Title of Proposal - Southern Forests Irrigation Scheme – Project 1: Donnelly River Offtake and Record Brook Dam, SW WA

Section 1 - Summary of your proposed action

Provide a summary of your proposed action, including any consultations undertaken.

1.1 Project Industry Type

Water Management and Use

1.2 Provide a detailed description of the proposed action, including all proposed activities.

The Southern Forests Irrigation Scheme (SFIS) involves water offtake from the Donnelly River to irrigate approximately 1700 ha of land for horticultural and agricultural production in the Southern Forests region around Manjimup and Pemberton in the South-West of Western Australia.

The SFIS has been developed to support the Manjimup SuperTowns vision of expanding the area's horticulture industry and doubling the population over the next 15 years. The Manjimup SuperTown Agriculture Strategy (2014) and The Value of Horticulture Production in the Manjimup-Pemberton Area report (2014) highlighted the need to secure additional water to supply horticultural areas currently subject to water shortages.

The SFIS will be constructed and operated by the Southern Forests Irrigation Cooperative (SFIC), which will operate as a water supply and trading cooperative.

This referral is for the SFIS Project 1, which comprises (see Figure 1):
1. Offtake on the Donnelly River at a site south of Graphite Rd, including weir, pump station, access road and high voltage underground power cable.
2. Average of approximately 10 GL/yr winter flows pumped from Donnelly River to supply irrigators over a summer irrigation seasons (nominal 180 days) and winter irrigation period (nominal 150 days) plus water taken directly from the Record Brook catchment averaging approximately 3 GL/yr.
3. Storage dam on Record Brook, a minor tributary of Donnelly River. Earthen rock dam approximately 30 m high, creating an approximately 15 GL capacity reservoir over 160 ha.
4. Transmission pipeline between Donnelly River pump station to Record Brook storage dam, comprising two nominal 1000 mm diameter HDPE pipelines of approximate length 3.2 km.

The delivery of high reliability water supply to irrigators from a central point based on hydrological modelling and detailed offtake design will reduce the pressure on irrigators sourcing water from local surface water diversion or groundwater abstraction, which is less efficient at managing the variability in water quantity and quality across local catchments and aquifers.

A separate, concurrent referral has been submitted for the SFIS Project 2, which comprises the distribution pipeline network between the Record Brook dam and the irrigation areas. The full SFIS (projects 1 and 2) is described as a larger action in Section 1.15 of this referral.

1.3 What is the extent and location of your proposed action? Use the polygon tool on the map below to mark the location of your proposed action.

Area	Point	Latitude	Longitude
Project area	1	-34.262716597564	115.92554265967
Project area	2	-34.262432852909	115.93103582373
Project area	3	-34.269738972753	115.93300992957
Project area	4	-34.268887806991	115.94399625769
Project area	5	-34.267540110248	115.94948942175
Project area	6	-34.265695858653	115.95051939001
Project area	7	-34.26626332499	115.96056158057
Project area	8	-34.264773717688	115.96184904089
Project area	9	-34.263567825787	115.96425230017
Project area	10	-34.26009192298	115.9655397605
Project area	11	-34.25846032723	115.96648389807
Project area	12	-34.258389387566	115.96888715735
Project area	13	-34.259950046345	115.96871549597
Project area	14	-34.26044661352	115.97197706213
Project area	15	-34.261510676168	115.97403699866
Project area	16	-34.261085052724	115.97541028967
Project area	17	-34.257750927903	115.97515279761
Project area	18	-34.255693636025	115.9759252738
Project area	19	-34.25540986768	115.9781568717
Project area	20	-34.258034688352	115.97987348547
Project area	21	-34.251649846753	115.98656827917
Project area	22	-34.248599140275	115.98716909399
Project area	23	-34.248386296161	115.99077398291
Project area	24	-34.250230927265	115.99034482947
Project area	25	-34.251153227654	115.99111730566
Project area	26	-34.252784965116	115.99103147498
Project area	27	-34.257325285435	115.98510915747
Project area	28	-34.259027842384	115.99163228979
Project area	29	-34.259879107937	115.99283391943
Project area	30	-34.261085052724	115.99257642737
Project area	31	-34.26044661352	115.98433668127
Project area	32	-34.263071277037	115.98485166541
Project area	33	-34.265199322467	115.98493749609
Project area	34	-34.266121458765	115.98450834265
Project area	35	-34.266405190976	115.9833925437

Area	Point	Latitude	Longitude
Project area	36	-34.264986520347	115.98176176062
Project area	37	-34.264986520347	115.98176176062
Project area	38	-34.267469178243	115.97120458594
Project area	39	-34.266617989506	115.96931631079
Project area	40	-34.267469178243	115.96845800391
Project area	41	-34.271086634256	115.97060377112
Project area	42	-34.27193777776	115.96742803564
Project area	43	-34.269242460439	115.96150571814
Project area	44	-34.26846222088	115.95154935828
Project area	45	-34.270448270973	115.95017606726
Project area	46	-34.272434274159	115.943910427
Project area	47	-34.272930767626	115.93395406714
Project area	48	-34.276831685704	115.93472654333
Project area	49	-34.279030305222	115.93489820471
Project area	50	-34.280235975382	115.93403989783
Project area	51	-34.281441628249	115.93584234228
Project area	52	-34.283072778129	115.9319799613
Project area	53	-34.280732422774	115.92983419409
Project area	54	-34.262716597564	115.92562849036
Project area	55	-34.262716597564	115.92554265967

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland).

