a cost effective solution maybe to explore the possibility of acquiring a nearby bore if considered viable. This will be explored as part of the desktop investigations.

It should be noted that the source of water needs to be located away from the potential impact of contamination from septic tanks located within the village. The quality of the water is to be suitable for non potable use around the home including toilets and clothes washing and therefore needs to be low in iron, manganese and hardness to avoid soiling of clothes and calcification of fittings.

The high rainfall and major flooding in the Dumaresq valley earlier this year has recharged the alluvial aquifers adding to the complexity in determining the drought security of any potential new shallow bores.

The cost of Priority 1 works are unknown as it is much dependent on the ease of finding a suitable source of water and the proximity to existing Bonshaw water supply infrastructure including pipelines and power supply.

Priority 2 – Improving Village Reservoir Storage Capacity & Pressure

The existing reservoir is located on a tank stand in the old Department of Main Road Depot, initially taken over by the local community then by Council about 20 years ago.

The non potable supply is designed mainly for household internal use for toilet flushing and laundry usage, not for extensive outdoor watering of gardens and lawns. The supply is designed as a trickle flow system; comprising 50mm diameter mains, with restrictors in place limiting maximum flow to below 2,000L/day/ property, or capacity of the supply bore/s. Each property is required to have a suitably sized buffer storage receiving tank fitted with a pressure pump to provide sufficient water pressure around the property. It should be noted the water supply was not designed to provide mains pressure to run household fixtures and appliances, garden hoses or sprinklers.

The upgrade of the Inverell Shire SCADA & Telemetry System currently underway will introduce 24/7 monitoring of the Bonshaw bore and reservoir, allowing staff to attend in a timey manner providing an improved level of service over the current arrangement which relies on Ashford based staff visiting Bonshaw on a weekly basis, or Council receiving advice from residents when the reservoir has run dry. Assuming the security of supply is addressed under Priority 1 and with 24/7 monitoring of the bore/s and reservoir, the reservoir storage capacity and pressure may not present as a major issue.

Investigations will be undertaken to determine feasible options for enlarging the reservoir storage capacity and elevation above the village. The outcome of the investigations will be reported to the Committee including estimated cost.

Conclusion

The recent NSW Government announcement of drought emergency funding to Council for improving the security of the Bonshaw raw water supply allows Council to proceed with detailed investigations and augmentation works.

As outlined in the report the first priority for maximising the use of the $190K total available funding, including Councils 40% contribution of $76K; is to establish an additional reliable source of water to supplement the existing bore located on Sawpit Road. Once this is achieved the second priority of improving the water storage volume and pressure within the village reticulation mains can be addressed utilising the remaining available funds.

RISK ASSESSMENT:

Nil

POLICY IMPLICATIONS:

Nil

CHIEF FINANCIAL OFFICERS COMMENT:

Sufficient funds are available in Councils externally restricted Water fund Reserve to meet Council's $76K contribution to this program.

LEGAL IMPLICATIONS:

Nil

ATTACHMENTS:

1. **Civil and Environmental Services Committee Report Bonshaw Raw Water Supply Operational Issues - 11 November 2020**
2. **Bonshaw Raw Water Supply Scheme**

5.1 BONSHAW RAW WATER SUPPLY OPERATIONAL ISSUES

File Number: **S32.13.2 / 20/43044**

Author: **Michael Bryant, Manager Environmental Engineering**

SUMMARY:

This report has been triggered by a previous resolution of Council seeking to identify any issues associated with the Bonshaw raw water supply. The Committee is being asked to consider a course of action associated with the issues identified in the report.

RECOMMENDATION:

The Committee recommend to Council that:

1. *The report be received and noted;*
2. *Council apply a raw water usage charge, currently $0.42/kL, at Bonshaw effective 1 July, 2021 to discourage excessive water usage;*
3. *Council make an application to the Honourable Melinda Pavey MP, Minister for Water, Property and Housing for Drought Emergency financial assistance for the construction of a second bore to provide a more secure raw water supply for Bonshaw; and*
4. *Council seek the support and representation of the Local Member the Hon Adam Marshall in securing the Drought Emergency funding.*

COMMENTARY:

At the August 2020 Ordinary Council meeting it was resolved:

That:

i) Council staff prepare a report that identifies all operational issues, including but not limited to, water pressure issues impacting the Bonshaw Water Supply; and

ii) Prepare a report on the options available to address the identified issues.

Background / Operational Issues

A very basic raw (non potable) water supply was initially established at the village of Bonshaw by the former NSW Department of Main Roads to support a road maintenance depot including staff accommodation. Water was pumped from the Dumaresq River west along Sawmill Road to a reservoir in Bonshaw. The depot was subsequently closed when Council took over maintenance of Bruxner Way. The Bonshaw community took over the running of the water supply until the late 1990's when Council was requested to take over the supply.

Council constructed a bore around 2001 in a low area of the floodplain (anabranch) along Sawmill Road approximately 600m east of Bruxner Way. A 50mm diameter rising main was also constructed from the bore to the village reservoir at the same time. The bore was damaged by a significant flood and replaced with a new bore in close proximity to the damaged bore in 2011. At the time Council constructed new 50mm diameter water distribution mains throughout the village. Attachment 1 is a map that shows the location of the current water supply infrastructure including the storage reservoir of approximately 12kL capacity located on Council land south of the village.

The non potable supply was designed mainly for household internal use for toilet flushing and laundry usage, not for extensive outdoor watering of gardens and lawns. The supply is designed as a trickle flow system; comprising 50mm diameter mains, with restrictors in place limiting maximum flow to below 2,000L/day/ property, or capacity of the supply bore. Each property is required to have a suitably sized buffer storage receiving tank fitted with a pressure pump to provide sufficient

water pressure around the property. It should be noted the water supply was not designed to provide mains pressure to run garden hoses or sprinklers.

If all 17 properties plus the school consumed 2,000L/day it would amount to 34kL/day or a constant 24/7 bore flow of 0.4L/s.

At the time of construction the bore had an estimated yield of approximately 0.9L/s based on minimal pump testing, and during drought conditions with sustained very high demand and a depressed water table is unable to meet demand. During the recent drought bore water levels declined to a level where on 15 August, 2019 the bore was pumping down for a period of 3 min 40 sec before turning off, taking 7 min 20 sec to recover before restarting. Assuming the bore pumped at 0.8L/s the yield was 23kL/day. As of 26 August, 2019 the bore recovery rate was further declining and if demand not reduced the water supply would have failed.

In late August, 2019 residents were requested to limit water usage to 100L per person per day to meet basic needs, making best use of the available water. Assuming a total of 60 people including school usage and visitors rely on the water supply, daily demand was projected to decrease to around 6kL/day. The water supply operated on this basis until the water table recovered in association with river flow and releases from Glenlyon Dam earlier this year.

