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# Attachments

**UNDER SEPARATE COVER  
ORDINARY COUNCIL MEETING**

**6:00PM, TUESDAY, 29 January, 2019**



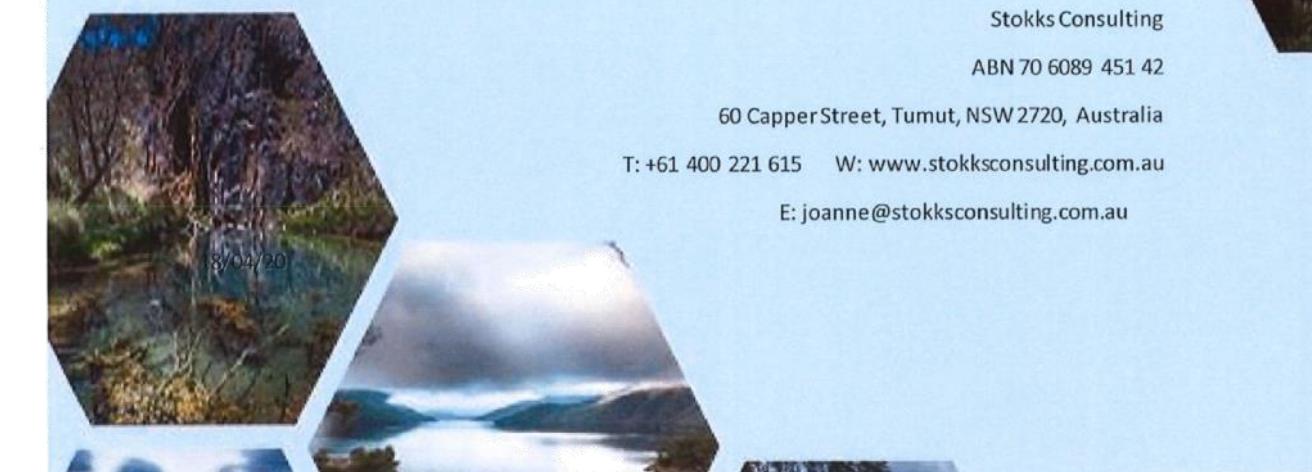
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# **Report on Waterways Works Management for Cootamundra Gundagai Regional Council**



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## Waterways Works Management



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## Waterways Works Management

### 1 THE REQUIREMENTS

Cootamundra-Gundagai Regional Council (CGRC) wishes to develop a Waterways Works Management Report which details the legislative requirements, who is the controlling authority, the requirements for works and tenure summarised below.

- ▲ Initial Project set up meeting
- ▲ Summary and direction
- ▲ Background for the Report
- ▲ What are Waterways
- ▲ Integration of GIS
- ▲ Literature Review
- ▲ Legislation and Regulations
- ▲ CGRC Stormwater management and how waterways Management fits
- ▲ Operational Works



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## 2 SUMMARY AND DIRECTION

### 2.1 Summary

The flow chart (Figure 2-1) below identifies waterways and details process associated with works in or around that waterways (See Attachment B Waterways works process).

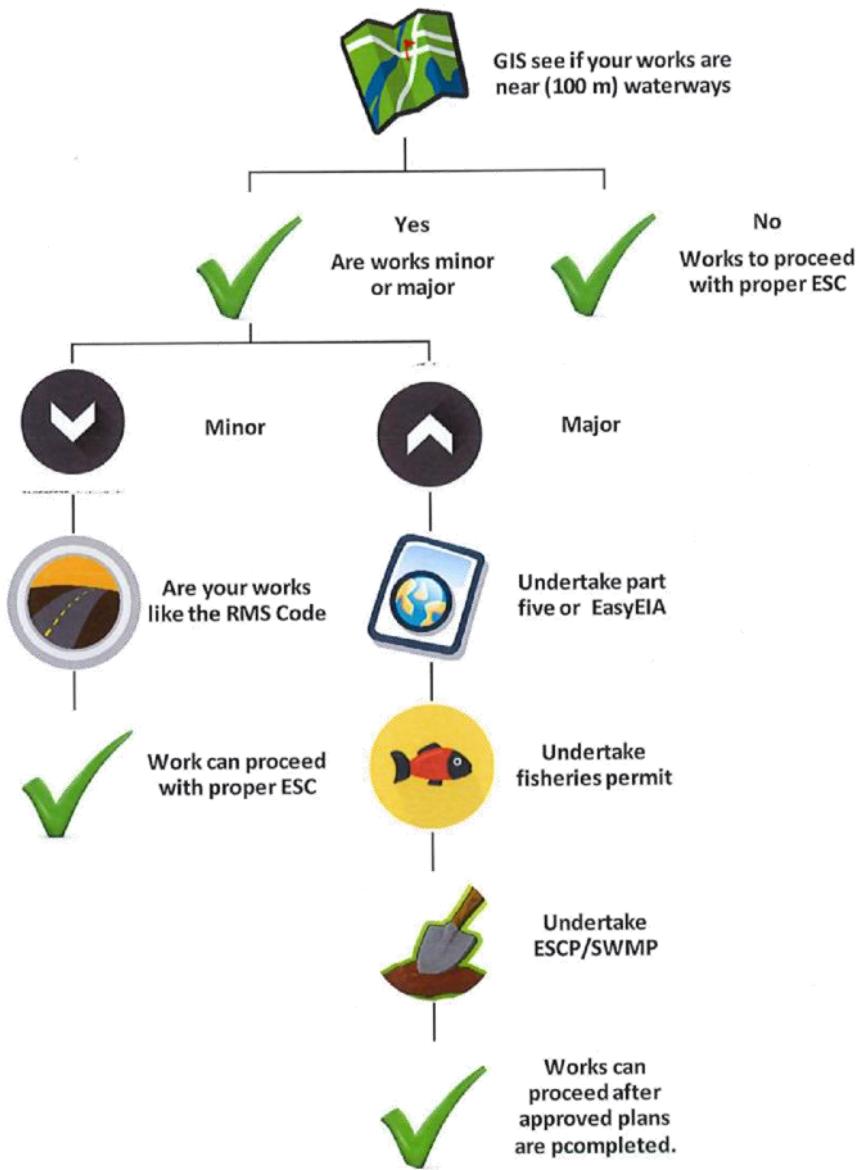


Figure 2-1: Process Flowchart





### Waterways Works Management

Waterways and Waterfront Land - Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary.

Stream Order (Strahler system) - Is a method that identifies streams ascending order and significant. Minor Watercourse as first-order or second-order watercourses that do not permanently flow (NSW Department of Primary Industries, 2014).

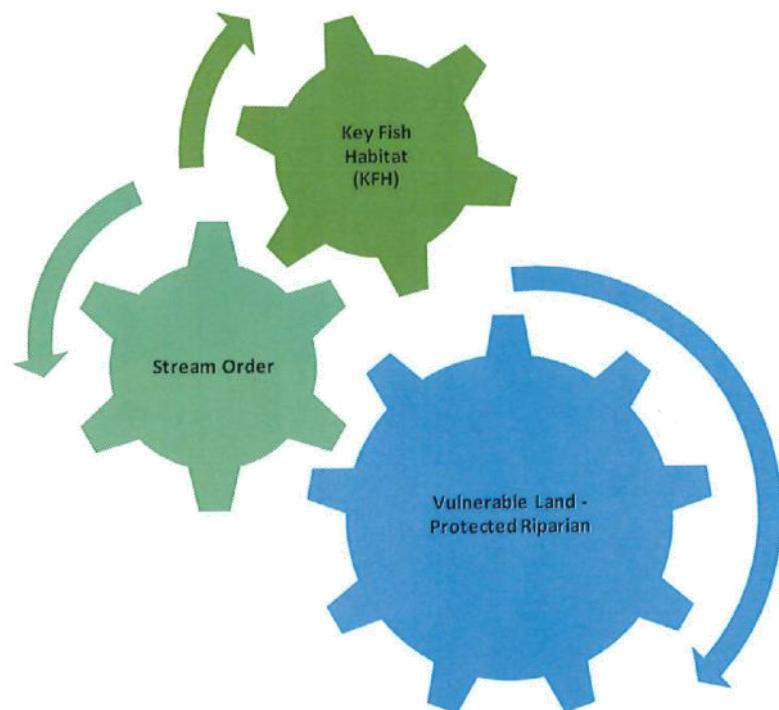
Key Fish Habitat - The term 'Key Fish Habitat' (KHF) was developed to guide the compilation of maps for the State and related to the Cootamundra Gundagai Regional Council region (GIS data<sup>1</sup> (See these maps)):

[Cootamundra KFH](#) (see Figure 4-3)

[Gundagai KFH](#) (see Figure 4-4)

Vulnerable riparian -generated from the NSW Hydroline and HydroArea dataset, natural named watercourses were used to capture streams with a buffer applied to both watercourses and water-bodies (GIS data).

Use of the three layers (GIS data<sup>2</sup>) into works planning and execution will address sites that need either approval or additional assessment and consideration.



<sup>1</sup> GIS data is the spatial Data from NSW Government

<sup>2</sup> GIS data is the spatial Data from NSW Government





## Waterways Works Management

### Literature review -

- ▲ OEH/EPA(Office of Environment and Heritage / Environmental Protection Authority) -Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning
- ▲ National Water Quality Management Strategy (NWQMS)
- ▲ Why do Fish Cross the Road?
- ▲ Controlled activities on waterfront land
- ▲ Part 7 Fisheries Management Act permit
- ▲ RMS – Code of practice for minor work in NSW waterways

### Main Legislation

- ▲ Fisheries Management Act 1994, and
- ▲ Fisheries Management (General) Reg 2010
- ▲ Water Management Act 2000
- ▲ Environmental Planning & Assessment Act 1979
- ▲ Protection of the Environment and Operations Act 1997

Links between Stormwater management and waterways work management - Any works that are undertaken in listed KFH, or stream order three and above or within 40 meters of the high-water mark or in Vulnerable Lands will need either a permit or consultation with the relevant agencies.

### Integrated Development Assessment Process

- ▲ Any DA under Part 4 of the EP&A Act requiring one of the approvals below becomes integrated development
- ▲ Section 201 – permit to carry out dredging or reclamation.
- ▲ Section 219 – permit to obstruct the passage of fish

The consent authority (e.g. Council) must forward a copy of the development application to DPI Fisheries for appraisal (Department of Primary Industries, 2016).

Unauthorised Controlled Activities WMAct 2000 – Unauthorised activities are undertaken without a controlled activity approval can cause bank erosion and increase sediment loads. Controlled activities are governed under the Water Management Act 2000

### Do your works need a Fisheries Permit?

- ▲ Activities involving dredging and reclamation work
- ▲ Activities temporarily or permanently obstructing fish passage
- ▲ Activities using explosives and other dangerous substances
- ▲ Activities harming marine vegetation (Department of Industry, n.d.)