The proposed action is located within the Southern Forests area within the South-West region of Western Australia (see Figure 1).

The Donnelly River offtake will be located approximately 20 km to the west of Manjimup and approximately 20 km to the north west of Pemberton, which are the two closest townsites.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

An area of ~ 170 ha (~160 ha Record Brook dam and reservoir and ~ 10 ha Donnelly River offtake and transmission pipeline).

1.7 Is the proposed action a street address or lot?

Lot

1.7.2 Describe the lot number and title. Lies over State Forest 35 and 36.

1.8 Primary Jurisdiction.

Western Australia

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

No

1.10 Is the proposed action subject to local government planning approval?

No

1.11 Provide an estimated start and estimated end date for the proposed action.

Start date 04/2019

End date 05/2021

1.12 Provide details of the context, planning framework and State and/or Local government requirements.

Referral of the SFIS under the EPBC Act has been split into two referrals submitted concurrently:

1. Project 1: Donnelly River offtake and Record Brook dam / reservoir.

2. Project 2: Irrigation pipeline network.

The purpose of splitting the referrals is to enable the irrigation pipeline network (Project 2) to be approved through a clearing permit under Part V of the Western Australian Environmental Protection Act 1986 (EP Act), which has a reduced timeframe compared to assessment by the Environmental Protection Authority (EPA) under Part IV of the EP Act. This will enable pipeline (Project 2) construction to commence six to eighteen months ahead of the offtake and dam (Project 1) construction which is expected to be subject to a longer EPA assessment timeframe than a clearing permit.

The benefit of splitting the referrals is that it will enable the staging of pipeline construction over a period of three and a half years, which will maximise the economic benefits of the construction program to the local community.

Western Australian Government Approvals

The proposed action will be referred to the EPA under Part IV of EP Act. It is expected that the EPA will assess the proposed action, which will then require a Ministerial Statement under Part

IV of the EP Act.

A bed and banks permit and Section 5C licence to take water from the Donnelly River will be required under the Rights in Water and Irrigation Act 1914. Environmental Water Requirements for the Donnelly River are currently being developed by the Department of Water and Environmental Regulation (DWER) as required to support the Section 5C licence and Warren-Donnelly Surface Water Allocation Plan.

It is expected that a Section 18 consent to disturb Aboriginal heritage sites will be required under the Aboriginal Heritage Act 1972.

Land tenure approvals will be required under the Conservation and Land Management Act 1984 and/or Land Administration Act 1997 for development in State Forest.

Local Government Approvals

No local government approvals are required for the SFIS.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders.

Consultation has been undertaken with key stakeholders including Shire of Manjimup, Warren Catchment Council, Southwest Catchment Council, Conservation Council (WA Forest Alliance), Manjimup and Pemberton Landowners Group, Southern Forest Food Council, Potato Growers Association of WA, Wine Industry Association, Truffle Industry and Ribbons of Blue. Consultation has also been undertaken with State Government agencies including Department of Water and Environmental Regulation; Department of Biodiversity, Conservation and Attractions; and Department of Planning, Lands and Heritage. The consultation has been led by Department of Primary Industries and Regional Development as the lead Government agency providing support to the proponent in recognition of the importance of the proposed action to the State Government.

Briefings were held in Pemberton and Manjimup with prospective water buyers (irrigators) in 2015, 2016 and 2018. The briefings in 2018 included attendance by members of the local press and the ABC.

Consultation to date included an overview of the scope of the proposed action, key environmental issues, proposed mitigation and expected approvals process.

A public review is expected to be undertaken as part of the EPA assessment of the proposed action under Part IV of the EP Act. This will provide details of potential environmental impacts and proposed mitigation based on the findings of technical studies some of which remain to be completed.

Initial consultation with Indigenous stakeholders has been undertaken through presentation to the South West Boojarah Working Party at the South West Aboriginal Land and Sea Council

(SWALSC). A presentation is also proposed to the Wagyl Kaip & Southern Noongar Working Party at SWALSC. Additional consultation with Indigenous stakeholders is proposed through an ethnographic survey of the proposed action area, which will engage up to ten Indigenous representatives/consultants selected by SWALSC.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project.