It is worth noting that as the drought escalated during the twelve month period up to August 2019, demand based on the bore meter readings averaged 34kL/day, equivalent to 2kL/property/day or 730kL/property/year. As a comparison during normal seasons residential water usage in a town with a mains pressure supply, for internal potable use and garden / lawn watering would be around 300kL/year.

From August 2019 to January 2020 Bonshaw water usage dropped to 9.3kL/day and from January to October 2020 dropped further to 6.8kL/day, representing significant reductions in usage.

In summary the main operational issues associated with the Bonshaw water supply are:

- During normal seasons the water supply bore copes with demand.
- During periods of extended drought demand exceeds the capacity of the bore supply. User expectations increase as the yield of the bore declines. During the recent extended severe drought many potable town water supplies in the New England area ran critically low and tight restrictions were imposed to conserve the available water.
- The water table at the bore located on the alluvial floodplain is reflective of flow in the nearby Dumaresq River. Other groundwater extractions including irrigation along the floodplain would also be impacting the water table during drought periods.
- One resident, a large water consumer frequently claimed very low flow into the site water tank due to low water pressure in the reticulation system.
- Carting of water from Ashford to supplement the supply during severe drought periods, based on one load every second day would cost approximately $35,000 per year. Under the NSW Government drought emergency funding guidelines subsidies for water carting are limited to very basic volumes of water to meet human critical needs, meaning Bonshaw would only attract a subsidy if the bore was unable to meet human critical needs. During the recent drought the bore continued to meet human critical needs.

Options to Address Issues

Excessive Water Usage

Council does not have a pricing mechanism in place to discourage excessive water use at Bonshaw. This has come about due to the supply being a restricted flow raw water supply that has not been metered. Water meters were never installed, except on one property where the owner has made several complaints over the years about flow and pressure which were unfounded. In September 2019 water meters were installed on all properties to gain a better understanding of water usage, and make consumers aware that going forward Council will be closely monitoring water usage. This combined with the request to limit water usage to 100L/person/day allowed the bore to continue meeting the reduced demand during the recent drought.

It is recommended that a raw water usage charge, currently $0.42/kL be applied at Bonshaw effective 1 July, 2021 to discourage excessive usage. This is the same price that raw water users

pay on the Copeton Dam raw water main. The charge is fixed and not subject to an inclined block tariff like that applied to Council's treated town water supplies. The treated water domestic usage charges on other town water supplies are $1.65/kL for the first 600kL and $1.92/kL over 600kL.

Introducing a usage charge would assist in managing demand on the water supply bore to more sustainable levels.

Assuming a property average usage of 300kL at $0.42/kL would amount to $126 in annual usage charges.

Increase Groundwater Sustainable Yield

The existing bore is relatively shallow at 11.2m deep with pump inlet set at 10.4m. At the time of construction the bore was recorded as water bearing from 4.6m comprising fine to medium gravel plus large boulders.

The drilling contactor experienced very difficult conditions when constructing the most recent bore in the alluvial material, as the hole kept caving in.

Groundwater investigations could be undertaken to determine if a more suitable site is available in the local area in close proximity to existing infrastructure including power supply and rising main to the town reservoir. Establishing a new groundwater extraction point for a village water supply is subject to licencing rules based on minimum distances to other extraction bores and monitoring bores. A nearby replacement bore would not be subject to these restrictive rules.

A deeper bore in the alluvial material may provide a more reliable water supply less prone to seasonal variations, and prove more robust. Little is known about suitable sources of water away from the floodplain alluvial aquifer.

An option which Council may wish to consider as a contingency measure is to drill a second backup bore in proximity to the existing bore on Sawmill Road, which could share the existing electrical infrastructure and rising main. This would be subject to approval from NSW Department of Planning, Industries & Environment. Noting current capital works priorities for the water fund it is suggested that any additional bore be subject to obtaining adequate funding from the state government.

The Bonshaw area currently remains at drought affected status and may attract NSW Government Drought Emergency Funding to provide a backup bore.

Claimed Low Water Pressure

One consumer with a high water usage history has claimed low water pressure over many years. The claims would appear to be motivated at providing access to more water at the expense of other more modest water users connected to the village restricted flow system.

The storage reservoir is located on a stand approximately 8m high providing enough water pressure around the village to provide a restricted flow to each property storage tank via the relatively new 50mm diameter reticulation mains. The principle of the restricted flow water service is for water to trickle into the site storage tanks over a 24 hour period so all consumers have equal access to the water.

One option of increasing water pressure would be to construct a new higher standpipe reservoir which would be very expensive for a small community. Another option would be to install a pressure pump station downstream of the reservoir to maintain a constant pressure which would also be expensive to operate.

It is suggested that at this point in time the focus be on managing demand during drought periods and explore options of increasing the reliability of the groundwater supply.

Remote Monitoring of Bonshaw Water Supply

At present Council Ashford based water staff attends Bonshaw on a weekly basis to inspect the bore and reservoir and undertake system maintenance. Any outages to the supply when staff are not present are notified by local residents.

The proposed upgrade of the Inverell Shire SCADA & Telemetry System during 2021 will introduce 24/7 monitoring of the Bonshaw bore and reservoirs, allowing staff to attend in a timey manner providing an improved level of service over the current arrangement.

Conclusion

The Bonshaw raw water supply bore was stressed during the recent severe drought, however once demand was significantly reduced it managed to carry the village through until the Dumaresq River began to flow and recharge the alluvial water table.

There is no need to boost water pressure in the restricted flow water supply, or increase the volume of the water supply reservoir.

The suggested way forward is for Council to apply a water usage rate to assist in managing high demand. Increasing the drought security of the groundwater supply by way of a second back up bore is also recommended subject to obtaining funding.

RISK ASSESSMENT:

Nil

POLICY IMPLICATIONS:

Introduction of a raw water usage charge would be a change in the current water rating policy for Bonshaw. At present an availability charge of $375 per annum applies at Bonshaw.