## Waterways Works Management

### 2.2 Direction

It is recommended that CGRC undertake the following:

1. Create Intramaps session using the KFH, Stream Order and Vulnerable Lands etc data sets for use with Works Orders
2. Investigate Erosion and Sediment Control on site works management and organisation requirements (Checklist)
3. Create a Code of Practice similar to RMS format for routine Minor Works and seek NSW Department of Fisheries concurrence and approval
4. Implement an education strategy for Council staff and the public on Waterways Works and the management of waterways
5. Intergrade Stormwater Management, Flood management and operational works processes<sup>3</sup>.

## 3 BACKGROUND

In response to a variety of concerns raised by residents of the CGRC area, Council has sought to develop a way forward in which they manage or address these concerns. The summary below lists some of the concerns raised by residents (this is not an extensive nor comprehensive list):

- ▲ Waterways flow into and out of the system
- ▲ Flow restriction in waterways
- ▲ Impacts of restricted flows on resident's properties
- ▲ Localised flooding and or flooding impacted by vegetation
- ▲ Vegetation management regimes and area of extent
- ▲ The expectation that burning of vegetation is allowed
- ▲ Community perception of legal requirements and responsibilities of Council

Council additionally wishes to know their legal and procedural requirements for waterways work activities and management.

## 4 WHAT ARE WATERWAYS

### 4.1 Definition of waterways

Waterways can be termed as Waterways, Waterfront Land, Riparian zones, or under Stream Order (Strahler system).

<sup>3</sup> This has been detailed via email.





## Waterways Works Management

### 4.1.1 Waterways and Waterfront Land

Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary (Figure 4-1) This means that a controlled activity approval must be obtained from the Office of Water before commencing the controlled activity.

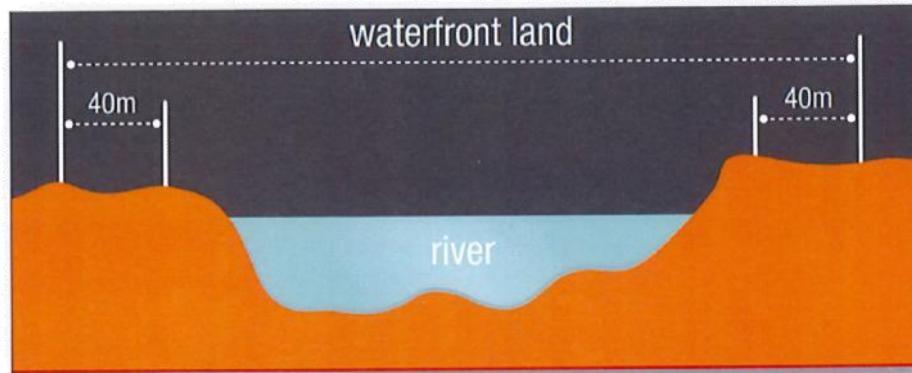


Figure 4-1: Waterfront Land

#### 4.1.1.1 Riparian corridor?

A Riparian Corridor (RC) forms a transition zone between the land, also known as the terrestrial environment, and the river or watercourse or aquatic environment. Riparian corridors perform a range of important environmental functions such as:

- Providing bed and bank stability and reducing bank and channel erosion
- Protecting water quality by trapping sediment, nutrients and other contaminants
- Providing diversity of habitat for terrestrial, riparian and aquatic plants (flora) and animals (fauna)
- Providing connectivity between wildlife habitats
- Conveying flood flows and controlling the direction of flood flows
- Providing an interface or buffer between developments and waterways
- Providing passive recreational uses

The protection, restoration or rehabilitation of vegetated riparian corridors is important for maintaining or improving the shape, stability (or geomorphic form) and ecological functions of a watercourse (Department of Primary Industries, n.d.-b).

Riparian Zones are also classified as Waterfront Land. The health of river corridors and other waterfront land across New South Wales is vital for many communities and industries. It is also essential for fish, birds and other animal and plant life. In NSW certain activities need approval from the relevant authority such as Water NSW – DPI Water. Unauthorised activities undertaken without a controlled activity approval can cause bank erosion and increase sediment loads (Department of Primary Industries, n.d.-c).





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### 4.1.2 Stream Order (Strahler system)

The State also uses Strahler system to determine stream order. Strahler stream ordering system is used to determine the stream order of a water body on a property. The Strahler system assigns a waterway an order according to the number of its tributaries, as follows:

- Starting at the top of a catchment, any water body which has no other water bodies flowing into it is classed as a first-order stream (1)
- When two first order streams join, the stream becomes a second order stream (2)
- Minor Watercourse as first-order or second-order watercourses that do not permanently flow (NSW Department of Primary Industries, 2014)
- If a second order stream is joined, by a first order stream, it remains a second-order stream (2)
- When two second order streams join, they become a third order stream (3), and so on (Office of Environment and Heritage, 2015)

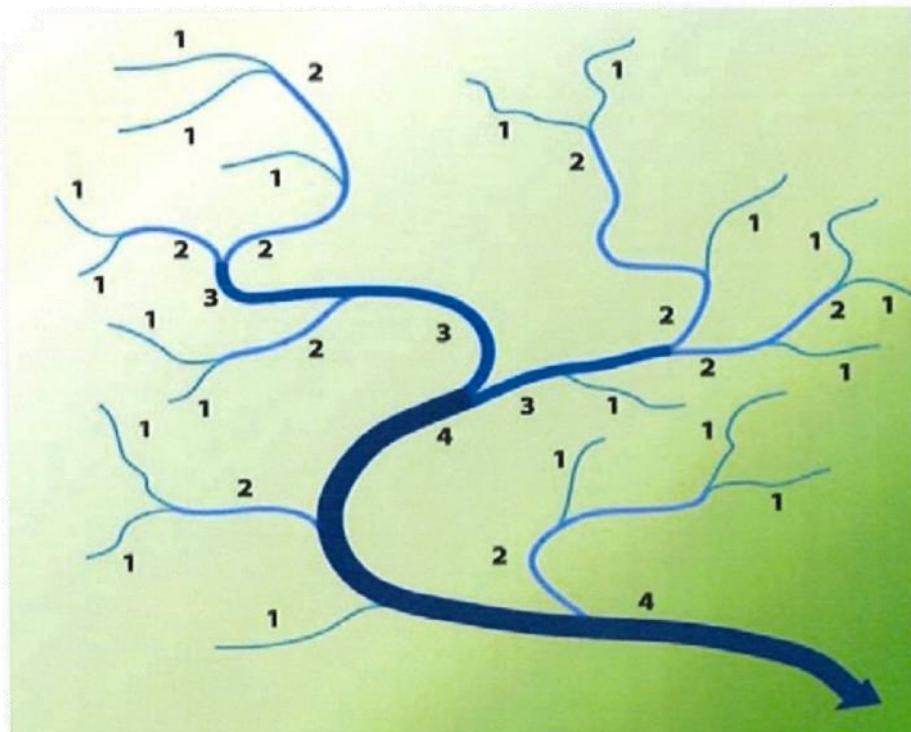


Figure 4-2: Strahler stream order

### 4.1.3 Key Fish Habitat

Essential Key Fish Habitat (KFH) indicates a waterway that is listed and will require approval for certain works in or near that waterways. The term 'Key Fish Habitat' (KFH) was developed to guide the compilation of maps. Essentially KFH was defined to include all marine and estuarine habitats up





## Waterways Works Management

to highest astronomical tide level (that reached by 'king' tides) and most permanent and semi-permanent freshwater habitats including rivers, creeks, lakes, lagoons, billabongs, weir pools and impoundments up to the top of the bank. Small headwater creeks and gullies (known as first and second order streams – as stated above), that only flow for a short period after rain are generally excluded, as are farm dams constructed on such systems. Wholly artificial water bodies such as irrigation channels, urban drains and ponds, salt and evaporation ponds are also excluded except where they are known to support populations of threatened fish or invertebrates.

Maps were compiled by local government areas (see links below). Draft maps were field checked by the Department's regionally based Fisheries Conservation Managers and amended as necessary to produce a final set pdf maps (Department of Primary Industries, n.d.-b).

The KFH data set on the department website has not been combined and is available at Cootamundra and Gundagai Local Government Areas (LGA). For a copy of the data pdf version of the maps click on the links below:

- Cootamundra KFH (see Figure 4-3)
- Gundagai KFH (see Figure 4-4)

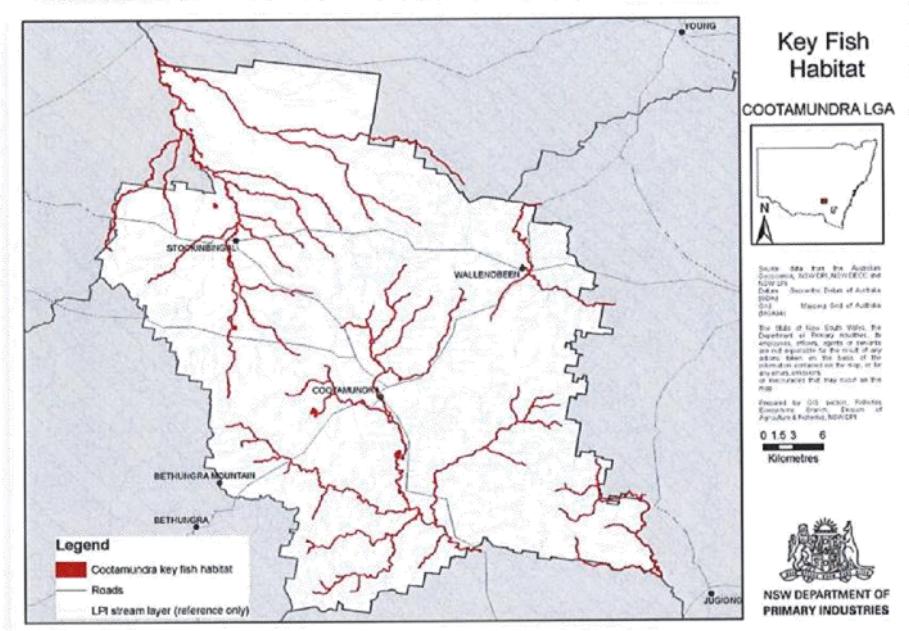


Figure 4-3: KFH Cootamundra LGA



## Waterways Works Management

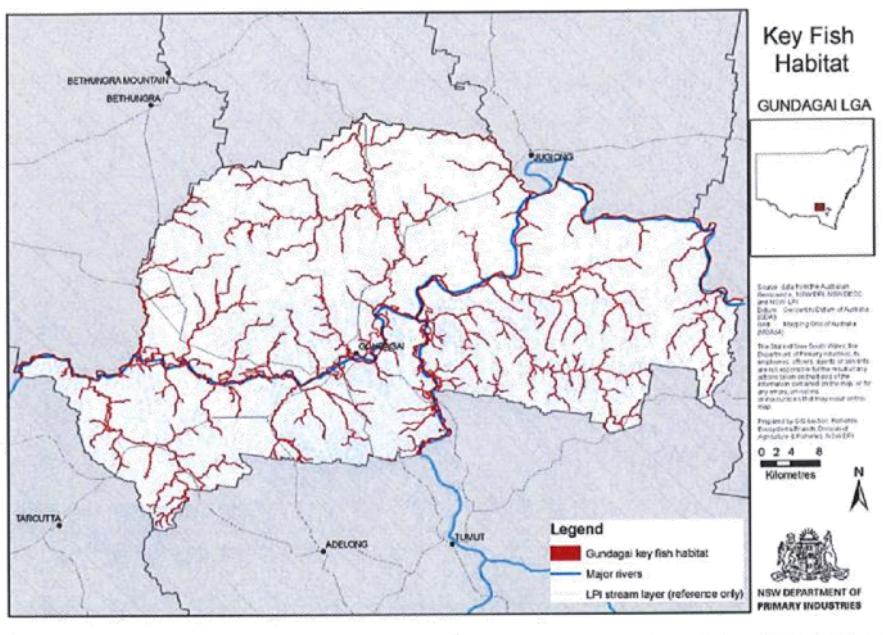


Figure 4-4: KFH Gundagai LGA

## 4.1.4 Vulnerable Regulated Land

The vulnerable Regulated Land layer is a component of the Native Vegetation Regulatory Map (NVR Map). NVR Map was prepared by Office of Environment and Heritage under Part 5A of the Local Land Services Act 2013 (LLS Act) and supporting Local Land Services Regulation 2014.

