

# REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

## REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

**It will generally be useful for a proponent to discuss the preparation of a Referral with the Department of Planning and Community Development (DPCD) before submitting the Referral.**

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once DPCD is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
  - a brief description of potential changes or risks to environmental assets resulting from the project;
  - available information on the likelihood and significance of such changes;
  - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A CD or DVD copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 2MB.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

**Minister for Planning  
PO Box 500  
EAST MELBOURNE VIC 3002**

Couriers

**Minister for Planning  
Level 17, 8 Nicholson Street  
EAST MELBOURNE VIC 3002**

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to [ees.referrals@dpcd.vic.gov.au](mailto:ees.referrals@dpcd.vic.gov.au) is encouraged. This will assist the timely processing of a referral.

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## PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

### 1. Information on proponent and person making Referral

<b>Name of Proponent:</b>	NVIRP (State Owned Enterprise for Irrigation Modernisation in Northern Victoria, trading as Northern Victoria Irrigation Renewal Project)
<b>Authorised person for proponent:</b>	Murray Smith
<b>Position:</b>	Chief Executive Officer
<b>Postal address:</b>	PO Box 1665, Shepparton, VIC 3632
<b>Email address:</b>	<a href="mailto:murray.smith@NVIRP.com.au">murray.smith@NVIRP.com.au</a>
<b>Phone number:</b>	1300163006
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<b>Person who prepared Referral:</b>	Ross Plunkett
<b>Position:</b>	Executive Manager Planning
<b>Organisation:</b>	NVIRP
<b>Postal address:</b>	PO Box 1665, Shepparton, VIC 3632
<b>Email address:</b>	<a href="mailto:Ross.plunkett@nvirp.com.au">Ross.plunkett@nvirp.com.au</a>
<b>Phone number:</b>	1300 163006
<b>Facsimile number:</b>	
<b>Available industry &amp; environmental expertise:</b> (areas of 'in-house' expertise & consultancy firms engaged for project)	This referral was prepared by NVIRP.  Assistance has been provided by Sinclair Knight Merz Pty. Ltd (SKM). SKM is an engineering and environmental consultancy. SKM (based in Melbourne and Tatura) have extensive relevant experience.

### 2. Project – brief outline

<b>Project title:</b> Northern Victoria Irrigation Renewal Project Adjunct Works (Adjunct Works)
<p><b>Project location:</b> (describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context)</p> <p>The Adjunct Works are located in the following irrigation areas within the Goulburn Murray Irrigation District (See Attachment A):</p> <ul style="list-style-type: none"> <li>• Central Goulburn 1-4 (CG1-4) Irrigation Area</li> <li>• Shepparton Irrigation Area</li> </ul> <p>Attachment A is a map of the Adjunct Works locations.</p>
<p><b>Short project description</b> (few sentences):</p> <p>The Adjunct Works involve conducting channel lining, automation and connections to modernise the CG1-4 and Shepparton irrigation areas as follows:</p> <ul style="list-style-type: none"> <li>• Lining of high-loss irrigation channels. While the exact extent of these works is yet to be determined, subject to testing of channel loss rates, the estimated extent is: <ul style="list-style-type: none"> <li>○ CG1-4 – approximately 10.5 km channel lining and approximately 4 km of channel bank remodelling works.</li> <li>○ Shepparton – approximately 20.0 km.</li> </ul> </li> <li>• Modernisation of the East Shepparton area, within the Shepparton Irrigation Area, Two</li> </ul>

options are being considered. Option 1 involves replacement of the existing irrigation infrastructure with a pressurised pipeline system. Option 2 involves modernisation in the same way as that implemented throughout the remainder of the GMID i.e. the automation of exiting manual regulators, the replacement of irrigation meters and channel lining in high loss areas. A preferred option has not yet been determined

- Implementing rationalised connections. Generally these are the works undertaken by landholders and their contractors on private land. These farm works include connecting their farm back to public irrigation water supply channels (known as the 'backbone') and/or redesign of the farm to take advantage of the new water supply arrangements. The exact composition of the proposed Connections Component works has not yet been determined and will be reliant on negotiation with relevant customers.

These works are adjunct to the previously referred project (2009-01) made on February 20 2009 which involved modernisation works (automation, channel lining and connections) in the following irrigation areas:

- Pyramid-Boort
- Campaspe
- Torrumbarry
- Murray Valley
- Central Goulburn 5-9
- Rochester

The works in CG1-4 and Shepparton Irrigation Areas were not included in the previous referral as they were outside the scope of the Northern Victoria Irrigation Renewal Project. However, they are considered adjunct to the original objective as they contribute to achieving up to 425 GL of water savings.

### 3. Project description

#### **Aim/objectives of the project** (what is its purpose / intended to achieve?):

The objective of the Adjunct Works is to recover water delivery losses from the CG1-4 and Shepparton Irrigation Areas to provide additional water for the environment, to improve reliability of water supply to irrigators and to provide a sustainable irrigation system.

#### **Background/rationale of project** (describe the context / basis for the proposal, eg. for siting):

The rationale of the Adjunct Works is to include the CG1-4 and Shepparton Irrigation Areas in the scope of NVIRP's activities. Some irrigation modernisation was previously conducted by the FutureFlow Alliance, acting on behalf of Goulburn-Murray Water (G-MW). FutureFlow completed the following works:

- Automation of regulator gates in the Shepparton Irrigation Area and meters in both areas;
- Remediation and lining of 27 km of high loss channel in CG1-4 Irrigation area and installation of 27 km of pipelines in the Shepparton Irrigation Area.

Modernisation in the CG1-4 and Shepparton Irrigation Areas was not included in the previous EES Referral (2009-1) but was included in the controlled action (referral no. 2009/5123) for the modified operation of the fully modernised Goulburn Murray Irrigation District (GMID) approved under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) see Attachment B. This EES referral for the Adjunct Works will ensure that the scope of the two EES referrals and the EPBC approval are consistent.

#### **Main components of the project** (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

The Adjunct Works involve conducting channel lining and connections to modernise the CG1-4 and Shepparton irrigation areas as follows:

##### Channel Lining

While the exact extent of lining of high loss irrigation channels is yet to be determined, subject to testing of channel loss rates, the estimated extent is:

- a) CG1-4 – approximately 10.5 km channel lining and approximately 4 km of channel bank remodelling works.
- b) Shepparton – 20 km. As an alternative to lining, a pressurised pipe may be implemented in the East Shepparton area.

##### East Shepparton

In the East Shepparton area, the channel modernisation may involve replacement of the existing irrigation infrastructure with a pressurised pipeline system (Option 1) as an alternative to the automation of existing manual regulators and the replacement of irrigation meters (Option 2). Implementation of the pressurised pipeline system would involve:

- Construction of approximately 51 km of pipelines;
- Decommissioning of existing earthen channels;
- Installation of electromagnetic flowmeters to replace existing Dethridge irrigation outlets; and
- Construction of a 220 ML/d pumping station on the East Goulburn Main Channel.

The location of the East Shepparton Modernisation is within the Shepparton Irrigation Area adjacent to the Broken River east of Shepparton, shown in Attachment A.

##### Connections

The Connections Component is the works conducted by landholders and their contractors on

private land. These farm works include connecting their farm back to the modernised public irrigation water supply channels (known as the 'backbone') and/or redesign of the farm to take advantage of the new water supply arrangements. The exact composition of the proposed Connections Component works in the CG1-4 and Shepparton Irrigation Areas has not yet been determined and will be reliant on negotiation with relevant customers.

**Ancillary components of the project** (eg. upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

To accommodate traffic generation associated with the rehabilitation and/ or rationalisation of some channels, some improvements to the existing local road network may be required. The exact location of any road (or other access) upgrades has not been determined at this time.

In addition, the provision of mains power may be required via the expansion of the local electricity transmission network at potential pump station sites if East Shepparton is modernised using a pressurised pipeline. It should be noted that most upgraded channel regulators are able to be operated via solar power. The exact location of where mains power may need to be provided has not been determined at this time.

**Key construction activities:**

All of the proposed components of the project are essentially minor civil works that will be repeated at multiple locations. The works will be managed and executed by NVIRP and its contractors.

Channel Lining

The targeted prioritisation and repair of channels (Channel Lining) potentially involves a range of construction activities, including earthworks to repair or replace sections of channel bank, and the installation of appropriate lining materials, such as plastic or clay, across the full cross section of the channel. Many works will be scheduled to occur outside of the scheduled irrigation season (i.e. from mid May – mid August) to ensure that there is no impact on irrigation deliveries. During this period of time, channels will be either lowered or emptied.

Channel Bank Remodelling

Similar to Channel Lining the Remodelling of Channel Banks involves the rebuilding of sections of channel bank with appropriate clay material to reinstate the original design cross section to reduce bank leakage. These works do not impact on the full cross section of the channel and can be undertaken at any time of the year.

East Shepparton

Option 1, the Pressurised Pipeline Scheme, to modernise the East Shepparton area, will involve the construction of a 220 ML/d pumping station on the East Goulburn Main Channel. In addition approximately 51 km of pipeline will be laid and the existing earthen channels will be decommissioned. Where possible works will be scheduled to occur outside of the scheduled irrigation season (i.e. from mid May – mid August) to ensure that there is no impact on irrigation deliveries. During this period of time, channels will be either lowered or emptied.

Option 2, automated regulators, meters and channel lining, to modernise the East Shepparton Area, will involve replacement of regulating structures at or near their current locations, and the replacement of Dethridge wheels with automated meters and channel lining in high loss areas.