CHIEF FINANCIAL OFFICERS COMMENT:

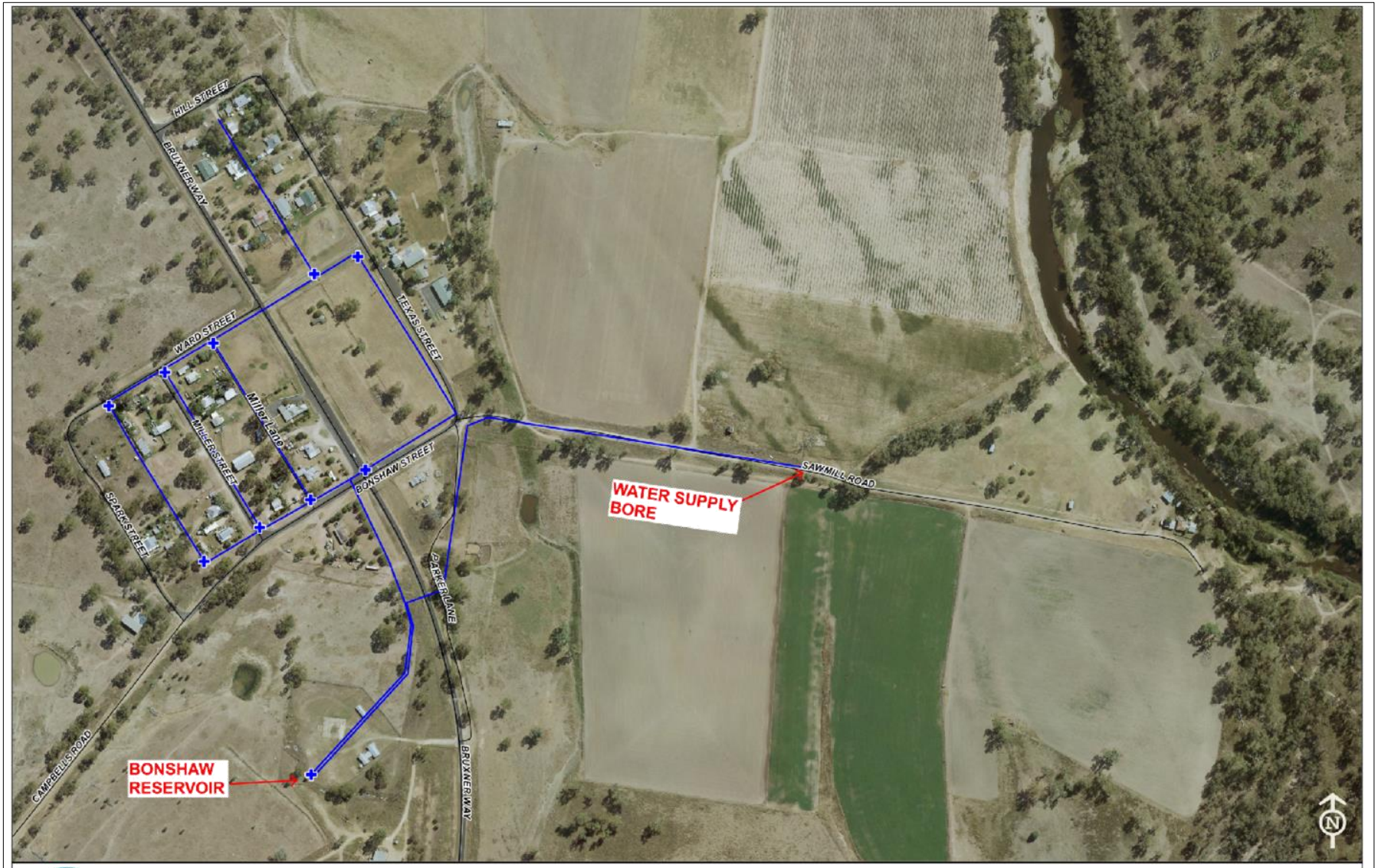
As mentioned above, to date there has been no charge for raw water usage. Projected income based on 34 KL per day would be around $5,000 per annum.

LEGAL IMPLICATIONS:

Nil

ATTACHMENTS:

1. Bonshaw Raw Water Supply Scheme map



INVERELL SHIRE COUNCIL

BONSHAW RAW WATER SUPPLY SCHEME

Water Pipes
Water Valves

IMPORTANT: This map is not a precise survey document. Accurate locations can only be determined by a survey on the ground. This information has been prepared for Council's internal purposes and for no other purpose. No statement is made about the accuracy or suitability of the information for use for any purpose (whether the purpose has been notified to Council or not). While every care is taken to ensure the accuracy of this data, neither the Inverell Shire Council nor the Department of Lands makes any representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason © The State of New South Wales (Department of Lands) 2006. © Inverell Shire Council 2006. This map was produced on the GEOCENTRIC DATUM OF AUSTRALIA 1994 (GDA94), which has superseded the Australian Geographic Datum of 1984 (AGD84/84). Heights are referenced to the Australia Height Datum (AHD) heights. For most practical purposes GDA94 coordinates and satellite derived (GPS) coordinates based on the World Geodetic Datum 1984 (WGS84) are the same.

30-OCT-2020

6 INFORMATION REPORTS

6.1 WORKS UPDATE

File Number: **S28.21.1/14 / 21/18884**

Author: **Justin Pay, Manager Civil Engineering**

SUMMARY:

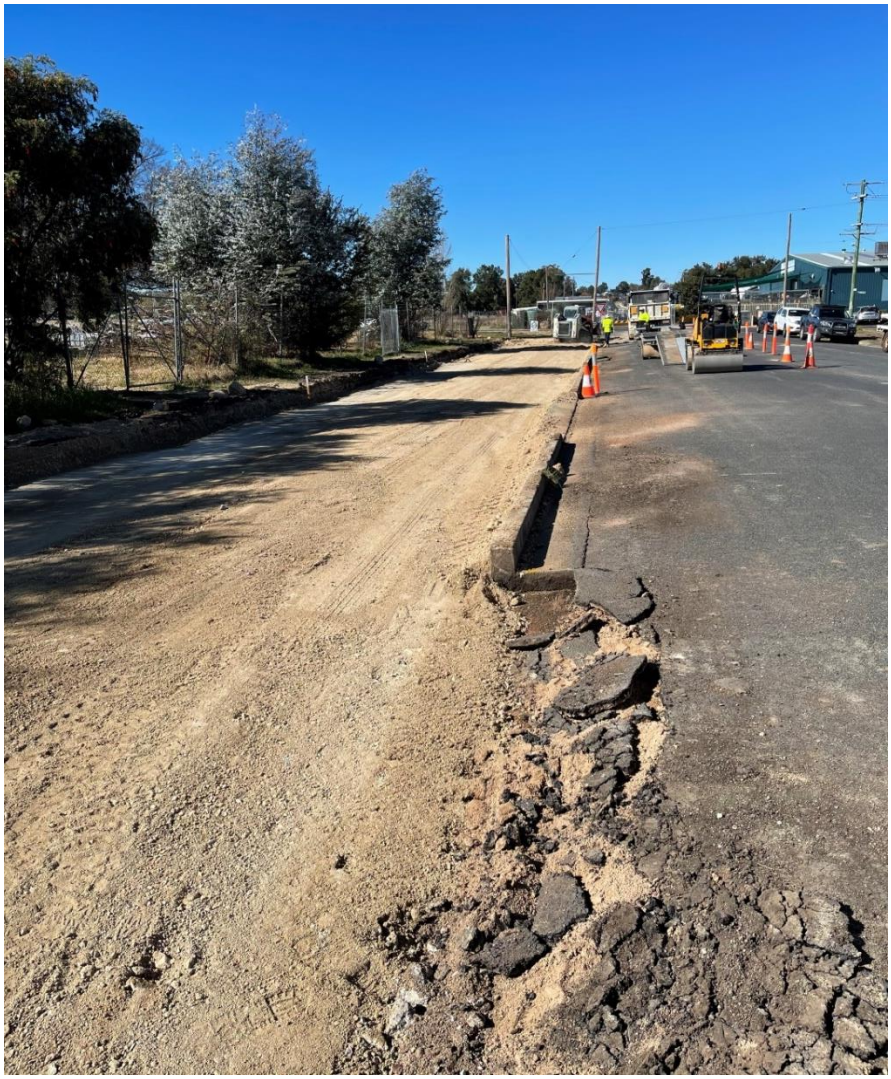
This report is intended to keep Council updated on the capital works and maintenance programs.