Vulnerable Regulated Land layer indicates where clearing of native vegetation may not be permitted under the Land Management (Native Vegetation) Code 2017, and a limited suite of allowable activities apply).

Vulnerable regulated land comprised of three layers. These being:

- Vulnerable riparian –
  - Generated from the NSW Hydroline and HydroArea dataset, natural named watercourses were used to capture streams with a buffer applied to both watercourses and water-bodies
- Steep and highly erodible –
  - A combination of data layers including Vulnerable Lands Steep Or Highly Erodible (generated from Topographic 3 dimensional 25 meters grid data derived from contour and drainage data sourced from the New South Wales Topographic Map Archive (pre-1995). Predominantly 10 meters and 20 meters contours used as source data) and a Slopes layer (generated from Shuttle Radar Topography Mission (SRTM) 30 m >= 18-degree slope)

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- Special category –
  - A selection of land susceptible to erosion or land that is otherwise environmentally sensitive, such as mass movement and salinity (Office of Environment and Heritage, 2017)

## 5 INTEGRATION OF GIS AND WATERWAYS WORK MANAGEMENT

The state has various datasets that are available in GIS (Geographic Information System) such as KFH, Stream order and Protected Riparian.



The use of the three layers into works planning and execution will address sites that need either approval or additional assessment and consideration.

## 6 LITERATURE REVIEW

To assess what is standard and or best practice in the management of waterways with works activities, a literature review was undertaken. The table below lists a summary of what literature is available and is further detail in the following section.

Name	Subsection
OEH/EPA -Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning	
National Water Quality Management Strategy	Environmental values and uses of waterways



## Waterways Works Management



Name	Subsection
Why do Fish Cross the Road?	NSW Water Quality and River Flow Objectives
Controlled activities on waterfront land	Why is Fish Passage Important?
Part 7 Fisheries Management Act permit	Site Assessment
	Design Considerations
	Activities requiring a permit
	Dredging and reclamation
	Harming marine vegetation
	Use of explosives and other dangerous substances
RMS – Code of practice for minor work in NSW waterways	Objectives
	Minor work covered by the Code
	Minor work that is not covered by the Code

### 6.1 OEH/EPA -Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning

The Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions (the Framework) is a protocol that decision-makers, such as councils and environmental regulators, can use to help manage the impact of land-use activities on the health of waterways in New South Wales. The Framework brings together existing principles and guidelines recommended in the National Water Quality Management Strategy, which the federal and all state and territory governments have adopted for managing water quality. It allows decision-makers to determine management responses, which meet waterway health outcomes that reflect the community's environmental values and uses of waterways.

Management responses could include specific development controls for stormwater management, informing license limits for waterway discharges, or programs that raise awareness of land use activities that protect and enhance the health of rivers and creeks. Where appropriate, the management responses can be implemented through regional and local planning instruments, environmental regulation, integrated water cycle management plans, Coastal Management Programs required under the Coastal Management Act 2016 or other catchment management plans for restoring and protecting the health of waterways. Overall, the Framework can support decision making by any authority responsible for the management of land and waterways (Dela-Cruz, J; Pik, A; & Wearne, P, 2017).

### 6.2 National Water Quality Management Strategy

The National Water Quality Management Strategy (NWQMS) is a joint national approach to improving water quality in Australia and New Zealand. The NWQMS was originally endorsed by two ministerial councils - the former Agriculture and Resources Management Council of Australia and New Zealand, and the former Australian and New Zealand Environment and Conservation Council. Ongoing development of the NWQMS is currently overseen by the Standing Council on Environment and Water and the National Health and Medical Research Council (Dela-Cruz, J; Pik, A; & Wearne, P, 2017).



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### 6.2.1 Environmental values and uses of waterways

Environmental values and uses of waterways are those that the community believes are essential for a healthy ecosystem, for public benefit, welfare, safety or health. There are seven broad categories of environmental values and uses of waterways, as identified in the National Water Quality Management Strategy:

- 1) Protection of aquatic ecosystems
- 2) Aquatic foods
- 3) Recreational water quality and aesthetics
- 4) Primary and secondary contact, including visual appreciation
- 5) Drinking water supply
- 6) Agricultural water use
- 7) Industrial water quality

### 6.2.2 NSW Water Quality and River Flow Objectives

Environmental values and uses, indicators and guideline trigger values for all major waterways in NSW have been identified through community consultation by the Department of Environment, Climate Change and Water (now Office of Environment and Heritage), and are known as the NSW Water Quality and River Flow Objectives. Current policy in NSW indicates that the NSW Water Quality and River Flow Objectives should be used when there is limited data available for local derivations of objectives (Dela-Cruz, J; Pik, A; & Wearne, P, 2017).

## 6.3 Why do Fish Cross the Road?

This document details the fish passage requirements for waterway crossings aims to minimise impacts on fish passage and general aquatic wildlife by providing practical guidelines to those involved in the planning, design, construction and maintenance of waterway crossings. Considerable effort has been taken to make these guidelines applicable across Australia; however, local knowledge, data and experience should always be used to enhance, modify or even replace the information presented within these guidelines. Your local fisheries department/authority can provide additional information on fish species, design or approval requirements relevant to your area (NSW Department of Primary Industries (Fisheries), 2003). For a copy of this document, please use this URL: [https://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0004/633505/Why-do-fish-need-to-cross-the-road\\_booklet.pdf](https://www.dpi.nsw.gov.au/_data/assets/pdf_file/0004/633505/Why-do-fish-need-to-cross-the-road_booklet.pdf)

### 6.3.1 Why is Fish Passage Important?

Fish passage along our waterways is critical to the survival of Australian native fish. Species of both fresh and saltwater fish move within waters at different times to access food and shelter, to avoid predators, and to seek out mates to breed and reproduce (NSW Department of Primary Industries (Fisheries), 2003).

### 6.3.2 Site Assessment

A detailed site assessment should be used to determine whether fish and aquatic habitat are present, the preferred type of watercourse crossing and the presence of existing barriers to fish passage both upstream and downstream of the proposed crossing. If fish are not observed, the presence of fish may need to be confirmed by checking the scientific literature for records of fish species caught either within the site or catchment area and by talking to residents and fishing clubs. In all cases, the local fisheries department/authority should be consulted to determine whether the





### Waterways Works Management

crossing design requires consideration of fish passage. Table 6-1 shows the preferred crossing type to waterway type (NSW Department of Primary Industries (Fisheries), 2003).

*Table 6-1: Matching preferred crossing type to waterway type (NSW Department of Primary Industries (Fisheries), 2003)*

Classifications	Characteristics of Waterway Type	Minimum [1] Recommended Crossing Type	Note [1] In all cases bridges are preferred to arch structures, culverts, fords and causeways (in that order)
Class 1 Major fish habitat	Major permanently or intermittently flowing waterway (e.g. river or major creek), habitat of a threatened fish species.	Bridge, arch structure or tunnel.	
Class 2 Moderate fish habitat	Named permanent or intermittent stream, creek or waterway with clearly defined bed and banks with semi-permanent to permanent waters in pools or in connected wetland areas. Marine or freshwater aquatic vegetation is present. Known fish habitat and/or fish observed inhabiting the area	Bridge, arch structure, culvert [2] or ford.	[2] High priority given to the "High Flow Design" procedures presented for the design of these culverts - refer to Design Considerations section of this document, or engineering guidelines (Witheridge, 2002)
Class 3 Minimal fish habitat	Named or unnamed waterway with intermittent flow and potential refuge, breeding or feeding areas for some aquatic Fauna (e.g. fish, yabbies). Semi-permanent pools from within the waterway or adjacent wetlands after a rain event. Otherwise, any minor waterway that interconnects with wetlands or recognised aquatic habitats.	Culvert [3] or ford.	[3] Minimum culvert design using the "Low Flow Design" procedures; however, "High Flow Design" and "Medium Flow Design" should be given priority where affordable (refer to Witheridge (2002)).
Class 4 Unlikely fish habitat	Named or unnamed waterway with intermittent flow following rain events only, little or no defined drainage channel, little or no flow or free-standing water or pools after rain events (e.g. dry gullies or shallow floodplain depressions with no permanent aquatic flora present).	Culvert [4], causeway or ford.	[4] Fish friendly waterway crossing designs possibly unwarranted. Fish passage requirements should be confirmed with the local fisheries department/authority

#### 6.3.3 Design Considerations

The document also lists the Design Consideration for the following:

- Bridges and arch structures
- Culverts
- Fords





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### Causeways

#### 6.4 Controlled activities on waterfront land

Controlled activities carried out in, on or under waterfront land are regulated by the Water Management Act 2000 (WM Act). The NSW Office of Water administers the WM Act and is required to assess the impact of any proposed controlled activity to ensure that no more than minimal harm will be done to waterfront land as a consequence of carrying out the controlled activity.

Waterfront land includes the bed and bank of any river, lake or estuary and all land within 40 metres of the highest bank of the river, lake or estuary.

This means that a controlled activity approval must be obtained from the Office of Water before commencing the controlled activity.

#### 6.5 Part 7 Fisheries Management Act permit

There are a number of activities impacting on aquatic habitats and species for which you need a permit. You will need a Part 7 Fisheries Management Act permit for: activities involving dredging and reclamation work activities temporarily or permanently obstructing fish passage using explosives and other dangerous substances harming marine vegetation (NSW Department of Primary Industries (Fisheries), 2003).

##### 6.5.1 Activities requiring a permit

###### 6.5.1.1 *Dredging and reclamation*

Dredging is generally undertaken in estuaries and rivers to aid navigation, modify water flow, obtain supplies of gravel, sand and other material, and to lay pipelines and cables.