The replacement of regulating structures involves the modification of the existing concrete superstructure of the regulators, the removal of the manual stop log fixtures and the installation of the new automatic gate structure. Other minor works include installation of radio telemetry components, solar power and walkways.

The upgrade of meters involves the removal of existing Dethridge wheels from their concrete

emplacements. In most cases, the concrete emplacements will be removed and replaced with new electromagnetic flow meter in a pipe configuration or a gated weir arrangement in a concrete emplacement.

#### Connections Component

The Connections Component of the irrigation network involves rationalisation of local area channel systems to better match current and expected future land use and connection back to the backbone. A range of actions may form part of this process, including the decommissioning of existing infrastructure.

Implementation of connections may involve the construction of new channels or pipelines or the relocation or installation of new meter outlets. The exact location and extent of new channels and pipelines cannot be known at this time, although they are all likely to occur across agricultural land.

#### **Key operational activities:**

Operation of the modernised irrigation system will be the responsibility of Goulburn-Murray Water (G-MW). As the system operator, G-MW will be responsible for releasing water savings from storage to meet the demands of customers.

#### **Key decommissioning activities** (if applicable):

Through the modernisation process, sections of the irrigation network will be identified that are no longer viable for economic or environmental reasons. In these cases, the existing irrigation infrastructure in these locations would be decommissioned.

Similarly, for areas where modernisation of the existing infrastructure involves the replacement of the open channel network with alternative supply systems, such as pipelines, there will be a requirement to decommission the existing open channel.

#### **Is the project an element or stage in a larger project?**

No  Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages)

See below.

#### **Is the project related to any other past, current or mooted proposals in the region?**

No  Yes If yes, please identify related proposals.

##### **1) Northern Victoria Irrigation Renewal Project**

The Northern Victoria Irrigation Renewal Project was referred to the then Minister for Planning in 20 February 2009 (2009-1). NVIRP were notified on 14 April 2009 that the project did not require an Environment Effects Statement, subject to a number of conditions (Attachment C).

The Northern Victoria Irrigation Renewal Project is to upgrade irrigation delivery infrastructure in the Goulburn Murray Irrigation District (GMID) through automation, remediation and reconfiguration of the channel system in order to improve the efficiency of the irrigation systems and hence achieve water savings relative to current supply efficiencies. The project includes:

- Capital works - the installation of new regulators and meters to improve the efficiency of water allocation, together with repair, replacement or upgrading and some rationalisation of existing channels (potentially including some new piping), to reduce leakage, seepage and evaporation of irrigation water.
- Connections - Reconfiguration and rationalisation of channels and farm outlets, including

replacing channels with pipes where appropriate.

Since May 2009 works have occurred in the six irrigation areas approved in the previous referral.

Other projects in the GMID that are related to the Northern Victoria Irrigation Renewal Project are identified below.

## 2) FutureFlow Alliance

The Goulburn-Murray Water FutureFlow Alliance delivered a program of irrigation upgrade works within the Shepparton Irrigation Area and CG1-4 Area. Funding for the project was received from Department of Sustainability and Environment, Living Murray Initiative, and Water for Rivers.

The Project had a combined budget of \$275m to deliver 104Gigalitres of water savings through upgrading irrigation infrastructure in 2008 and 2009. The works involved overhauling the outdated irrigation system by undertaking the following works:

- Decommissioning under-utilised infrastructure by reconfiguring irrigation channels.
- Automating flow control in irrigation channels by installing new regulating structures<sup>10</sup> to replace the manual drop bar system.
- Remodelling and plastic lining channels to reduce seepage and leakage.
- Replacing channels with pipelines to reduce seepage, leakage and evaporation.
- Replacing Dethridge wheel meter outlets with electronic meters to reduce measurement error and to provide automated functionality.
- Installation of communications towers to accommodate communication between thousands of new regulating structures and electronic meters to provide an automated and integrated irrigation system.

## 3) On farm works program (GBCMA)

In March 2010, a Goulburn Murray Water Service Area consortium secured funding from the Australian Government's \$300 million On-Farm Irrigation Efficiency Program. This funding is for irrigators seeking financial assistance to modernise their farms and is being delivered through the region's Farm Water Program.

Eligible activities for funding under the Farm Water Program include high flow surface irrigation, laser grading, irrigation tail-water re-use systems, automatic irrigation and irrigation scheduling on irrigated farms in the Goulburn Murray Water Service Area. This includes the Goulburn Murray Irrigation District and regulated rivers, subject to trading rules.

The eligible activities will generate water savings through more efficient application of irrigation water. The water will be used by the Commonwealth Environmental Water Holder to improve environmental flows in our stressed rivers and waterways in the southern Murray Darling Basin.

The Farm Water Program is delivered through a consortium that includes the Goulburn Broken and North Central Catchment Management Authorities, Northern Victorian Irrigators Association, NVIRP, Department of Sustainability and Environment, Department of Primary Industries, Dairy Australia and Goulburn-Murray Water.

## 4. Project alternatives

**Brief description of key alternatives considered to date** (e.g. locational, scale or design alternatives. If relevant, attach A4/A3 plans):

NA

**Brief description of key alternatives to be further investigated** (if known):

NA



## 5. Proposed exclusions

**Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:**

NA

## 6. Project implementation

**Implementing organisation** (ultimately responsible for project, ie. not contractor):

Implementation

NVIRP has been established under the *State Owned Enterprises Act 1992* to implement the Northern Victoria Irrigation Renewal Project. NVIRP will exist for the duration of the project.

NVIRP's key responsibility is to establish strong links with irrigators and the community to develop a timetable for works and the realisation of water savings. NVIRP is collaborating with regional agencies, including Goulburn-Murray Water, local government and catchment management authorities to capitalise on the project's social, economic and environmental benefits and link into current government programs and initiatives, to avoid duplication of effort across the region in delivering the project.

NVIRP will engage the expertise needed to deliver the various components of the project (i.e. to develop specific design and construction partnerships).

Ownership and Operation

Goulburn-Murray Water will be responsible for the on-going ownership and operation of the modernised irrigation system. (Goulburn-Murray Water is the trading name of the Goulburn-Murray Rural Water Corporation, which derives its powers from the *Water Act 1989* and is responsible to the Victorian Minister for Water.)

Goulburn-Murray Water provides rural water services (irrigation, stock and domestic) to 14,000 properties across the GMID.

**Implementation timeframe:**

The works associated with this referral are expected to commence when funding is confirmed and completed by 2017 with works undertaken each year. The water savings will be delivered progressively to beneficiaries.

**Proposed staging** (if applicable):

N/A

## 7. Description of proposed site or area of investigation

**Has a preferred site for the project been selected?**

No  Yes If no, please describe area for investigation.

If yes, please describe the preferred site in the next items (if practicable).

There is no 'preferred site(s)' for the Northern Victoria Irrigation Renewal Project works given that the location of works will be determined progressively as accurate measuring technology identifies infrastructure at discrete sites throughout the GMID that require work. The precise location of works will be determined based on the environmental management process discussed in section 18.

**General description of preferred site**, (including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint):

The Adjunct Works will be conducted at locations within or immediately adjacent to the existing irrigation infrastructure. The Northern Victoria Irrigation Renewal Project area is located within the lower portions of the catchments of the Goulburn, Broken, Campaspe, Loddon and Avoca Rivers. The landscape is generally flat and highly modified by the development of irrigation infrastructure. Land use in the area is predominantly irrigated agriculture. Major enterprise types include dairy

(irrigated pasture production), intensive horticulture (stone and pome fruits and citrus) and viticulture.

**Site area** (if known): ..... (hectares)

The area of the proposed three projects that form the basis of this referral is approximately 1,227 km<sup>2</sup> within the GMID.

**Route length** (for linear infrastructure) ..... ( km) **and width** ..... (m)

CG 1-4 and Shepparton Irrigation Areas will include approximately 1,046 km of existing irrigation supply channels. The Northern Victoria Irrigation Renewal Project will be undertaken at locations throughout the extent of this existing infrastructure.

Works will include the remediation and lining of approximately 34.5 km of channel and potentially the installation of approximately 51 km of pipeline. The length of channel potentially to be decommissioned as part of the connections program has not been determined at present.

**Current land use and development:**

The area related to this referral is currently farmland used for irrigated agriculture and horticulture. Major enterprises are dairying, stone and some fruit and citrus production, viticulture along with some beef cattle and sheep grazing. The area is predominantly private landholdings, along with some areas of public land. The proposed works will be mainly on the existing irrigation channels.

**Description of local setting** (eg. adjoining land uses, road access, infrastructure, proximity to residences & urban centres):

The Adjunct Works areas are situated in a rural setting that has evolved into its current configuration as a result of the development of irrigated agriculture. The region is typically closely settled with relatively high population densities relative to regions dominated by other types of agriculture.

Regional features include:

- Shepparton is the regional centre with a population of around 40,000;
- Numerous medium sized towns acting as local service centres for the surrounding agricultural enterprises (Mooroopna, Tatura, Kyabram and Murchison);
- Other small townships that provide limited services to the surrounding area, but act as a community hub; and
- Midland Highway, Goulburn Valley Highway and Seymour rail line.

**Planning context** (eg. strategic planning, zoning & overlays, management plans):

The Adjunct Works located within three local government areas, namely Greater Shepparton City Council (GSCC), Shire of Moira (SoM) and Shire of Strathbogie (SoS). The Farming Zone is the key planning zone relevant to the Adjunct Works areas.

