

REVIEW OF ENVIRONMENTAL FACTORS

Addendum #2

Crown Creek Bypass, Glen Davis

Prepared for: Lithgow City Council



The Environmental Factor



Review of Environmental Factors – Addendum #2

Crown Creek Bypass

Document Verification

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This Addendum has been prepared by The Environmental Factor (TEF) at the request of Lithgow City Council (LCC or Council) in order to describe changes to the project as previously stated in the final Review of Environmental Factors (REF) for the *Glen Davis Road Bridge Replacements Project, 2021* (hereafter, the Project REF). This document is not intended to be utilised or relied upon by any persons other than LCC, nor to be used for any purpose other than that articulated above. Accordingly, TEF accepts no responsibility in any way whatsoever for the use of this report by any other persons or for any other purpose.

This report has been developed in accordance with the *NSW Environmental Planning and Assessment Act 1979* (EP&A Act), the *NSW Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the Department of Planning and Environment's (DPE) Guidelines for Division 5.1 assessments (DPE Guidelines) and demonstrates how the environmental factors specified in clause 171(2) of the EP&A Regulation were taken into account when considering the likely impact of the proposed activity.

The information, statements, recommendations, and commentary (together the "Information") contained in this review have been prepared by TEF from material provided by LCC and NSW Department of Planning and Environment (DPE), including available databases. TEF has not sought any independent confirmation of the reliability, accuracy or completeness of this information. It should not be construed that TEF has carried out any form of audit of the information which has been relied upon.

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Information contained within the Report is current as at the date of the Report and may not reflect any event or circumstances which occur after the date of the Report. TEF is not responsible for updating this report if site conditions change.

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Abbreviations

Abbreviation	Description
BC Act	<i>Biodiversity Conservation Act 2016</i>
CEEC	Critically Endangered Ecological Community
DEE	Department of Environment and Energy
DPI	Department of Primary Industries
DPE	Department of Planning and Environment (formerly OEH)
EEC	Endangered Ecological Community
EPA	Environmental Protection Agency
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i>
EPL	Environmental Protection Licence
FM Act	<i>Fisheries Management Act 1994</i>
KTP	Key Threatening Process
LCC	Lithgow City Council
LGA	Local Government Agency
MNES	Matters of National Environmental Significance
NSW	New South Wales
OEH	Office of Environment and Heritage (now DPE)
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
REF	Review of Environmental Factors
TEF	The Environmental Factor
WoNS	Weed of National Significance

1 SUMMARY

The Environmental Factor (TEF) was engaged by Lithgow City Council (LCC or Council) to undertake a Review of Environmental Factors (REF) to fully consider the environmental issues relating to the proposed removal of three (3) timber bridges and replacement with modern road bridges along Glen Davis Road between the townships of Capertee and Glen Davis in 2021. The bridges are located at the Airly Creek, Coco Creek and Crown Creek crossings, NSW (hereafter 'the Project REF'). Additional to the scope of the original proposal, Crown Creek requires a bypass or diversion to be constructed to permit traffic movements and thoroughfare during bridge construction.

The update to the original study area, as assessed in the Project REF, has been undertaken through provision of this Addendum, supported by documents provided by LCC and a brief onsite investigation undertaken 19th July 2022. This REF Addendum should be read and considered in conjunction with the *Glen Davis Road Bridge Replacement REF* (Project REF), to assess the environmental impacts of this project, as a whole. The bypass road travels through Lot 5 / DP 248232 with Council forming an agreement with the landholders in exchange for use of their land. The landowners are amenable to the proposed works, as demonstrated in correspondence with Lithgow City Council.

Impacts as a result of the bypass installation and use include the following:

- Impacts to up to **0.0614 ha** of native vegetation, including an **0.045 ha** within Lot 5 DP248232 which was not previously assessed, as a result of construction and use of a single-lane bypass and creek crossing.
- The Single-lane bypass will be 5 m wide and approximately 121 m long and fully sealed to allow safe, all-weather thoroughfare for vehicles up to 4.5 tonne and emergency vehicles.
- Installation of three (3) 6 m long 450 mm DN 'BlackMax' pipe (steel/plastic) within the waterway of Crown Creek.
- Installation of temporary mesh fence on Lot 5 DP 248232 (north of bypass) to prevent trespassing.
- Removal of shrubs and understorey - no large trees to be removed, approximately 15 stems of mixed Eucalypt species 5-20 cm DBH and approximately 10 saplings (< 5cm DBH).
- Direct impact to **0.06 ha** and indirect impacts to a further **0.62 ha** of PCT 281 which aligns with the TEC *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. Assessments of Significance (BC and EPBC Act) have been completed for this PCT within the original project REF. The small additional impacts to this TEC as a result of the bypass are not considered to alter the outcome of the original assessment completed for this site, with no significant impact found.
- No other threatened species/communities were considered to be impacted in addition to those included in the original Flora and Fauna assessment.
- Removal of bypass including roadway and crossing following completion of the Crown Creek replacement works.

The bypass crosses Crown creek, with three (3) 450 mm DN pipes being laid on the creek bed. A Part 7 Fisheries Permit to allow dredging and reclamation has been obtained by LCC for these works. (**Error! Reference source not found.**).

Apex Archaeology completed the archaeological site survey for the initial REF, as part of their Due Diligence report. The original survey effort covered the addendum study area and thus, no further archaeological investigation has been completed.

The potential impacts associated with this proposed activity are outlined within this report and are considered unlikely to significantly affect the environment. Environmental Safeguards recommended herein, and in the Project REF, are to be implemented and maintained as part of the scope of works.

1.1 Site Description

The Proposal will include the clearing of a bypass and installation of a temporary crossing of Crown Creek including laying of 3 X 450 mm pipes, road base and bitumen. Bridge upgrade works in the area (refer project REF) have deemed the need for a temporary traffic diversion at Crown Creek while bridge upgrade works are carried out. This temporary bypass will enable local traffic, vehicles up to 4.5 tonne and emergency vehicles to continue to use Glen Davis Road between the townships of Glen Davis and Capertee, NSW. The bypass occurs on private property (Lot 5 DP 248232) with the property owners amenable to the works progressing.

Table 1 Site details

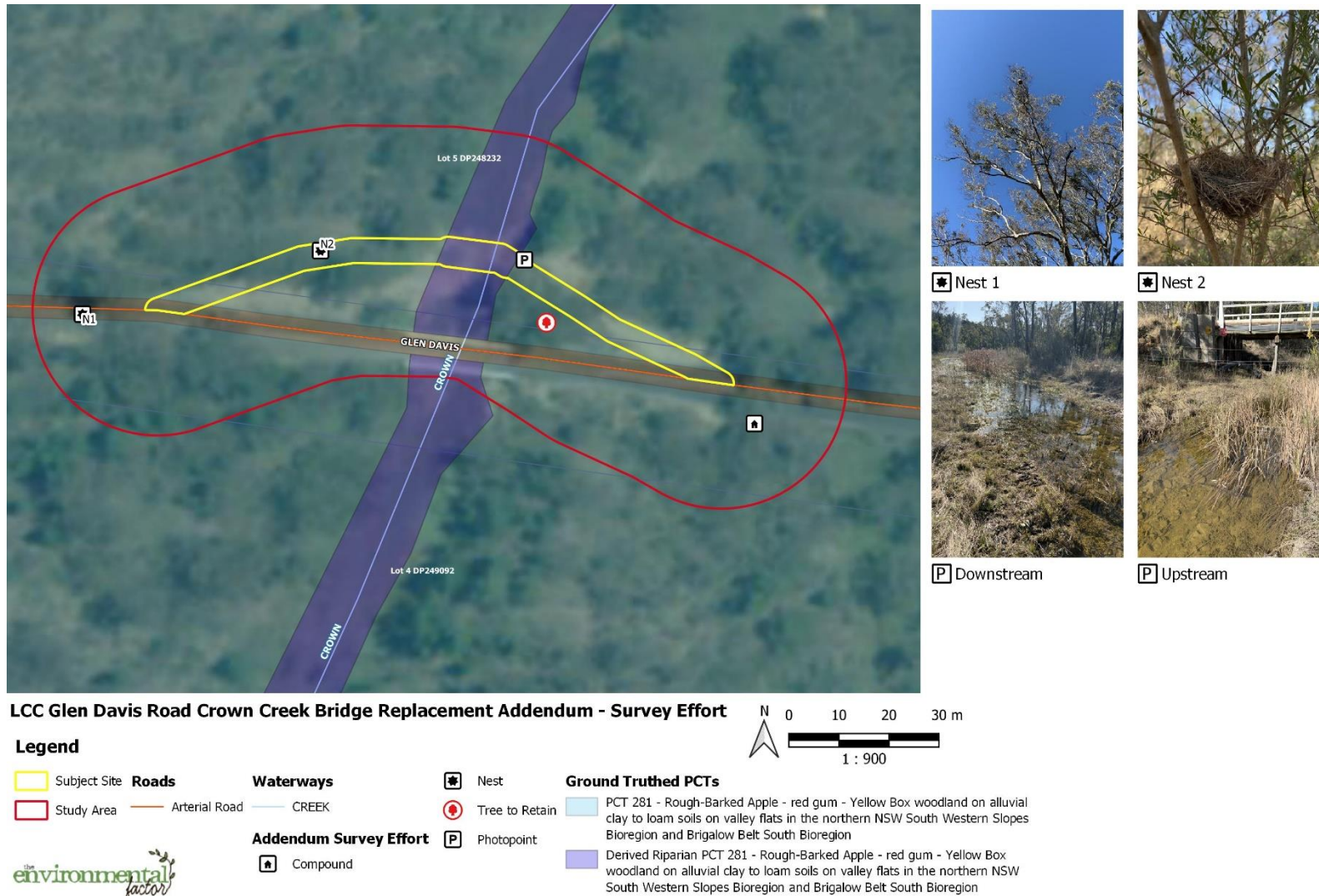
Site details	
Road name / Property name Lot /DP	The addendum study area occurs across Crown Creek, adjacent the existing Crown Creek bridge which services Glen Davis Road. The works occur on private property - Lot 5 DP 248232.

Table 2 Definitions

Term	Description
Subject site	The area to be directly affected, including machinery access, stockpile, road construction (5 x 121 m and including clearing, grading and laying gravel and bitumen), installation of 3 x 6m 450 mm Steel/plastic pipes and use of bypass. A 5 m wide direct impact area has been used, for a total direct impact area of 0.0614 ha . Of this, 0.0455 ha constitutes land within Lot 5 DP 248232 (not previously assessed).
Study area	Includes the subject site (as described above) and any proximal areas that could be potentially directly or indirectly impacted by the proposal. For the purposes of this addendum, the study area has included a buffer of 25 m either side of the centre line to allow for indirect impacts for a total impact to 0.80 ha . Of this, 0.4278 ha is contained within Lot 5 DP248232 and has not been assessed as part of the original REF.
Locality	Is the area within 10 kilometres of the subject site



Plate 1 Subject Site for Bypass and temporary crossing of Crown Creek, looking west (left) and east (right)



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Figure 1 Subject Site and Study Area at Crown Creek Bypass

2 DESCRIPTION OF CHANGES

The works, as assessed herein, constitute the installation of a temporary bypass road during construction of the bridge crossing Crown Creek, along Glen Davis Road, and installation of a temporary waterway crossing including laying of pipe in the waterway. The bypass and temporary crossing will permit traffic movement during the new Crown Creek bridge installation and retain traffic flow for vehicles under 4.5 tonne, and emergency vehicles.