Environmental impact assessment is expected to be undertaken as part of the EPA assessment of the proposed action under Part IV of the EP Act.

1.15 Is this action part of a staged development (or a component of a larger project)?

Yes

1.15.1 Provide information about the larger action and details of any interdependency between the stages/components and the larger action.

The proposed action is part of a larger action as presented in Figure 3 (uploaded in Section 1.4).

Referral of the SFIS under the EPBC Act has been split into two referrals submitted concurrently:

1. Project 1: Donnelly River offtake and Record Brook dam / reservoir.

2. Project 2: Irrigation pipeline network.

The purpose of splitting the referrals is to enable the irrigation pipeline network (Project 2) to be approved through a clearing permit under Part V of the Western Australian Environmental Protection Act 1986 (EP Act), which has a reduced timeframe compared to assessment under Part IV of the EP Act. This will enable pipeline (Project 2) construction to commence six to eighteen months ahead of the offtake and dam (Project 1) construction which are expected to be subject to a longer EPA assessment timeframe.

Commencing pipeline construction ahead of the offtake and dam will provide a more extended pipeline construction program, which will maximise economic benefits to the region compared to an expedited pipeline construction program. It is also expected to improve construction efficiencies and reduce costs and impacts by allowing more of the pipeline installation by the most experienced and skilled crews.

Projects 1 and 2 are considered to form part of the same larger action (namely the SFIS) as:

a) The projects are co-dependent, being necessary for the SFIS to fulfil its purpose of delivering

irrigation water to agricultural properties.

b) The projects will be undertaken as one construction program, with the pipeline (Project 2) construction program commencing prior to and being completed after the offtake and dam (Project 1) construction program.

c) The projects occupy the same geographical area, being located within the Southern Forests region of the South West of Western Australia.

d) The projects are part of an overall plan (the SFIS) to deliver irrigation water from the Donnelly River to agricultural properties. The SFIS is subject to a single business case and a single funding application to the National Water Infrastructure Development Fund

It is proposed that the Minister's discretion to accept a split referral be exercised as:

a) Impacts to Part 3 matters can be assessed and approved through split referral, as Projects 1 and 2 are referred concurrently and expected to be deemed Controlled Actions under the EPBC Act. This will enable transparent consideration of both projects during assessment and approval under the Act.

b) Impacts to Part 3 matters are purely additive between Projects 1 and 2 as they relate to clearing of habitat for terrestrial threatened species. The impacts of each project may be managed through provision of separate offsets to address residual impacts after avoidance and mitigation are implemented. Impacts to Part 3 matters relating to aquatic threatened species are restricted to the offtake and dam (Project 1) and not relevant to pipelines (Project 2). No synergistic impacts are expected between the two projects.

c) The offtake and dam (Project 1) is not fatally flawed and early approval of pipelines (Project 2) is not likely to result in a stranded asset through commencing pipeline (Project 2) construction ahead of approvals for the offtake and dam (Project 1).

1.16 Is the proposed action related to other actions or proposals in the region?

No

Section 2 - Matters of National Environmental Significance

Describe the affected area and the likely impacts of the proposal, emphasising the relevant matters protected by the EPBC Act. Refer to relevant maps as appropriate. The interactive map tool can help determine whether matters of national environmental significance or other matters protected by the EPBC Act are likely to occur in your area of interest. Consideration of likely impacts should include both direct and indirect impacts.

Your assessment of likely impacts should consider whether a bioregional plan is relevant to your proposal. The following resources can assist you in your assessment of likely impacts:

• Profiles of relevant species/communities (where available), that will assist in the identification of whether there is likely to be a significant impact on them if the proposal proceeds;

• Significant Impact Guidelines 1.1 – Matters of National Environmental Significance;

• Significant Impact Guideline 1.2 – Actions on, or impacting upon, Commonwealth land and Actions by Commonwealth Agencies.

2.1 Is the proposed action likely to have ANY direct or indirect impact on the values of any World Heritage properties?

No

2.2 Is the proposed action likely to have ANY direct or indirect impact on the values of any National Heritage places?

No

2.3 Is the proposed action likely to have ANY direct or indirect impact on the ecological character of a Ramsar wetland?

No

2.4 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

Yes

2.4.1 Impact table

Species	Impact
Caladenia harringtoniae (Harringtons / Pink	Clearing and/or inundation of approximately

Species	Impact
Spider Orchid)	160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is potential habitat for species.
Diuris drummondii (Tall Donkey Orchid)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is potential habitat for species.
Calypyorhynchus banksii naso (Forest Red-tail Black Cockatoo)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is highly likely to comprise habitat for species, which has been recorded in the vicinity. See attached Figure 2.
Calyptorhynchus baudinii (Baudin's Black Cockatoo)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is likely to comprise habitat for species.
Calyptorhynchus latirostris (Carnaby's Black-cockatoo)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared is likely to comprise habitat for species.
Bettongia penicillata ogilbyi (Woylie)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnell Brook. Vegetation to be cleared and/or inundated is potential habitat for species.
Myrmecobius fasciatus (Numbat)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be