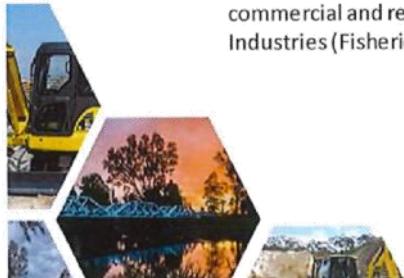
However, dredging may have adverse effects on the aquatic environment. Productive estuarine habitats, such as seagrass beds may be destroyed by the removal of the underlying sediment or degraded by associated turbidity and sedimentation.

Gravel beds in rivers are important as spawning sites for native fish species, such as Macquarie perch, and introduced trout species, and can be destroyed by gravel extraction.

Reclamation involves the draining, infilling or clearing of land to make it suitable for use for urban or rural development. This can be the most damaging activity associated with foreshore development, often completely destroying aquatic habitats. Reclamation can reduce the tidal range of an estuary, or the flow of a river, and this may lead to alteration of both water quality and quantity, such as through siltation, and loss of habitat.

There are instances where NSW DPI will approve dredging and reclamation, such as for essential public navigation and environmental rehabilitation purposes. However, it's unlikely the activity would be allowed if it would:

- Reduce water quality
- Damage or destroy marine vegetation, including mangroves, seagrasses, and wetlands
- Damage or destroy riparian vegetation, gravel beds, reefs, or snags, or interfere with commercial and recreational fishing or aquaculture activities (NSW Department of Primary Industries (Fisheries), 2003)





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### 6.5.1.2 *Harming marine vegetation*

Marine vegetation, such as saltmarsh, mangroves, seagrasses, and macroalgae (seaweeds), provides shelter and nursery areas for aquatic animals and a hiding place from predators, and is an essential component of the food chain in estuarine and coastal environments. It also stabilises sediments and shorelines, and protects water quality in estuaries for recreational users.

Seagrasses have suffered dramatic losses around Australia including many sites in NSW. A key cause of seagrass loss has been the erosion of river beds and banks and increased stormwater in coastal catchments leading to elevated sedimentation and turbidity, depriving seagrasses of light.

Dredging and reclamation of shallow estuarine flats, and grazing stock around mangroves and saltmarshes are also contributing to the degradation of marine vegetation.

NSW DPI administers legislation, which protects mangroves, seagrasses and seaweeds on public water land and foreshores. Harming or removal of marine vegetation is generally only permissible by permit.

NSW DPI applies the following policies in relation to harm to marine vegetation:

- Under most circumstances damage to live seagrass is only permitted for replanting and scientific research purposes
- Strapweed (*Posidonia australis*) seagrass must not be directly or indirectly impacted by any activity or development
- The collection of living macroalgae, with the exception of green 'bait weed' (*Enteromorpha* and *Ulva* spp), requires a permit from NSW DPI
- Removal of marine vegetation, such as mangroves, requires a permit. No removal of marine vegetation will generally be permitted in certain areas, such as SEPP14 wetlands

The community can help protect marine vegetation by:

- ▲ Minimising erosion and nutrient run-off from land they own or manage. Access tracks and driveways are a major source of sediment in rural residential areas
- ▲ Avoiding seagrass beds when motoring or anchoring in a boat
- ▲ Fencing off frontages to estuaries to control grazing and trampling by stock in saltmarsh and mangrove areas
- ▲ Fencing off creeks and drainage lines in freshwater areas, and replanting native vegetation to prevent erosion and sediment travelling downstream (NSW Department of Primary Industries (Fisheries), 2003)

### 6.5.1.3 *Use of explosives and other dangerous substances*

Explosives are used to test defence equipment, sink piers, create trenches, destroy derelict ships and for fireworks displays. Electrical devices are sometimes used in freshwater to capture fish for scientific or commercial purposes. Explosives, electrical devices and other dangerous substances, such as poison, can injure and kill fish and impact on their habitat, such as damage aquatic plant beds.

Under the Fisheries Management (General) Regulations (2002), unless authorised by a permit, a person is committing an offence if found using explosive substances, electrical devices or other dangerous substances to take or destroy fish in any waters.





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NSW DPI will only approve the use of explosives where it is required for essential community purposes. Permits may be approved in some circumstances for electrical devices and poisons, such as rotenone and chlorine, including use in small farm dams that are dominated by noxious or introduced species (NSW Department of Primary Industries (Fisheries), 2003).

### 6.6 RMS – Code of practice for minor work in NSW waterways

This Code of Practice (the Code) simplifies the consultation process between Roads and Maritime Services (hereafter referred to as Roads and Maritime) and the NSW Department of Primary Industries (Fisheries) (Fisheries NSW).

The Code defines minor work that will not need to be referred to Fisheries NSW because it is considered low risk to native fish and key fish habitats and use the standard safeguards outlined in the Code.

#### 6.6.1 Objectives

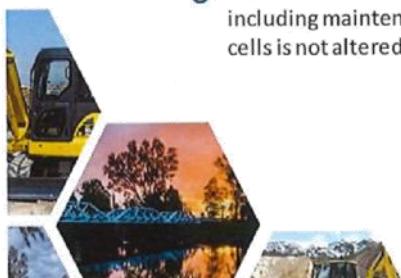
The Code details that Roads and Maritime and Fisheries NSW agree that:

- The Code applies to Roads and Maritime minor work across NSW which employ appropriate safeguards as described below
- The minor work, when carried out with the appropriate safeguards, presents a low risk to fish stocks and key fish habitats
- Both agencies will work together to develop and deliver training to relevant staff and contractors about the Code during the first 18 months of its use
- Both agencies will work together to annually audit minor work, to which the Code applies, with regard to compliance with this Code. The results of these audits will be used to review the Code
- The Code is intended to apply for five years from 1 July 2014 to 1 July 2019
- Both agencies propose to review the Code before 1 July 2019
- The Code can be modified during the five-year period if agreed to by both agencies.

#### 6.6.2 Minor work covered by the RMS Code

The following minor work is covered by the Code:

- Routine culvert maintenance work within waterways (including scraping out, water blasting or debris removal) to clear the culverts of flood debris and sediment deposited during flow or flood events
- Geotechnical work within the “disturbed zone” of the existing road alignment (eg safety checks on existing bridges)
- Maintenance of existing access tracks to road infrastructure (eg grading or repairing existing access tracks within the existing footprint of the road to original design specifications)
- Maintenance of existing fishways/fish bypasses located on or near road infrastructure to ensure they are working to their design specifications
- Maintenance of existing scour protection work, gabion baskets and aprons on culverts, including maintenance work to wingwalls and headwalls where the invert level of the culvert cells is not altered





### Waterways Works Management

- Snag management to remove snags affecting the structural integrity and function of bridges, culverts and other road infrastructure (see Safeguards section relating to snag management)
- Maintenance of bridge superstructure (minor repairs such as cleaning, repainting, minor repairs to existing bridge piers)
- Bridge abutment repair (e.g. concrete patch repairs or bearing repairs) that do not require instream dewatering or other activities not covered by the Code (see below)

#### 6.6.3 Minor work that is not covered by the RMS Code

Roads and Maritime must consult with Fisheries NSW for work that will involve all work other than those listed above that fall within the definition of dredging or reclamation work, including:

- ▲ In-stream dewatering activities
- ▲ Construction of temporary waterway crossings
- ▲ Construction of new access tracks to access new or existing Roads and Maritime infrastructure or the widening of existing access tracks
- ▲ Geotechnical work for new road alignments or re-alignments
- ▲ Scour protection work for existing culverts which extend beyond the existing protection work or which alter the original invert level of the culvert
- ▲ Culvert extensions, replacements, realignments or alterations to existing invert levels or culverts
- ▲ Alteration to the cross-sectional area/hydraulic capacity of a culvert
- ▲ Bridge abutment extension work
- ▲ Harm to marine vegetation\* (eg saltmarsh, mangroves or seagrasses and includes their seedlings) or in-stream native aquatic vegetation Temporary or permanent blockage of fish passage Moorings, installation of new piers and barges or similar
- ▲ The use of explosives or electrical devices in waterways
- ▲ Creek diversions
- ▲ Works where a Project REF (Review of Environmental Factors) is required for work within a waterway (Roads and Maritime Services, 2014)

## 7 LEGISLATION AND REGULATION OF WATERWAYS IN NSW

### 7.1 Fisheries Management Act 1994

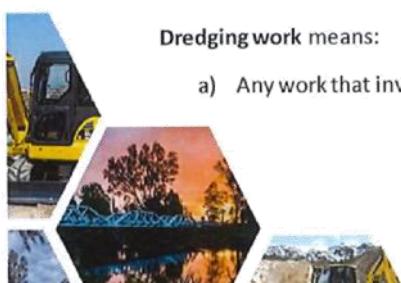
Under the Fisheries Management Act 1994, an application form for a PERMIT to dredge, reclaim, obstruct fish passage, harm marine vegetation, use explosives or electrical devices in a waterway in accordance with PARTS 2 & 7 OF THE FISHERIES MANAGEMENT ACT 1994 must be made. The definitions act of the act are listed below.

#### 7.1.1 FM Act 1994 - Part 7 Division 3 Section 198 A Definitions

In this Division:

**Dredging work means:**

- a) Any work that involves excavating waterland, or



**Waterways Works Management**

b) Any work that involves moving material on water land or removing material from water land that is prescribed by the regulations as being dredging work to which this Division applies.

**Farm dam** means the backed up waters of any dam, or impoundment, located on land that is not public water land.

**Reclamation work** means any work that involves:

- a) Using any material (such as sand, soil, silt, gravel, concrete, oyster shells, tyres, timber or rocks) to fill in or reclaim water land, or
- b) Depositing any such material on water land for the purpose of constructing anything over water land (such as a bridge), or
- c) Draining water from water land for the purpose of its reclamation.

**Water land** means land submerged by water:

- a) Whether permanently or intermittently, or
- b) Whether forming an artificial or natural body of water,
- c) And includes wetlands and any other land prescribed by the regulations as water land to which this Division applies.

**Wetlands** includes 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 (NSW Legislation, 2018).

#### 7.1.2 FM Act 1994 Part 7 Division 3 Section 199

*Circumstances in which a public authority (other than local authority) may carry out dredging or reclamation*

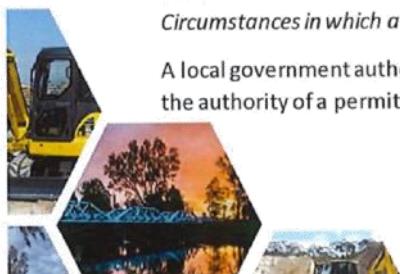
199 Circumstances in which a public authority (other than local authority) may carry out dredging or reclamation

1. A public authority (other than a local government authority) must, before it carries out or authorises the carrying out of dredging work or reclamation work:
  - a. give the Minister written notice of the proposed work, and
  - b. consider any matters concerning the proposed work that are raised by the Minister within 21 days after the giving of the notice (or such other period as is agreed between the Minister and the public authority).
2. Any such public authority is to notify the Minister of any dredging work or reclamation work that it proposes to carry out or authorise despite any matter raised by the Minister. The Minister may, within 14 days after being so notified, refer any dispute to the Minister responsible for the public authority. If the dispute cannot be resolved by those Ministers, it is to be referred to the Premier for resolution.
3. In this section, public authority includes the Minister administering the Crown Land Management Act 2016.