The following sections and Appendix A provide further detail on relevant aspects of the works.

2.1 Justification for the Proposed Works

Council has identified the need to undertake extensive maintenance works on Crown Creek bridge (and Airly and Coco Creek bridges), including the replacement of structural components due to the ongoing cost of maintaining the existing structures in their current state of repair, and due to safety concerns regarding the single-lane style of the bridges which occur on a busy transport road in a 100 km / hr speed limit area.

In order to proceed with the construction of the Crown Creek bridge, a bypass needs to be constructed to allow traffic movement along Glen Davis Road during this time. The works assessed as part of this addendum relate to the construction of a bypass road including crossing Crown Creek to allow traffic movement between Glen Davis and Capertee/Lithgow without a detour through Kandos.

2.2 Options Considered

Option 1 – Construct a bypass around Crown Creek bridge site, allowing traffic movement to continue during bridge construction.

Option 2 – Do nothing and proceed with works replacing Crown Creek bridge without a diversion in place, obstructing traffic movement intermittently over a 10 - 13 week period.

Council elected to proceed with Option 1 in order to maintain traffic flow and to minimise disruptions to local traffic movements in the area during the bridge replacement.

2.3 Construction Activities

Construction activities include:

- Clearing of vegetation along the 121 m bypass, grading and laying of gravel and bitumen
- Installation of temporary mesh fence on Lot 5 DP 248232 (north of bypass) to prevent trespassing.
- Installation of 3 x 6 m long 450 mm BlackMax pipe (steel/plastic) within the waterway of Crown Creek.
- Deposition of stockpile and laydown in road reserve.
- Installation of temporary signage and traffic lights, alerting road users to the bypass and associated restrictions
- Removal of shrubs and understorey - no large trees to be removed, Approximately 15 stems of mixed Eucalypt species 5-20 cm DBH and approximately 10 Saplings < 5cm DBH.
- Removal of pipes, bitumen and gravel once Crown Creek bridge replacement works complete

2.4 Operation Activities

Operational activities will include use of the single-lane bypass by local traffic and vehicles under 4.5 tonne (excluding emergency vehicles).

3 LEGISLATIVE CONTEXT AND STAKEHOLDER CONSULTATION

The majority of the Legislative Context as detailed in the Project REF was considered to remain relevant for the proposed design changes. The below table includes a summary of the predicted legislative changes commensurate with the proposed design addition.

Table 4 Summary of legislative outcomes

Legislation	Proposed change	Consistent with Project REF?
Commonwealth		
<i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act)	-	Yes – MNES within the study area remain unlikely to be adversely affected by the proposed addendum works
State		
<i>Biodiversity Conservation Act 2016</i> (BC Act)	-	Yes – proposed addendum works are not anticipated to have a significant impact, provided that mitigation measures are implemented in accordance with the Project REF and this addendum.
<i>Environmental Planning and Assessment Act 1979</i> (EP&A Act)	-	Yes – However, development permitted without consent (as per the provisions of the <i>Transport and Infrastructure State Environmental Planning Policy</i> (TISEPP) are now referred to as Division 5.1 assessment rather than Part 5. Legislative outcomes do however remain consistent with the Project REF.
<i>Fisheries Management Act 1994</i> (FM Act)	Installation of instream structure – pipes and waterway crossing.	An application for a Fisheries Permit under Part 7 of the FM Act has been issued and the additional impact and required mitigation measures, approved.
<i>Heritage Act 1977</i> (Heritage Act)	Additional impact area - bypass	Apex Archaeology confirmed that the bypass area was included in the original REF assessment- no additional impact assessment required.
<i>Local Land Services Act, Local Land Services Amendment Act</i> (LLS Amendment Act)	-	Yes – the proposal is not subject to the LLS Amendment Act, as the proposed works would be carried out by Council, a determining authority as defined by the Act.
<i>National Parks and Wildlife Act</i> (NPW Act)	Additional impact area – bypass	Yes – no items of Aboriginal Heritage were found to be present during the site visit (Apex Archaeology 2021) which included the bypass subject site.

Legislation	Proposed change	Consistent with Project REF?
<i>Protection of the Environment and Operations Act 1997</i> (POEO Act)	-	Yes – the proposed addendum works are considered achievable to carry out without causing significant water pollution, therefore a licence is not required.
<i>Water Management Act 2000</i> (WM Act)	-	Consistent
State Environmental planning Policies		
<i>State Environmental Planning Policy (Infrastructure) 2007</i> (Infrastructure SEPP)	-	Now Transport and Infrastructure SEPP (TISEPP), but remains consistent.
<i>State Environmental Planning Policy 55 – Remediation of Land</i> (SEPP 55)	-	Yes – the addendum study area is not identified as being contaminated land
<i>State Environmental Planning Policy (Koala Habitat Protection) 2021</i> (Koala Habitat Protection SEPP)	-	SEPP has been repealed and replaced with the <i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i> (see below)
<i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i>	No impact changes, there are however legislative changes since the Project REF was submitted.	<p>No - Chapter 3 of the <i>State Environmental Planning Policy (Biodiversity and Conservation) 2021</i> applies to Koala habitat protection. This chapter of the Biodiversity and Conservation SEPP 2021 only applies to proposals under Part 4 'Development' of the EP&A Act. The Proposal is being assessed under Division 5.1 of the EP&A Act, therefore this chapter of the Biodiversity and Conservation SEPP does not apply to the Proposal and this has not been considered further in preparation of this REF addendum.</p> <p>However, the Koala is listed as an endangered species under both the BC Act and EPBC Act, and thus also requires assessment under these Acts. This was undertaken in the Project REF and has not changed since the original assessment.</p>

3.1 Community and Agency Consultation

3.1.1 Stakeholder Consultation

Council has communicated with the property owners on which the bypass is to be constructed (Lot 5 DP DP248232. The owners have approved the works (**Error! Reference source not found.** and have agreed to a rates reduction for the works to proceed (pers. Comms LCC, 2022).

3.1.2 Agency Consultation

Council have liaised with DPI Fisheries and obtained a Part 7 Fisheries Permit for the bypass works.

4 ENVIRONMENTAL ASSESSMENT

This section of the REF Addendum provides a description of the potential environmental impacts associated with the construction and operation of a bypass at Crown Creek. All aspects of the environment potentially affected by the changes have been considered.

All existing Safeguards and mitigation measures outlined in the Project REF remain applicable to the project and must be implemented as part of the additional works that are the subject of this Addendum. Additional site-specific safeguards have been identified where necessary. Not all of the proposed additional works alter the identified impacts for each of the environmental aspects. Table 3 below provides a summary of anticipated impacts for each environmental consideration within the additional study area. Where the new proposed works would not alter the environmental impacts identified in the Project REF, the additional works are not discussed further.

Table 3 Summary of design changes for environmental impacts

Environmental Consideration	Impacts associated with additional works?
Soils and Erosion	Yes – temporary negative as additional excavation and movement of soils required
Waterways	Yes – temporary negative impacts anticipated with bypass road through waterway
Noise and Vibration	Yes – temporary negative additional noise impact anticipated associated with grading of bypass road
Air Quality	No – captured in Project REF
Socio-economic Considerations	Yes – positive impact anticipated with vehicle movement enabled / removal of extended traffic diversion
Visual Amenity	Yes – minor negative impacts associated with signage and construction of bypass road
Traffic and Transport	Yes – positive impact anticipated
Non-Aboriginal Heritage	No – captured in Project REF
Aboriginal Heritage	Yes – additional consideration warranted; impact unlikely, however ‘stop works’ protocol recommended
Biodiversity	Yes – additional vegetation clearance required, including removal of habitat features and impact to TEC.
Waste	Yes – additional fencing waste including removal and re-installation on Lot 5 DP 248232 boundary line.
Climate Change	No – captured in Project REF

4.1 Soils and Erosion

4.1.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. The addendum study area is located in close proximity to the subject site of the Project REF. Capertee Slopes Mitchell Landscape and the same soil types (Rudosols and Tenosols) and Acid Sulphate Soils (Bn (p4) acid sulphate soils (ASS) occur within the new subject site.

The waterway crossing and bypass road installation will impact upon the soils in the subject site, with excavation and earthmoving activities required.

4.1.2 Potential Soils and Erosion Impacts

Potential impacts associated with the addendum study area are consistent with those described in the REF, with the addition of impacts associated with removal of vegetation, excavation of the temporary bypass road and temporary crossing of Crown Creek.

Potential impacts associated with the installation and use of the bypass road and waterway crossing are included in Table 4 below.

Table 4 Potential impacts - soils and erosion

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Direct impacts to an additional 0.045 ha including vegetation clearing, ground disturbance and erosion. A further 0.3358 ha has the potential to experience indirect impacts.	Minor impacts to road edges possible, however once sealed and operation, further impacts to soils along bypass not likely,
Installation of waterway crossing	Vehicular movement, loading and unloading of materials and installation adjacent to and within creek bank may add to erosion.	Nil – once operational, bridge is not expected to impact on soil and erosion.
	Installation of 3 x 6m 450 mm pipes into waterway, which constitutes 'dredging and reclamation' under the FM Act. Disturbance of creek bed and potential for erosion on bank.	Potential for erosion in works area including scouring of banks.
Removal of bypass	Potential for erosion of creek bank due to machinery and personnel movements.	Potential for erosion and pollution of Crown Creek if banks are not adequately revegetated and rehabilitated.

4.1.3 Environmental Safeguards – Soils and Erosion

The soils and erosion safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

Several additional safeguards and management measures for soils and erosion have been recommended, per the below:

- Install silt fences as per Blue Book requirements.
- Ensure signage and entry to bypass road is removed following completion of Crown Creek bridge to prevent use of bypass and entry to the area to facilitate rehabilitation.
- Seek advice on bank stability and best practice management for rehabilitation following bypass removal. Rocks and stabilisation measures may need to remain in situ to prevent further erosion.
- Plantings of appropriate native riparian species to be carried out within riparian zone of temporary crossing once bypass has been removed in order to help stabilise creek banks.

4.2 Waterways

4.2.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF.