Species	Impact
	cleared and/or inundated is potential habitat for species.
Pseudocheirus occidentalis (Western Ringtail Possum)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is potential habitat for species.
Setonix brachyurus (Quokka)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is highly likely to comprise habitat for species, which has been recorded in the vicinity. See attached Figure 2.
Dasyurus geoffroii (Chuditch, Western Quoll)	Clearing and/or inundation of approximately 160 ha of Karri, Jarrah and Marri forest for dam wall and reservoir on Record Brook, and clearing of approximately 10 ha for transmission pipeline to Donnelly River. Vegetation to be cleared and/or inundated is potential habitat for species.
Nannatherina balstoni (Balston's Pygmy Perch)	Construction of offtake structure (weir) and change in water flow regime on Donnelly River. Species recorded at one location on Donnelly River downstream of proposed offtake. Record Brook has limited aquatic habitat value and dam wall and reservoir are not expected to significantly impact species.

2.4.2 Do you consider this impact to be significant?

Yes

2.5 Is the proposed action likely to have ANY direct or indirect impact on the members of any listed migratory species, or their habitat?

Yes

2.5.1 Impact table

Species	Impact
Motacilla cinerea (Grey Wagtail)	Grey Wagtail recorded in South-West near Donnelly River catchment. Species uses riverine habitats and may potentially be impacted through change to water regime due to offtake on Donnelly River.

2.5.2 Do you consider this impact to be significant?

No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

No

2.7 Is the proposed action to be taken on or near Commonwealth land?

No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

No

2.9 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

2.10 Is the proposed action a nuclear action?

No

2.11 Is the proposed action to be taken by the Commonwealth agency?

No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage Place Overseas?

No

2.13 Is the proposed action likely to have ANY direct or indirect impact on a water resource related to coal/gas/mining?

No

Section 3 - Description of the project area

Provide a description of the project area and the affected area, including information about the following features (where relevant to the project area and/or affected area, and to the extent not otherwise addressed in Section 2).

3.1 Describe the flora and fauna relevant to the project area.

Flora

A Level 1 (reconnaissance) survey of the dam wall and reservoir area on Record Brook was undertaken in October 2016. The survey report (Strategen 2017) is attached. A Level 2 (detailed) survey of the dam wall and reservoir area, and reconnaissance survey of the transmission pipeline corridor and offtake, were undertaken in October 2017 and the associated survey reports are under preparation at the time of this referral.

The October 2016 survey recorded a total of 85 native vascular plant taxa from 57 plant genera and 32 plant families within the dam wall and reservoir area. The majority of taxa were recorded within the Myrtaceae (11 taxa) and Fabaceae (8 taxa) families (Strategen 2017). The number of plant species recorded reflects the historic logging and disturbance throughout much of the proposed action area and is consistent with expected species richness in the region.

The proposed action area is mapped as comprising four vegetation complexes (see Figure 2) as follows:

Wheatley WH1 – Tall open forest of Eucalyptus diversicolor (Karri) - Corymbia calophylla (Marri) on slopes and tall open forest of Eucalyptus patens (Blackbutt) on valley floor in perhumid and humid zones.

Yanmah YN1 – Mixture of tall open forest of Eucalyptus marginata subsp. marginata with some Corymbia calophylla on low undulating hills in perhumid and humid zones.

Bevan BE1 – Tall open forest of Corymbia calophylla – Eucalyptus marginata subsp. Marginate on uplands in perhumid and humid zones.

Warren WA – Tall open forest of Eucalyptus diversicolor-Corymbia calophylla on the slopes and tall open forest of Eucalyptus diversicolor-Corymbia calophylla with some Eucalyptus patens over Agonis flexuosa, Allocasuarina decussata and Callistachys lanceolata on the valley floors in hyperhumid and perhumid zones.

These vegetation complexes have largely been verified over the dam / reservoir area through field surveys (Strategen 2017) which identified three vegetation types comprising Eucalyptus diversicolor, Eucalyptus marginate and Corymbia calophylla tall forest with rehabilitated, regrowth and cleared areas containing or expected to contain similar vegetation types as they

recover from logging.

No Threatened flora species as listed by Western Australian Herbarium (1998-) have been recorded within the proposed action area (including during the 2016 and 2017 field surveys) however there remains potential for such species to occur.

No threatened ecological communities have been recorded or are expected to occur within the proposed action area and vegetation recorded within the area is well represented in the adjacent conservation reserves including Donnelly State Forest, Barlee Brook State Forest and South East Nannup State Forest (Strategen 2017).