Other zones, of lesser importance to the Adjunct Works, are summarised in the following table:

**Table 1 Planning Zones relevant to Adjunct Works**

Zone	CG 1-4	SIA			East Shepp
	GSCC	GSCC	SoM	SoS	GSCC
Farming Zone	X	X	X	X	X
Industrial Zone 1	X	X			X
Industrial Zone 3		X			
Business 1 Zone	X	X			
Business 4 Zone	X	X			X

Low Density Residential Zone	X	X			X
Township Zone	X	X			X
Residential 1 Zone	X	X	X		X
Public Conservation & Resource Zone	X	X			X
Urban Floodway Zone	X	X			
Public Park & Recreation Zone	X	X	X		X
Rural Living Zone	X	X			
Public Use Zone	X	X	X	X	X
Special Use Zone	X	X			

Key overlays which apply are summarised in the following table:

**Table 2 Planning Overlays relevant to Adjunct Works**

Overlay	CG1-4		SIA		East Shepp
	GSCC	GSCC	SoM	SoS	GSCC
Land Subject to Inundation Overlay	X	X	X	X	X
Heritage Overlay	X	X		X	
Rural Floodway Overlay & Floodway Overlay			X		
Environmental Significance Overlay	X	X			
Wildfire Management Overlay			X		
Restructure Overlay			X		
Vegetation Protection Overlay	X		X		
Salinity Management Overlay	X				
Environmental Audit Overlay	X	X			
Public Acquisition Overlay	X	X	X	X	
Development Plan Overlay	X	X	X		X
Design and Development Overlay		X			
Airport Environs Overlay		X			
Floodway Overlay	X	X		X	X

Maps showing additional detail of the location of these zones and overlays can be found in Attachments D and E.

**Local government area(s):**

These Adjunct Works are located within the following Local Government Areas:

- City of Greater Shepparton
- Shire of Moira
- Shire of Strathbogie

A map showing the relevant Local Government Areas is contained in Attachment D and Attachment E.

## 8. Existing environment

**Overview of key environmental assets/sensitivities in project area and vicinity**

(cf. general description of project site/study area under section 7):

The Adjunct Works are located in the northern parts of the Goulburn-Broken Catchment Management Authority Region. The CG1-4 and Shepparton Irrigation Areas comprising the GMID are located in the Victorian Riverina and Murray Fans Bioregions.

Development of intensive irrigated agriculture throughout the Adjunct Works area has significantly impacted on the environmental values of the region. Native vegetation is extremely limited in its extent and quality. Agricultural practices, such as land-forming, have resulted in a significant reduction in the extent of wetland areas throughout the Adjunct Works areas (particularly

ephemeral wetlands). These factors have contributed to an overall decline in the availability of potential habitat for native flora and fauna, and a reduction in the abundance and diversity of native flora and fauna across the region.

## 9. Land availability and control

### Is the proposal on, or partly on, Crown land?

No  Yes If yes, please provide details.

The channel upgrades and remediation works will be undertaken within freehold reserves and easements owned and managed by Goulburn-Murray Water. However, it is possible that some works may be undertaken on Crown Land. It is proposed that a process for confirming the land tenure of all works sites be undertaken by NVIRP and where necessary, the appropriate consents and licences will be sought.

### Current land tenure (provide plan, if practicable):

Most of the channel upgrades and remediation works will be undertaken within freehold reserves and easements owned and managed by Goulburn-Murray Water. Parts of the works might be undertaken on Crown Land, but where possible this will be avoided.

In addition, works may need to be undertaken on private land where an easement has not been applied or as a result of reconfigurations or the installation of a new pipeline. In these cases, a new easement will be sought.

### Intended land tenure (tenure over or access to project land):

Some channel upgrades and reconfiguration works may need to be undertaken on private land where an easement has not been obtained or as a result of reconfigurations or the installation of new infrastructure. In these instances new freehold reserves will be sought.

The reconfiguration of some parts of the irrigation network may result in changes to land tenure.

### Other interests in affected land (eg. easements, native title claims):

The Adjunct Works will be undertaken in accordance with the requirements of the *Native Title Act 1993* [Commonwealth] in relation to native title.

A Native Title Claim for large parts of the project area was submitted by the Yorta Yorta Goulburn Murray Clans Group. A litigated determination was made in 1998 that native title does not exist for Yorta Yorta Clans (VC94/1).

## 10. Required approvals

### State and Commonwealth approvals required for project components (if known):

The following statutory considerations and consents may be required for the project:

- Relevant authorisations and consents under the *Planning and Environment Act 1987* to provide for buildings and works, removal of native vegetation and preparation of an Offset Plan, creation or removal or variation of easements, establishment of project infrastructure or the acquisition of land (as required);
- A Cultural Heritage Management Plan approved in accordance with the *Aboriginal Heritage Act 2006*;
- Permits to take native flora under the *Flora and Fauna Guarantee (FFG) Act 1988*;

It is considered unlikely that the FFG Act will be triggered because works will occur on freehold land (predominantly G-MW freehold reserve and easements), rather than Crown land. However, any requirements will be dealt with via the process proposed for compliance within the environmental management process proposed for all construction activities.

- Consents under a range of acts such as the *Land Act 1958* and the *Crown Land (Reserves) Act 1978* to enable access to and use of public land for project infrastructure.

Should work be required to be undertaken on Crown Land, appropriate consents and licences will be sought from DSE Public Land Management.

Consents may also required under Acts such as the *Water Act 1989* and the *Water Industries Act 1994* if waterways are impacted upon. Consents may also be required under the *Fisheries Act 1995*, *Wildlife Act 1975*, *Road Management Act 2004* and *National Parks Act 1975*.

The project was referred under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* for a decision on whether approval is required under that Act on October 9 2009 (referral no. 2009/5123). The decision was made that the project was a controlled action, approved with conditions on May 10 2010. The referral included the project areas which relate to this referral. This current EES referral seeks to align the project scope under the State and Commonwealth approval requirements. No Northern Victoria Irrigation Renewal Project works have yet commenced in the areas subject to this referral.

A copy of the decision from the Commonwealth Minister Environment Protection, Heritage and the Arts (EPBC Act Referral 2009-5123) is attached as Attachment B. Condition 1 of the EPBC decision requires the action to be conducted in accordance with the Water Change Management Framework (see section 18).

**Have any applications for approval been lodged?**

No  Yes If yes, please provide details.

As discussed above, a referral (2009/5123) was made under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

**Approval agency consultation** (agencies with whom the proposal has been discussed):

The adjunct works have been discussed with the Department of Planning and Community Development (Environment Unit), and the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (SEWPaC).

**Other agencies consulted:**

Other agencies consulted include Heritage Victoria (DPCD), Department of Primary Industries, Goulburn-Broken Catchment Management Authority, North Central Catchment Management Authority, Goulburn-Murray Water, Parks Victoria, City of Greater Shepparton, Moira Shire, Strathbogie Shire and the Department of Sustainability and Environment (Flora and Fauna, Public Land Management, Office of Water).

## PART 2 POTENTIAL ENVIRONMENTAL EFFECTS

### 11. Potentially significant environmental effects

**Overview of potentially significant environmental effects** (identify key potential effects and comment on their significance and likelihood, as well as key uncertainties):

An assessment of potential environmental impacts during operation of the nominated adjunct projects was completed (see Attachment H). This assessment determined that there are not likely to be any significant impacts associated with the implementation of the nominated NVIRP adjunct projects. The assessment has indicated that the Modernisation of the East Shepparton Area may have a minor impact on VROTS listed water dependent species (fish) within the Broken River.



**12. Native vegetation, flora and fauna**

**Native vegetation**

**Is any native vegetation likely to be cleared or otherwise affected by the project?**

NYD  No  Yes If yes, answer the following questions and attach details.

The adjunct works are proposed to be undertaken predominantly in the Victorian Riverina and Murray Fans Bioregions of the Goulburn Broken CMA area. Native vegetation within these two bioregions has been highly disturbed due to their suitability for agriculture. Only 22% of pre-European native vegetation cover is present in the Victorian Riverina Bioregion and 42% in the Murray Fans. The majority of this remnant vegetation cover is associated with river corridors, roadsides and other public land reserves. In this context significant disturbance of native vegetation associated with works implementation is unlikely.

Prior to any works being planned, the construction contractor will be required to investigate the extent of native vegetation to be removed, document its quality and extent (Habitat Hectare (Hha) score and/or indigenous Scattered Tree size), which determines any offset requirements under the Victoria’s Native Vegetation Management Framework (NVMF). NVIRP will be responsible for identifying and securing the necessary offsets, by consolidating offsets from the projects into Offset Plans, which identifies offset requirements within each appropriate Bioregion.

**What investigation of native vegetation in the project area has been done? (briefly describe)**

A desktop assessment of DSE data was undertaken, including Ecological Vegetation Class (EVC) mapping, as well as a search of all recent (post-1980) records of all threatened flora and fauna species within the proposed Northern Victoria Irrigation Renewal Project areas (Attachment F).

**What is the maximum area of native vegetation that may need to be cleared?**

NYD Estimated area .....(hectares)

No formal investigation into the potential impact on terrestrial native vegetation has been undertaken as the exact location of works to be undertaken is yet to be determined.

The quantity of native vegetation considered likely to be impacted upon by implementation of the adjunct projects is small. To illustrate the implementation of the 2010 Capital Works program, across five irrigation areas, by NVIRP had the following native vegetation impacts:

- Removal of 0.04 Hha of Very High Conservation Significance Vegetation;
- Removal of 0.90 Hha of High Conservation Significance Vegetation;
- Removal of 0.24 Hha of Medium Conservation Significance Vegetation; and
- Removal of one Very Large Old Tree, two Large Old Trees, five Medium Old Trees and 29 Small Scattered Trees.