COMMENTARY:

Oliver Street Extension

An extension of Oliver Street, from Arthur Street to Swanbrook Road has been programmed by Council. Works involve construction of a new sealed pavement, kerb and gutter, associated water main and drainage construction through the land formerly used as the Community Gardens. The project also involves constructing a cul-de-sac in Arthur Street adjacent to Ashford Road and extending the kerb and gutter along the southern side of Swanbrook Road from Ashford Road to Oliver Street.

Water main construction has now been completed with the construction of new parking bays in Arthur Street underway. Pavement construction for the cul-de-sac is underway and kerb and gutter works will commence during June. The project is scheduled for completion in July 2021.



Carparking works in Arthur Street

SR246 Elsmore Road Causeway Upgrade

Council has allocated $115,500 for the replacement of the concrete causeway on Elsmore Road. The source of funding being:

ACRD Culverts and Causeways - $72,500
ACRD Bitumen Renewal - $43,000

The existing causeway slab has poor alignment and has deteriorated to the point that it is no longer economically viable to continue to undertake constant maintenance. The replacement slab improves the alignment due to the approaches being slightly realigned and the extra width and length improves the ride quality.

Temporary works have been completed on the slab approaches in order to reopen the road to the public. The regrading of the approaches will commence once Arthur Street works are completed.

HW12 Gwydir Highway Elsmore Road Safety Treatment Works – Shoulder Widening

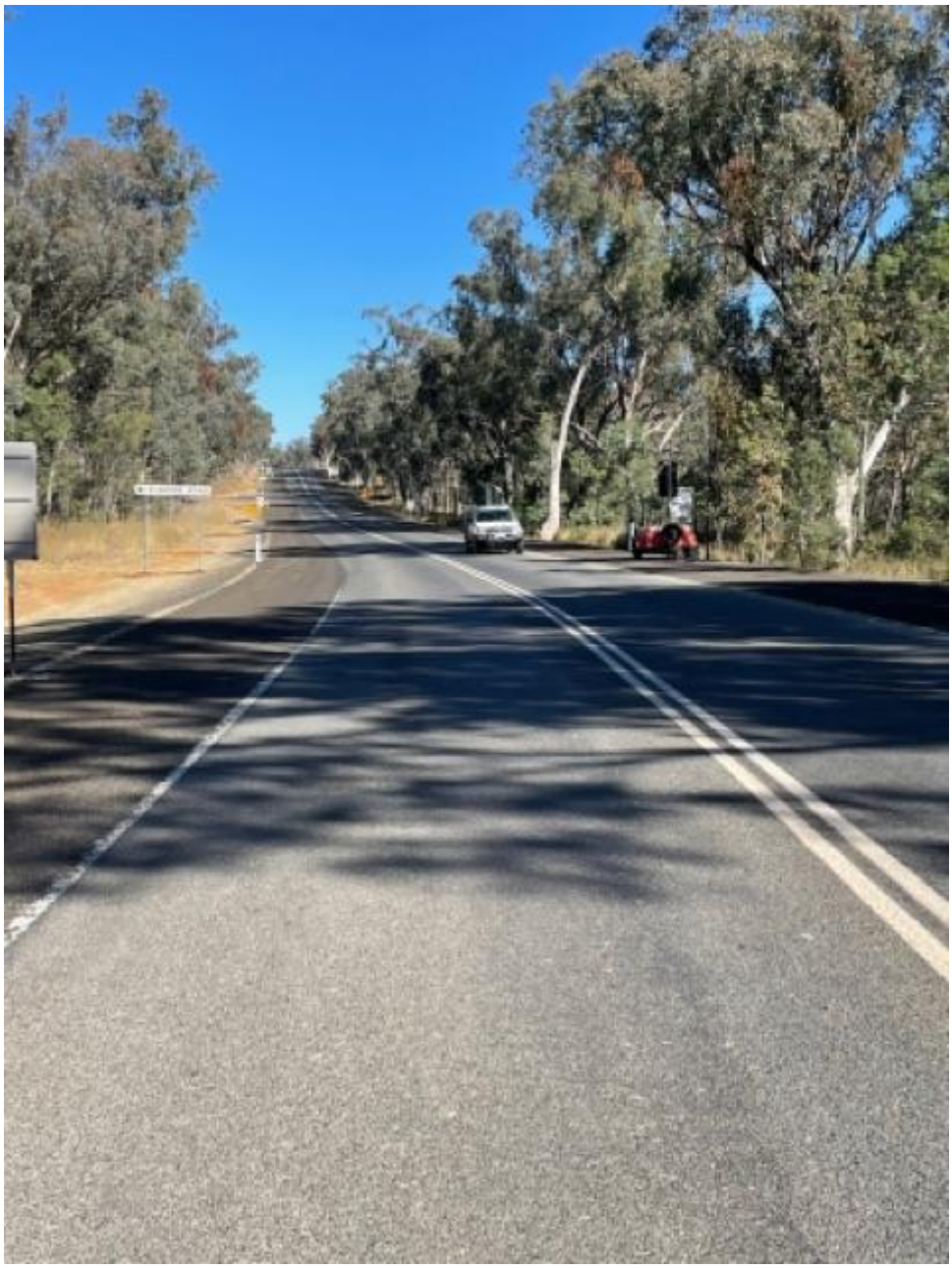
Council have been successful in obtaining $1.19M in funding under the RMCC Ordered Works arrangements with TfNSW to undertake safety treatment works on a 2.2km section of the Gwydir Highway, east of the Runnymede Intersection.

The approved safety treatment works utilises the existing pavement as a foundation to construct a nominal pavement overlay with an additional treatment of boxing out the existing road shoulders,

providing for a 2.5 metre sealed shoulder. Guardrail, curve alignment markers and audio tactile line marking will complete the safety upgrade works. The safety treatment works were identified by TfNSW as part of a Road Safety Audit and is funded under the NSW Blackspot Program. A number of accidents including serious injuries and a fatality have occurred on this section of road over the past five (5) years prompting the safety upgrade works.

