

Minutes for this meeting will be confirmed at the Planning, Environment & Development Committee Meeting to be held in the Council Chambers, Council Administration Building, on 20 July 2006 commencing 5pm.



**COFFS HARBOUR CITY COUNCIL**

**ORDINARY MEETING  
(CITY SERVICES COMMITTEE)**

**COUNCIL CHAMBER  
COUNCIL ADMINISTRATION BUILDING  
COFF AND CASTLE STREETS, COFFS HARBOUR**

**6 JULY 2006**

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**COFFS HARBOUR CITY COUNCIL**

**ORDINARY MEETING**

**(CITY SERVICES COMMITTEE)**

**6 JULY 2006**

Mayor and Councillors

**GENERAL MANAGER'S REPORT**

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**S46 HOGBIN DRIVE EXTENSION STAGE 2 - PROJECT PROGRESS REPORT**

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**Purpose:**

To inform Council of progress to date on the Hogbin Drive project and seek endorsement to proceed with the conforming option for Coffs Creek Bridge.

**Description of Item:**

Works have progressed steadily on Stage 2 of the Hogbin Drive Extension. The recent success of the rate rise application guarantees Council's ability to fund its portion of the project. Construction has commenced between Harbour Drive and Albany Street with water and sewer main relocations almost complete. Currently tenders are being called for the concrete works on the Harbour Drive roundabout and are due to close 25 July, 2006. In the meantime Council's works crews will commence subgrade preparations for the roundabout building the southern half first.

Roundabout construction on Harbour Drive will cause disruption to traffic however traffic control will be in place to assist motorists. The works between Harbour Drive and Albany Street will be commencing in early August. The State Minister for Lands has refused a land claim over a portion of Crown Land on the road alignment near Albany Street removing a potential cause for delay on this section. The link between Harbour Drive and Albany Street is due for completion in late November, 2006.

North of Coffs Creek the environmental works are proceeding. In April 14 nesting boxes were erected in trees to encourage the endangered squirrel gliders to take up residence. There has been an outstanding take up rate by the squirrel gliders allowing the relocation of the hollow bearing trees to proceed and this work is scheduled for late July 2006.

**Cont'd**

## **S46 - Hogbin Drive Extension Stage 2 - Project Progress Report .... (Cont'd)**

Further geotechnical investigation has been undertaken for the bridge and road embankment with the final bridge pile and embankment design due mid July 2006. Clearing of the road footprint north of Coffs Creek will take place in early August.

The local Aboriginal Land Council (LALC) are due to undertake an investigation and removal of artifacts from the road alignment near the southern end of Watsonia Avenue.

### **Sustainability Assessment:**

The whole project was the subject of an EIS in 1994 and a later revision in 2001. Recently a further Review of Environmental Factors has been carried out to make sure proposed works conform with current legislation. The volume of work done above covers all sustainability criteria.

#### **• Environment**

As stated above, a recent Review of Environmental Factors has been conducted and it is believed all environmental issues have been addressed. An Environmental Management Plan for all phases of work will be completed prior to commencement of specific stages.

Specific mitigation measures proposed are:

- Relocation of squirrel gliders.
- Construction of concrete mounds for snail populations.
- compensatory planting on adjoining land to compensate for cleared area.
- Removal of ground orchids.
- Extensive landscaping of roadway.
- Collection of and propagation of mangrove seeds to replant impacted areas.
- Erosion control.
- Stream erosion control through design of piers.
- Acid sulphate management.

The EIS specified a bridge length of 130m is adequate to allow fauna to pass beneath the bridge. The proposed conforming option provides a path of suitable height and width to accommodate fauna passage.

At the northern bridge abutment the road embankment will be 2.9m high and approximately 33m wide. Head height under the bridge on the northern span will be a minimum of 1.5m which is considered suitable for fauna crossing.

Regardless of which option is employed the mangrove environment will be impacted during construction. Even option 2 the long span box girder requires false work to be erected in mangrove zone.

It should be noted the mangrove coverage in the Coffs Creek has increased 78% between 1954 and 1994 and damaged mangroves will be replaced.

**Cont'd**

## S46 - Hogbin Drive Extension Stage 2 - Project Progress Report .... (Cont'd)

- **Social**

The conforming option delivers the shortest construction time and the least disruption to the community during the building phase. To improve aesthetics of the bridge as suggested by Council, architectural features such as patterned concrete and hand rail treatment will be incorporated into the final design. Importantly there is a connection for pedestrians and cyclists to the Coffs Creek walk on both the southern and northern sides of the bridge with a minimum clearance of 2.5m under the bridge.

Low level pedestrian lighting is proposed in the walkway and beneath the bridge to light the Coffs Creek walking path.

Flood impacts upstream of the proposed 130m wide bridge have been carried out by consultants Webb, McKeown and Associates and confirmed by Department of Natural Resources. To better understand how the bridge will impact upstream, the attached indicate various top water levels for various size floods.

Flood intensity	Height
1 in 20 year	2.9
1 in 50 year	3.2
1 in 100 year	3.4
1 in 200 year	3.5 (approx 1996 flood)
1 in 500 year	3.7
PMF	5.2

The lowest point on the underside of the proposed bridge is RL 3.666, ie a 1 in 500 year flood goes under the bridge. Centreline road level at northern end of conforming bridge option is RL 5.006. From the centreline of road to underside of bridge girders is 1.34m.