Crown Creek contained slow flows at the time of survey (July 2022) with downstream pools and swampy areas, washed up logs (flood debris, snags) and other debris scattered around and within the waterway (refer **Error! Reference source not found.** and **Error! Reference source not found.**). Water flows were slow with a depth of approximately 35 cm at the point of the bypass crossing. The creekbed was muddy with some aquatic vegetation. The gradient is gentle, with the banks of the creek slight.

Water quality was observed as good with low turbidity, although no standardized water quality tests have been completed as part of this assessment. The creek up and downstream of the subject site supports a variety of aquatic habitats in varying conditions, including swampy grassland, washed up decaying trees with hollows, rocky pools and snags.

Waterways which are 3rd order or greater (calculated using the Strahler method on a 1:25,000 topo) are represented as Key Fish Habitat (KFH) on mapping provided by NSW Department of Primary Industries (DPI) Fisheries; Crown Creek falls into this category in this location. A Fisheries permit has been approved for the proposed bypass works (LCC, 2022).



Plate 2 Left to right. Downstream habitat of Crown Creek, upstream habitat of Crown Creek, Crown Creek at the site of crossing. Clear water with muddy creekbed and some riparian vegetation.

4.2.2 Potential Waterways Impacts

Potential impacts associated with the proposed works are consistent with those described in the REF, with the potential for additional erosion affecting Crown Creek due to disruption of the bank and streambed during installation, use and removal of the bypass. Impacts to the waterway may also result from erosion on the creekbank. Potential impacts associated with the installation, use and removal of the bypass road are included in Table 5 below.

Table 5 Potential impacts - waterways

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Removal of instream aquatic vegetation and debris. Potential for sediment migration.	Potential for heavy rains to wash loose soils into Crown Creek. Risk of vehicle pollutants entering waterway.
Installation of waterway crossing	Disruption of soils and bank and removal of vegetation within waterway and riparian zone. Disruption of creekbed causing movement of sediments downstream.	Potential for creek bed erosion and deposition during flood events. Potential for dust, washouts and scouring. Sediment build-up/changes to water flow through pipes.
Removal of bypass road	Disruption of creekbed and soil instability and sediments entering waterway	Potential for erosion and pollutants entering waterway during revegetation while plants establish.

4.2.3 Environmental Safeguards – Waterways

The surface and groundwater safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

Several additional safeguards for surface and groundwater have been recommended.

- Council has obtained a Part 7 Fisheries Permit (FM Act) for ‘dredging and reclamation and obstruction of fish passage’ and has received advice from the DPI regarding the planned works. This advice and instructions must be incorporated into the CEMP and throughout bypass construction.
- Minimising removal of instream snags and/or vegetation to required areas for temporary bypass installation only. Any small shrubs/trees are to be cut at the base, rather than pulled up from the roots, wherever possible to reduce release of sediments into the water column.
- All vegetation, snag and instream habitat removal is to occur so as to cause minimal disturbance to the banks and waterway. Logs and snags to remain within the waterway where possible – moved downstream or onto adjacent land.
- Minimization of vehicle movement and crossing of Crown Creek when installing Bypass. Clear access and machinery restrictions to prevent erosion and habitat damage in and around Crown Creek.
- Clear delineation of bypass route to prevent unauthorized vehicle crossing of the creek.
- Regular checks of sediment and erosion control measures to ensure efficacy, particularly following rain events.

4.3 Noise and Vibration

4.3.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. No residential properties occur close to the addendum subject site, with works not expected to impact upon local residents.

The landowner of Lot 5 DP248232 has given their approval for the bypass works and no house/residence occurs in proximity to the addendum site, thus noise impacts are not likely to impact on this landholder.

4.3.2 Potential Noise and Vibration Impacts

Potential impacts associated with the installation and operation of the bypass are included in Table 6 below.

Table 6 Potential noise and vibration impacts

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Use of heavy noise-generating machinery including alert beepers, excavators and trucks.	Noise generated by vehicles using bypass road.
Installation of waterway crossing	Vehicular movement and reverse beepers, high noise generating machinery.	Nil
Removal of bypass	Crane noise, reverse alert beeper, truck.	

4.3.3 Environmental Safeguards – Noise and Vibration

The noise and vibration safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

No additional safeguards for noise and vibration have been recommended as part of these works.

4.4 Socio-economic considerations

4.4.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF with the socio-economic benefits considered relevant to these addendum works. The bypass construction and operation will include works on land within Lot 5 DP 248232, no livestock are in the paddock. The landowner has given verbal and written consent to these works and has agreed to a reduction in rates for a six (6) month period as means of compensation. During the July site survey it was noted that Telstra had works planned in the vicinity of the bypass road.

4.4.1 Potential Socio-economic Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. Additional potential impacts associated with the works are outlined in Table 7 below.

Table 7 Potential impacts – socioeconomics

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Benefit to locals, allowing continued use of road and thoroughfare during construction works. Temporary road and waterway crossing will permit construction and bridge replacement of Crown Creek bridge to take place. Access to private property granted by landholders. Potential for trespassing onto private land during this time. Telstra cabling and notice of future proposed works noted during site survey.	
Installation of waterway crossing		
Removal of bypass		

4.4.2 Environmental Safeguards – Socio-economic

The air quality safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly.

Additional safeguards for socio-economics has been recommended to be implemented as part of these works:

- Continue to liaise with landholders regarding bypass works and ensure involvement throughout the process.
- Ensure any complaints are promptly addressed.
- Reinstatement of infrastructure - damaged/removed fences are to be reinstated to equal or better condition following removal of bypass. Consultation with the landholder to occur regarding fencing.
- Liaison and contact with Telstra services to ensure works in the area can be safely undertaken in the proposed timeframe.

4.5 Visual Amenity

4.5.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. visual amenity within the addendum study area is mostly native vegetation, with a partially cleared access track and surrounding natural bushland with some road work and building equipment present under the bridge. Discarded and old fencing was also present at the time of the site visit.

4.5.2 Potential Visual Amenity Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. Direct impacts to an additional 0.06 ha will result from the addendum works with additional impacts detailed in Table 8.

Table 8 Potential impacts – visual amenity

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Exposed landscape/ temporary fencing, high vis, materials, machinery. Clearing of up to 0.06 ha of vegetation including across Crown Creek.	Vehicles travelling along the bypass road, through private property.
Installation of waterway crossing	Clearing of stream bank vegetation, streambank works and large pipes and bitumen.	Unnatural materials in an otherwise natural setting.
Removal of bridge	Potential for barren section of Crown Creek following bypass removal. Potential for visible rocks to remain on streambank.	Rehabilitation within crossing location to return or improve pre-works visual amenity of the site.

4.5.3 Environmental Safeguards – Visual amenity

The visual amenity safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Additional safeguards and management measures for visual amenity of the site are:

- Ensure works remain within impact footprint and clearing/ alterations are conducted in a way to minimize long-term visual impacts.
- Ensure tidiness and minimal visual impact of the site is made a priority.
- Revegetate the streambank and rectify the site to return it to pre-work or better condition upon completion bypass use.
- Revegetate riparian area with appropriate native species and ensure the area is inaccessible to road users following decommissioning of bypass to allow rehabilitation of the site.



Plate 3 Materials stockpiled below Crown Creek bridge – for use during construction



Plate 4 broken and discarded fences along bypass – to be upgraded following removal of bypass

4.6 Traffic and Transport

4.6.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. Movement of light vehicles and machinery is predicted along the bypass road, with entry occurring from both ends to allow for bypass installation. The bypass road is single-lane and limited to vehicles up to 4.5 tonne, and emergency vehicles.

4.6.2 Potential Traffic and Transport Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. The addendum works will allow the thoroughfare of vehicles under 4.5 tonne and retain traffic movement along Glen Davis Road during Crown Creek bridge construction. Vehicle movements will be limited to 40 km/h and portable traffic lights will direct traffic during use of the bypass.

A Traffic Management Plan (TMP) will cover the traffic safety requirements, including safety measures that surround with site (Table 9).

Table 9 Potential impacts - traffic and transport

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Trucks, vehicles and machinery moving to and along the bypass. Entry and exit from the Glen Davis road to the bypass and vice versa. Extended reduced speed area and turning vehicles.	Signage and traffic lights directing road users to bypass road. Limited access to some vehicles.
Installation of waterway crossing	Heavy vehicles and machinery accessing the site.	Ability of traffic movement to remain during bridge installation works.
Removal of bypass	Heavy vehicles and machinery accessing the site. Bypass road removed and no longer in use.	Traffic flow redirected onto Glen Davis Road and normal traffic flow returned.

4.6.3 Environmental Safeguards – Traffic and transport

The traffic and transport safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Some additional safeguards and management measures for traffic and transport considerations have been recommended below:

- Install signage and traffic lights, warning road users of slow and turning vehicles. Signage to direct road users to bypass road, including load limits.
- Prepare the bypass road to safely allow movement of vehicles (grading/gravel etc.). Maintain the bypass road to a high standard.

- Have vehicles over 4.5 tonne to be redirected and given appropriate warning of road inaccessibility.

4.7 Aboriginal Heritage

4.7.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. Apex Archaeology (pers. Comms., July 2022) confirmed that the addendum study area was surveyed during initial ADD survey and that no further assessment is required prior to the bypass construction commencing.

4.7.2 Potential Aboriginal Heritage Impacts

Potential impacts associated with the new study area are consistent with those described in the project REF. The addendum works will impact the ground within the subject site footprint; however this has been surveyed and areas with sub-surface archaeological potential will be avoided.

Table 10 Potential impacts – Aboriginal Heritage

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Impacts to ground from clearing, grading and road base. Area has been assessed and no artefacts or PAD sites are to be impacted.	Potential for vehicles to stray off-track and impact on areas outside of the subject site. No impacts provided strict adherence to designated bypass road.
Installation of waterway crossing.	No impacts predicted	
Removal of bypass	No impact predicted	

4.7.3 Environmental Safeguards – Aboriginal Heritage

The Aboriginal Heritage safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. No additional safeguards for Aboriginal Heritage are required.

4.8 Biodiversity

4.8.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. As part of this, a desktop assessment was undertaken to identify threatened flora and fauna species, populations and ecological communities listed under the BC Act, and Matters of National Environmental Significance (MNES) listed under the EPBC Act that may be affected by the Proposal.

At the time of the original REF/ FFA (December 2021) database records pertaining to the study area and locality (i.e. 10 kilometre radius) were reviewed, and included:

- DPE Wildlife Atlas database for records of threatened species and endangered ecological communities listed under the BC Act that have been recorded within the locality of the subject site (DPE 2021, data accessed 27th August 2021).
- Department of the Environment and Energy (DEE) Protected Matters Search Tool for Matters of National Environmental Significance (MNES) listed under the EPBC Act recorded or predicted to occur in the locality of the site (DAWE 2021, report generated 27th August 2021).
- OEH threatened species profiles online database (DPE 2021).
- DEE online species profiles and threats database (DCCEEW 2021).
- State Vegetation Type Map: Central Tablelands Region SMV PCT 4778 CRS GDA20 MGA zone 55, to identify native vegetation types occurring within the study area and the likely presence of any threatened ecological communities (OEH 2019).