Works have commenced on the final 500 metre section from Elsmore Road to the speed camera east of the intersection. The centre pavement will be retained and Council's crew will be constructing a widened shoulder with a shoulder seal programmed for 7 June, 2021.

Guardrail, signage and line marking are planned for the 10 June, 2021 at which time this project is at completion. A bitumen reseal for this project will be placed at the end of the year in conjunction with Council's annual resealing program.



HW12 Gwydir Hwy Safety Treatment Project – Completed Shoulder widening works Elsmore Road

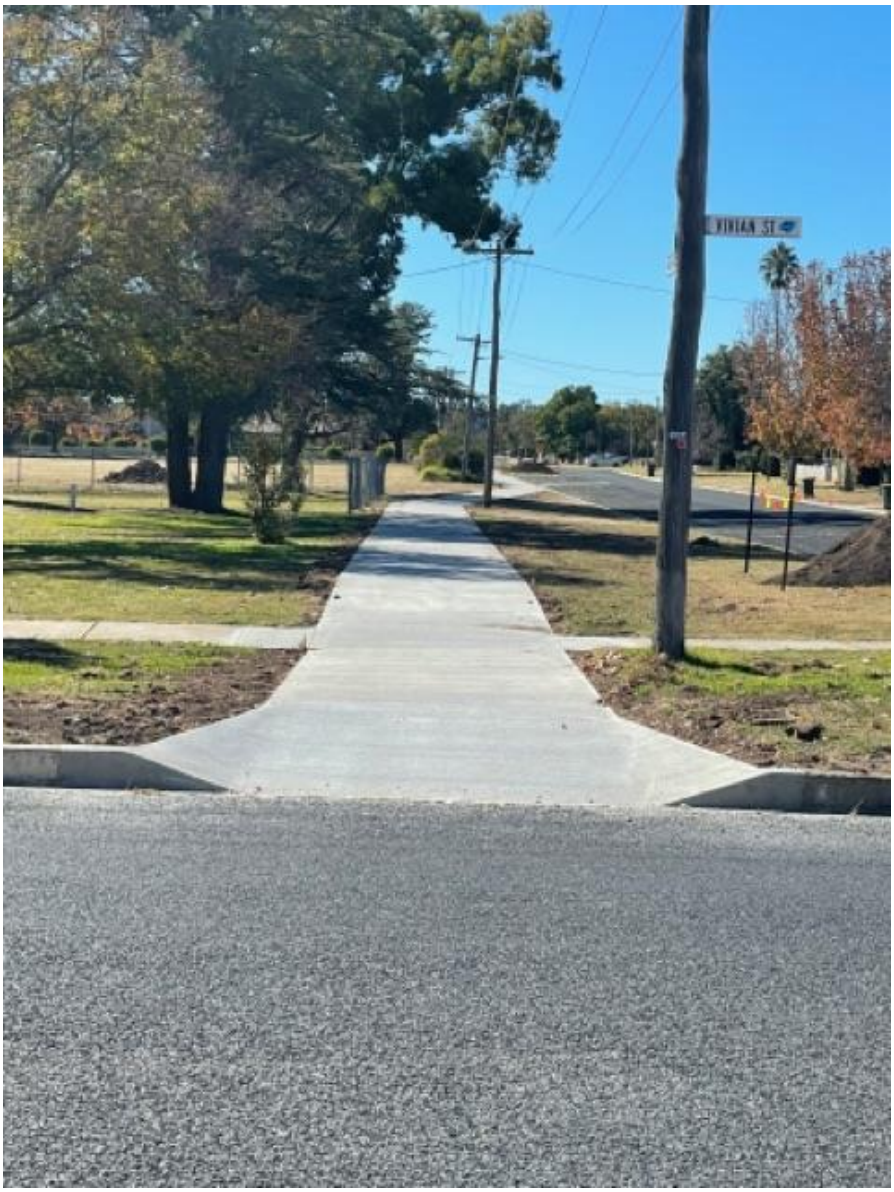
2020-2021 Walking and Cycling (Active Transport) Program

Council have been successful in obtaining $101,711 from TfNSW to allocate to specific walking and cycling facilities within Inverell. Council are required to match this funding bringing the total project allocation to $202,422.

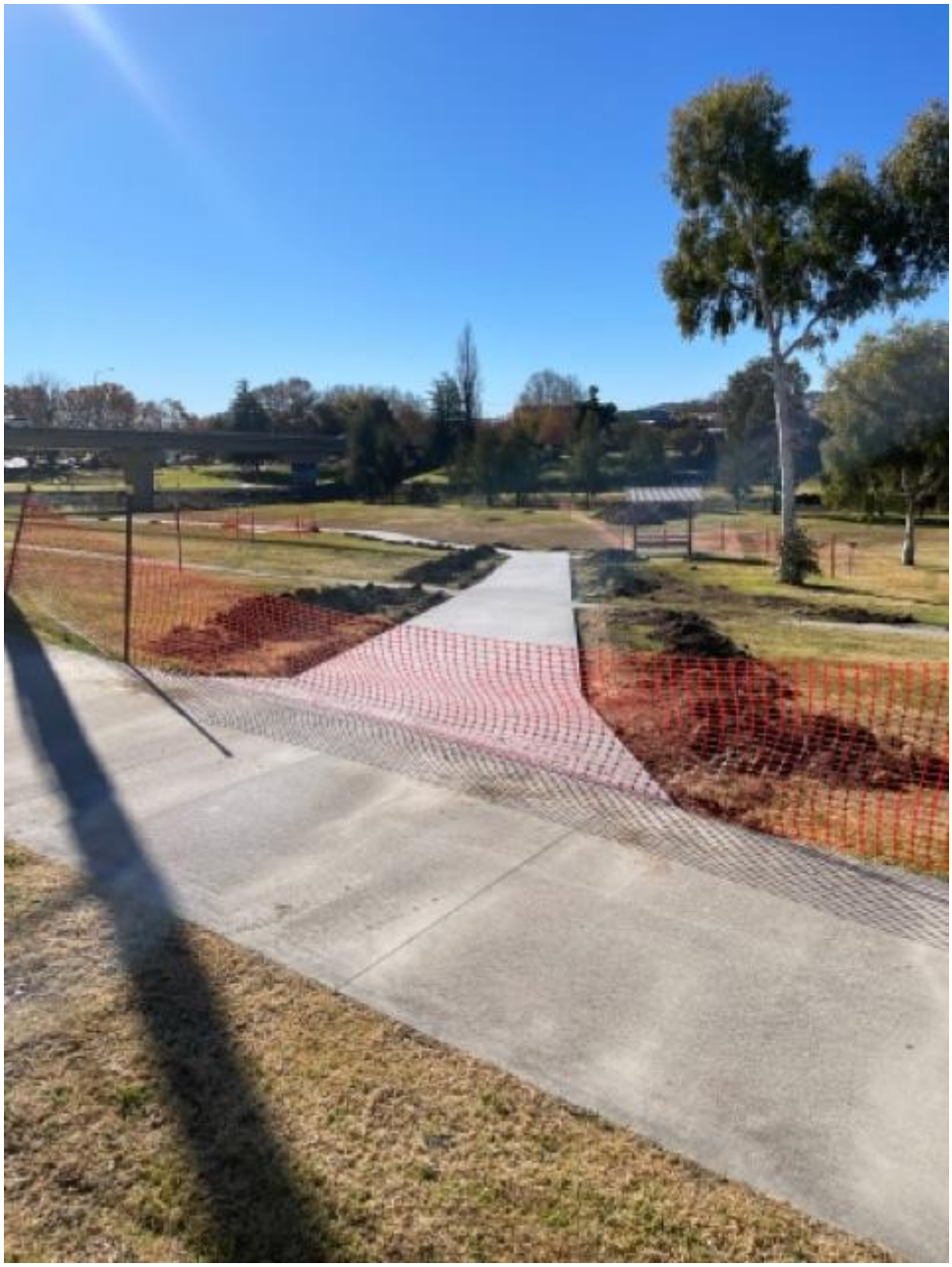
Council, through its adopted PAMP, identified two (2) specific projects to extend its shared concrete path network. The first project is the missing link along Granville Street and Lawrence Street from the Bicentennial Park to Henderson Street (adjacent Brooks Oval). The second project is from Lions Park under the main bridge and along the western side of the Macintyre River to the weir.

