

ASSISTANT GENERAL MANAGER ENGINEERING SERVICES REPORT**ITEM 11.2 SF2459 251018 LANES BRIDGE BOWRAVILLE - PROGRESS REPORT NO2**

AUTHOR/ENQUIRIES: Paul Gallagher, Assistant General Manager - Engineering Services; Matthew Leibrandt, Manager Infrastructure Services; Clint Fitzsummons, Manager Assets

SUMMARY:

This report provides Council with the second progress report on the replacement of Lane's bridge.

RECOMMENDATION:

That Council receive and note the second progress report on the replacement of Lanes Bridge as at 15 October 2018.

OPTIONS:

Receive the report.

DISCUSSION:***Current expenditure:***

The budget allocation for the bridge project is \$2.7million. At the time of preparing this report the current expenditure at 15 October 2018 inclusive of both financial years is \$1,023, 926.20 which encompasses the committed expenditure for the recently let tenders as follows:

Project Budget	Expenditure 2017/18 Financial Year	Expenditure 2018/19 Financial Year	Project Expenditure To Date	Remaining Budget
\$2,700,000.00	\$161,582,00	\$914,063,00 - committed, expenditure (bridge components, culverts, crane hire and piling) \$109,863.20 - direct costs (includes wages, on-costs and external consultants, bridge design)	\$1,023,926.20	\$1,676,073.80

Substructure works:

As a prelude to the pile contractor arriving on site, Council day labour dismantled the two small sections of the old bridge footpath in preparation for the new piles and also placed additional support bracing on the old structure. It is worthy to note that Council day labour continued to work through some very adverse wet weather conditions to minimise any delay surrounding the driving of the piles.

The Council bridge gang had the site prepared for the arrival of the piling contractors (Civil Sydney) on Monday 8 October. These preparatory works included:

- Clearing of the approved trees and providing an access track down to the river; and
- Building gravel beds within the river stream for Civil Sydney to use to drive the piles.

On Tuesday 9 October the piling rig drove five steel "I" beams approximately 16m deep for the bridge abutment on the southern side of the bridge; they then relocated the piling rig to the northern side to do the same. All the abutment piles were finished by the end of the week on Friday 12 October, despite some moderate and heavy rainfall making for very messy and muddy work.

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The piling in the river was to begin on Monday 15 October; however the rainfall over the weekend leading up to the commencement meant that the water level in the river stream had risen to above the piling pads that were constructed for the piling equipment.

The flow in the river stream on the morning of 15 October was fortunately slow and not excessive and it is anticipated that minimal damaged will be caused to the gravel piling beds. This should mean that piling in the river will commence as soon as the water level lowers to the level of the piling pads. This is expected to take approximately 2 or 3 days, dependant on how much additional rain the catchment receives.

Though the rainfall was not able to be predicted when the piling rig was being booked, it is not expected that the rainfall will have a significant effect on the timing of the project, provided that the rain subsides enough to allow the piling to be completed by 9 November 2018.

Tenders:

All the tenders for the major bridge components have now been let and orders raised within Council's costing system to indicated a committed expenditure:

- *Concrete precast bridge components:* Tenders for the supply of major concrete precast components closed on 18 September and was awarded to Australian Precast Solutions. The bridge will now incorporate the latest safety in design technology the "wing plank" revolutionising bridge construction. The construction safety and efficiency of the wing plank with Nambucca being the first LGA to use the wing plank on its network.
- *Crane hire:* Tenders for the supply of crane hire closed on 18 September and was awarded to Borger Crane Hire and Rigging Services.
- Quotations are being sourced for the supply and delivery of reinforced steel.
- The road box culverts have been purchased and some of them have been delivered (the cost is included in the committed costing)

Environmental considerations:***Micro Bats:***

An ecologist was on site whist Council day labour dismantled the two small sections of the old bridge footpath in preparation for the new piles. There were no maternal roosts found, or any bats present, at the location of the new piles. Work is now progressing; noting that the existing bridge must remain in place until early next year when the bat breeding season which starts late October is completed. It is anticipated that this will not be a problem, as the existing bridge is set to remain until the end of the construction process, when traffic will be allowed onto the new bridge.

Trees:

All trees identified for removal as part of the bridge works and road alignment have now been removed. The significant red cedar tree identified by the McKay Association is marked by a plaque on a rock and has been roped off for protection during construction.

Communication:

The following media releases have been issued:

- 24 May 2018 - Nambucca Shire Council has resolved to replace Lanes Bridge at Bowraville with an all concrete structure at an estimated cost of \$2.7million.
- 24 September 2018 - Construction of Lanes Bridge, Bowraville is about to commence.
- 27 September 2018 – Progress Report No1 placed on Council's website.

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The mobile media hub is unable to be established at this stage due to complications with Telstra. Residents were encouraged to register their email contact by simply emailing lanesbridge@nambucca.nsw.gov.au and a computer generated email will advise of pending road closures and progress updates. All road closures alerts will be publicised on MyRoadinfo and the existing road closure notice to emergency and transport services.

A fold down style sign is to be erected at key entry location points at Macksville, Nambucca Heads and Valla to forewarn of pending road closures and redirect traffic via Wilson Road. The key sign will have "Lanes Bride Bowraville - one lane 20t load limit" notice and the fold down section will have "road closed detour via Wilson Road".