Introduced taxa

A total of three introduced (exotic) taxa were recorded within the dam wall and reservoir area (Strategen 2017). None of these species are Declared Plant species in Western Australia pursuant to section 22 of the Biosecurity and Agriculture Management Act 2007 (BAM Act) according to the Western Australian Department of Agriculture and Food.

Fauna

A fauna survey will be undertaken in proposed action area. Based on desktop assessment and the flora and vegetation survey it is expected that the proposed action area comprises habitat for a number of threatened species.

3.2 Describe the hydrology relevant to the project area (including water flows).

The proposed action area occurs within the Donnelly River catchment which is located within the Warrren subregion and is the sole river system within the Donnelly Drainage Basin (Munro 2006). The Donnelly River catchment covers an area of approximately 1670 km 2 which includes 9 subareas including Barlee, Beedelup Brook, Carey Brook, Fly Brook, Lower Donnelly, Manjimup Brook/Yanmah-Dixvale, Middle Donnelly, Record Brook and the Upper Donnelly.

River flow in the catchment is influenced by rainfall and catchment clearing within the area from agriculture and by onstream dams used for irrigation. Donnelly River flows peak within the winter months of August where rainfall is higher. Flows decrease in February/March where rainfall decreases and upper reaches of the Donnelly River cease to flow. The lower parts of the Donnelly River flow all year round, with the exception of typically dry years (between 1975-2010) when flows have ceased during March or April (Department of Water 2012).

The Record Brook Dam area is located within the Record Brook subarea of the Donnelly River catchment, with Record Brook being a tributary of the Donnelly River. Streamflow within Record Brook is mainly influenced by rainfall, with no onstream dams currently within this catchment. Streamflow is seasonal with higher flows associated with the winter months. Streamflow within the Record Brook catchment has slightly declined since recorded stream flow for the subarea have commenced in 1975.

Surface water modelling for the Donnelly River and Record Brook catchment commenced in 2016 and is due for completion mid 2018 as part of the hydrological assessment of the Southern Forests Water Futures Project.

3.3 Describe the soil and vegetation characteristics relevant to the project area.

Soils and topography

The proposed action is located within the Warren biogeographic region of Western Australia (Hearn et al. 2002). The Warren bioregion consists of dissected undulating country of the Leeuwin Complex, Southern Perth Basin (Blackwood Plateau), South-West intrusions of the Yilgarn Craton and western parts of the Albany Orogen with loamy soils supporting Karri forest, laterites supporting Jarrah-Marri forest, leached sandy soils in depressions and plains supporting low Jarrah woodlands and paperbark/sedge swamps, and Holocene marine dunes with Agonis flexuosa and Banksia woodlands and heaths (Strategen February 2017).

Vegetation characteristics

Regional vegetation

Vegetation occurring within the region was initially mapped at a broad scale (1:1 000 000) by Beard during the 1970s. This dataset has formed the basis of several regional mapping systems, including physiographic regions defined by Beard (1981) which led to the delineation of botanical districts as described in Beard (1990); the biogeographical region dataset (Interim Biogeographic Regionalisation for Australia, IBRA) for Western Australia (DEE 2016a).

Beard (1990) Botanical Subdistrict

The proposed action area occurs within the Warren Botanical Subdistrict which is characterised by tall forest of Karri (Eucalyptus diversicolor) on deep loams and forest of jarrah-marri (E. marginata-Corymbia calophylla) on leached sands with extensive paperbark (Melaleuca) and sedge swamps in valleys (Beard 1990).

IBRA subregion

IBRA describes a system of 85 ‘biogeographic regions’ (bioregions) and 403 subregions covering the entirety of the Australian continent (Thackway & Cresswell 1995). Bioregions are defined on the basis of climate, geology, landforms, vegetation and fauna.

The proposed action area occurs within the Warren subregion which is dominated by Eucalyptus diversicolor (Karri) forest on loamy soils, Corymbia calophylla (Marri) and Eucalyptus marginata (Jarrah) forest on lateritic soils and Jarrah woodlands, Agonis flexuosa and Banksia woodlands/heaths and paperbark/sedge swamps on marine dunes and leached sandy soils (Hearn et al. 2002). The bioregion is not further divided into subregions (Hearn et al. 2002). The pre-European extent of vegetation remaining within the Warren subregion is 74% with a current extent of over 95 000 ha (Government of Western Australia 2015).

Vegetation complexes and vegetation system associations

Figure 2 illustrates the vegetation mapping undertaken at a Vegetation Complex scale by Mattiske & Havel (1998). The survey area occurs within the Wheatley (WH1), Yanmah (YN1) and Bevan (BE1) complexes (Figure 2) which are described as:

* Wheatley WH1 – Tall open forest of Eucalyptus diversicolor (Karri) - Corymbia calophylla (Marri) on slopes and tall open forest of Eucalyptus patens (Blackbutt) on valley floor in perhumid and humid zones.