#### 7.1.3 FM Act 1994 FM Act 1994 Part 7 Division 3 Section 200

*Circumstances in which a local government authority may carry out dredging or reclamation*

A local government authority must not carry out dredging work or reclamation work except under the authority of a permit issued by the Minister.





### Waterways Works Management

Maximum penalty: 2,000 penalty units.

(2) This section does not apply to:

- (a) work authorised under the Crown Land Management Act 2016, or
- (b) work authorised by a relevant public authority (other than a local government authority)

(3) This section has effect irrespective of any other Act to the contrary

#### 7.1.4 FM Act 1994 FM Act 1994 Part 7 Division 3 Section 201

*Circumstances in which a person (other than a public or local government authority) may carry out dredging or reclamation*

A person must not carry out dredging work or reclamation work except under the authority of a permit issued by the Minister.

Maximum penalty: In the case of a corporation, 2,000 penalty units or, in any other case, 1,000 penalty units.

(2) This section does not apply to:

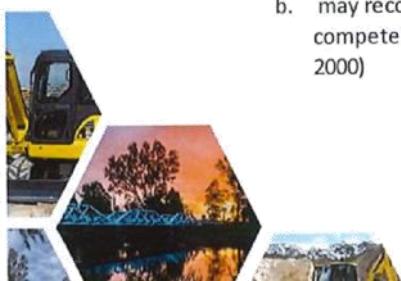
- (a) work authorised under the Crown Land Management Act 2016, or
- (b) work carried out, or authorised, by a relevant public authority (including a local government authority), or
- (c) work excluded from the operation of this section by the regulations (NSW Legislation, 2018).

## 7.2 Water Management Act 2000 (WM Act)

### Division 4 Miscellaneous

#### 269 Works to protect public and local government works to be approved by Minister

- 1) A public authority must not construct any protective works unless the Minister has approved of the site, nature, dimensions and design of the works
- 2) In giving approval, the Minister may require such amendment of the site, nature, dimensions or design of the protective works as the Minister considers necessary, and the public authority must comply with that requirement accordingly
- 3) The Minister may by notice in writing require the public authority by which any protective works have been constructed to take specified measures for the proper upkeep, preservation and maintenance of the protective works
- 4) The public authority must comply with the requirements specified in the notice in such manner and within such time as is so specified
- 5) If a public authority fails to comply with the terms of the notice, the Minister:
  - a. may authorise any person to enter the land on which the protective works are located and carry out the measures specified in such notice, and
  - b. may recover any cost incurred in so doing from the public authority in any court of competent jurisdiction as a debt due to the Crown (New South Wales Government, 2000)



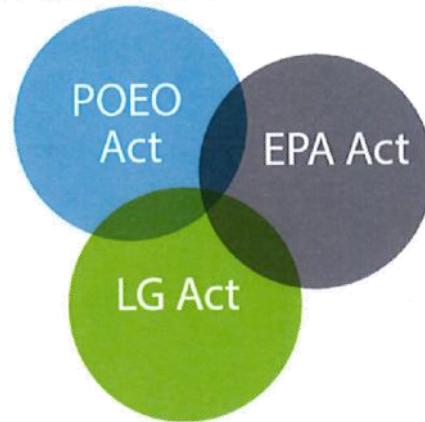
### Waterways Works Management



#### 7.3 Water Quality and Local Government legislation

Regardless of the development, the regulation of water pollution and air pollution is a responsibility of councils that can rely on powers under three main pieces of legislation:

- ▲ Environmental Planning and Assessment Act 1979 (EP&A Act)
- ▲ Local Government Act 1993 (LG Act)
- ▲ Protection of the Environment Operations Act 1997 (POEO Act) and its subordinate Regulations



#### 7.4 Environmental Planning and Assessment Act 1979 (NSW)

The EP&A Act forms the legislative and policy platform for the assessment and approval of works in NSW. Objects of this Act which are of most relevance ESC are to encourage:

- 1.3(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources
- 1.3(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment
- 1.3(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats
- 1.3(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)

All development in NSW is assessed in accordance with the provisions of the EP&A Act and the EP&A Regulation 2000.

The EP&A Act requires the determining authority to consider the effect of an activity on:

- 'Critical habitat' as defined by the Biodiversity Conservation Act 2016 (BC Act), and the Fisheries Management Act 1994 (FM Act)
- Species, populations or ecological communities, or their habitats (as listed under the BC Act and FM Act) and whether there is likely to be a 'significant effect' on those species, populations or ecological communities, and
- Other protected fauna or protected native plants listed under the National Parks and Wildlife Act 1974 (NPW Act)





### Waterways Works Management

Under the EP&A Act, Council becomes a planning consent authority and therefore has a role in helping to deliver the overarching objects of the EP&A Act including the protection of the environment and sustainability. Instruments local government may use to further these objectives include LEPs and DCPs, and in conditions of consent granted with a development approval (Albury City Council; City Water Technology Pty Ltd and Stokks Consulting Pty Ltd, 2018a).

#### 7.5 Local Government Act 1993 (NSW)

The LG Act provides a legal framework for the system of local government within NSW. It sets out the responsibilities and powers of parties and persons that constitute the system of local government and to provide for a system of local government that is accountable to the community, and that is sustainable, flexible and effective. The LG Act sets a broad agenda for councils including responsibilities to ensure that councils manage the local environment effectively.

While councils have the power to issue enforcement notices for environmental purposes under section 124 of the LG Act, council staff generally find that the *Environmental Planning and Assessment Act 1979* and the *Protection of the Environment Operations Act 1997* (POEO Act) can be more useful and flexible enforcement tools.

The LG Act contains principles for three areas:

- ▲ S8A Guiding principles for councils
- ▲ S8B Principles of sound financial management
- ▲ S8C Integrated planning and reporting principles that apply to councils

The Guiding Principles and Integrated Planning and Reporting (IPR) Principles with direct relevance for this project are presented in Table 7-1.

Also, section 496 A allows Councils to levy an annual charge for providing stormwater management services for rateable land.

Table 7-1 Guiding Principles for Councils – Direct Relevance for Environmental Management.

Type / Section		Note
Guiding Principle	8A(1)(e)	Councils should work cooperatively with other councils and the State government to achieve desired outcomes for the local community.
	8A(1)	Councils should manage lands and other assets so that current and future local community needs can be met in an affordable way.
	8A(2)(c)	(c) Councils should consider the long-term and cumulative effects of actions on future generations.
	8A(2)(d)	Councils should consider the principles of ecologically sustainable development.
IPR Principle	8C(a)	Councils should identify and prioritise key local community needs and aspirations and consider regional priorities.

Ensuring a sound, evidence-based decision-making process for Water Quality and Erosion and Sediment control in the LGA is a fundamental component of best practice (Albury City Council; City Water Technology Pty Ltd and Stokks Consulting Pty Ltd, 2018a).





### Waterways Works Management

#### 7.6 Protection of the Environment Operations Act 1997 (NSW)

The POEO Act is the key piece of environment protection legislation administered by the Environment Protection Authority (EPA), councils and other agencies. Best management practice is the guiding principle for regulating sources of water pollution.

The Protection of the Environment Operations (General) Regulation 2009 sits under the POEO Act and contains detailed provisions in relation to water pollution.

Significant features of the POEO legislation are:

- Protection of the environment policies (PEPs)
- Regulation of scheduled and non-scheduled activities
- Licence conditions
- Integration of licensing and planning processes
- Environment protection offences and penalties
- Duty to prepare and implement pollution incident response management plans
- Powers of investigation
- Sentencing options
- Public register
- Integrated environment protection licensing
- Granting licences
- Licence term
- Environment protection notices
- Duty to notify pollution incidents
- Environmental audits
- Civil enforcement
- Economic measures

The POEO Act gives powers to local government for environmental management and enforcement. Councils become an 'Appropriate Regulatory Authority' (ARA) for activities within their Local Government Authority (LGA). As an ARA, the Council has power to issue Clean Up Notices or Prevention Notices (on the spot-fine), ranging from \$750 to \$8,000, in relation to any pollution incidents or likelihood to cause a pollution incident (Albury City Council; City Water Technology Pty Ltd and Stokks Consulting Pty Ltd, 2018a).

#### 7.7 Case law

Several examples of pollution offences related to Waterways Works and the management of Erosion and Sediment Control are outlined in Table 7-2 below (Albury City Council; City Water Technology Pty Ltd and Stokks Consulting Pty Ltd, 2018b).

Table 7-2 Examples of Waterways ESC Related Pollution Offences

Offender	Penalty and Offence Description
Clarence Valley Council (2018)	\$15,000 fine for water pollution arising from erosion associated with clearing works conducted on the banks of Christopher's Creek, South Grafton.





### Waterways Works Management

Offender	Penalty and Offence Description
Various <a href="#">(May 2017)</a>	\$165,000 in fines following a one-day blitz on erosion and sediment control on Parramatta River construction sites. Offences ranged from no controls in place at all, collapsed fencing, ripped and torn sediment bags, and inadequate containment of sediment stockpiles. The regulatory action included verbal directions, formal warnings, prevention notices and financial penalties, totalling more than \$165,000 in fines. Some developers were repeat offenders and were issued fines for water pollution at several of their construction sites.
Snowy River Shire Council <a href="#">(2012)</a>	Fined \$12,000 and ordered to pay \$11,000 in prosecutor's costs plus \$1,950 in investigation costs for polluting the waters of Grosses Plain Creek at Moonbah, near Jindabyne, during excavation works in a riparian zone.
Tea Garden Farms Pty Ltd <a href="#">[2012]</a> NSWLEC 8g	\$77,000 and costs of \$121,464 for the discharge of sediment-laden water from rural dam into the waters of a marine park, the Port Stephens - Great Lakes Marine Park.
Moolarben Coal Operations Pty Ltd <a href="#">[2012]</a> NSWLEC 65	\$105,000 fine for multiple discharges of sediment-laden waters into creek; conditional approval for the project required erosion and sediment control plan describing measures to be in place before land clearing commenced; the majority of measures were not in place when substantial clearing commenced
Ed Kelly Constructions Pty Ltd <a href="#">(2010)</a>	\$24,000 in fines and costs for polluting the waters of Forsters Bay near Narooma after the failure of sediment and erosion controls during heavy rainfall.
Snowy Hydro Ltd <a href="#">[2008]</a> NSWLEC 264	\$100,000 and \$86,000 in costs for polluting river water during the connection of a dam to a river at the end of dam upgrade works; the pollutant sediment-laden waters contained soil, earth, clay or similar inorganic matter.