**How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?**

N/A ..... approx. percent (if applicable)

**Which Ecological Vegetation Classes may be affected? (if not authorised as above)**

NYD Preliminary/detailed assessment completed. If assessed, please list.

A large range of EVCs are located in the immediate area of the proposed works. However, any impact on these EVCs has not been determined, due to the exact location of work not having been confirmed. A complete list of all EVCs in the area can be found in Attachment F.

The following indicates the number of EVCs for each Bioregion, within each project area:

**Table 3 Number of EVC within each Bioregion for each of the Adjunct Projects**

Bioregion	Number of EVCs which may be affected (see Attachment F)
<b>Central Goulburn 1-4 Area Connections &amp; Channel Lining</b>	
Goldfields	2
Murray Fans	10
Victorian Riverina	23
<b>Shepparton IA Connections &amp; Channel Lining</b>	
Murray Fans	17
Victorian Riverina	25
<b>Modernisation of the East Shepparton Area</b>	
Victorian Riverina	4

**Have potential vegetation offsets been identified as yet?**

NYD  Yes If yes, please briefly describe.

No potential native vegetation offsets have been identified at this stage because the extent of impact on native vegetation is yet to be determined. Any vegetation clearance will be managed in accordance with the requirements of the NVMF.

**Other information/comments?** (eg. accuracy of information)

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework to be approved by the Minister for Planning, after consultation with the Minister for Environment and Climate Change. This framework included a Native Vegetation Management Strategy It is proposed that this strategy would be amended to also include the adjunct works. (Refer to Section 18)

NYD = not yet determined

**Flora and fauna****What investigations of flora and fauna in the project area have been done?**

(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

Specific investigations relating to impacts on terrestrial flora and fauna from construction activities have not been undertaken at this stage, as final works locations have not yet been determined.

For all works completed to date as part of the Northern Victoria Irrigation Renewal Project specific desktop (GIS based) and field investigations have been undertaken to identify any works sites where native vegetation or threatened flora and fauna may be impacted upon and then specific mitigation measures developed. It is proposed that a similar approach will be used for the adjunct projects.

**Have any threatened or migratory species or listed communities been recorded from the local area?**

NYD  No  Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.
- Indicate which of these have been recorded from the project site or nearby.

The following FFG Act listed communities of flora and fauna may occur:

- Creekline Grassy Woodland (Goldfields) Community
- Forest Red Gum Grassy Woodland Community
- Grey Box - Buloke Grassy Woodland Community
- Northern Plains Grassland Community
- Red Gum Swamp Community No. 1

- Victorian temperate-woodland bird community

A summary of threatened fauna and flora species recorded on DSE databases since 1980 is presented in Table 4 and Table 5 below.

**Table 4 – Threatened Fauna Species**

Adjunct Project	EPBC Act Listed Threatened Species	EPBC Act Listed Migratory Species	VROTS Species	FFG Act Listed Species
Central Goulburn 1-4 Area Connections & Channel Lining	4	8	47	25
Shepparton IA Connections & Channel Lining	6	6	50	30
East Shepparton Modernisation Project	1	3	23	9

Table 1 notes all threatened fauna species previously identified in the project area. The majority of these species are strongly associated with the habitats present within the major patches of remnant vegetation adjacent to the project areas (Broken River and Goulburn River corridors) and are unlikely to be present in the highly disturbed habitats present at the location of irrigation assets.

**Table 5 – Threatened Flora Species**

Adjunct Project	EPBC Act Listed Species	VROTS Species	FFG Act Listed Species
Central Goulburn 1-4 Area Connections & Channel Lining	1	13	5
Shepparton IA Connections & Channel Lining	3	20	8
East Shepparton Modernisation Project	-	-	1

A full list of threatened flora and fauna species recorded throughout the respective project areas, is provided in Attachment G.

**If known, what threatening processes affecting these species or communities may be exacerbated by the project?** (e.g. loss or fragmentation of habitats) Please describe briefly.

FFG Act listed threatened processes which may occur as a result of Northern Victoria Irrigation Renewal Project works include:

- Alteration to the natural flow regimes of rivers and streams.
- Alteration to the natural temperature regimes of rivers and streams.
- Habitat fragmentation as a threatening process for fauna in Victoria.
- Increase in sediment input into Victorian rivers and streams due to human activities.
- Infection of amphibians with Chytrid Fungus, resulting in Chytridomycosis.
- Invasion of native vegetation by Blackberry *Rubus fruticosus* L. agg.
- Removal of wood debris from Victorian streams.
- Use of *Phytophthora*-infected gravel in construction of roads, bridges and reservoirs.

**Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?**

NYD  No  Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

Given the highly degraded nature of the terrestrial environments where works on the three projects are proposed it is considered highly unlikely that there will be any impact on migratory species, listed communities or other species of conservation significance.

An assessment of the likely impact of the proposed projects has determined that implementation of one of the projects has the potential to impact on aquatic environmental values.

#### Modernisation of the East Shepparton Area

Flow in the Goulburn River and lower reaches of the Broken River are potentially influenced by this project (including Option 1 and Option 2). Water-dependent values are similar in both the Goulburn River below the Goulburn Weir and the lower Broken River. Murray cod are recorded in both systems; Trout cod are recorded in the Goulburn River and could potentially enter the lower Broken River. Water level in the Broken River could decrease during summer by up to 29mm as a result of this project in an average year, which may alter the availability of habitat for fish. While it is unlikely that this decrease in the water level will significantly impact on the availability of habitat for native fish, it is proposed that further investigation of this waterway will be undertaken utilising the methodologies contained in the NVIRP Water Change Management Framework.

#### **Is mitigation of potential effects on indigenous flora and fauna proposed?**

NYD  No  Yes If yes, please briefly describe.

An assessment of potential environmental impacts during operation of the nominated adjunct projects was completed (see Attachment H). This assessment determined that there are not likely to be any significant impacts associated with the implementation of the nominated NVIRP adjunct projects. The assessment has indicated that the Modernisation of the East Shepparton Area may have a minor impact on VROTS listed water dependent species (fish) within the Broken River. Consequently it is proposed to utilise the principles of the NVIRP Water Change Management Framework to confirm whether any impact will occur and then to mitigate that impact, if required.

Risks to wetlands and waterways and in particular listed threatened and migratory species, is considered to be low and mitigation, including enhancement of habitats, considered to be highly feasible, given the success of watering plans in wetlands elsewhere in the region.

A formal process is proposed for the mitigation of significant impacts on the potentially impacted Broken River as a result of the Northern Victoria Irrigation Renewal Project (see section 18). One of the key aspects of this process will be a detailed determination of the biodiversity significance of the Broken River, including their role in providing habitat for listed threatened flora and fauna and migratory species.

An Environmental Watering Plan will be developed for The Broken River where it is assessed that the change related to the modernisation of the East Shepparton area is likely to have an impact on significant environmental values.

The Environmental Watering Plan, if required, will set out an environmental watering regime to minimise and mitigate the impact of the Northern Victoria Irrigation Renewal Project and to support ecological values within the Broken River, Where it may be determined that the modernisation of the East Shepparton area will have a material adverse impact, mitigation measures will be developed and implemented..

#### **Other information/comments?** (eg. accuracy of information)

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework to be approved by the Minister for Planning, after consultation with the

Minister for Environment and Climate Change. This framework included a Flora and Fauna Management Strategy. It is proposed that this strategy would be amended to also include the adjunct works.

The previously approved works also required a Water Change Management Framework to be approved by the Minister for Water, after consultation with the Minister for Environment and Climate Change. The Water Change Management Framework is a framework to assess, manage and mitigate the effects of the implementation of the Northern Victoria Irrigation Renewal Project on aquatic and riparian ecological values within the NVIRP area. It is proposed that this framework would be amended to also include the adjunct works. (Refer to Section 18)

### 13. Water environments

<p><b>Will the project require significant volumes of fresh water (eg. &gt; 1 GI/yr)?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, indicate approximate volume and likely source.</p>
<p><b>Will the project discharge waste water or runoff to water environments?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, specify types of discharges and which environments.</p>
<p><b>Are any waterways, wetlands, estuaries or marine environments likely to be affected?</b>  <input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, specify which water environments, answer the following questions and attach any relevant details.</p> <p>The Water Impact Background Report (Attachment H) indicates that there are not likely to be any significant environmental impacts associated with the implementation of the projects during operation. A degree of uncertainty exists regarding the potential impact of the modernisation of the East Shepparton area on water-dependent environmental values. In this instance it is proposed to use the principles of the NVIRP Water Change Management Framework to confirm whether any impact will occur and then to mitigate that impact. The potential environmental effects on water-dependent values are not influenced by the selection of either Option 1 or Option 2.</p> <p>There is potential for some impacts on aquatic ecological values associated with Lower Broken River, resulting from the modernisation of the East Shepparton Area. This impact relates to the predicted minor reduction (up to 29 mm during summer in an average year) of water levels in the Broken River as a result of project implementation..</p> <p>A copy of the Water Impact Background Report can be found in Attachment H.</p>
<p><b>Are any of these water environments likely to support threatened or migratory species?</b>  <input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, specify which water environments.</p> <p>Section 12 above presents information about all threatened species previously recorded in the adjunct project area. These lists consider both terrestrial and aquatic (water dependent) species. Further information regarding the presence and potential impact on water dependent species is contained in Attachment H.</p> <p>Detailed assessments (see Attachment H) have determined that a range of water dependent listed threatened species have previously been recorded within the adjunct project areas.</p> <p>With regard to the works proposed for the Central Goulburn 1-4 (CG1-4) Irrigation Area and the Shepparton Irrigation Area the assessments have indicated the adjunct project implementation will have no impact on these species.</p> <p>With regard to the adjunct works proposed for the East Shepparton area the assessments have indicated some potential for impacts on listed aquatic fauna.</p>
<p><b>Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?</b>  <input type="checkbox"/> NYD <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes If yes, please specify.</p> <p>There are no wetlands listed under the Ramsar Convention potentially affected by this project.</p> <p>One wetland listed in 'A Directory of Important Wetlands in Australia' – Lower Broken River – is potentially affected by this project.</p>
<p><b>Could the project affect streamflows?</b>  <input type="checkbox"/> NYD <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes If yes, briefly describe implications for streamflows.</p> <p>Streamflows may be affected by the Adjunct Works due to changes in the timing, magnitude and location of delivery of bulk water entitlements and/or to changes in channel outfalls to waterways. Table 6 summaries the potential impact on stream flows for each of the adjunct projects.</p> <p>Additional information regarding the definitions of storing, supplying and spilling modes can be</p>

found in section 6.1.2 of the Water Impact Background Report (Attachment H).