Due to the time elapsed, and the databases being updated annually, updated searches were done on the 20th of June 2022. These searches revealed one (1) additional threatened species record (Bionet) within the locality. *Epthianura albifrons* (White-fronted Chat), listed as Vulnerable under the BC Act, was considered to have a moderate likelihood of utilising the subject site, with a low potential for impact by the proposal. Therefore, an additional Assessment of Significance was not undertaken for this species.

The original FFA/REF assessed the likelihood of impact to any species with a moderate or higher likelihood of occurrence within the subject sites of the three bridges. These tests are deemed consistent with the current scope of works, with an additional direct impact area of 0.06 ha and indirect impacts to 0.62 ha of similar habitat not deemed likely to change the determinations of the outcomes for likelihood of impact on these additional species or area of TEC occurring on the site. Therefore, additional Assessments of Significance have not been undertaken for these species. Impacts to PCT 281 which aligns with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Threatened Ecological Community has been further assessed in Section 4.8.2 below.

A site visit was undertaken on the 19th of July 2022 to identify any potential ecological impacts arising from the bypass installation. Figure 1 shows PCT's and ecological features recorded within the subject site and study area.

Table 11 PCT's within addendum Subject Site and Study Area.

PCT	Subject site (ha)	Study Area (ha)
PCT 281 Rough-Barked Apple - red gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion	0.05 ha	0.62 ha
PCT 281 derived waterway	0.01 ha	0.06 ha
Non-native roadway	0.005 ha	0.07 ha
Total	0.065 ha	0.75 ha
Total native	0.06 ha	0.68 ha

The eastern and western banks of Crown Creek addendum subject site contained remnant woodland (Figure 1, **Error! Reference source not found.**) and was dominated by native vegetation including a mixture of canopy species including *Angophora floribunda* (Rough-barked Apple), *Eucalyptus blakleyi* (Blakley's Red Gum), *Eucalyptus melliodora* (Yellow Box), *Eucalyptus albens* (White Box), and *Brachychiton populneus* (Kurrajong). A scattered shrub layer was present consisting of *Dodonaea viscosa* (Sticky Hop-bush), *Dodonaea heteromorpha* (Maple-fruited Hop-bush), *Acacia subulata* (Awl-leaved wattle), *Bursaria spinosa* (Blackthorn), *Indigofera australis* (Australian Indigo), *Cassia laevis* (Cough Bush), and *Haloragis serra*. Native groundcover species including grasses *Poa labillardieri* (Tussock), *Microlaena stipoides* (Weeping Grass), *Aristida ramosa* (Purple Wiregrass), *Chloris ventricosa* (Plump Windmill Grass), *Austrostipa* sp. (Speargrass), *Bothriochloa macra* (Red-leg Grass), *Themeda australis* (Kangaroo Grass), *Gahnia aspera* (Rough Saw-sedge), and forbs including *Vittadinia cunneata* (Fuzzweed), *Veronica* sp., *Dichondra repens* (Kidney Weed), *Hydrocotyle laxiflora* (Stinking Pennywort), and *Geranium solanderi* (Native Geranium).

This vegetation aligns with the Plant Community Type (PCT) PCT 281 *Rough-Barked Apple - Red Gum - Yellow Box woodland on alluvial clay to loam soils on valley flats in the northern NSW South Western Slopes Bioregion and Brigalow Belt South Bioregion*. This PCT aligns with a threatened Ecological Community (TEC) *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions*. This community was in a moderate condition with signs of previous clearing evident (absent and regenerating canopy trees) and a moderate encroachment of annual weeds including *Plantago lanceolata* (Plantain), *Cirsium vulgare* (Spear Thistle), *Trifolium* sp. (Clover), *Sonchus oleraceus* (Milk Thistle), *Bidens pillosa* (Cobblers Pegs), *Verbena rigida* (Purpletop), *Conyza bonariensis* (Fleabane), and *Setaria sphacelata* (Pigeon Grass), as well as *Hypericum perforatum* (St Johns Wort) listed as a Priority Weed for the Central Tablelands.

An Assessment of Significance was undertaken for this TEC within the original assessment for the bridge subject site. Additional impacts to this TEC as a result of the bypass has been further assessed in Sections 4.8.2 below.

Instream vegetation within the creek line included common waterway species including *Typha orientalis* (Bulrush), *Ranunculus amphotrichus* (Small River Buttercup), and *Eleocharis acuta*, being largely absent within the impact area of the bypass, with areas of greater density of rushes immediately north and south of the subject site (**Error! Reference source not found.**).



Plate 5 Remnant PCT 281 (left) along bypass subject site, and remnant tree to be retained (right)

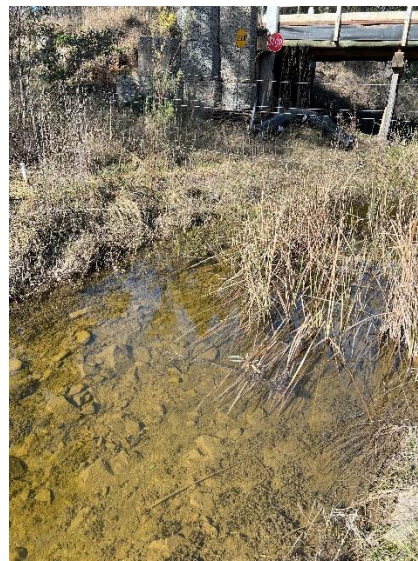


Plate 6 Instream vegetation looking north (left) and south (right)

4.8.2 Potential Biodiversity Impacts

Potential impacts associated with the bypass are detailed below.

Impacts to up to **0.06 ha** of native vegetation, consisting of predominately groundcovers and shrubs with approximately 15 stems of mixed *Eucalypt* species 5-20 cm DBH and approximately 10 Saplings < 5cm DBH also impacted as a result of the bypass outside the area previously surveyed for the original REF. No mature trees are to be removed as a result of the addendum works, with one large tree noted for retention (**Error! Reference source not found.**) as per the original REF to remain.

Direct impact to **0.06 ha** and indirect impacts to **0.62 ha** of PCT 281 which aligns with the TEC *White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland*. Assessments of Significance (BC and EPBC Act) have been completed for this PCT within the original project REF. The small additional impacts to this TEC as a result of the bypass are not considered to alter the outcome of the original assessment completed for this site, with no significant impact found. Impacts to other threatened biota have been thoroughly assessed within the project REF, with the additional impact area associated with the bypass road not considered to change the outcome of these assessments.

Instream impacts consist of the laying of 3 x 450 ml pipes, impacting minor areas of instream rushes and rocky areas. Potential impacts on waterways and instream fauna species previously recorded on the site (TEF 2021) are consistent with impacts assessed under the original project REF, and are covered under the existing Fisheries Permit for the site.

A small number of rocks and logs occur on the site, along with one small nest (Plate 7). Inspections of these during surveys showed no sign of habitation. The nest was relocated outside the impact area after close inspection and placed in nearby suitable shrubby vegetation. The vast tracts of intact vegetation within the surrounding locality, and avoidance of direct impacts to habitat trees result in an overall limited direct impact on flora and fauna.

Indirect impacts to fauna in the locality may occur from the bypass route, including impacts associated with human presence, noise, dust, vehicle movement, and pollution. These are consistent with those assessed within the original project REF.



Plate 7 Habitat attributes present within subject site: rocks (left) and abandoned nest (right)

Table 12 Potential impacts – Biodiversity

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	Clearing of up to 0.06 ha of native groundcover and understory species, comprising White Box – Yellow Box – Blakeley's Red Gum TEC. Indirect impacts to 0.62 ha of native vegetation within study area.	Disturbance to flora and fauna due to dust, noise and vehicle movements.

Design Change	Construction Impacts	Operational Impacts
Installation of waterway crossing	Impacts to creek banks and instream vegetation due to installation of piping and bank stabilisation works for creek crossing.	Potential erosion of bank or runoff from bypass road affecting waterway.

4.8.3 Environmental Safeguards – Biodiversity

The biodiversity safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Additional safeguards and management measures for Biodiversity of the site are:

- All instream habitat (upstream and downstream) is to be inspected, including logs, snags, rocks, reeds and other fringing vegetation, and any potential habitat resources or fauna present within the impact footprint are to be safely relocated under the supervision of a qualified ecologist or fauna spotter catcher.
- No mature trees, logs or stags containing potential fauna habitat to be impacted.
- Rehabilitation works within creek bank and along bypass road to be undertaken following construction of Crown Creek bridge and re-opening of Glen Davis Road. Weed removal, planting of locally sourced native tubestock within riparian zone, and planting of native tubestock along de-commissioned road to regenerate habitat. Species used for revegetation works to be consistent with those identified in this report as occurring within the site.
- Ensure impacts managed and limited, as per pre-clearance report.

4.9 Waste

4.9.1 Existing Environment

The existing environment was described in Chapter 4 of the Project REF. During the July 2022 site inspection, additional discarded waste (food wrappers, plastic) was observed within the bypass footprint area. In addition, old and discarded fencing material including wire and mesh was observed within the creekbed.

4.9.2 Potential Waste Impacts

Potential impacts associated with the new study area are consistent with those described in the REF. Additional waste in the form of old and discarded fencing will be generated. Bitumen, road base and pipe used for the bypass will add to the total waste impacts generated by the proposal. All waste is to be discarded at the local tip.



Plate 8 Old fencing materials and loose wires within the bypass site. To be removed and disposed of as part of works

Table 13 Potential impacts - Waste

Design Change	Construction Impacts	Operational Impacts
Installation and use of bypass road	<p>Removal of existing wire fence to build road and crossing.</p> <p>Installation of temporary plastic mesh fence to prevent traffic/persons entering private property.</p>	<p>Removal of old fencing and general tidy up of study area, removing all rubbish.</p>

Design Change	Construction Impacts	Operational Impacts
Installation of waterway crossing	Potential for waste to enter waterway.	
Removal of bypass	Generation of pipe, road base and bitumen waste. To be recycled where possible.	

4.9.3 Environmental Safeguards – Waste

The Waste safeguards and management measures from the Project REF have been reviewed and are considered to be relevant for the revised Proposal outlined herein and must be applied to these additional works accordingly. Some additional safeguards and management measures for Waste have been recommended below:

- Reuse and Recycle star pickets/ fencing material wherever possible
- Ensure all waste is removed from site daily and at the completion of the bypass use.

4.10 Environmental Planning and Assessment Regulation, 2021 Checklist

The factors which need to be taken into account when considering the environmental impact of an activity are listed in Clause 171(2) of the *Environmental Planning and Assessment Regulation 2021*. These factors have been taken into account in the Project REF when assessing the likely impacts of the Proposal on the natural and built environment, however three (3) additional factors have been added in the revised EP&A Regulation that takes effect on 1st July 2022.