* Yanmah YN1 – Mixture of tall open forest of Eucalyptus marginata subsp. marginata with some Corymbia calophylla on low undulating hills in perhumid and humid zones.

* Bevan BE1 – Tall open forest of Corymbia calophylla – Eucalyptus marginata subsp. marginata on uplands in perhumid and humid zones.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area.

Not applicable.

3.5 Describe the status of native vegetation relevant to the project area.

The proposed action area contains five different vegetation types and cleared areas (Strategen 2017). Transitions between these vegetation types are generally discontinuous, though occasionally abrupt with margins representing admixtures of more than one vegetation type (Strategen 2017). This discontinuity is primarily due to changes in topography and presence of cleared areas. At a broad scale, the majority of the proposed action area has been altered as a result of historical and current logging operations. This is particularly evident in the western and southern portion of the Record Dam area which has been cleared extensively, with only occasional emergent Karri trees remaining. Areas surrounding Record Brook are in relatively better condition which is likely attributable to the difficultly of access around the banks of the brook which impedes logging operations (Strategen 2017).

Further details and mapping of the proposed Record Dam area where a Level 1 flora and vegetation survey were completed is attached.

3.6 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The Record Brook dam will have a crest level of approximately 230 m Australian Height Datum (AHD) and a full supply level of approximately 228 mAHD. Gradients within the reservoir area are approximately 1 in 10 to 1 in 20.

The Donnelly River offtake will be at an elevation of approximately 130 to 140 mAHD depending on the location.

3.7 Describe the current condition of the environment relevant to the project area.

Vegetation condition within the proposed action area ranges from Completely Degraded to Excellent (Keighery 1994), with majority of the area (approximately 85.5%) considered to be in 'Excellent' condition. It is worth noting that patches of vegetation within this boundary have experienced some sort of modification due to historical clearing (approx. 34.5 ha).

Further details and mapping of the proposed Record Dam area where a Level 1 flora and vegetation survey were completed is attached.

3.8 Describe any Commonwealth Heritage Places or other places recognised as having heritage values relevant to the project area.

Not applicable.

3.9 Describe any Indigenous heritage values relevant to the project area.

Donnelly River is a recorded Aboriginal heritage site. An Aboriginal heritage survey including ethnographic and archaeological survey will be undertaken over the proposed action area to identify heritage values.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area.

State Forest.

3.11 Describe any existing or any proposed uses relevant to the project area.

The proposed action area comprises State Forest currently used in accordance with the Forest Management Plan 2014-2023 (Conservation Commission 2013), including forestry.

Section 4 - Measures to avoid or reduce impacts

Provide a description of measures that will be implemented to avoid, reduce, manage or offset any relevant impacts of the action. Include, if appropriate, any relevant reports or technical advice relating to the feasibility and effectiveness of the proposed measures.

Examples of relevant measures to avoid or reduce impacts may include the timing of works, avoidance of important habitat, specific design measures, or adoption of specific work practices.

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action.

Environmental mitigation measures to be incorporated for the SFIS includes the following:

a) Dam located off the Donnelly River, significantly reducing impacts to the river.

b) Proposed offtake regime to target winter flows and provide a low level of risk to Donnelly River aquatic ecosystems. Definition of Environmental Water Requirements to be maintained by the offtake regime is currently under review by the Western Australian Department of Water and Environmental Regulation (DWER).

c) Donnelly River offtake weir to incorporate fish ladder to minimise impacts to fish passage.

d) Record Brook has a limited catchment area and does not have significant aquatic ecology values.

e) Record Brook Dam site was adjusted to move upstream to avoid old growth forest areas and the Stewart Tree (a Karri tree of significance) within the Record Brook catchment.

f) Dam offtake and transmission pipeline corridor have been subject to reconnaissance level flora, vegetation and fauna habitat survey to identify sensitive areas (e.g. known or likely threatened species habitat, good condition vegetation) and alignments will be adjusted as far as is practicable to avoid or minimise impacts to sensitive areas.

g) Pipeline clearing corridors will be revegetated with native species while maintaining sufficient clearance from the pipeline to enable access for future pipeline maintenance (e.g. 5 m for large trees, 2 m for shrubs).

h) Environmental management plans will be prepared for clearing including fauna spotting/relocation, threatened flora translocation, vegetation protection / access control, and weed and dieback hygiene.

i) Provision of offsets to counterbalance significant residual impacts from clearing.

j) Clearing of vegetation within reservoir area will occur prior to inundation to minimise water quality impacts and carbon emissions from reservoir.

k) Reservoir to be managed for water quality and to protect public health, including water quality monitoring and closures (where required).

l) Scheme wide Environmental Management Plan will be prepared incorporating nutrient, chemical and irrigation management and implemented through individual Farm Water Access Plans. The implementation of Farm Water Access Plans for scheme irrigators is expected to improve environmental management practice within the region from current agricultural operations.