**Table 6 – Summary of Potential Impact on River Flows**

Adjunct project	Potential Impact on River Flows	Potential Impact to Wetlands and Waterways
<b>Central Goulburn 1-4 Area Connections and Channel Lining</b>	<p><b>Goulburn River</b> No change in river level during storing and spilling periods. Small change (1-2 mm) in river level during supply period.</p> <p><b>Broken River</b> No change in river level during storing, spilling or supply periods.</p> <p><b>River Murray</b> No change in river level during storing and spilling periods. Small change (&lt;1mm) during supply period.</p>	No significant impact predicted on local or downstream aquatic ecological values.
<b>Shepparton IA Connections and Channel Lining</b>	<p><b>Goulburn River</b> No change in river level during storing and spilling periods. Small change (&lt;1mm) during supply period.</p> <p><b>Broken River</b> No change in river level during storing, spilling or supply periods.</p> <p><b>River Murray</b> No change in river level during storing and spilling periods. Small change (&lt;1mm) in river level during supply period.</p>	No significant impact predicted on local or downstream aquatic ecological values.
<b>Modernisation of the East Shepparton Area</b>	<p><b>Goulburn River</b> Small change (1-2 mm) in river level during storing and spilling periods. Small change (1-4 mm) in river level during supply period.</p> <p><b>Broken River</b> Small change (1-4 mm) in river level during storing and spilling periods. Minor change (4-29 mm) in river level during supplying periods.</p> <p><b>River Murray</b> Small change (&lt;1mm) in river level during storing and spilling periods. Small change (&lt;1mm) in river level during supply period.</p>	Some potential for impacts on aquatic ecological values associated with Lower Broken River. Potential impact proposed to be further considered via the NVIRP Water Change Management Framework.

**Could regional groundwater resources be affected by the project?**

NYD  No  Yes If yes, describe in what way.

The Northern Victoria Irrigation Renewal Project potentially impacts on the availability of groundwater resources through savings in channel seepage and channel leakage.

Central Goulburn 1-4 & Shepparton Irrigation Area

The potential changes to regional groundwater as a result of this project will result in a reduction in watertable level above the Mid-Goulburn Groundwater Management Area (GMA) of approximately 0.3 metres, reduction in watertable level above Kialla GMA of approximately 0.9 metres, and reduction in 20+ tonne per day of groundwater-borne salt load moving towards the Goulburn River.

Modernisation of the East Shepparton Area

*Option 1*

A reduction in watertable level above the Mid-Goulburn GMA of approximately 0.16 metres is predicted to occur as a result of this option, with a reduction of approximately 100 tonnes/yr in groundwater-borne salt load moving towards the Broken River.

*Option 2*

There is no impact to groundwater resources expected as a result of Option 2.

**Could environmental values (beneficial uses) of water environments be affected?**

NYD  No  Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Given the small magnitude of change in flows expected as a result of implementation of these three projects it is not expected that there will be any impact on beneficial uses of the water environments impacted.

**Could aquatic, estuarine or marine ecosystems be affected by the project?**

NYD  No  Yes If yes, describe in what way.

Yes — refer to previous sections.

**Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?**

No  Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

As described in the previous referral (2009-01) the provision of water savings to the environmental reserve is expected to improve the ecological health of aquatic ecosystems over the long term.

**Is mitigation of potential effects on water environments proposed?**

NYD  No  Yes If yes, please briefly describe.

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework and a Water Change Management Framework to be approved by the Minister for Planning in consultation with the Minister for Environment and Climate Change and Minister for Water respectively. It is proposed that these frameworks would be amended to also include the adjunct works. (Refer to Section 18)

**Other information/comments?** (eg. accuracy of information)



## 14. Landscape and soils

### Landscape

**Has a preliminary landscape assessment been prepared?**

No  Yes If yes, please attach.

The project is not anticipated to have significant impacts on valuable landscapes. Works will be confined to areas that have been subject to extensive alteration as part of irrigation infrastructure establishment and maintenance since the advent of irrigation in northern Victoria. For this reason a landscape assessment has not been prepared.

**Is the project to be located either within or near an area that is:**

• **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**

NYD  No  Yes If yes, provide plan showing footprint relative to overlay.

Works will be located within the vicinity of the:

- Environmental Significance Overlay (Schedule 1 – Radio Australia Environmental Significance Area).
- Environmental Significance Overlay (Schedule 2 - Shepparton Waste Water Treatment Complex Environmental Significance Area).
- Environmental Significance Overlay (Schedule 3 – Mooroopna Waste Water Treatment Complex Environmental Significance Area)
- Environmental Significance Overlay (Schedule 4 – Tatura Waste Water Treatment Complex Environmental Significance Area
- Environmental Significance Overlay (Schedule 5 – Murchison Waste Water Treatment Complex)

The purpose of these overlays is to maintain a buffer around the Waste Water Treatment Complexes and Radio Australia to restrict the intensity of the housing development in proximity to facilities and to direct residential development at an urban scale away from it. This will safeguard the facilities operations and avoid any future conflict with any residential expansion of Shepparton. A buffer will also protect existing and future landowners from effects of the facilities. The works associated with the projects will not have any impacts on these overlays.

A map showing the location of these overlays is contained in Attachment E.

No Significant Landscape Overlays will be affected by the project.

• **Identified as of regional or State significance in a reputable study of landscape values?**

NYD  No  Yes If yes, please specify.

No landscape values of regional or State importance have been identified within the area.

• **Within or adjoining land reserved under the *National Parks Act 1975*?**

NYD  No  Yes If yes, please specify.

Several sites that have been reserved under the *National Parks Act 1975* are located either within or adjacent to the project area.

Given the uncertainty regarding the exact location of works it is considered possible that some of the works proposed to be undertaken as part of the projects may occur adjacent to one of these sites. However, works will mostly be undertaken within the footprint of existing infrastructure at these sites and significant impacts on the aesthetic and landscape values of these parks are not anticipated.

• **Within or adjoining other public land used for conservation or recreational purposes?**

NYD  No  Yes If yes, please specify.

Numerous sites that have been reserved for conservation and recreation purposes are located

either within or adjacent to the project area. Given this, and the uncertainty regarding the exact location of works it is considered possible that some of the works proposed to be undertaken as part of the projects may occur within or adjoining one of these sites.

**Is any clearing vegetation or alteration of landforms likely to affect landscape values?**

NYD  No  Yes If yes, please briefly describe.

Some vegetation is likely to be removed during construction to accommodate the works and associated access. However, as the channels are located in a flat to gently undulating cleared farmland landscape that is highly modified, the sensitivity of this landscape to project impacts is considered low.

Reconfiguration, construction and closure of some channels may alter the appearance of some areas through the removal of topsoil and excavation and grading.

Views to the works will be limited, being seen in short-distance views from surrounding farmland and some local roads. Existing topography and vegetation will often screen views and, where necessary, planting will be used to further screen views.

There will be a residual visual impact in sections of channel bank where vegetation needs to be removed and could not be replaced due to the maintenance requirements (for example, some willows along channel banks). The radio masts that allow remote control of regulator gates are typically visible at short-distances from regulator sites, but are not considered to affect the visual amenity of the agricultural landscape. Any new pumps will be appropriately housed and positioned.

**Is there a potential for effects on landscape values of regional or State importance?**

NYD  No  Yes Please briefly explain response.

No landscape values of regional or State importance have been identified within the area of the projects.

**Is mitigation of potential landscape effects proposed?**

NYD  No  Yes If yes, please briefly describe.

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework to be approved by the Minister for Planning, after consultation with the Minister for Environment and Climate Change. In addition, any potential impact on aquatic and riparian ecological values will be considered via the NVIRP Water Change Management Framework to be approved by the Minister for Water after consultation with the Minister for Environment and Climate Change. It is proposed that these frameworks would be amended to also include the adjunct works. (Refer to Section 18)

**Other information/comments?** (eg. accuracy of information)

## Soils

**Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?**

NYD  No  Yes If yes, please briefly describe.

The projects are not considered likely to create significant risk of land instability or erosion due to the generally flat topography of the region. No Erosion Management Overlays (EMO) apply to the project areas.

**Are there geotechnical hazards that may either affect the project or be affected by it?**

NYD  No  Yes If yes, please briefly describe.

No geotechnical investigations have been undertaken to date to identify any geotechnical hazards that may either affect the project or be affected by it. However, it is expected that some testing

would be required where channels are to be reconfigured or new channels are to be built or where pipelines are to be laid.