The impact upstream for a 1 in 100 year flood (normal design flood) will be 20mm increase in flood height upstream. A PMF flood would cause 40mm height increase upstream.

The construction of basins in the catchment only impacts the flood height above the highway.

The PMF is the largest flood that could conceivably occur at a particular location, usually estimated from probable maximum precipitation, and where applicable, snow melt, coupled with the worst flood producing catchment conditions. Generally, it is not physically or economically possible to provide complete protection against this event.

It should also be noted the design as now proposed has the north abutment 10m north of the original proposed plans.

- **Economic**

The most economical bridge design is the conforming option. This design employs standard precast concrete girders and a transversely stressed deck. Options 1 and 3 propose super tee girders with high manufacture and transport costs. Option 2 is an extremely expensive option required extensive false works.

The length of the bridge shown on all options is 130m. This length provides the required fauna connection underneath the structure and good access for the creek walk. The cost to lengthen the conforming option is estimated to be \$750K to \$850K per 26m accounting for the saving in not having to construct the fill embankment.

**Cont'd**

## S46 - Hogbin Drive Extension Stage 2 - Project Progress Report .... (Cont'd)

The underside of the extended bridge would be approximately the same level as the conforming option for the first additional span.

In order that the overall project remains within the budget the conforming option ensures the best balance considering the restraints.

### Issues:

The design of the Hogbin Drive bridge over Coffs Creek is required to accommodate the social, environmental and economical constraints peculiar to Coffs Creek. In order to ensure that the design caters for these circumstances, four design options for the bridge have been evaluated, these are as follows:-

1. Conforming Option - 5 equal spans, total length 130m.
2. Option 1 - 5 spans middle span 36m total length 130m
3. Option 2 - 3 spans, 2 longer spans 55m each and a single 20m span total length 130m.
4. Option 3 - 5 spans, middle span 32m total length 130m.

To ensure that the option which best addresses the specific location and constraints of the site all of the above have been assessed using a triple bottom line analysis. The following had input to the TBL analysis:-

- The bridge design team, consisting of GHD Bridge Designers, Abigroup and John Holland, construction staff and GHD's Project Environmental Officer.
- Council's project team, consisting of Design, planning, construction and environmental staff.
- State Government Agencies, consisting of representatives from RTA, Department of Natural Resources, Maritime Services Authority, Department of Primary Industries (Fisheries) and Marine Parks Authority.

The unanimous outcome of the TBL process was that the conforming option provides the best balance within a social, environmental and economical framework.

Below are the relative scores of the groups which assessed the design options using the TBL process.

	<b>Conforming Option 5 by 26m spans</b>	<b>Option 1 Super T Girder- 36m Main Span</b>	<b>Option 2 Box Girder-55m Main Span</b>	<b>Option 3 Super T and Deck Unit-32m Main Span</b>
GHD Design & Construction Team	0.00	-1.06	-2.28	-0.81
CHCC Project Team	0.00	-0.93	-2.76	-0.58
Government Agencies	0.00	-1.37	-2.80	-0.68

Cont'd

## **S46 - Hogbin Drive Extension Stage 2 - Project Progress Report .... (Cont'd)**

The TBL analysis measured options 1, 2 and 3 against the Conforming Option. As shown the Conforming Option is the preferred design as workshopped by the bridge design team, Councils project team and the State Government Agencies. Scores greater than 0 mean the option would be preferred over the conforming and negative scores mean options are not preferred over conforming option. this analysis was explained to Council in a Councillor briefing.

### **Consultation:**

Consultation with stakeholders has occurred throughout the project. The community information sessions held with neighbourhoods south and north of Coffs Creek have proposed the bridge to be 130m long. At these meetings there was very little discussion raised regarding the length or type of bridge being proposed. Several questions were asked about the connectivity that the bridge provides for fauna however when it was explained that the bridge provided adequate passage this issue was considered resolved.

Furthermore the following environmental groups have been consulted who likewise are satisfied with the conforming bridge configuration. These include:-

- Ulitarra Society
- Friends of Coffs Creek
- Botanical Gardens
- WIRES (Wildlife Information and Rescue Service)
- Gumbular Julipi Elders

Council has also been informed of the triple bottom line analysis and option selection process at its briefing on 7 June, 2006. At that time detail was provided on each option and the strength and weaknesses of each design discussed.

Construction approvals from relevant agencies are ongoing during the construction phase.

### **Implementation Date / Priority:**

Council is committed with the Alliance to commence construction of the bridge late August, 2006. The Total Outturn Costs (TOC) for the bridge is due to be finalised within the Alliance on 4 August, 2006. To date considerable expenditure has been incurred with site investigation and design. The design work has proceeded on the basis of the TBL assessment showing the conforming option as the most advantageous structure.

### **Recommendation:**

**That Council notes the progress on the Hogbin Drive Extension Stage 2 project and endorses the conforming option (5 x 26m spans, 130m long bridge) for the crossing of Coffs Creek.**

**Stephen Sawtell  
General Manager**