4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved.

There will be no net loss of critical habitat for threatened species as a result of the construction of the SFIS.

Environmental flows within the Donnelly River will be maintained to ensure a low level of risk to aquatic ecosystems during operation of the SFIS.

There will be no reduction in water quality within the Donnelly River catchment as a result of the construction or operation of the SFIS.

Improved water flow and quality monitoring data sets for the Donnelly River will be made available for Government agencies and the public.

Improved flora, vegetation, fauna and Aboriginal heritage baseline data sets over the proposed action area will be made available for Government agencies and the public.

Section 5 – Conclusion on the likelihood of significant impacts

A checkbox tick identifies each of the matters of National Environmental Significance you identified in section 2 of this application as likely to be a significant impact.

Review the matters you have identified below. If a matter ticked below has been incorrectly identified you will need to return to Section 2 to edit.

5.1.1 World Heritage Properties

No

5.1.2 National Heritage Places

No

5.1.3 Wetlands of International Importance (declared Ramsar Wetlands)

No

5.1.4 Listed threatened species or any threatened ecological community

Listed threatened species and communities - Yes

5.1.5 Listed migratory species

No

5.1.6 Commonwealth marine environment

No

5.1.7 Protection of the environment from actions involving Commonwealth land

No

5.1.8 Great Barrier Reef Marine Park

No

5.1.9 A water resource, in relation to coal/gas/mining

No

5.1.10 Protection of the environment from nuclear actions

No

5.1.11 Protection of the environment from Commonwealth actions

No

5.1.12 Commonwealth Heritage places overseas

No

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action.

Not applicable.

Section 6 – Environmental record of the person proposing to take the action

Provide details of any proceedings under Commonwealth, State or Territory law against the person proposing to take the action that pertain to the protection of the environment or the conservation and sustainable use of natural resources.

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Please explain in further detail.

Not applicable.

The Proponent will be a newly formed water trading cooperative.

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application.

Not applicable.

The Proponent will be a newly formed water trading cooperative.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

No

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

No

Section 7 – Information sources

You are required to provide the references used in preparing the referral including the reliability of the source.

7.1 List references used in preparing the referral (please provide the reference source reliability and any uncertainties of source).

Reference Source	Reliability	Uncertainties
Beard JS 1990, Plant Life of Western Australia. Kangaroo Press, Kenthurst, New South Wales.	Good.	As outlined in document.
Beard JS 1981, Vegetation of Western Australia 1:3000000 Map and Explanatory Notes. Forests Department Western Australia Press, Como, Western Australia.	Good.	As outlined in document.
Beatty S, Morgan D, Ryan T and K Strehlow 2016, Review of Aquatic Fauna in the Warren?Donnelly Catchments: Identification of Knowledge Gaps and a Preliminary Assessment of Ecological Risks from Increased Water Abstraction. Report to the Department of Water. Freshwater Fish Group & Fish Health Unit, Murdoch University, Perth, Western Australia.	Good.	As outlined in document.
De Graaf M, Morgan, DM, Beatty SJ and CW Hugh, 2009, Risk assessment of Record Brook interbasin water transfer scheme to the aquatic fauna of the Donnelly and Warren Rivers. Fisheries Research Contract Report No. 20, Department of Fisheries, Western Australia, 40 p.	Good.	As outlined in document.
Department of the Environment	Good.	As outlined in document.

Reference Source	Reliability	Uncertainties
and Energy (DEE) 2016a, Interim Biogeographic Regionalisation for Australia, Version 7, [Online], Australian Government, Available from: http://www.environment.gov.au/topics/land/national-reserve-system/science-maps-and-data/australias-bioregions-ibra		
Keighery B 1994, Bushland Plant Survey: A Guide to Plant Community Survey for the Community, Wildflower Society, Floreat.	Good.	As outlined in document.
Hearn R, Williams K and Comer S 2002, A biodiversity audit of Western Australia's 53 biogeographical subregions in 2002: Warren (WAR-Warren) Subregional description and biodiversity values. Department of Conservation and Land Management, Western Australia.	Good.	As outlined in document.
Mattiske EM & Havel JJ 1998, Vegetation mapping in the South west of Western Australia, Department of Conservation and Land Management, Perth.	Good.	As outlined in document.
Munro J 2006, Donnelly River Action Plan, Manjimup Land Conservation District Committee.	Good.	As outlined in document.
Strategen 2017 Southern Forests Water Futures Project: Level 1 flora and vegetation survey. Prepared for Department of Water.	Good.	As outlined in document.
Thackway & Cresswell 1995, An Interim Biogeographic Regionalisation for Australia: A framework for setting priorities in the National Reserves System Cooperative Program Version 4, Australian Nature	Good.	As outlined in document.

Reference Source	Reliability	Uncertainties
Conservation Agency, Canberra.		