These investigations will identify any geotechnical hazards and allow for the appropriate mitigations to be developed and implemented.

**Other information/comments?** (eg. accuracy of information)

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework to be approved by the Minister for Planning, after consultation with the Minister for Environment and Climate Change. It is proposed that this framework would be amended to also include the adjunct works. (Refer to Section 18)

The construction contractors will be required to consider and manage erosion as part of their Environmental Management Plans for all construction activities. Specific techniques will be implemented such as the installation of soil erosion and sedimentation controls before, during and after construction activity.

## 15. Social environments

**Is the project likely to generate significant volumes of road traffic, during construction or operation?**

NYD  No  Yes If yes, provide estimate of traffic volume(s) if practicable.

The works associated with the projects will not generate significant volumes of road traffic, during construction or operation.

**Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?**

NYD  No  Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

There is no potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions associated with the projects. The installed works themselves do not emit dust, noise or odour or generate traffic in their own right apart from the occasional maintenance inspection.

Irrigation infrastructure is located within rural farming areas and is generally located adjacent to property boundaries and along road sides, which are situated well away from residences in the area.

Issues such as the emission of dust or odours during the construction phase of the projects can be mitigated.

In addition, all works will be managed to ensure compliance with the relevant SEPPs and EPA Guidelines and other legislation as required.

**Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?**

NYD  No  Yes If yes, briefly describe the hazards and possible implications.

There is no potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport associated with the projects. The works themselves do not emit to the air, water or noise or odour, use chemicals or generate traffic in their own right apart from the occasional maintenance inspection.

In addition, all works will be managed to ensure compliance with the relevant SEPPs and EPA Guidelines and other legislation as required.

**Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?**

NYD  No  Yes If yes, briefly describe potential effects.

There is no potential for displacement of residences or severance of residential access to community resources due to the projects located predominantly within existing channels and easements. Where new pipelines or channels are proposed, these will be appropriately located to ensure no residences or access to residences is displaced.

In addition, as noted above, irrigation infrastructure is located within rural farming areas and is generally located adjacent to property boundaries and along road sides, which are situated well away from residences in the area.

**Are non-residential land use activities likely to be displaced as a result of the project?**

NYD  No  Yes If yes, briefly describe the likely effects.

No.

**Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?**

NYD  No  Yes If yes, briefly describe the potential effects.

In some cases, rationalisation and modernisation of delivery system assets will necessitate changes to farm type from irrigation to dryland agriculture. However, this work will be undertaken only after consultation with and agreement by the landholders. Modernisation will be delivered through a whole-of-system approach. This will mean that when decisions are made about delivery system infrastructure upgrades, full consideration will be given to management and infrastructure requirements on affected farms. The process to achieve this is being developed in consultation with irrigators and other stakeholders. The outcome will be enhanced operation of farm business to take advantage of improved services levels (e.g. higher flow rates, more consistent flow rates, shorter ordering times, automated operation of service points).

Modernisation will result in more efficient and effective irrigation, and, in this respect, the changes will not cause adverse effects on local residents/communities, social groups or industries.

**Is mitigation of potential social effects proposed?**

NYD  No  Yes If yes, please briefly describe.

A number of measures are in place to mitigate any potential adverse social effects. These measures are.

- Customer group meetings;
- An initial farm assessment for every irrigator on the Backbone or participating in the Connections Component. A key feature of this assessment will be a high level of landowner participation. Where there are opportunities to improve farm operation, the customer may then be referred to a Farm Design Specialist (e.g. DPI or private irrigation designer) to undertake more detailed analysis;
- Other farm visits to inform customers about a range of education, financial assistance, planning and counselling assistance;

**Other information/comments?** (eg. accuracy of information)

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework to be approved by the Minister for Planning, after consultation with the Minister for Environment and Climate Change. This framework included a Connections Protocol. It is proposed that this protocol would be amended to also include the adjunct works.

**Cultural heritage**

Version 1: July 2010

**Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?**

- No If no, list any organisations that it is proposed to consult.  
 Yes If yes, list the organisations so far consulted.

The project activity areas are within the boundary of the Yorta Yorta Nations Aboriginal Corporation Registered Aboriginal Party (RAP).

No specific consultation has occurred in the preparation of the desktop Indigenous Cultural Heritage Assessment (Attachment I) for the projects.

However, consultation has occurred with Aboriginal Affairs Victoria (AAV) and local Aboriginal groups regarding the occurrence and management of Aboriginal cultural heritage in the wider Northern Victoria Irrigation Renewal Project area.

Additionally, the East Shepparton area was assessed as part of CHMP No. 10521 (CHMP sponsor – FutureFlow Alliance) by SKM, consultation was undertaken as part of the preparation of this CHMP. Consequently the affected RAP (Yorta Yorta Nations Aboriginal Corporation Registered Aboriginal Party) is aware of proposals to modernise irrigation infrastructure in the East Shepparton Area.

NVIRP has developed a Cultural Heritage Management Strategy (CHMS) which forms part of the Construction Environmental Management Framework. The CHMS includes a strategy for managing Aboriginal stakeholder interests of the RAPs and AAV.

The projects will be undertaken in accordance with the requirements of the *Native Title Act 1993* in relation to native title.

**What investigations of cultural heritage in the project area have been done?**

(attach details of method and results of any surveys for the project & describe their accuracy)

A desktop Indigenous Cultural Heritage Assessment has been undertaken to identify cultural heritage requirements for works being assessed as part of this referral, which involved:

- Conducting archaeological background research;
- Identifying the legislative requirements which may impact upon the activities;
- Developing mapping which highlights the relationship between Aboriginal Places, Areas of cultural heritage sensitivity and Northern Victoria Irrigation Renewal Project works sites;
- Developing risk tables which identify potential issues; and,
- Producing recommendations for further assessment.

The assessment discusses the cultural heritage located within the boundaries of the three areas, including assessment of:

- Areas of Cultural Heritage Sensitivity (CHS) (Division 3, Regulations);
- Areas of Potential Archaeological Sensitivity (PAS); and
- Identification of the legislative requirements.

The Desktop Indigenous Cultural Heritage Assessment can be found in Attachment I.

**Is any Aboriginal cultural heritage known from the project area?**

- NYD  No  Yes If yes, briefly describe:
- Any sites listed on the AAV Site Register
  - Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
  - Sites or areas of sensitivity identified by representatives of Indigenous organisations

Central Goulburn 1-4 Area (Channel Lining and Connections)

The Central Goulburn 1-4 Area covers areas of the Riverine Plain 5, Riverine Plain 8 and Floodplain 2 land systems. A total of 128 Aboriginal Places are located in this area, with Place types including scarred trees, artefacts scatters and earth features.

Shepparton Irrigation Area (Channel Lining and Connections)

The Shepparton Irrigation Area covers several land systems, including areas of the Floodplain and Riverine Plain. A total of 73 Aboriginal Places are located within the Shepparton Irrigation Area, including scarred trees, artefact scatters and a burial.

Modernisation of the East Shepparton Area

The East Shepparton Area was assessed as part of CHMP No. 10521 by SKM. A search of the Victorian Aboriginal Heritage Registry found that there are no Aboriginal Places located within the East Shepparton Area, and it was found that there was a low potential for Aboriginal Places to occur within the activity area.

This Desktop Indigenous Cultural Heritage Assessment has assessed the same activity area as CHMP No. 10521; therefore, if the proposed works are to be undertaken within the same activity area as CHMP No. 10521, NVIRP will act under the provisions outlined in the existing CHMP, as:

- No Aboriginal Places were located during the CHMP and the most recent VAHR search identified no new Aboriginal Places, and,
- The area is considered to be of low archaeological sensitivity.

Recommendations resulting from the Desktop Indigenous Cultural Heritage Assessment can be found in Attachment I.

To date, no specific consultation has taken place with Aboriginal Affairs Victoria regarding the adjunct projects.

**Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?**

NYD  No  Yes If yes, please list.

There are a number of sites within the project area which are listed on the Heritage Register or the Heritage Inventory under the *Heritage Act 1995*. None of the listed sites relate to irrigation infrastructure and hence are not expected to be affected by works associated with the adjunct projects. Once the exact location of the works is confirmed, the location of any listed sites will be confirmed and the appropriate recommendations and / or protection measures will be undertaken.

**Is mitigation of potential cultural heritage effects proposed?**

NYD  No  Yes If yes, please briefly describe.

The works approved under EES Referral 2009-01 required a Construction Environmental Management Framework to be approved by the Minister for Planning, after consultation with the Minister for Environment and Climate Change. This framework included a Cultural Heritage Strategy. It is proposed that this strategy would be amended to also include the adjunct works.

If the proposed works occur outside of the activity area as assessed in CHMP No. 10521, NVIRP will follow their existing Cultural Heritage Decision Matrix that forms part of the NVIRP Cultural Heritage Management Strategy

The Cultural Heritage Management Strategy (CHMS) forms part of the Construction Environmental Management Framework. The CHMS was developed to meet Condition 1 of the Minister for Planning's decision that an Environment Effects Statement (EES) is not required for the Northern Victoria Irrigation Renewal Project, as described in the referral accepted on 20 February 2009.

The purpose of the strategy is to guide avoidance and minimisation of impacts to Aboriginal cultural heritage, and the heritage clearance process to ensure compliance with the Aboriginal Heritage Act 2006. In addition the strategy includes measures to ensure appropriate approvals will be obtained prior to the commencement of works; and to engage Aboriginal stakeholder involvement. The following has informed the development of NVIRP's Aboriginal cultural heritage management strategy:

- A risk management background report providing an analysis of NVIRP activities and compliance requirements;
- A strategy for managing Aboriginal stakeholder interests including the statutory interests of

RAPs.