## 7.8 Compliance and controlling authority

### 7.8.1 Sources of Power for Local Government

The Local Government Act 1993 (NSW) also specifically states that a Council is the owner of works of water supply, sewerage and stormwater drainage installed in or on land by the Council (whether or not the land is owned by the Council) (s 59A). And that a Council has the control of public reserves that are not under the control of, or vested in, any other body or persons and are not held by a person under lease from the Crown, or other public reserves that the Governor, by proclamation, placed under the control of the Council (s 48).

Councils are also responsible for local roads (under the Roads Act 1993 (NSW)) and for the provision of domestic waste disposal services (this is a specific example of a Council's service function). Some Councils are also responsible for providing water supply and sewerage services (see Part 3, Division 2 of the Local Government Act 1993 (NSW)) (Local Government Professionals, n.d.).

Under the Water Management Act, LG do not need to seek approval under this legislation, however; they should seek concurrence and under the Fisheries Management Act, LG has to seek approval for certain type of activities.

In understanding the Planning and Assessment Systems and exempt development Waterways Structures, NSW Department of Planning states that generally, exempt development cannot be carried out on:





### Waterways Works Management

- Land that is, or on which there is, an item that is listed on the State Heritage Register under the Heritage Act 1977 or that is subject to an interim heritage order under that Act (unless an exemption has been granted under section 57 of the Heritage Act 1977)
- A critical habitat of an endangered species, population or ecological community under the Threatened Species Conservation Act 1995 or the Fisheries Management Act 1994
- A wilderness area under the Wilderness Act 1987 (NSW Planning, 2018)

## 8 CGRC STORMWATER MANAGEMENT AND HOW WATERWAYS WORK MANAGEMENT FITS

### 8.1 Stormwater Management

CGRC have undertaken a Priority Infrastructure Project: Stormwater Priority Assessment Report (Draft). The purpose of the report is to identify possible stormwater management projects using a risk-based approach, and to propose a priority list for the expenditure. The report focusses on potential stormwater improvements for the urban drainage systems within the townships of Cootamundra and Gundagai (including South Gundagai).

The report also states that mainstream flooding from the major watercourses in each of the townships is outside the scope of this report. Projects associated with mainstream flooding are listed in the risk management assessment for completeness. It is recommended that Council apply for the grants available under the NSW Government's Floodplain Management program to update flood studies and prepare Floodplain Risk Management Plans for Cootamundra and Stockinbingal, and allocate an appropriate one-third contribution (Cootamundra Gundagai Regional Council; and Mike Brearley Associates, 2018).

### 8.2 Links between Stormwater Management and Waterways Works Management

Any works that are undertaken in listed KFH, or Stream Order three and above or within 40 meters of the high-watermark or in Vulnerable Lands will need either a permit or consultation with the relevant agencies.

There are 28 Priority List of Stormwater Improvement Projects on a scale of One to five of priority. All works should be intersected with the relevant datasets (Listed above) to determine if further assessment is needed. Additionally there are recommendations that Muttama Creek, Bland and Dudauman Creeks should have a Flood Study and Floodplain Risk Management Study prepared (Cootamundra Gundagai Regional Council; and Mike Brearley Associates, 2018).

## 9 OPERATIONAL WORKS ACTIVITIES

In order for CGRC staff to undertaken works activities we have listed below a procedure for assessment on the waterways.

### 9.1 Are your works

If your work is dredging, reclamation, the works temporary or permanently obstruct fish passage, are of a construction, alteration or modification of dam, weir or reservoir, or using explosive the works will need approval (See Table 9-1).



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Table 9-1 Part 7 of FMA (Habitat) (Department of Primary Industries, 2016)

FM Act	Type	Note
FM Act	▲ Activities involving dredging	Dredging work means: c) any work that involves excavating water land, or d) any work that involves moving material on water land or removing material from water land that is prescribed by the regulations as being dredging work to which this Division applies (NSW Legislation, 2018).
	▲ Reclamation work	Reclamation work means any work that involves: d) using any material (such as sand, soil, silt, gravel, concrete, oyster shells, tyres, timber or rocks) to fill in or reclaim water land, or e) depositing any such material on water land for the purpose of constructing anything over water land (such as a bridge), or f) draining water from water land for the purpose of its reclamation (NSW Legislation, 2018).
	▲ Activities temporarily or permanently obstructing fish passage	
	▲ Activities involving construction, alteration or modification of dam, weir, reservoir	
	▲ Using explosives and other dangerous substances	

## 9.2 Integrated Development Assessment Process

## Summary –

- Any DA under Part 4 of the EP&A Act requiring one of the approvals below becomes integrated development
- Section 201 – permit to carry out dredging or reclamation.
- Section 219 – permit to obstruct the passage of fish

The consent authority (eg Council) must forward a copy of the development application to DPI Fisheries for appraisal (Department of Primary Industries, 2016).

Information on NSW Department of Primary Industries (Fisheries Management Act 1994) requirements and the planning category of 'integrated development' came into effect on 1 July 1998. It seeks to link development consent for matters under Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) with any associated approval, licence, consent, permission or





## Waterways Works Management

permit required under other legislation. It aims to promote a unified, whole of government approach to the assessment of developments in NSW. It is intended to avoid the situation where a proponent of a development obtains permission to proceed from one consent authority but is subsequently refused permission from another consent authority, or worse still, prosecuted for undertaking works which are illegal.

NSW DPI is responsible for conserving the State's fishery resources, protecting and conserving fish habitat and threatened aquatic species, in NSW waters (including permanent and intermittent, marine, estuarine and freshwater waterways). The Department issues permits for several types of activities that may harm fish habitats and for aquaculture development which are included in the Integrated Development Assessment process. In this report this report the terms aquaculture, dredging, fish, marine vegetation, reclamation and water land are frequently used. The meanings are as follows:

- ▲ Aquaculture – cultivating fish or marine vegetation for the purposes of harvesting for sale or other commercial purpose (eg 'fish out') but does not include a pet shop or aquarium
- ▲ Dredging – any work that involves excavating water land (see definition below)
- ▲ Fish – finned fish and other aquatic invertebrates at any stage of their life cycle including oysters and other molluscs, crustaceans, echinoderms, beachworms, (but not including whales, seals, turtles, frogs)
- ▲ Marine vegetation – any species of plant that at any time in its life must inhabit marine or estuarine waters (eg mangroves, seagrasses and seaweeds)
- ▲ Reclamation – any work that involves the placement of any material (sand, soil, gravel, rocks etc) to fill in or for constructing anything over water land, or draining water from water land for the purpose of its reclamation (see definition below)
- ▲ Water land – means land that is intermittently or permanently submerged by water (either naturally or artificially) and includes wetlands

### 9.2.1 Types of development may fall within the category of integrated development?

NSW DPI is an 'approved body' for development that requires one or more of the following permits under the Fisheries Management Act 1994:

- Section 144 – aquaculture permit (ie cultivating fish or marine vegetation for sale or commercial purposes)
- Section 201 – permit to carry out works of dredging or reclamation
- Section 205 – permit to harm (cut, remove, damage, destroy etc) marine vegetation on public waterland or aquaculture lease or the foreshore of such land
- Section 219 – permit to obstruct the free passage of fish

Any development application under Part 4 of the EP&A Act requiring one or more of the above approvals becomes integrated development. The consent authority (eg Council) will forward a copy of the development application to NSW DPI for appraisal (Department of Primary Industries, n.d.-a).

#### 9.2.1.1 Example types of development

Some examples of the types of development or activities that may require NSW DPI to grant one or more of the above permits and therefore fall into the category of integrated development include:





### Waterways Works Management

- ▲ Fish hatcheries or grow out facilities (including fish, prawn or freshwater crustacean grow out ponds, intensive tank recirculation aquaculture facilities, 'fish out' facilities and oyster farms, but not including aquariums for display or pet shops)
- ▲ Jetties—where part of the structure includes a rock or concrete groyne extending into the water (i.e. reclamation) or where marine vegetation may be harmed during construction (e.g. by establishing piles or dredging an access channel) or subsequently (e.g. by shading underlying seagrasses)
- ▲ Boat Ramps
- ▲ Causeways (both piped and unpiped) or other road-crossings of waterways (temporary or permanent) which require placing material on the bed of the waterway (i.e. reclamation) and/or which may obstruct the free passage of fish
- ▲ Bridges which require the construction of a temporary low-level crossing or cofferdam during the construction period (i.e. reclamation and/or obstruction of fish passage) or which employ batter protection that extends into the waterway
- ▲ Dams, weirs, floodgates or levee banks (i.e. obstruction of fish passage)
- ▲ Marinas (e.g. dredging for access, reclamation for a wall, harming marine vegetation)
- ▲ Dredging navigation channels (whether for maintenance of an existing channel or construction of a new one) or to open an intermittently-opening waterway
- ▲ Dredging for winning sand, gravel or other materials for private or commercial use
- ▲ Channelisation, relocation or realignment of waterways
- ▲ Foreshore stabilisation (e.g. seawalls, retaining walls) where 'water land' may be filled or marine vegetation may be harmed
- ▲ Boardwalks or walking tracks that cross intertidal areas, mangrove wetlands, seaweeds or seagrasses
- ▲ Development that may affect marine vegetation by cutting, removing, destroying, transplanting, shading or damaging in any way (e.g. cutting mangroves or shading seagrasses for jetties or moorings)

Several other types of approvals required under the Fisheries Management Act 1994 are not presently covered by the integrated development legislation. These include permits to use explosives, electrical devices or other dangerous substances within a waterway, harm threatened species, release or stock fish into natural waterways, use prohibited fishing gear to collect fish, fish in closed waters or take fish in excess of bag or size limits (e.g. broodstock collection of aquaculture). To avoid future problems, it would be prudent for persons proposing to undertake developments involving such activities to discuss the proposal with NSW DPI before lodging the development application (Department of Primary Industries, n.d.-a).

### 9.3 Do your works trigger Waterfront Land WM Act 2000

Waterfront land - includes the bed of any river, lake or estuary, and any land lying within 40 metres inland of:

- The highest bank of the river
- The shore of the lake; or
- The mean high-water mark of the estuary (Department of Primary Industries Water, n.d.)



**Waterways Works Management**

If so then the works will either be Unauthorised Controlled Activities or Controlled Activities.