Council requested quotations from suitably qualified contractors to undertake this work with approximately one (1) kilometre of shared concrete path to be constructed. Three (3) contractors showed interest and submitted quotations for this project with All Slab Concreting being awarded the contract.

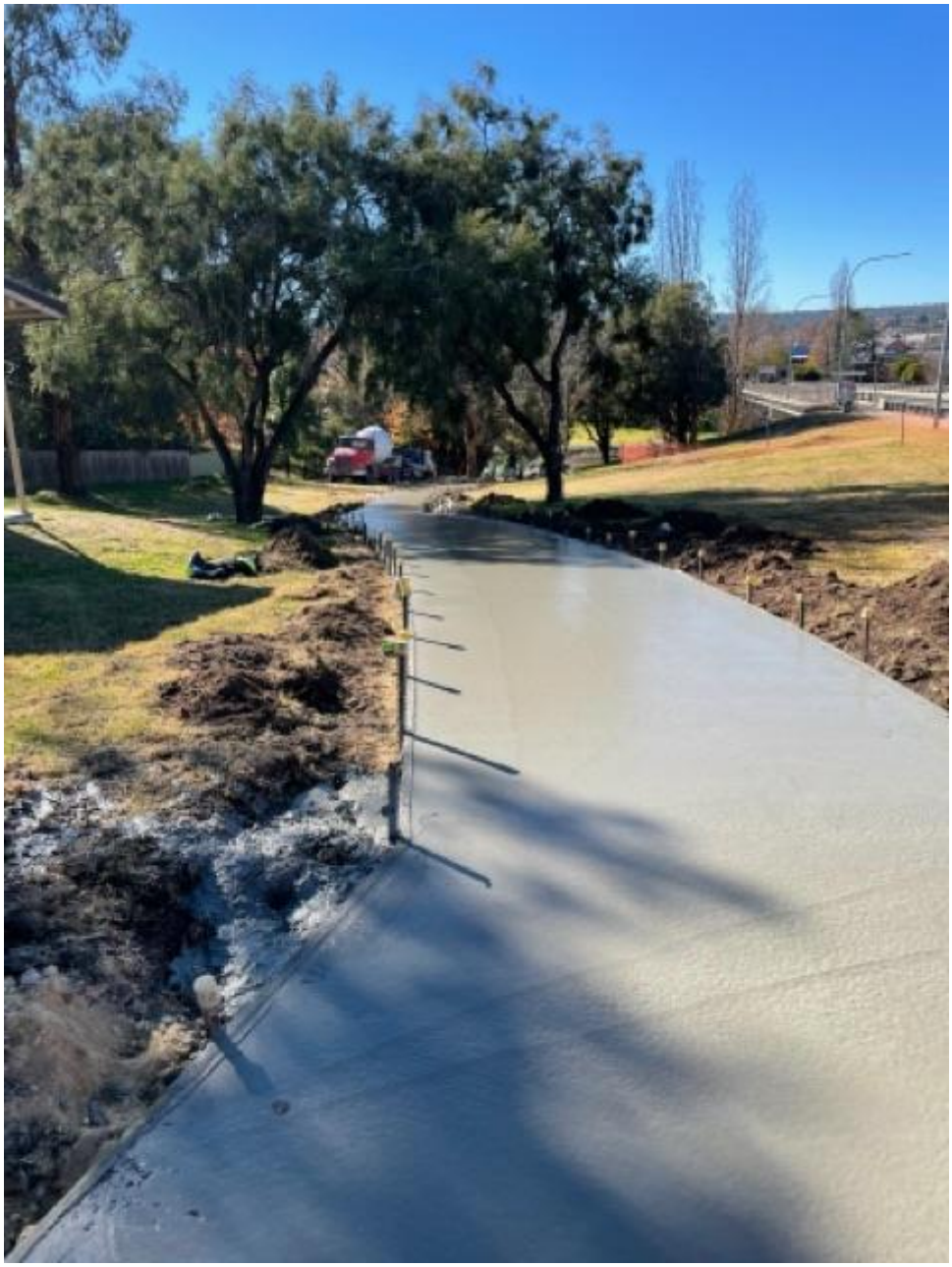
Works commenced on 12 May, 2021 with the Brooks Oval path and this section completed on 18 May, 2021. Works have now commenced on the riverbank project on 19 May, 2021 and are continuing to date. Project completion is planned for the first week in June 2021.