Potential indigenous cultural heritage effects will be mitigated via the completion of the Cultural Heritage Management Plan(s), as required, or other mechanism, as agreed with AAV. The soil in the existing channel network has been previously disturbed in the construction of the channels, so that a Cultural Heritage Management Plan may not be required for works occurring in channels.

In terms of non- indigenous cultural heritage effects, Heritage Victoria has recently completed an assessment to determine the heritage values of the channel system and associated irrigation features, as part of the *Victorian Water Supply Heritage Study*. The majority of the sites noted within this study relate to urban water supply rather than rural water supply. The majority of the rural water supply sites are weirs, pump stations and ancillary buildings such as former offices or works depots. No irrigation regulators or outlets (Dethridge wheels) were identified. Stuart Murray Canal and Cattnach Canal were two of four irrigation channels identified. These major channels are key components of the irrigation distribution system in the GMID and will be retained. Given the type of works proposed as part of the adjunct projects it is considered unlikely that there will be any impact on the sites identified in the above study.

**Other information/comments?** (eg. accuracy of information)

All works when required will be undertaken by a qualified cultural heritage consultant.

**16. Energy, wastes & greenhouse gas emissions**

**What are the main sources of energy that the project facility would consume/generate?**

- Electricity network. If possible, estimate power requirement/output .....
- Natural gas network. If possible, estimate gas requirement/output .....
- Generated on-site. If possible, estimate power capacity/output .....
- Other. Please describe.

Please add any relevant additional information.

The current irrigation infrastructure system is gravity fed and as such does not consume / generate any energy.

The new automated works are powered by solar technology. Where channels may be replaced by pipes (Shepparton East Modernisation Option 1), some pressure pumping will be required to move water through the supply system. This will ensure limited pumping is required once the water is on-farm. These pumps will power from the existing electricity grid.

There are three pump station options within the Shepparton East Modernisation Option 1. Each has been assessed in the table below.

**Table 7- Estimated electricity usage for Shepparton East Modernisation Option 1**

	Usage / quantity	Units
<b>Option A</b>	2,059,060	kWh
<b>Option B</b>	2,353,211	kWh
<b>Option C</b>	2,647,363	kWh

**What are the main forms of waste that would be generated by the project facility?**

- Wastewater. Describe briefly.
- Solid chemical wastes. Describe briefly.
- Excavated material. Describe briefly.
- Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

Typical waste generated from channel upgrade and reconfiguration works includes concrete rubble, timber and metal waste generated by the removal of old drop bars, meters and walkways.

Any material excavated as part of the channel reconfiguration and rehabilitation works will be transported to an appropriate facility for disposal. Alternatively, fill may be used on-farm to fill in disused channels. Where topsoil is present, it will be removed and stockpiled, together with leaf and plant litter, and used for site rehabilitation.

It is proposed that the Construction Environmental Management Framework for the previously referred works will be amended. The framework will detail the appropriate disposal measures for specific types of waste. Installing new regulator gates in pre-existing placements minimises waste. Where possible materials (such as metal waste) will be recycled.

**What level of greenhouse gas emissions is expected to result directly from operation of the project facility?**

- Less than 50,000 tonnes of CO<sub>2</sub> equivalent per annum
- Between 50,000 and 100,000 tonnes of CO<sub>2</sub> equivalent per annum
- Between 100,000 and 200,000 tonnes of CO<sub>2</sub> equivalent per annum
- More than 200,000 tonnes of CO<sub>2</sub> equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

Any modification of the irrigation infrastructure in the GMID as a result of the projects will still see the majority of water supplied to irrigators via gravity fed systems.



However as part of the Modernisation of the East Shepparton Area Option 1 involves the conversion from gravity system to a pressure pipeline system that will require some pumping. It is expected that some high pressure pumping will be required to supply both stock and domestic requirements and small to medium agricultural irrigation requirements. The use of high pressure pumping at the supply stage will limit the amount of pumping required on farm (which may be already occurring) thereby potentially offsetting any emissions from current pumping activities.

There are three pump station options with the Modernisation of the East Shepparton Area Option 1. Each has been assessed in the table below:

**Table 8 - Estimated CO2 emissions for Modernisation of the East Shepparton Area Option 1**

	Usage / quantity	Units	Emission factor	Units	Emissions (t CO2-e)			Total
					Scope 1	Scope 2	Scope 3	
Option A	2,059,060	kWh	1.22	kg CO2-e/kWh	-	2,512	226	2,739
Option B	2,353,211	kWh	1.22	kg CO2-e/kWh	-	2,871	259	3,130
Option C	2,647,363	kWh	1.22	kg CO2-e/kWh	-	3,230	291	3,521

Therefore, due to the high reliance on gravity to provide the required volumes and head of water, CO<sub>2</sub> equivalent emissions are less than 50,000 tonnes per year. Using the known pump requirements of comparable irrigation systems, the equivalent pump requirements and estimated the total emissions to equate to a maximum of around 3,521 tonnes of CO<sub>2</sub>-e per annum were calculated. This estimate is only for the pumping component of the Northern Victoria Irrigation Renewal Project and ignores emissions for construction, installation and other components of the system.

## 17. Other environmental issues

**Are there any other environmental issues arising from the proposed project?**

No  Yes If yes, briefly describe.

## 18. Environmental management

**What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects?** (if not already described above)

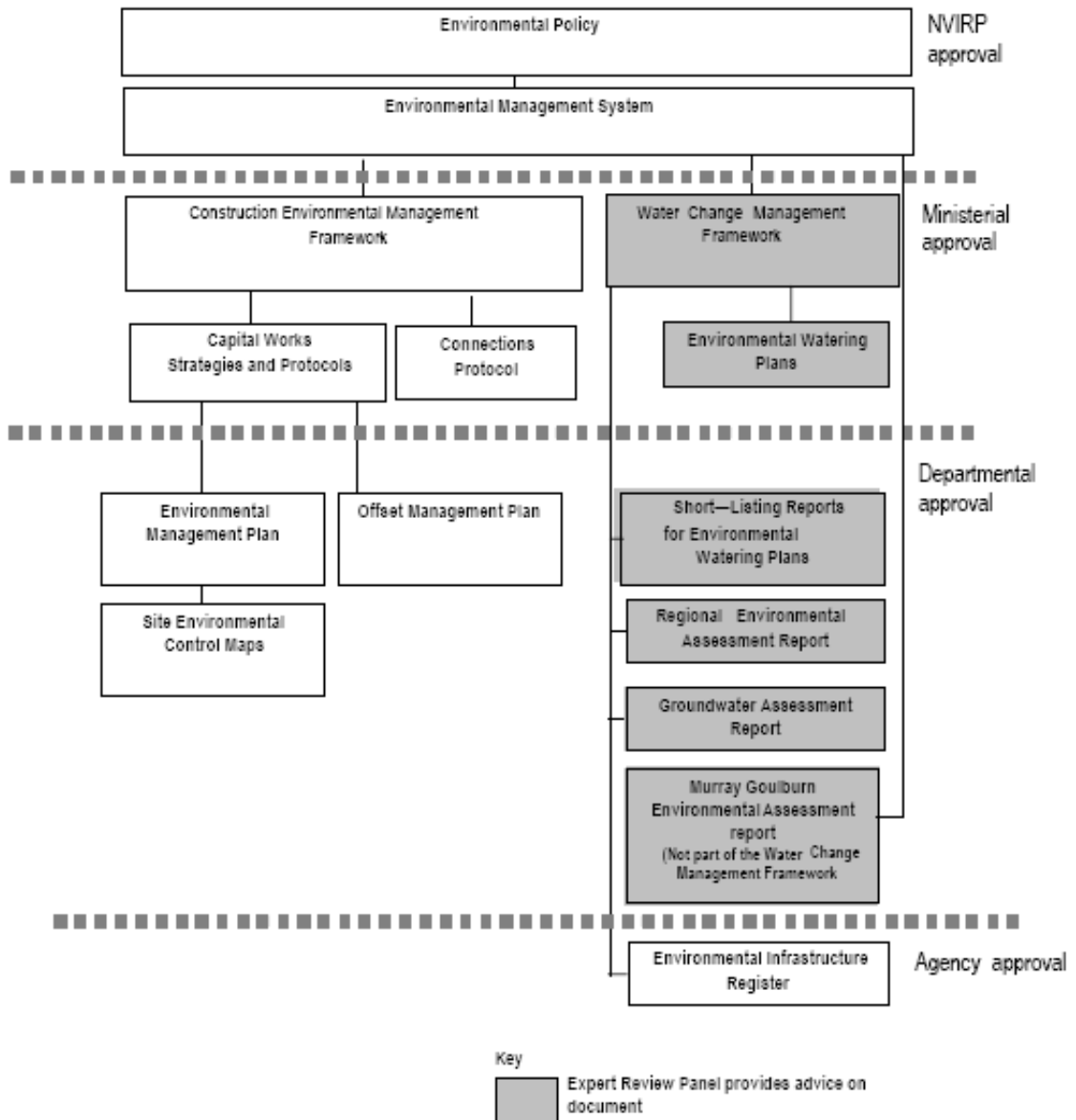
- Siting: Please describe briefly
- Design: Please describe briefly
- Environmental management: Please describe briefly.
- Other: Please describe briefly

Add any relevant additional information.