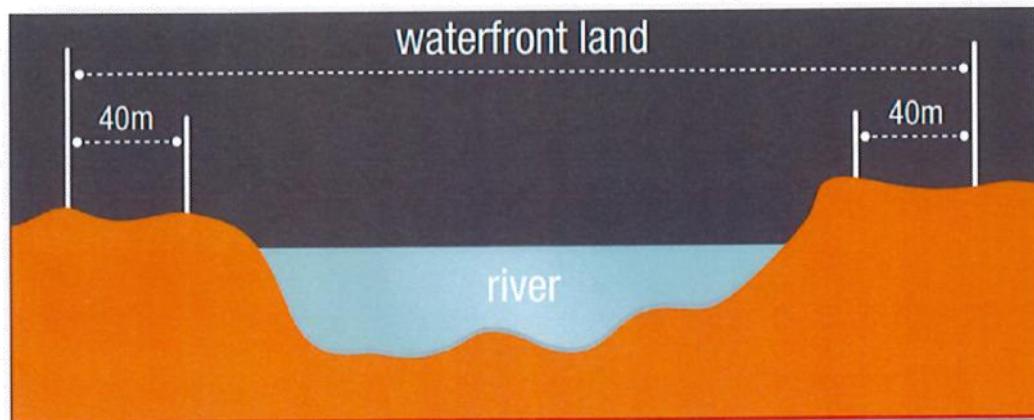


Figure 9-1: Waterfront land

#### 9.3.1 Unauthorised Controlled Activities WM Act 2000

Unauthorised activities undertaken without a controlled activity approval can cause bank erosion and increase sediment loads. This can affect water quality for stock and domestic consumption. It can also result in algae growth and weed infestation and affect the fish and other animals and birds that depend on the waterway.

Such decreases in water quality can then affect the value of waterways for commercial and recreational uses such as fishing. High penalties can apply for carrying out a controlled activity in, on or under waterfront land without holding a current approval or in a manner that isn't authorised. If you are unsure whether a controlled activity approval may be required, contact DPI Water

Controlled activities include erecting a building or other structure, excavating or depositing material or carrying out activities that affect water quantity or flows. Controlled activities are governed under the Water Management Act 2000 (Department of Primary Industries Water, n.d.).

#### 9.3.2 Controlled Activities

Works that are considered controlled activities and require approval include:

- ▲ In-stream dewatering activities
- ▲ Construction of temporary waterway crossings
- ▲ Construction of new access tracks to access new or existing infrastructure or the widening of existing access tracks
- ▲ Geotechnical work for new road alignments or re-alignments
- ▲ Scour protection work for existing culverts which extend beyond the existing protection work or which alter the original invert level of the culvert
- ▲ Culvert extensions, replacements, realignments or alterations to existing invert levels of culverts





### Waterways Works Management

- ▲ Alteration to the cross-sectional area/hydraulic capacity of a culvert
- ▲ Bridge abutment extension work
- ▲ Harm to marine vegetation\* (e.g. saltmarsh, mangroves or seagrasses and includes their seedlings) or in-stream native aquatic vegetation
- ▲ Temporary or permanent blockage of fish passage
- ▲ Moorings, installation of new piers and barges or similar
- ▲ The use of explosives or electrical devices in waterways Creek diversions; or
- ▲ Works where a Project REF is required for work within a waterway

#### 9.3.3 Exemptions from Controlled Activities WM Act 2000

There are some exemptions from the need to obtain an approval to carry out controlled activities on waterfront land. For example, approval for a controlled activity is not needed for:

- ▲ Work on waterfront land that relates to a river channel that is fully concrete lined or is a fully enclosed pipe channel
- ▲ Constructing a fencing, vehicle crossing or an access track on waterfront land on a “minor stream” (refer to the website for a definition) in a rural zone if it does not impound water

Works/activities undertaken:

- ▲ In accordance with a water supply work approval under the Water Management Act 2000 or harvestable rights order or, in certain circumstances, a domestic and stock right under the Act
- ▲ In accordance with the conditions of a licence for a work issued under Part 2 of the Water Act 1912 (for example, for a weir, lock, well, excavation or tunnel)
- ▲ By a network operator or pipeline licensee to construct, modify, repair, maintain or complete emergency work on water or gas infrastructure or licensed pipelines
- ▲ During an emergency under the direction of specified Acts; or
- ▲ In accordance with any mining, crown lands or western lands lease, licence or permit

Provided no works occur within the bed or banks of the river, lake or estuary, a controlled activity does not require an approval to erect, demolish, or make alterations or additions to single dwellings or dual occupancy houses that have development consent or are exempt or complying development (Department of Industry, n.d.).

#### 9.4 Forgotten referrals FM Act

The NSW Department of Primary Industries (Fisheries) listed the following to be considered and highlights these as being forgotten referrals.

Pipelines / Powerlines

- Temporary or permanent waterway crossings
- Hardstand for access
- Trenching waterways for pipe access

Urban / rural subdivisions

- Waterway crossings





## Waterways Works Management

- Stormwater discharge points &
- Gross pollutant traps into waterways (Department of Primary Industries, 2016)

### 9.5 Do your works need a Fisheries Permit?

Work in waterfront lands and/or controlled activities will require a permit. A Part 7 Fisheries Management Act permit is required for the following activities:

- Activities involving dredging and reclamation work
- Activities temporarily or permanently obstructing fish passage
- Activities using explosives and other dangerous substances
- Activities harming marine vegetation (Department of Industry, n.d.)

#### 9.5.1 Dredging and Reclamation

Dredging is generally undertaken in estuaries and rivers to aid navigation, modify water flow, obtain supplies of gravel, sand and other material, and to lay pipelines and cables. However, dredging may have adverse effects on the aquatic environment. Productive estuarine habitats, such as seagrass beds may be destroyed by the removal of the underlying sediment or degraded by associated turbidity and sedimentation (Department of Industry, n.d.).

#### 9.5.2 Harming Marine Vegetation

Marine vegetation, such as saltmarsh, mangroves, seagrasses, and macroalgae (seaweeds), provides shelter and nursery areas for aquatic animals and a hiding place from predators and is an essential component of the food chain in estuarine and coastal environments. It also stabilises sediment and shorelines and protects water quality in estuaries for recreational users.

Seagrasses have suffered dramatic losses around Australia including many sites in NSW. A key cause of seagrass loss has been the erosion of river beds and banks and increased stormwater in coastal catchments leading to elevated sedimentation and turbidity, depriving seagrasses of light (Department of Industry, n.d.).

#### 9.5.3 Use of Explosives and Other Dangerous Substances

Explosives are used to test defence equipment, sink piers, create trenches, destroy derelict ships and for fireworks displays. Electrical devices are sometimes used in freshwater to capture fish for scientific or commercial purposes. Explosives, electrical devices and other dangerous substances, such as poison, can injure and kill fish and impact on their habitat, such as damage aquatic plant beds.

Under the Fisheries Management (General) Regulations (2002), unless authorised by a permit, a person is committing an offence if found using explosive substances, electrical devices or other dangerous substances to take or destroy fish in any waters (Department of Industry, n.d.).

### 9.6 The Application for Fisheries Permit

All works will check the Policy Definition of Key Fish Habitat and the relevant Key Fish Habitat maps available at <http://www.dpi.nsw.gov.au/fishing/habitat/publications/pubs/key-fish-habitat-maps>.

If the proposed work site is not within or adjacent to a waterway that fits the definition of Key Fish Habitat and/or is not mapped as Key Fish Habitat, a permit for dredging, reclamation, obstructing





### Waterways Works Management

fish passage under the Fisheries Management Act 1994 is not required. A permit may still be needed for removal or modification of marine vegetation (such as saltmarsh or mangroves) if the vegetation occurs on an unmapped waterway on public water land (please check with the local Fisheries Conservation Manager). A permit to use explosives or electrical devices as well as an approval under other legislation (such as the Water Management Act, Crown Lands Act or Environmental Planning and Assessment Act) (Department of Industry, n.d.) may be required.

The application form is available in pdf or word and can be download here:  
<https://www.dpi.nsw.gov.au/fishing/habitat/help/permit>

The application must contain the following:

- Applicant Details
- Site Identification
- Description of Work<sup>4</sup>
- Planning Controls
- Description of Site and Environ
- Project Details
- Evaluation of the risk of environmental impacts
- Evaluation of Potential Impacts upon Threatened Species and Their Habitats
- Consultation
- Declaration
- Appendix 1 Part A: DREDGING proposals
- Appendix 1 Part B: RECLAMATION proposals, including causeways, bridge approaches and retaining walls or seawalls
- Appendix 1 Part C: Obstruct FISH PASSAGE proposals
- Appendix 1 Part D: Harm MARINE VEGETATION proposals
- Appendix 1 Part E: Use of EXPLOSIVES OR ELECTRICAL DEVICES proposals
- APPENDIX 2 Determination of whether proposed development or activity likely to significantly affect threatened species, population or ecological community (7 Part Test)

#### 9.6.1 Minimum Information Requirements for Fisheries Assessment

In the presentation provided by the NSW Department of Primary Industries (Fisheries), the key message is Construction, use, maintenance and decommissioning impacts will be assessed. The report details the Assessment requirements (Table 9-2) and the Permit Conditions (Table 9-3), this information has also been added created into a checklist for CGRC for operation works. More

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<sup>4</sup> Note: If a separate Review of Environmental Factors or similar environmental assessment of the proposed works has been prepared, then for the remainder of the application the specific section and pages of the assessment can be referred to. In the event of omissions or uncertainties, an application should be completed.



**Waterways Works Management**

information can be found at Attachment A: Fisheries Permit Assessment requirements and Permit Conditions of this document.

*Table 9-2: Assessment requirements*

Type	Item	Details
Assessment Requirements	Ensure works have not yet commenced!	The Fisheries Management Act 1994 does not allow for retrospective approvals, nor does the EP&A Act!
	Lot & DP, owner's consent	Landowner's consent a precondition of accepting an application. e.g. Crown Lands consent, etc
	Approvals Granted	e.g. Council consent granted for DA (We need a copy of the Determination) Crown Lands Consent NSW Office of Water (Water Management Act 2000, etc)
	Topographic Map	
	Plans, site photos	Final designs are required for assessments. Good photos of the site can speed up assessments
	Environmental Management Plans	Detailed construction methods, sequence and accountabilities. Works footprint, & mitigation. ESCP, etc
	Contingencies identified	A fish relocation plan is a key contingency on large dewatering jobs such as draining a weir pool.
	Mitigation, offset measures	No net loss of key fish habitat is Dept policy. Redundant crossing removal can be a good offset
	Application Fee	Initial payment of \$366 includes application fee (\$168) & 3 hours of assessment (\$168) Department will invoice Council for any additional fees.
		Assessment includes time to process permit, undertake EA, Site inspection/consultation BUT excludes travel time!
	Appropriate fee payment	\$168 APPLICATION FEE cl 337 FM(general) Regulation \$168 for minor assessment taking <3 hours, or \$392 moderate assessment taking >3<7 hours, or \$1,402 major assessment >7<21 hours, or \$3,644 complex assessment >21 hours, and Additional work undertaken at \$70 / hour