These are:

Table 14 Compliance with Clause 171(2) of the EP&A Regulation 2021

Environmental Factor	Will there be an impact?	Comments
(p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions	No	Construction: not on the coast Operation: not on the coast
(q) Any applicable local strategic planning statement, regional strategic plan or district management plan made under Division 3.1 of the Act	Yes	Refer to Parkes Local Strategic Planning Statement (Parkes Shire Council, 2020). The statement mentions the Integrated Water Cycle Management Plan (IWMP) to increase drought resilience in the region. The LRPS augmentation project aligns with Council's strategic plan for greater water security for the region.
(r) Any other relevant environmental factors	No	Construction: no other factors have been considered other than those listed above. Operation: no other factors have been considered other than those listed above.

5 CERTIFICATION AND ASSESSOR DECLARATION

This REF addendum provides a true and fair review of the Proposal in relation to its likely effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the Proposal.

This report has been developed in accordance with the *NSW Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the Department of Planning and Environment's Guidelines for Division 5.1 assessments (DPE Guidelines) and demonstrates how the environmental factors specified in subsection (2) clause 171 of the EP&A Regulation were taken into account when considering the likely impact of the proposed activity.

The assessment has concluded that the proposed works as described in this REF Addendum, providing all proposed management measures and Safeguards are implemented, will not result in a significant impact on the environment. An Environmental Impact Statement (EIS) is not required.

The proposed works will not result in a significant impact on any declared critical habitat, threatened species, populations or ecological communities or their habitats. Therefore, a Species Impact Statement (SIS) is not required.

The proposed works are not being carried out on Commonwealth land, are unlikely to affect any Commonwealth land, or have any significant impact on any Matters of National Environmental Significance.

All proposed work contemplated as part of the Proposal will be completed under the guidance of a Construction Environmental Management Plan (CEMP) to manage and minimise potential environmental impacts, particularly ecological impacts, associated with the proposed work. Once operational, the Proposal is not expected to cause any significant environmental or community impacts.

I certify that I have reviewed and endorsed the contents of this REF addendum document, and, to the best of my knowledge, it is in accordance with the EP&A Act, the EP&A Regulation and the Guidelines approved under clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.

Prepared by:

Reviewed and Endorsed for Certification by:

Name: Anna Uhrig, Skye Rivett
Title: Ecologist, Senior Ecologist
Date:

Name:
Title:
Date:

Determiner declaration and approval

I have reviewed this REF and determine that the Proposal will not have a significant impact on the environment and can proceed subject to the controls outlined in this REF addendum

Name:
Title:
Date:

6 REFERENCES

DAWE 2022 Species Profile and Threats Databases

DAWE 2022 Protected Matters Search Tool for MNES listed under the EPBC Act.

<http://www.environment.gov.au/epbc/protected-matters-search-tool>

DPI 2022 Priority Weeds of the Central Tablelands NSW WeedWise

DPI 2022 Weeds of National Significance NSW WeedWise

DPE 2022 SEPP Koala Habitat Protection 2020 Koala Habitat Protection SEPP - (nsw.gov.au)

DPE 2021 NSW Government Vegetation Regulatory Map

<https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap>

DPE 2022 Bionet Wildlife Atlas Threatened species records, which holds data from a number of custodians.

Lithgow City Council. Weeds Management, 2021, <https://council.lithgow.com/environment/weeds-management/>

New South Wales Flora online – PlantNET 2022 <http://plantnet.rbgsyd.nsw.gov.au/floraonline.html>

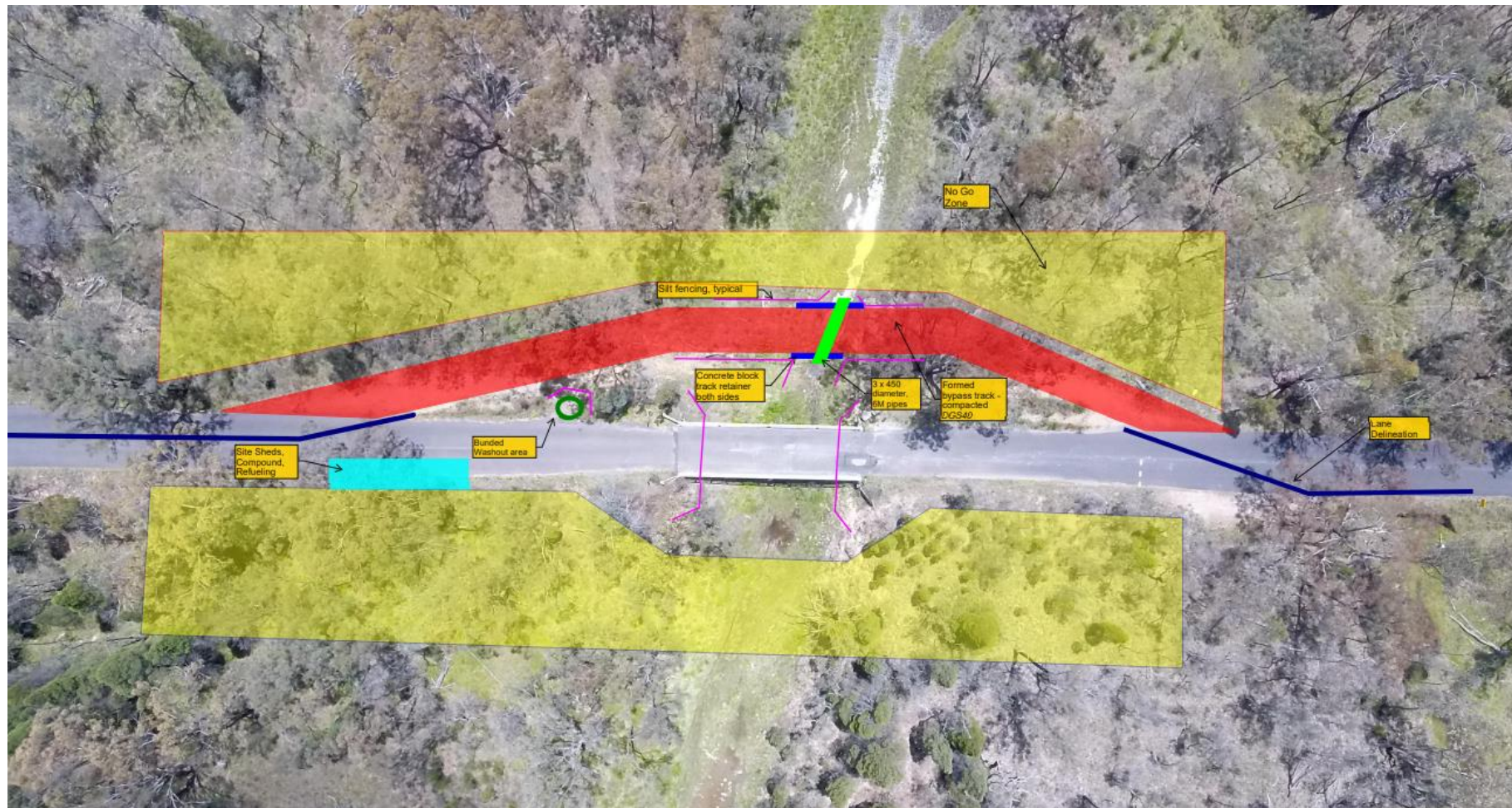
Review of Environmental Factors, Glen Davis Rd Bridges, 2021, TEF

Sixmaps tool, <https://maps.six.nsw.gov.au/>

7 APPENDICES

Appendix	Item
Appendix A	Diversion Route
Appendix B	Blue Book Drawings
Appendix C	Fisheries Permit

Appendix A – Diversion Route



Appendix B – Bluebook Drawings

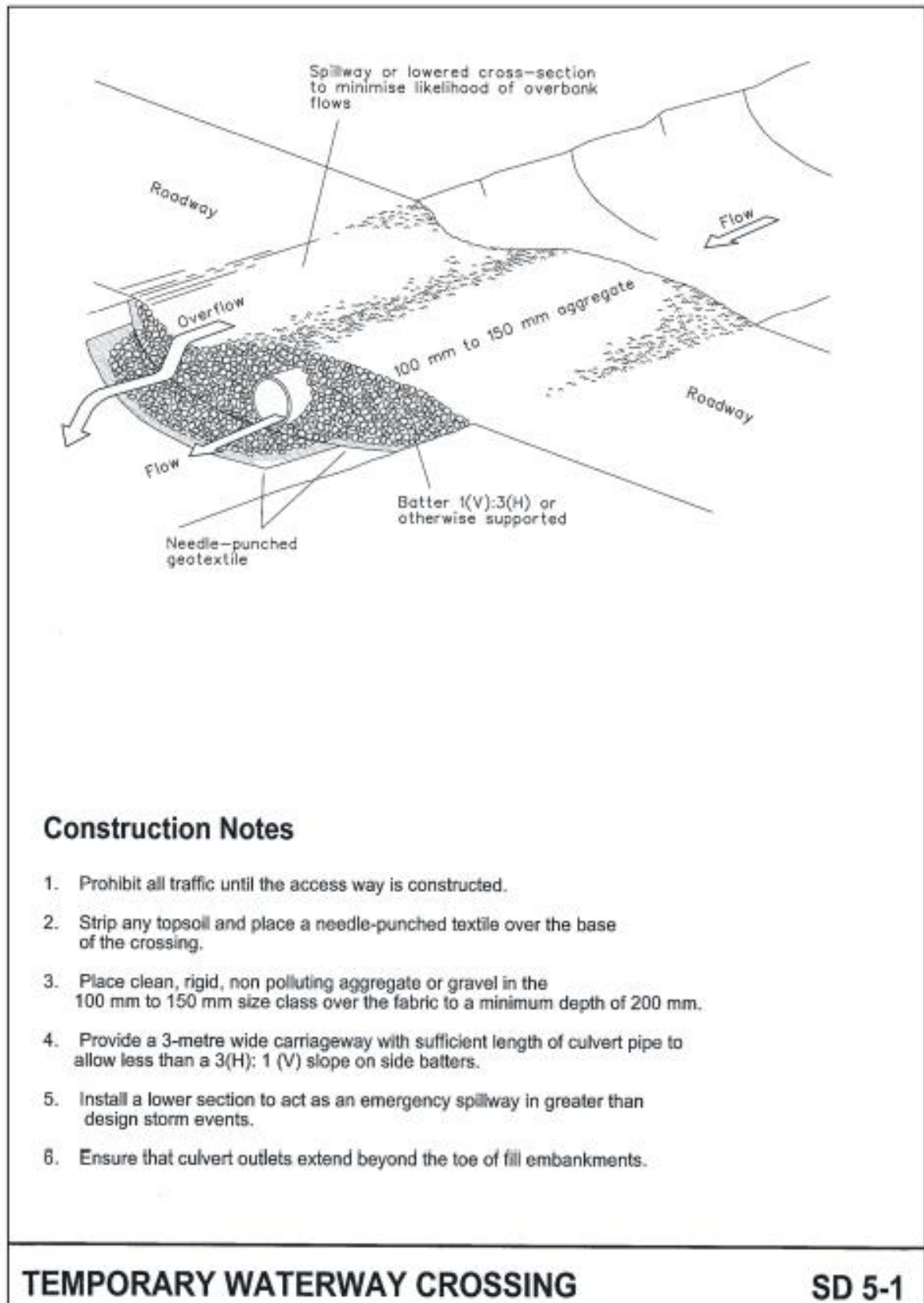
5. Erosion Control: Management of Water

shape and dimensions of which can be determined from aerial photographs, parish maps, portion plans, topographic maps, etc. Construction should begin upstream at the junction of the remaining intact meandering channel and the straight channel and continue downstream. Channel units that could need to be constructed include:

- (i) The outside of curved banks of the meander bends. Some form of armouring should protect the toe of the bank until vegetation (grasses and shrubs planted with the structural works) becomes established. These works are placed outside the meander bends from just above the upstream point of inflection, around the bend, to just below the downstream point of inflection;
- (ii) The inside of the bends (point bars). When flows start going around the new bends, point bars will naturally start to deposit on the insides of the bends; and
- (iii) Pools and riffles.