NVIRP has an Environmental Management System (EMS) consistent with the International Standard ISO 14001:2004. The Construction Environmental Management Framework and Water Change Management Framework described below fit within the EMS.

All contractors engaged to undertake construction activities associated with the Northern Victoria Irrigation Renewal Project are required to develop Environmental Management Plans that are

consistent with the EMS and the CEMF.



NVIRP Construction Environmental Management Framework

The NVIRP Construction Environmental Management Framework (CEMF) was developed to meet Condition 1 of the previous Minister for Planning’s decision that an Environment Effects Statement (EES) is not required for the Northern Victoria Irrigation Renewal Project, as described in the referral accepted on 20 February 2009.

The CEMF has been approved by the Minister for Planning having regard to advice from the Minister for Environment and Climate Change.

The purpose of the Construction Environmental Management Framework (CEMF) is to describe the means by which NVIRP will manage and control the construction works associated with the modernisation of the northern Victorian irrigation system.

The CEMF includes the following strategies:

- Cultural Heritage Strategy;
- Native Vegetation Management Strategy;
- Flora and Fauna Management Strategy; and
- Communications and Consultation Protocol

The CEMF enables the achievement of the environmental commitments set for the planning,  
 Version 1: July 2010

design and construction of the capital works and the connections component. The CEMF establishes the environmental management controls to be implemented by NVIRP, its employees and contractors in carrying out the Project. It also includes mechanisms to ensure compliance by landholders and/or their contractors.

The CEMF provides the framework for environmental management of physical works, including a framework for managing impacts, assigning accountabilities and monitoring, reporting and auditing of relevant activities and environmental outcomes. It provides the environmental commitments, strategies (such as the NVIRP Native Vegetation Management Strategy and NVIRP Flora and Fauna Management Strategy) and protocols for undertaking capital works and the NVIRP managed contribution to the connections component.

#### Water Change Management Framework

The NVIRP Water Change Management Framework (WCMF) was developed to meet Condition 3 of the Minister for Planning's decision that an Environment Effects Statement (EES) was not required for the Northern Victoria Irrigation Renewal Project, as described in Referral No. 2009-1.

The WCMF has been approved by the Minister for Water having regard to advice from the Expert Review Panel (endorsed by the Minister for Environment and Climate Change) following consultation with the Minister for Environment and Climate Change.

The purpose of the WCMF is to describe the means by which NVIRP will protect aquatic and riparian ecological values through management of water allocations and flows that may be impacted by implementation of the Northern Victoria Irrigation Renewal Project within the modernised GMID.

The WCMF is underpinned by a set of principles and environmental commitments developed by NVIRP in relation to managing the ecological consequences of hydrological changes arising from implementation of the Northern Victoria Irrigation Renewal Project, including avoiding any contribution to diminishing ecological values in waterways and wetlands.

The principles and commitments, and the assessment, management and mitigation approach flowing from the commitments are consistent with relevant local, state and Commonwealth legislation and policies. Under the principles developed:

- Mitigation water will be provided where water to be saved is shown to have a material and beneficial effect on high environmental values;
- Mitigation water, where identified as needed, will be provided to replace incidental irrigation water converted to water savings; and
- Regional impacts will be reviewed and, where identified as needed, will be mitigated.

The modernisation program and its works are dynamic and are occurring in an adaptive management environment and the WCMF takes this into account.

The Water Impact Background Report, prepared for the three projects, indicates that for one of the projects there is some potential for impacts on water dependent environmental values associated with the Broken River. In this instance it is proposed to utilise the principles of the NVIRP Water Change Management Framework to confirm whether any impact will occur and then to mitigate that impact.

This process is likely to involve the development of Environmental Watering Plans for the impacted waterway. The development of this plan will be in accordance with the NVIRP Water Change Management Framework. The EWP will:

- 1) Clearly define key environmental values for which the waterway is being managed (what is being protected/maintained). Issues to be addressed may include volumes, timing, quality, flood mitigation, delivery capacity, salinity migration, opportunities for environmental watering and social and recreational objectives;
- 2) Set management targets or objectives based on benchmarking the condition of the waterway and its values;
- 3) Define an environmental watering regime (timing, duration and volume of flows) to:

- a) mitigate the impact of the project; and
- b) support the key environmental values; and
- c) maintain management benchmarks
- 4) Source the water to deliver the environmental watering regime;
- 5) Define the infrastructure requirements to deliver environmental water — a key input to the design of Northern Victoria Irrigation Renewal Project works; and
- 6) Develop draft protocols for ongoing water supply.

Goulburn-Murray Water, the party responsible for the operation of the modernised irrigation system, has an ISO14001 certified EMS.

## 19. Other activities

**Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?**

NYD  No  Yes If yes, briefly describe.

## 20. Investigation program

### Study program

**Have any environmental studies not referred to above been conducted for the project?**

No  Yes If yes, please list here and attach if relevant.

There are numerous completed environmental studies that, although not directly related to the Northern Victoria Irrigation Renewal Project, will inform the development of Environmental Watering Plans where required. These include management plans or related studies for wetlands and environmental flow studies for waterways.

**Has a program for future environmental studies been developed?**

No  Yes If yes, briefly describe.

NVIRP has convened a Technical Advisory Committee (TAC) with representation from the Department of Sustainability and Environment, North Central Catchment Management Authority, Goulburn- Broken Catchment Management Authority, Goulburn-Murray Water, the Department of Primary Industries and Parks Victoria. It is proposed that the TAC's terms of reference be expanded to include the adjunct works.

Its terms of reference define the role of the Technical Advisory Committee as being to provide advice to NVIRP on the following matters:

- The sequence of developing Environmental Watering Plans for short-listed wetlands and waterways (e.g. which wetlands/waterways to target first) taking into account the Northern Victoria Irrigation Renewal Project works schedule, and lead times to develop Environmental Watering Plans.
- A consistent and rigorous methodology for surveys or assessment of wetlands and waterways, where further information on the associated environmental values is required to determine if the asset is of conservation significance.
- A consistent and rigorous methodology for other investigations required to understand and or mitigate environmental risks associated with the Northern Victoria Irrigation Renewal Project.
- The broad structure and content of Environmental Watering Plans.
- Where appropriate, to review the findings of surveys and other investigations, as they become available, to advise whether mitigation action (i.e. an Environmental Watering Plan) is required.
- Advise NVIRP on whether it is appropriate to seek to remove [or add] a wetland or waterway from the register of priority environmental assets.
- Identify any other opportunities for alignment of Environmental Watering Plans with existing or emerging catchment management programs.

- Ensure that the views of relevant stakeholders are canvassed in developing Environmental Watering Plans. For example, the requirements of the landholder of the asset and/or associated delivery infrastructure, or recreational users of a wetland, where a particular priority wetland/waterway has significant social values
- Ensure that the requirements for infrastructure to supply environmental water are communicated to NVIRP, and that delivery of environmental water is considered in the works program.
- Review Environmental Watering Plans as they are developed for quality, completeness and practicality.

Under the requirements of the former Minister for Planning's 'no EES' decision, , NVIRP has also convened an Expert Review Panel (ERP) to provide advice on hydrological and related ecological changes due to the implementation of irrigation modernisation. The role of the ERP includes:

- Provide written advice on the environmental framework for water management
- Provide advice on individual Environmental Watering Plans (EWPs) for 'at risk' waterways and wetlands.

Final advice from the ERP is made publicly available.

It is proposed that the ERP's be extended to include the Adjunct Works.

### Consultation program

#### Has a consultation program conducted to date for the project?

No  Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

To date a significant amount of consultation has been conducted with regard to the adjunct projects. This has included:

- Liaison with the Central Goulburn Irrigation Area Modernisation Co-ordinating Committee. This group forms part of the Central Goulburn Water Services Committee which includes irrigator representatives from across the Central Goulburn Irrigation Area. This group have been informed of the proposed extension of NVIRP activities into CG1-4
- Staff from relevant Local Governments and Catchment Management Authorities has been made aware of the adjunct projects via the Agency Liaison Group meetings. This forum meets on average every 3 - 4 months.
- Other State Government agencies (DSE, GBCMA, NCCMA, DPI, G-MW and Parks Victoria) have been made aware of the adjunct projects via their representation at the NVIRP convened Environmental Technical Advisory Committee. Regular meetings are held of this group.
- Similarly key State Government agencies have been advised of the adjunct projects via their role in the NVIRP convened Salinity Technical Advisory Committee.
- Individual consultation with potentially affected landholders has not yet commenced as the exact location of works is yet to be confirmed and the potentially impacted landholders identified.


#### Has a program for future consultation been developed?

NYD  No  Yes If yes, briefly describe.

Refer to section 15.

**Authorised person for proponent:**


I, .....Murray Wayne Smith.....(full name),  
.....Chief Executive Officer.....(position), confirm that the information  
contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 29 March 2011

**Person who prepared this referral:**

I, .....Ross Duncan Plunkett.....(full name),  
.....Executive Manager Planning.....(position), confirm that the information  
contained in this form is, to my knowledge, true and not misleading.

Signature 

Date 29 March 2011

**ATTACHMENTS**

Attachment A – Map of project area(s)

Attachment B – Correspondence from Minister for Environment Protection, Heritage and  
the Arts (EPBC Act Referral 2009-5123)

Attachment C – Correspondence from Minister for Planning (EE Act Referral No 2009-01)

Attachment D – Planning Zone Map

Attachment E – Planning Overlay Map

Attachment F – EVC Records

Attachment G – Threatened Flora and Fauna Species

Attachment H – Water Impact Background Report

Attachment I – Desktop Indigenous Cultural Heritage Assessment