Section 8 – Proposed alternatives

You are required to complete this section if you have any feasible alternatives to taking the proposed action (including not taking the action) that were considered but not proposed.

8.0 Provide a description of the feasible alternative?

Alternatives considered included:

1. Using on-farm dams for water supply. This was not pursued due to extreme difficulty in achieving a reliable yield and quality, difficulty in trading due to multiple pump stations across the district, and potential for obstruction by individual dam owners.

2. Using groundwater for water supply. This was due to inadequate yield in the superficial and fractured rock aquifers of the region and requirement for multiple bores and associated difficulty in distribution and trading.

3. Alternative dam locations at Damper Gully and East Brook. These were not pursued due to higher capital cost and/or greater distance from the Donnelly River affecting the feasible harvesting rate and thus reliability of supply.

Accordingly no feasible alternative was identified for the proposed action.

8.1 Select the relevant alternatives related to your proposed action.

8.27 Do you have another alternative?

Section 9 – Contacts, signatures and declarations

Where applicable, you must provide the contact details of each of the following entities: Person Proposing the Action; Proposed Designated Proponent and; Person Preparing the Referral. You will also be required to provide signed declarations from each of the identified entities.

9.0 Is the person proposing to take the action an Organisation or an Individual?

Organisation

9.2 Organisation

9.2.1 Job Title

Director and Chairman

9.2.2 First Name

Harvey

9.2.3 Last Name

Giblett

9.2.4 E-mail

harvey.giblett@newtonorchards.com.au

9.2.5 Postal Address

924 Seven Day Road
Manjimup WA 6258
Australia

9.2.6 ABN/ACN

ABN

24904433713 - SF IRRIGATION CO-OPERATIVE LIMITED

9.2.7 Organisation Telephone

(08) 9777 0181

9.2.8 Organisation E-mail

admin@sfic.com.au

9.2.9 I qualify for exemption from fees under section 520(4C)(e)(v) of the EPBC Act because I am:

Not applicable

Small Business Declaration

I have read the Department of the Environment and Energy's guidance in the online form concerning the definition of a small a business entity and confirm that I qualify for a small business exemption.

Signature:..... Date: .....

9.2.9.2 I would like to apply for a waiver of full or partial fees under Schedule 1, 5.21A of the EPBC Regulations

No

9.2.9.3 Under sub regulation 5.21A(5), you must include information about the applicant (if not you) the grounds on which the waiver is sought and the reasons why it should be made

Person proposing the action - Declaration

I, HARVEY GIBLETT, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf of or for the benefit of any other person or entity.

Signature: H Giblett Date: 14-2-18

I, _____, the person proposing the action, consent to the designation of SF IRRIGATION CO-OPERATIVE LTD as the proponent of the purposes of the action describe in this EPBC Act Referral.

Signature: H Giblett Date: 14-2-18

9.3 Is the Proposed Designated Proponent an Organisation or Individual?

Organisation

9.5 Organisation

9.5.1 Job Title

Director and Chairman

9.5.2 First Name

Harvey

9.5.3 Last Name

Giblett

9.5.4 E-mail

harvey.giblett@newtonorchards.com.au

9.5.5 Postal Address

924 Seven Day Road
Manjimup WA 6258
Australia

9.5.6 ABN/ACN

ABN

24904433713 - SF IRRIGATION CO-OPERATIVE LIMITED

9.5.7 Organisation Telephone

(08) 9777 0181

9.5.8 Organisation E-mail

admin@sfic.com.au

Proposed designated proponent - Declaration

I, HARVEY GIBLETT, the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.

Signature:..H. Gilolett..... Date: ..14-2-18.....

9.6 Is the Referring Party an Organisation or Individual?

Organisation

9.8 Organisation

9.8.1 Job Title

Associate

9.8.2 First Name

Heath

9.8.3 Last Name

Morgan

9.8.4 E-mail

h.morgan@strategen.com.au

9.8.5 Postal Address

PO Box 243
Subiaco WA 6904
Australia

9.8.6 ABN/ACN

ABN

32056190419 - STRATEGEN ENVIRONMENTAL CONSULTANTS PTY LTD

9.8.7 Organisation Telephone

08 9380 3100

9.8.8 Organisation E-mail

info@strategen.com.au

Referring Party - Declaration

I, Heath Morgan, I declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence.

Signature:..... Date: 14/02/2018

Appendix A - Attachments

The following attachments have been supplied with this EPBC Act Referral:

1. s1.4_coordinates.pdf
2. s1.4_sfis_offtakedam_epbc_figure_1.pdf
3. s1.4_sfis_offtakedam_epbc_figure_2.pdf
4. s1.15.1_sfis_offtakedam_epbc_figure_3.pdf
5. s2.14_sfis_damofftake_epbc_level_1_flora_veg_survey_reduced.pdf