5.3.4 Temporary Waterway Crossings

- (a) Temporary waterway crossings are usually formed using culverts or pipes to carry flow under a raised gravel carriageway that allows vehicles to cross the stabilised waterway safely without causing damage and erosion.
- (b) The following standard design criteria (Standard Drawing 5-1) should be followed:
 - (i) prohibit traffic until the access way is constructed;
 - (ii) Use a clean, rigid, non polluting aggregate or gravel (100 to 150 mm aggregate);
 - (iii) Support the gravel on needle-punched geotextile;
 - (iv) Have a minimum depth of 200 mm of gravel;
 - (v) Provide a 3-metre wide carriage way and sufficient length of culvert pipe to allow less than a 1(V):3(H) slope on side batters;
 - (vi) Provide a lower section to act as an emergency spillway in greater than the design storm events (Section 2.3.1 (e)); and
 - (vii) Ensure that culvert outlets extend beyond the toe of the fill embankments.
- (c) The following maintenance issues should be noted:
 - (i) Keep the pipe culvert clear to avoid bypassing by storm flows less than the design storm event due to blockages from debris or sediment;
 - (ii) Recover gravel to maintain minimum depth of 200 mm;
 - (iii) Remove the crossing when it is no longer required; and
 - (iv) Rehabilitate the area following the vegetation management plan or other site rehabilitation plan.
- (d) In addition, consideration should be given to the following limitations:
 - (i) Oils or other potentially hazardous materials should not be used as surface treatment;



Appendix C – Fisheries Permit

Department of Primary Industries (Fisheries)
Department of Regional NSW



OUR REF: PN22/242

18 July 2022

The General Manager
Lithgow City Council
PO Box 19
Lithgow NSW 2790
Via email: Sean.Quick@lithgow.nsw.gov.au

Attention: Mr Sean Quick

Dear Mr Quick,

Re: Permit # PN22/242 for dredging and reclamation work associated with the replacement of Crown Creek Bridge within Crown Creek, Road Reserve adjacent Lot 4 DP 249092 Glen Davis Road, Capertee, Lithgow City Council LGA.

I refer to your application dated 16 June 2022 and further information received 12 and 14 July 2022 for a permit under Part 7 of the *Fisheries Management Act 1994* (FM Act). DPI Fisheries, a division within the Department of Primary Industries, assesses applications for dredging and reclamation works, harm marine vegetation and obstruction of fish passage in accordance with Part 7 of the FM Act and the *Policy and Guidelines for Fish Habitat Conservation and Management (2013 Update)*.

The assessment fee for this project has been waived as part of the Fixing Country Bridges Program.

DPI Fisheries has considered the test of significance provided in *Review of Environmental Factors Lithgow City Council, Glen Davis Road Bridge Replacements* for the proposed works and work methods outlined in correspondence and documentation received 16 June 2022 and further information received 12 and 14 July 2022. The Department has determined that the proposed works are not likely to significantly affect aquatic threatened species, populations or ecological communities listed under Federal and State legislation (EPBC Act, BC Act, FM Act) or their habitats, and consequently the proposed works do not require a referral to the Commonwealth or a licence to harm.

Please find enclosed a permit under Part 7 of the FM Act for dredging and reclamation work associated with the replacement of Crown Creek Bridge within Crown Creek, Road Reserve adjacent Lot 4 DP 249092 Glen Davis Road, Capertee, Lithgow City Council LGA.

Please note that the attached permit providing authorisation under the FM Act to undertake dredging and reclamation (s200) does not provide authorisation under any other Act or planning instrument. It is Council's responsibility to ensure they possess all appropriate approvals and land owners consent before works occur.

OUR REF: PN22/242

18 July 2022

The General Manager

Lithgow City Council

PO Box 19

Lithgow NSW 2790

Via email: Sean.Quick@lithgow.nsw.gov.au

Attention: Mr Sean Quick

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Please note that the attached permit providing authorisation under the FM Act to undertake dredging and reclamation (s200) does not provide authorisation under any other Act or planning instrument. It is Council's responsibility to ensure they possess all appropriate approvals and land owners consent before works occur.

This may include, but is not restricted to, development consent under the *Environmental Planning & Assessment Act 1979* and *Biodiversity Conservation Act 2016* in relation to impacts on terrestrial species and threatened species not covered by the *Fisheries Management Act 1994*; land owners consent and/or licences under the *Crown Land Management Act 2016*; and controlled activity approvals under the *Water Management Act 2000*.

Please carefully read and note the conditions included in the permit. If you agree that all the conditions are reasonable, appropriate and achievable, you must sign and date the attached sheet (Acceptance of Conditions) and return it to the Contact Officer as soon as possible. If you believe that you cannot comply with all the conditions then you must not commence work. Instead, you should contact the Contact Officer listed on the first page of the permit so that your concerns can be considered.

If you intend to have the work undertaken by a contractor, please ensure that the contractor receives a full copy of the permit and understands the importance of abiding by the conditions. As the permit holder and proponent of the works, Council is responsible for ensuring that all conditions are fully adhered to. Breaching a condition of a permit can incur an on-the-spot fine of up to \$500 or up to \$11,000 through the local court pursuant to clause 225 of the Fisheries Management (General) Regulation 2019.

The extent of work is to be restricted to that outlined in the application and plans submitted to DPI Fisheries. If for any reason, other works are required, or the works need to be extended to other areas, you must seek specific approval beforehand. DPI Fisheries will require justification for these variations and may charge additional assessment fees as outlined in the permit application. Similarly, please note the expiry date on the permit. If the works are not completed by the expiry date you

will need to obtain an extension. Requests to renew a permit before the expiry date will not incur a fee. Requests to renew a permit that has expired within the last 3 months will incur a \$179 fee. Permits that have expired more than 3 months previously will need to be reapplied for.

DPI Fisheries places particular importance upon the need to minimise the harm to the natural environment both at the worksite and downstream waters. We expect implementation of Best Management Practice with respect to erosion and sediment control and aquatic vegetation management. This includes:

- Work scheduling (e.g. installation of protective measures before earthworks commence, suspension of works during rain etc.);
- Deployment of protective measures (e.g. silt curtains, site drainage, separation of “clean” and “dirty” water, silt stop fencing, check dams, sediment traps etc.); and
- Constant maintenance of protective measures (e.g. replacing torn silt-stop fencing, replacing silt-stop fencing which has fallen down or been knocked over, removing accumulated sediment etc.).

Please refer to the publication Landcom (2004), *Managing Urban Stormwater: Soils and Construction* (4th Edition), commonly referred to as “The Blue Book” for guidance (www.environment.nsw.gov.au/resources/water/BlueBookVol1.pdf).

DPI Fisheries highlight that the State Environmental Planning Policy (Transport and Infrastructure) 2021 requires that exempt developments, complying developments and emergency works are carried out in accordance with all applicable requirements of The Blue Book.

If you have any queries, please contact me on 0429 300 489 or scott.nichols@dpi.nsw.gov.au.

Yours sincerely



Scott Nichols

Senior Fisheries Manager, Coastal Systems (Fish Passage)
Authorised delegate of the Minister for Primary Industries

Cc: Terry Steele, Central Tablelands District Fisheries Officer

Alison Maclean, Fisheries Manager

Permit under Part 7 of the FISHERIES MANAGEMENT ACT 1994

Permit	Permit Number	PN22/242
	Expiry Date	Unless cancelled or suspended sooner, this permit or updated variations shall remain in force until 1 August 2023
Permit Holder:	Lithgow City Council PO Box 19 Lithgow NSW 2790 Responsible Officer: Sean Quick Phone: 02 6354 9999 Email: Sean.Quick@lithgow.nsw.gov.au	
Permit Area:	Within Crown Creek, Road Reserve adjacent Lot 4 DP 249092, Glen Davis Road, Capertee, Lithgow City Council LGA (Refer to Attachment 1)	
Permit Activity:	<p>Dredging and reclamation works, specifically the installation of a new 24 m long x 10 m wide, two span concrete bridge, involving:</p> <ul style="list-style-type: none">- Construction of temporary access track and crossing using clean, compacted DGS40 gravel and including the use of 3 x 450 mm pipes set at bed level;- Demolition of existing 3 span timber bridge including abutments and removal of instream concrete pier sills to at least bed level;- Installation of central piers (4 x 600 mm pylons) following existing road alignment;- Installation of new precast bridge abutment (east side only) – no abutment required west side (headstock acting as abutment); and- Removal and remediation of temporary access track and crossing. <p>Associated with the replacement of Crown Creek Bridge as proposed in your application of 16 June 2022 and further information received 12 and 14 July 2022.</p> <p>(Refer to Attachment 2 & 3)</p>	
Departmental Contact Officer:	Scott Nichols, Senior Fisheries Manager, Fixing Country Bridges Phone: 0429 300 489 Email: scott.nichols@dpi.nsw.gov.au	
District Fisheries Officer:	Terry Steele, Central Tablelands District Fisheries Officer Phone: 0407 894 746, email: terry.steele@dpi.nsw.gov.au	

This permit is subject to the following conditions:

ADMINISTRATIVE CONDITIONS

1. The attached Acceptance of Conditions form must be completed and returned to ahp.central@dpi.nsw.gov.au before any works authorised by this permit commence. *Reason – To remove any doubt that the Permit Holder understands and accepts the Conditions before work commences.*
2. The attached Commence Works Notification form must be completed and sent to ahp.central@dpi.nsw.gov.au and the District Fisheries Officer at Bathurst (Phone: 0407 894 746, email: terry.steele@dpi.nsw.gov.au) at least three (3) days BEFORE the commencement of works authorised by this permit.
Reason - To ensure that local DPI Fisheries staff are aware that works authorised by this permit are about to commence.
3. The attached Post Works Notification form, including clearly labelled site photographs of the completed works, must be completed and sent to scott.nichols@dpi.nsw.gov.au and the District Fisheries Officer at Bathurst (contact details listed above) within 21 days of completion of works at the site, including requirements of the Construction Environmental Management Plan (CEMP). Photographs should include the old and new structures, including abutments when viewed from upstream, downstream, and from the road alignment to show them within the waterway setting; the temporary structure viewed from upstream, downstream and from the track alignment to show it within waterway setting; and the remediated temporary crossing location from the track alignment to show it within the waterway setting.
Reason - To provide an opportunity for local DPI Fisheries staff to inspect the site to ensure that riparian restoration works have been adequately completed consistent with the authority of this permit.
4. The permit holder must ensure that all works authorised by this permit are restricted to the permit area and are undertaken in a manner consistent with those described in the application made to DPI Fisheries dated 16 June 2022 and further information received 12 and 14 July 2022. In particular, all the actions and recommendations outlined in the REF *Lithgow City Council, Glen Davis Road Bridge Replacements* and the CEMP *Construction Environmental Management Plan – Glen Davis Rd Bridges* are to be followed. Other works which have not been described, excepting those activities required by this permit, are not to be undertaken.
Reason – This permit has been granted following an assessment of the potential impacts of the described works upon the aquatic and neighbouring environments. Other works, which were not described in the application have not been assessed and may have significant adverse impacts.
5. This permit (or a true copy), a copy of the determined Part V Assessment, CEMP and other approvals must be carried by the permit holder or sub-contractor operating on-site at all times during work activity in the permit area.
Reason – A DPI Fisheries Compliance Officer may wish to check compliance of works with imposed conditions.

SEDIMENT AND EROSION CONTROL PLAN

6. Erosion and sediment mitigation devices are to be erected in a manner consistent with the diagram shown in Attachment 4 of this permit and currently accepted Best Management Practice (i.e. Landcom [2004], *Managing Urban Stormwater: Soils and Construction* [4th Edition]) to prevent the entry of sediment into the waterway, or mobilisation of sediment within the waterway, prior to any earthworks being undertaken. These erosion and sediment devices are to be maintained in good working order for the whole duration of the bridge replacement works and subsequently until the worksite has been stabilised and the risk of erosion and sediment movement from the site is minimal.

Reason – To ensure that sediment generated by the exposure of soil is not transported into the main water body.

DEWATERING PLAN

7. Dewatering at the worksite is to be undertaken consistent with accepted Best Management Practice (i.e. Landcom [2004], *Managing Urban Stormwater: Soils and Construction* [4th Edition]). In addition, mitigation controls such as a sediment fence between the sump water release outlet and the waterway are to be employed to ensure that downstream water quality is not adversely affected.

Reason – Minimise turbidity impacts from the site on downstream waters.

8. Dewatering at the worksite is to be undertaken with a screen around the pump inlet possessing mesh no greater than 5 mm. Netting and removal of fish should be undertaken at late stages of dewatering regardless of any positive identification of fish. Any fish captured via netting should be released unharmed into adjacent waters downstream of the worksite. *Reason – Minimise dewatering impacts on fish.*

WORK IN WATERS

9. Machinery is not to enter, or work from the waterway unless in accordance with works proposed in your application for the permit and the requirements of this permit including construction of rock armouring and the establishment of the temporary crossing authorised by this permit.

Reason – To ensure minimal risk of water pollution from oil or petroleum products and to minimise disturbance to the streambed substrate.

10. Only clean rock is to be used in construction of works authorised by this permit.

Reason – To avoid fines, clay and other sediment un-necessarily entering the waterway and potentially impacting on aquatic habitats.

11. Geotextile fabric is to be used to underlay the rock used to armour the bank.

Reason – Consistent with best management practice and reduce the potential for the bank to continue to erode behind the rock armouring.

12. Geotextile fabric is to be used to isolate the natural bed of the waterway from any imported clean rock fill or other material used to create the temporary crossing within the bed of the waterway. Sufficient geotextile fabric is to be available to cover the hardstand area in anticipation of the instream works area being inundated by a high flow.

Reason – Improve the ability to remove imported clean rock used in the work platform.

13. Prior to use at the site, machinery is to be appropriately cleaned, degreased and serviced. Emergency Spill Kits appropriate for containing and cleaning up petroleum and solvent product spills within waterways are to be available on site at all times during works. *Reason – To reduce the threat of an unintended pollution incident impacting upon the aquatic environment.*

TIMING OF WORKS FOR LOW FLOWS

14. Works are to be undertaken during low flows in Crown Creek and when Bureau of Metrological forecast for the Central Tablelands district forecast region (available at: www.bom.gov.au/nsw/forecasts/map.shtml) indicates several days of clear, dry weather. *Reason – Timing the works for appropriate conditions can reduce delays and minimise impacts on the aquatic environments.*

AVOIDING MOVING OR HARMING SNAGS, RIPARIAN AND AQUATIC VEGETATION

15. When working near aquatic vegetation¹ (*Typha* and other aquatic vegetation) on water land², these areas are to be identified and appropriately delineated as “No Go” areas (with the aim of avoiding harm to these areas). Harm to aquatic including removing or moving vegetation on water land outside the permit area approved under the authority of this permit is not permitted. Such removal, harm or movement caused to aquatic vegetation is to be documented and reported to the contact officer who may direct that the removed, harmed or damaged aquatic vegetation on water land be restored.

Reason – To ensure that impacts on aquatic habitats and the riparian zone are minimised.

16. Material storage and stockpiling is not to be undertaken on water land, riparian or aquatic vegetation. Stockpiling must be undertaken in a manner to avoid harm to these types of vegetation or water land. Stockpiles should also be located away from adjacent water land. Stockpiles and dewatering areas should be appropriately controlled by sediment fencing or other materials prescribed in the “Blue Book” (i.e. Landcom 2004, *Managing Urban Stormwater: Soils and Construction* [4th Edition]) to ensure sediments do not enter the waterway.

Reason – To ensure that impacts on aquatic habitats and the riparian zone are minimised. “Degradation of native riparian vegetation along NSW water courses” is listed as a Key Threatening Process under the provisions of the Fisheries Management Act 1994.

¹ “Aquatic vegetation” is defined in the *Fisheries Management (General) Regulation 2019* as ‘native vegetation that inhabits freshwater but does not include noxious weeds within the meaning of the *Noxious Weeds Act 1993*.’

² “Water land” is defined in the *Fisheries Management Act 1994* and means land submerged by water:

- a) whether permanently or intermittently, or
- b) whether forming an artificial or natural body of water,

and includes wetlands and any other land prescribed by the regulations.

Wetlands include marshes, mangroves, swamps, or other areas that form a shallow body of water when inundated intermittently or permanently with fresh, brackish or salt water, and where the inundation determines the type and productivity of the soils and the plant and animal communities.

17. No snags¹ outside of the works area described in the permit application are to be removed, realigned or relocated without first obtaining the authority of the Senior Fisheries Manager, Coastal Systems.

Reason – “Removal of large woody debris from NSW rivers and streams” is listed as a Key Threatening Process under the provisions of the Fisheries Management Act 1994. This approval has been granted on the basis that snags are not to be removed.

18. On completion of the works, the worksite is to be rehabilitated and stabilised including: - Removal of surplus construction materials and temporary structures (other than silt fences and other erosion and sediment control devices) installed during the course of the works.
- Removal of all imported material that formed the temporary crossing and side track. The side track footprint is to be reinstated to a stable grade generally consistent with the upstream and downstream bank profile and re-established with native endemic riparian vegetation;
 - Complete removal of the existing bridge that is to be replaced by the new bridge; - Reuse of removed *Lomandra* plants or undertake plantings of *Lomandra sp.* along the left and right banks of the waterway for five (5) metres upstream and downstream of the work footprint and within all temporarily disturbed areas of works. Replanting within temporarily disturbed areas should consist of at least six (6) *Lomandra sp.* tubestock per square metre. - Appropriate maintenance of erosion and sediment control devices until the vegetation has successfully established and the site has stabilised.

Reason – To ensure that habitats are restored as quickly as possible, public safety is not compromised, aesthetic values are not degraded and sediment inputs into the waterway are reduced.

FISH KILL CONTINGENCY

19. A visual inspection of the waterway for dead or distressed fish (indicated by fish gasping at the water surface, fish crowding in pools or at the creek’s banks) is to be undertaken twice daily during the works. Observations of dead or distressed fish are to be immediately reported to the Contact Officer by the Permit Holder. In such a case all works are to cease until the issue is rectified and approval is given to proceed. If requested, the Permit Holder is to commit resources to the satisfaction of the Contact Officer for an effective fish rescue, if in the view of that officer, a fish kill event is imminent and likely to occur within or adjacent to the works area due to conditions associated with weather, water quality and other parameters.

Reason – DPI Fisheries needs to be aware of fish kills so that it can assess the cause and mitigate further incidents in consultation with relevant authorities. They are also potentially contentious incidents from the public perspective. Work practices may need to be modified to reduce the impacts upon the aquatic environment.

¹ “Snags” is a term used to describe large woody debris from trees and shrubs, including whole fallen trees, broken branches and exposed roots that have fallen or washed into a waterway and are now wholly or partially submerged by water. Snags also includes submerged large rocks (of greater than 500 mm in two dimensions).

IMPORTANT NOTE:

INCONSISTENCY BETWEEN DOCUMENTS

In the event of any inconsistency between the conditions of this approval and:

- the drawings / documents referred to above, the conditions of this approval prevail to the extent of the inconsistency;
- any Government publication referred in this permit, the most recent document, shall prevail to the extent of the inconsistency; and
- the proponent's mitigation measures outlined in the application, the conditions of this approval prevail to the extent of the inconsistency.

STOP WORK ORDERS

A Fisheries Officer or other appropriate delegate who has reasonable cause to suspect that the conditions of this permit have not been complied with, may order the work to stop immediately. The order may be given to the permit holder or any person who informs the officer that they are acting in any capacity on behalf of the permit holder. Any damage caused to the habitat outside the specified permit area, or the carrying out of works not in accordance with the conditions specified in this permit and/or the application and that were accepted by the permit holder, could result in a breach of the *Fisheries Management Act 1994* or *Regulations*, and penalties of up to \$220,000 may apply. Orders may also be made requiring work to rectify any damage caused by unauthorised works. Failure to abide by permit conditions may incur a \$500 on-the-spot fine per breach pursuant to clause 225 of the *Fisheries Management (General) Regulations 2019*.