Completed Shared Path corner of Granville Street and Vivian Streets



Construction of shared path in Lions Park underneath the main bridge

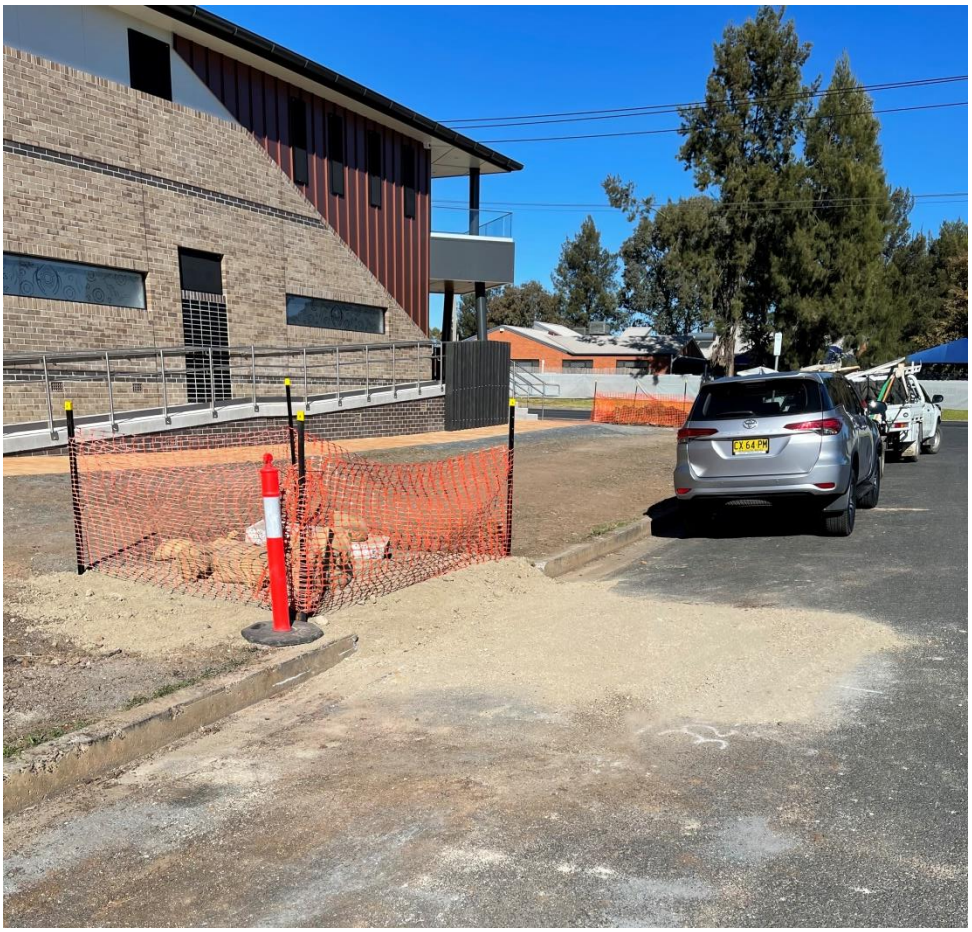


Construction of shared path on the northern side of the main bridge from Brae Street

Rivers Street Indent Parking – Otho Street to Campbell Street

The construction of new indent car parking along Rivers Street between Otho Street and Campbell Street in front of Armajun Health Clinic has been programmed by Council. Works involve construction of a new sealed rear to kerb car park, kerb and gutter and new drainage construction.

Works have commenced on the drainage construction which includes the installation of new drainage pits to drain the car park. Pavement construction has now commenced and this project is programmed to be completed by the end of July 2021.



New Drainage Pits installed – Rivers St Indent Parking Project

Fixing Local Roads Funding Grant

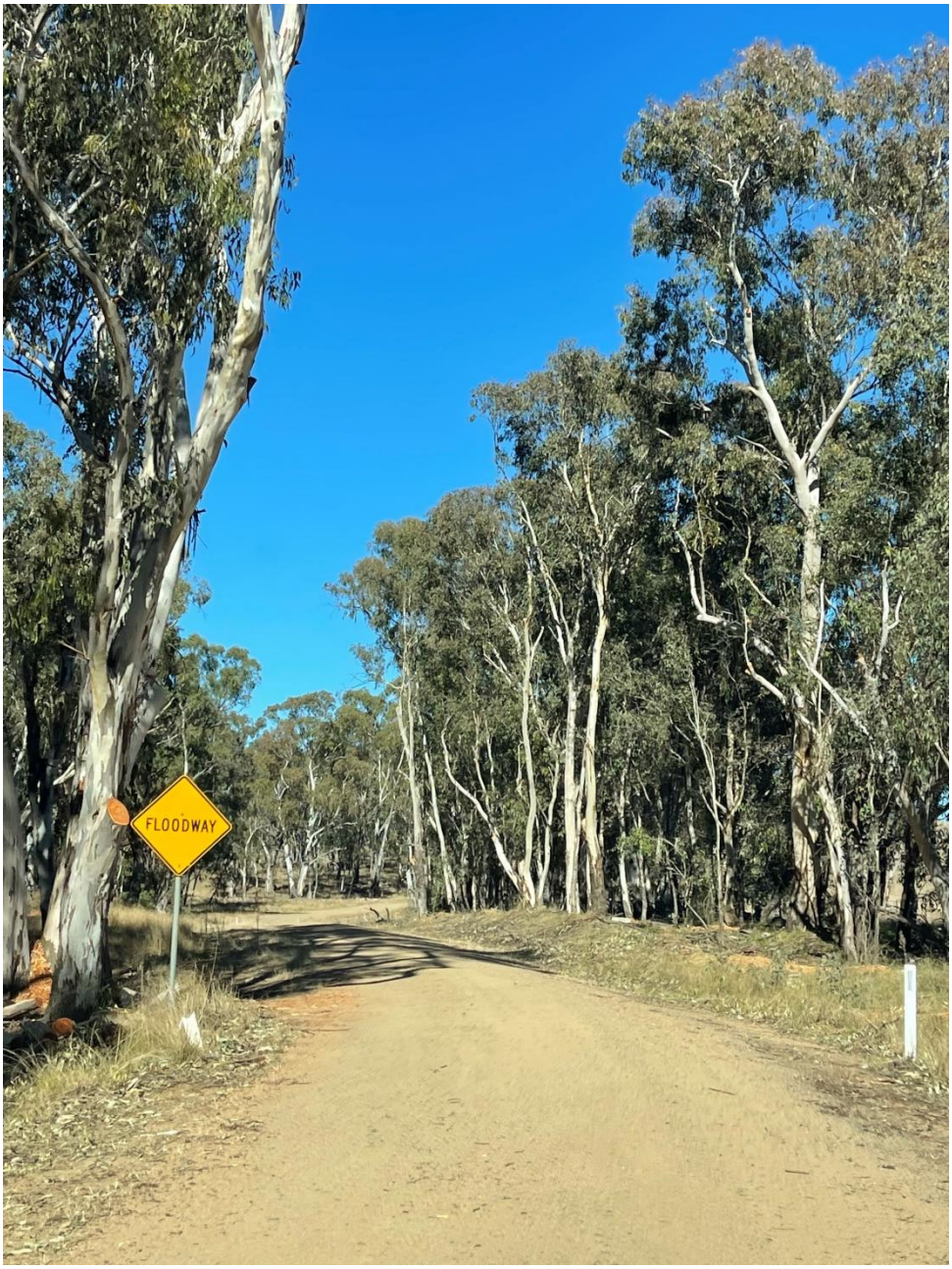
Council has been successful in obtaining $2.62M from the Fixing Local Roads Funding Grant to complete works on various roads throughout the shire.
These roads include the following:

- SR050 Bukkulla Road
- SR035 Coolatai Road
- SR192 Copeton Dam Road
- SR246 Elsmore Road
- SR101 Gragin Road
- SR123 Mount Russell Road
- SR214 Old Bundarra Road
- SR048 Pindari Dam Road

Works commenced late October 2020, which included shoulder grading on each of the roads.