## Waterways Works Management



Table 9-3: Permit Conditions

Type	Item	Details
Permit Conditions	Permit Conditions	KEY MESSAGE: "Satisfy permit conditions with good design & technique."
		"Complete Acceptance of Conditions form before works commence
	Notification	The District Fisheries Officer and the Contact Officer are both notified three days BEFORE the Commencement of works. To ensure that local DPI staff are aware that works are about to commence.
		The District Fisheries Officer and the Contact Officer are to be notified at least three days BEFORE works are complete or machinery is removed from the site. To provide an opportunity for DPI staff to inspect the site while machinery is still on site and available to do any remedial work that may be necessary.
	Approvals and Paperwork on Site	"Works consistent with approval and restricted to permit area."
	Consistent with THE BLUE BOOK	Infrastructure SEPP requires Council works consistent with THE BLUE BOOK
	Timing Works	Long-term average rainfall Seasonal outlook 28 Day forecast 8 Day forecast
	Construction Management Plan or Construction Environmental Management Plan CEMP	Details techniques, work sequence & responsibilities CEMP details design of a temporary crossing
	Site Mark-Up: No Go areas	e.g. Avoid riparian trees, cultural areas, waterways, etc
	No Snags removed, realigned	e.g. Avoid moving snags-important habitat & markers for fish
	Dewatering	
	Sediment & erosion control plan (Bluebook)	Sediment fencing (Bluebook)
	Containing Stockpiles	Site stockpiles away from Key Fish Habitats.
		Poorly located stockpiles require ongoing checks and maintenance.
	Sediment Fencing	
	Maintain fish passage	
	Deploy a silt curtain	



## Waterways Works Management



Type	Item	Details
	Approved work has messy stages	Geotextile should be used between the river bed and clean fill material to minimise undermining
	Provide Fish Passage	
	Redundant & surplus materials removed	
	Temporary Waterway Platforms	Minimise footprint
		Use clean material
		Inundation contingency
		Removal Strategy
	Temporary Crossings- Provide Fish Passage	
	Site Rehabilitation	Replant to rehabilitate & stabilise site
		Reseed with grass/pastures
		Use jute mesh, etc



## Waterways Works Management



## 10 REFERENCES

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**Waterways Works Management**

systems/exempt-development/waterway-structures-exempt

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## 11 ATTACHMENTS

11.1 Attachment A: Fisheries Permit Assessment requirements and Permit Conditions

11.2 Attachment B Waterways works process

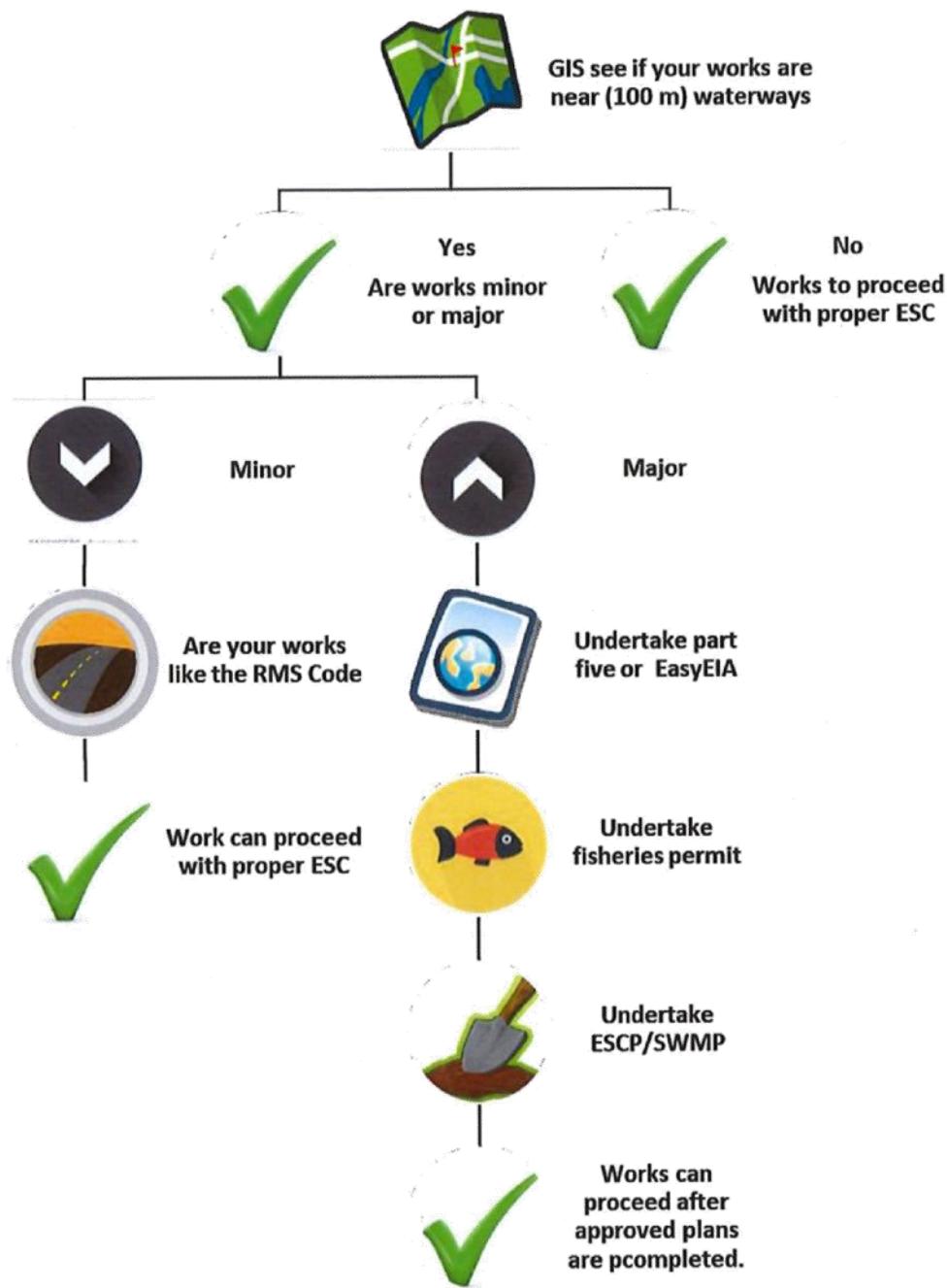


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## Waterways Works

The flow chart below identifies waterways and details process associated with works in or around that waterways.



## CGRC -Attachment A: Fisheries Permit Assessment requirements and Permit Conditions

**Assessment Requirements**

Assessment Requirements	Details	Choose option
Ensure works have not yet commenced!	The Fisheries Management Act 1994 does not allow for retrospective approvals, nor does the EP&A Act!	Choose an item.
Lot & DP, owner's consent	Landowner's consent a precondition of accepting an application. e.g. Crown Lands consent, etc	Choose an item.
Approvals Granted	e.g. Council consent granted for DA (We need a copy of the Determination)	Choose an item.
	Crown Lands Consent	Choose an item.
	NSW Office of Water (Water Management Act 2000, etc)	Choose an item.
Topographic Map		Choose an item.
Plans, sitephotos	Final designs are required for assessments.	Choose an item.
	Good photos of the site can speed up assessments	Choose an item.
Environmental Management Plans	Detailed construction methods, sequence and accountabilities.	Choose an item.
	Works footprint, & mitigation. ESCP, etc	Choose an item.
Contingencies identified	A fish relocation plan is a key contingency on large dewatering jobs such as draining a weir pool.	Choose an item.
Mitigation, offset measures	No net loss of key fish habitat is Dept policy. Redundant crossing removal can be a good offset	Choose an item.
Application Fee	Initial payment of \$366 includes application fee (\$168) & 3 hours of assessment (\$168)	Choose an item.
	Department will invoice Council for any additional fees.	Choose an item.
	Assessment includes time to process permit, undertake EA, Site inspection/consultation BUT excludes travel time!	Choose an item.
Appropriate fee payment	\$168 APPLICATION FEE cl 337 FM(general) Regulation	Choose an item.
	\$168 for minor assessment taking <3 hours, or	Choose an item.
	\$392 moderate assessment taking >3 <7 hours, or	Choose an item.
	\$1,402 major assessment >7 <21 hours, or	Choose an item.
	\$3,644 complex assessment >21 hours, and	Choose an item.
	Additional work undertaken at \$70 / hour	Choose an item.

Insert note here:

## CGRC -Attachment A: Fisheries Permit Assessment requirements and Permit Conditions

## Permit Conditions

Permit Condition	Details	Choose option
Permit Conditions	KEY MESSAGE: "Satisfy permit conditions with good design & technique"	Choose an item.
	"Complete Acceptance of Conditions form before works commence	Choose an item.
Notification	<p>The District Fisheries Officer and the Contact Officer are both <u>notified 3 days BEFORE the commencement</u> of works.</p> <p>To ensure that local DPI staff are aware that works are about to commence.</p>	Choose an item.
	<p>The District Fisheries Officer and the Contact Officer are to be <u>notified at least 3 days BEFORE works are complete or machinery is removed from the site</u>.</p> <p>To provide an opportunity for DPI staff to inspect the site whilst machinery is still on site and available to do any remedial work that may be necessary.</p>	Choose an item.
Approvals and Paperwork on Site	"Works consistent with approval and restricted to permit area"	Choose an item.
Consistent with THE BLUE BOOK	Infrastructure SEPP requires Council works consistent with THE BLUE BOOK	Choose an item.
Timing Works	<p>Long term average rainfall</p> <p>Seasonal outlook</p> <p>28 Day forecast</p> <p>8 Day forecast</p>	<p>Choose an item.</p> <p>Choose an item.</p> <p>Choose an item.</p> <p>Choose an item.</p>
Construction Management Plan or Construction Environmental Management Plan (CEMP)	Details techniques, work sequence & responsibilities	Choose an item.
	CEMP details design of a temporary crossing	Choose an item.
Site Mark Up: No Go areas	e.g. Avoid riparian trees, cultural areas, waterways, etc	Choose an item.
No Snags removed, realigned	e.g. Avoid moving snags-important habitat & markers for fish	Choose an item.
Dewatering		Choose an item.
Sediment & erosion control plan (Bluebook)	Sediment fencing (Bluebook)	Choose an item.
Containing Stockpiles	Site stockpiles away from Key Fish Habitats.	Choose an item.
	Poorly located stockpiles require ongoing checks and maintenance.	Choose an item.
Sediment Fencing		Choose an item.
Maintain fish passage		Choose an item.
Deploy a silt curtain		Choose an item.
Approved work has messy stages	Geotextile should be used between the river bed and clean fill material to minimise undermining	Choose an item.
Provide Fish Passage		Choose an item.
Redundant & surplus materials removed		Choose an item.
Temporary Waterway Platforms	<p>Minimise footprint</p> <p>Use clean material</p> <p>Inundation contingency</p> <p>Removal Strategy</p>	<p>Choose an item.</p> <p>Choose an item.</p> <p>Choose an item.</p> <p>Choose an item.</p>
Temporary Crossings- Provide Fish Passage		Choose an item.
Site Rehabilitation	<p>Replant to rehabilitate &amp; stabilise site</p> <p>Reseed with grass/pastures</p> <p>Use jute mesh, etc</p>	<p>Choose an item.</p> <p>Choose an item.</p> <p>Choose an item.</p>
Insert note here:		