Authorised:



Scott Nichols

Senior Fisheries Manager, Coastal Systems (Fish Passage)
Authorised delegate of the Minister for Primary Industries

18 July 2022

Attachment 1



Figure 1: Plan showing location of Crown Creek Bridge works as described within the *Permit Area* section above.

Attachment 2

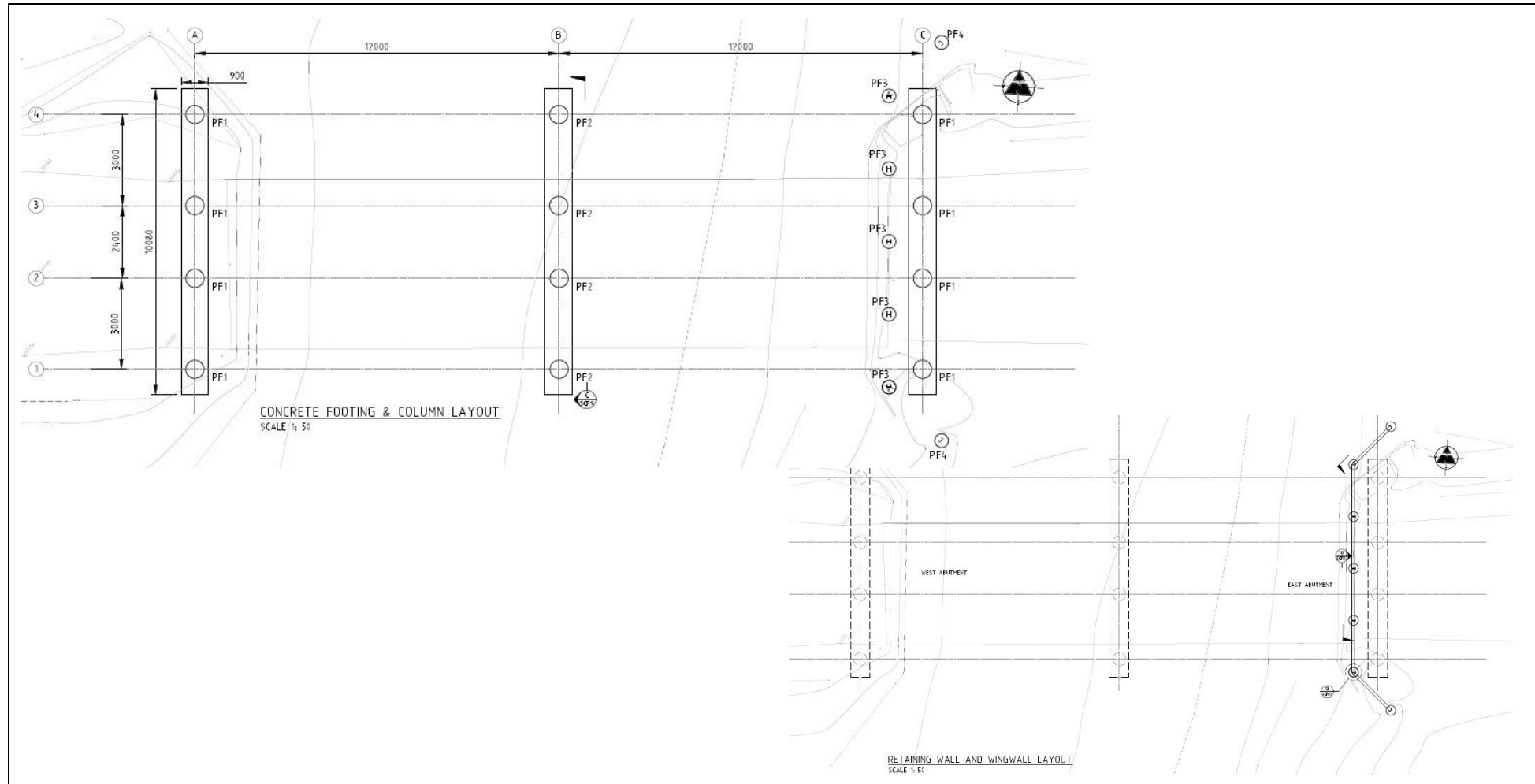
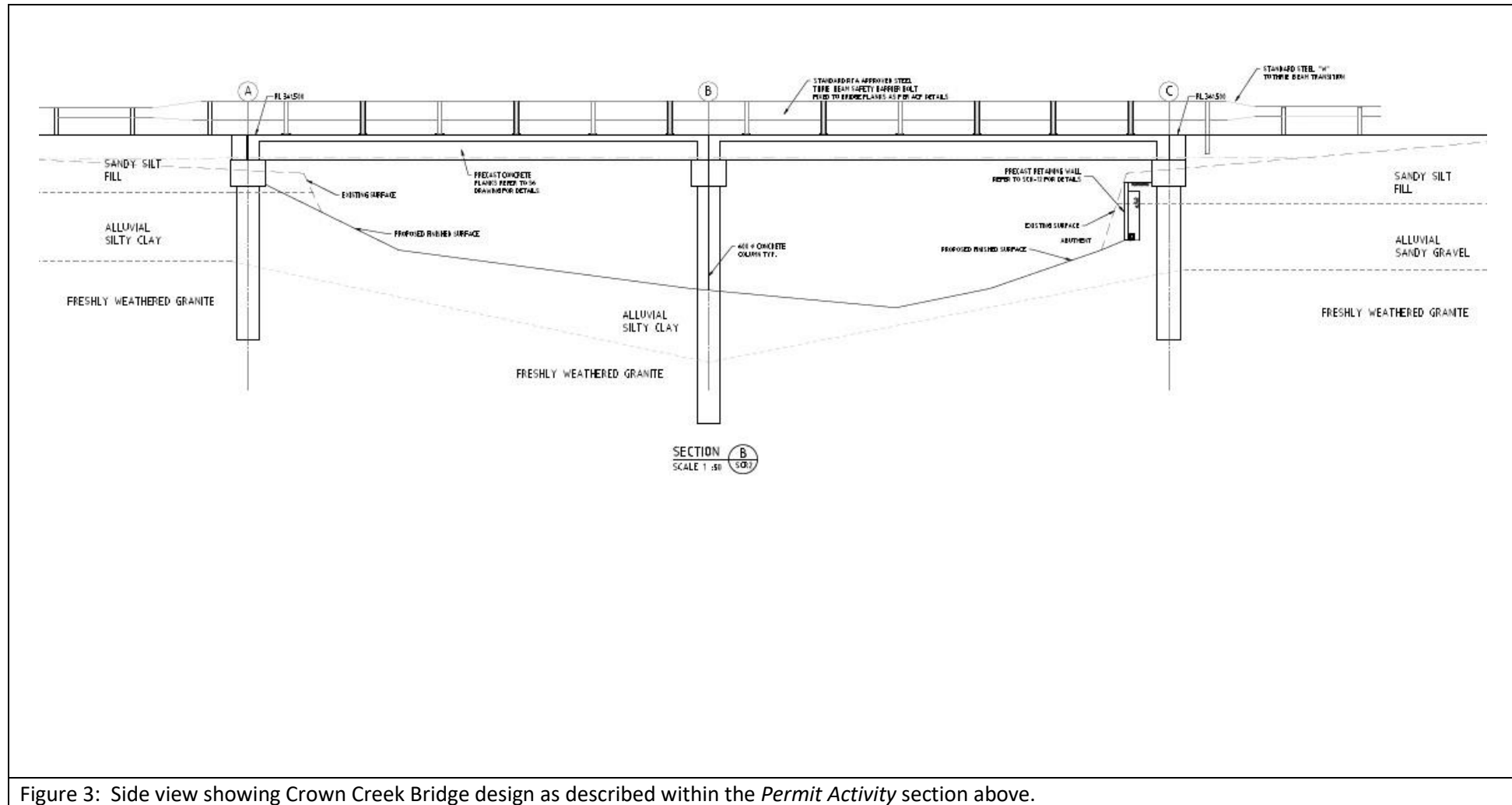


Figure 2: Plan views of Crown Creek Bridge design including piling and east abutment as described within the *Permit Activity* section above.

Attachment 3



Attachment 4



Figure 4: Site layout plan for Crown Creek Bridge works including minimum sediment and erosion control actions as described within the *Permit Activity* section above.

1. Acceptance of Conditions Form specified in
**Permit No. PN22/242 issued under Part 7 of the
Fisheries Management Act 1994**

PLEASE COPY THIS PAGE AND RETURN TO DPI FISHERIES

In reference to Permit No. PN22/242 for dredging and reclamation work associated with the replacement of Crown Creek Bridge within Crown Creek, Road Reserve adjacent Lot 4 DP 249092 Glen Davis Road, Capertee, Lithgow City Council LGA:

I the undersigned, acknowledge that I have read and understood and agree to comply with the conditions specified. I understand that penalties can be imposed for non-compliance with conditions.

Permit Holder's name: _____

Permit Holder's signature: _____

Date: _____

Please COPY AND SIGN this page and email to:

ahp.central@dpi.nsw.gov.au

2. Commence Works Notification Form specified in
Permit No. PN22/242 issued under Part 7 of the

Fisheries Management Act 1994

PLEASE COPY THIS PAGE AND RETURN TO DPI FISHERIES

In reference to Permit No. PN22/242 for dredging and reclamation work associated with the replacement of Crown Creek Bridge within Crown Creek, Road Reserve adjacent Lot 4 DP 249092 Glen Davis Road, Capertee, Lithgow City Council LGA:

Commence Works Notification Form

(Note: to be completed and returned 3 days before commencement of works)

Permit Holder's Name: _____

Site Location: _____

Works _____

Commencement Date: _____

Comments:

Project Manager: _____ Date: _____

Please COPY AND SIGN this page and email to:

ahp.central@dpi.nsw.gov.au

terry.steele@dpi.nsw.gov.au

3. Post Works Notification Form specified in

**Permit No. PN22/242 issued under Part 7 of the
Fisheries Management Act 1994**

PLEASE COPY THIS PAGE AND RETURN TO DPI FISHERIES

In reference to Permit No. PN22/242 for dredging and reclamation work associated with the replacement of Crown Creek Bridge within Crown Creek, Road Reserve adjacent Lot 4 DP 249092 Glen Davis Road, Capertee, Lithgow City Council LGA:

Post Works Notification Form

(Note: to be completed and returned within 21 days of completion of works associated with this permit, including rehabilitation of riparian areas)

Permit Holder's Name _____

Site Location _____

Works _____

Date Completed _____

Assessment of works:

(e.g. Were there any complications that made it difficult to comply with permit conditions i.e. weather, unforeseen geological conditions etc.)

Project Manager: _____ Date: _____

Please COPY AND SIGN this page and return with clearly labelled photographs via email to:

ahp.central@dpi.nsw.gov.au

scott.nichols@dpi.nsw.gov.au