Shoulder grading has already been completed on Copeton Dam Road, Mount Russell Road and commenced on Coolatai Road. Vegetation removal works are continuing on Elsmore Road and are nearing completion. No heavy patching works were completed in May due to resources being utilised for flood damage works.

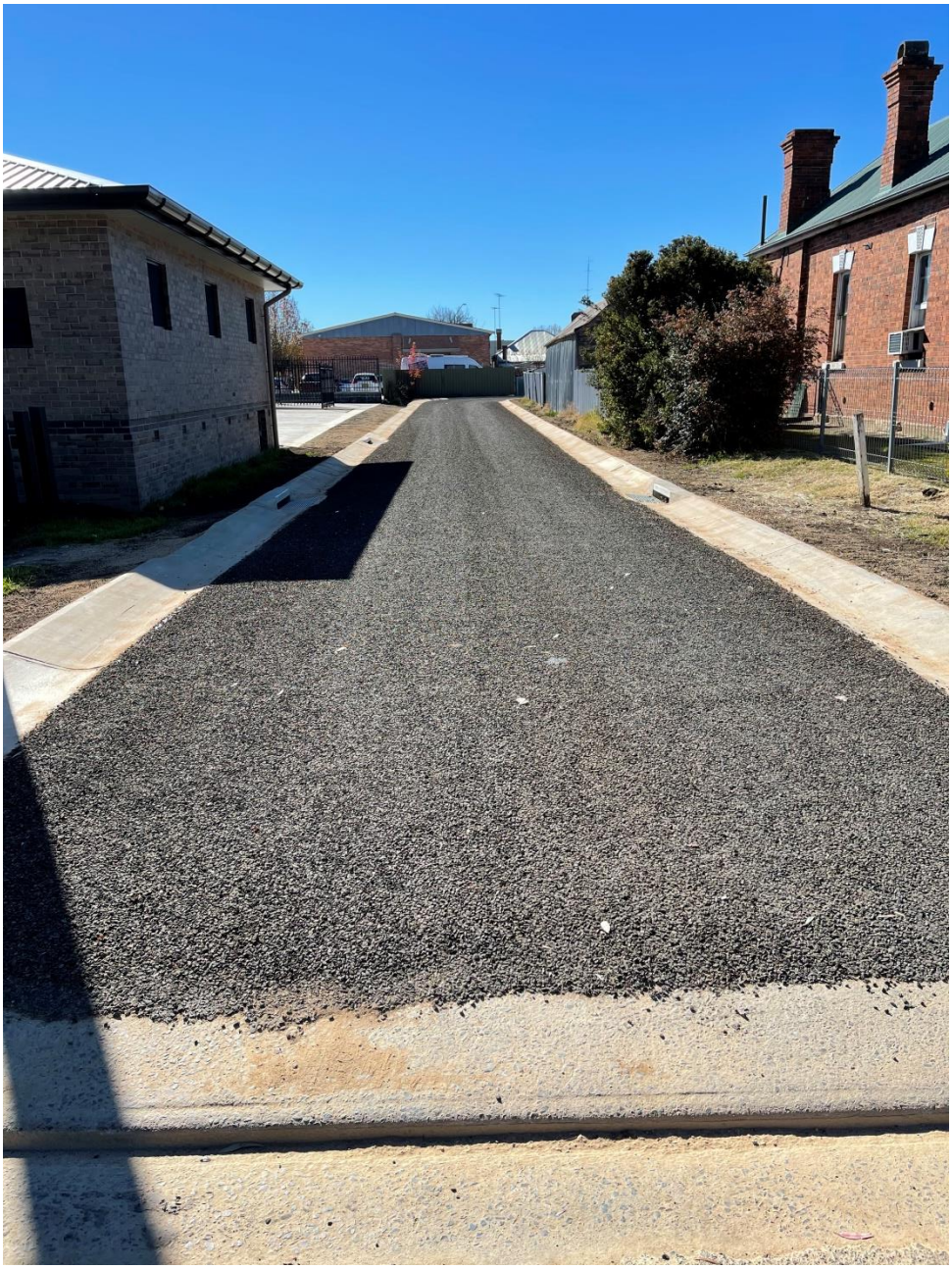
These works are due to be completed by the end of 2021 calendar year.



Tree Trimming on Elsmore Road – Fixing Local Roads Funding

County Lane Upgrade

The project involves constructing kerb and gutter, upgrading the pavement to a sealed standard and improving the underground drainage in the area. The bitumen seal has now been completed and this project is now finalised.



Bitumen Seal - County Lane Upgrade

Maintenance Grading

The following maintenance grading works were undertaken during May 2021.

Road Number	Road Name	Length Graded (km)
SR 286	Monteray Lane	1.15 km
SR 212	Leviathan Road	5.95 km
SR 211	Morris Lane	1.15 km
SR 350	Jindalee Road	6.75 km
	TOTAL	**15.00 km**

Reactive Spot Grading

The following reactive spot grading works were undertaken during May 2021.

Road Number	Road Name	Length Graded (km)
Sr 10	Tarwoona Road	10 KM
Sr 16	Keetah Road	6 KM
Sr 58	Rocky Creek Road	32.8 KM
Sr 54	Emmaville Road	10.3 KM
	TOTAL	**59.1 km**

Gravel Patching

The following gravel patching works were undertaken during May 2021. These works were due to flood damage.

Road Number	Road Name	Area Re-sheeted (m2)
SR 219	Ponds Road	2000 M2
	TOTAL	**2,000 m2**

Gravel Re-sheeting

The following gravel re-sheeting works were undertaken during May 2021.

Road Number	Road Name	Area Re-sheeted (m2)
SR 110	Rob Roy Road	40,325 m2
SR 16	Keetah Road	86,400 m2
	TOTAL	**126,725 m2**

Heavy Patching

There were no heavy patching works undertaken during May 2021.

Other Maintenance Activities

Council's State, Regional and Local Roads, Urban and Village Street maintenance activities, such as bitumen patching, drainage and shoulder repairs as well as vegetation control, are continuing as required. Town maintenance will continue as programmed.

ATTACHMENTS:

Nil