Level two inspection of the existing structure

As part of the risk management regime, an independent level two inspection of the existing structure was undertaken. This identified some emergency works to replace some girders and also identified some additional bracing which Council day labour has now completed. The existing timber bridge now has a load limit of 19t which allows the school buses to safely cross the bridge under traffic control conditions.

Hydrology report and effect of flooding on nearby dwellings

GHD has now provided Council with a completed hydrological and hydraulic modelling report which determined that only one residence (No. 8 High Street, Bowraville) would be effected by the raising of the bridge to RL 7.90m (1.75m above the existing bridge level), which may now potentially have water levels above the floor level for a 1 in 100 year rainfall event.

The owners of the dwellings located at No 14 and No 32 High Street have been formally notified in writing that the hydrological and hydraulic modelling determined that the flood afflux at these two residences was in the order of 140mm, the existing freeboard at these dwellings was in the order of 300mm for the 1 in 100 year flood event. This effectively means that even with the raised flood levels attributed to the new bridge height, these dwellings still have around 150mm of freeboard, and therefore would not be disadvantaged by the raising of the bridge, for rainfalls of up to the 1 in 100 year event.

Council's Assistant General Manager Engineering Services and Engineering Designer have now met on site with owners of No 8 High Street and confirmed the results of GHD's modelling with them that their dwelling will need to be raised. One formal quotation has been received from a builder and another two are being sought by the Engineering Designer. A letter confirming the discussion on site with them is to be issued once the other quotations have been received.

CONSULTATION:

General Manager
Engineer Designer
Surveyor
Manager Infrastructure Services
Structure's Coordinator
Roads Coordinator

SUSTAINABILITY ASSESSMENT:**Environment**

There are significant environmental implications associated with the construction of the new bridge. These have been investigated and mitigation measures included within the project plan.

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Social

There are significant social implications associated with the construction of a new bridge, should the road be closed, and residents and industry be required to be diverted for a period of up to 7 months through construction.

Tallowood Steiner School have advised of the implications to their staff and students as follows:

*Tallowood Steiner School
Staff members total: 10
Students total: 40*

- 1 6 staff members (both permanent and casuals) affected by this:
Extra 32 minutes travel (without any traffic) one way = Extra 1h and 4 minutes per day
Extra 29.1 kilometres one way = Extra 58.2 kilometres per day*
- 2 26 students out of 40 affected:*
 - a Students that travel to school mostly by private car: 7 students between the ages of 5 and 7 will have between 40 minutes to 1h 4 minutes extra travel per day.*
 - b Bus from North Arm Road: 12 students between the ages of 5 and 12 extra 1h 4 minutes travel per day.*
 - c Busses from Missabotti: currently students travel from Missabotti to Bowraville, then take bus to Tallowood Steiner School. At the end of day, they take the bus to Bowraville, then change bus to Missabotti busses: 7 students between the age of 6 and 12 will have an extra 2h 8 minutes extra travel per day.*

Economic

There are significant economic implications associated with construction of the new bridge should the road be closed and residents and industry be required to be diverted for a period of up to 7 months through construction. The proposed option mitigates full closure and traffic diversion.

The closing of the whole road pavement has already been met with significant community angst following the story that was prematurely aired on NBN News without seeking any formal advice from the Council and the Engineering Department

Post construction, the bridge will increase economic outlook with less closures and increased productivity.

Risk

There are significant risk implications associated with construction of the new bridge. These have been investigated and mitigation measures included within the project plan. During the course of construction there is the potential of significant flooding of the area during large storm events. The option being recommended reduces the risk in that there is no side track, the bridge deck will be higher than the existing deck level and a single lane of traffic under traffic lights is maintained.

The raising of the bridge deck by 1.75m, results in a flood afflux of approximately 140mm at nearby residences, meaning that one dwelling will be now be affected by the 1 in 100 year event at No 8 High St. Therefore, the dwelling will require to be lifted (a relatively cheap project) and the bridge can still achieve greater than approximately 1 year flood immunity, and not inundate residences with flood afflux caused by the additional embankments for the bridge approaches.

Initial investigations into the price of raising the residence indicated that the construction cost would be approximately \$20,000 to \$30,000. Additional legal costs would accompany the construction cost of the raise, meaning that a conservative estimate of cost for a single house raise is in the order of \$40,000.

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FINANCIAL IMPLICATIONS:**Direct and indirect impact on current and future budgets**

The cost of the bridge is generally covered from grants. Council will take a \$1m loan fund through T-Corp to match the federal grant.

Source of fund and any variance to working funds

Council has signed a funding agreement for \$1M of Federal funding (matched by Council through loan funds) and most recently signed the funding agreement for \$500,000 provided from the State Government under the 'Bridge Timber Replacement' program.

A further grant was submitted with the Office of Environment and Heritage – NSW State Government Flood Plain Program on 28 March 2018 for \$400,000. The grant at 2:1 ratio on the difference in price between replacing the existing bridge same as existing, and replacing the bridge with a higher flood immunity.

The road is classified as a Regional Road and funding can be provided from within the Block Grant.

Service level changes and resourcing/staff implications

There is a proposed improved service level associated with the raising of the bridge deck by 1.75m, which increases the flood immunity for the community. At present all work has been undertaken in house and tenders let for works outside the scope of Council's bridge team.

ATTACHMENTS:

There are no attachments for this report.