



Statement No.

MINISTER FOR THE ENVIRONMENT;  
LABOUR RELATIONS

000525

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED  
(PURSUANT TO THE PROVISIONS OF THE  
ENVIRONMENTAL PROTECTION ACT 1986)

STIRLING-HARVEY REDEVELOPMENT SCHEME

**Proposal:** The redevelopment of the Harvey and Stirling Reservoir System by constructing a new dam on the Harvey River near the town of Harvey, and new pipelines from the Harris Dam to the Stirling Dam, and from the Stirling Dam to the Southern Trunk Main at Harvey, in order to utilise water from the Harvey and Collie basins for the Perth Metropolitan Water Supply Scheme, as documented in schedule 1 of this statement.

The proposal also involves the implementation of a Land Acquisition and Rehabilitation Strategy to offset the environmental impacts of the proposal.

**Proponent:** Water Corporation

**Proponent Address:** 629 Newcastle Street, LEEDERVILLE WA 6007

**Assessment Number:** 1249

**Report of the Environmental Protection Authority:** Bulletin 950

The proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following conditions and procedures:

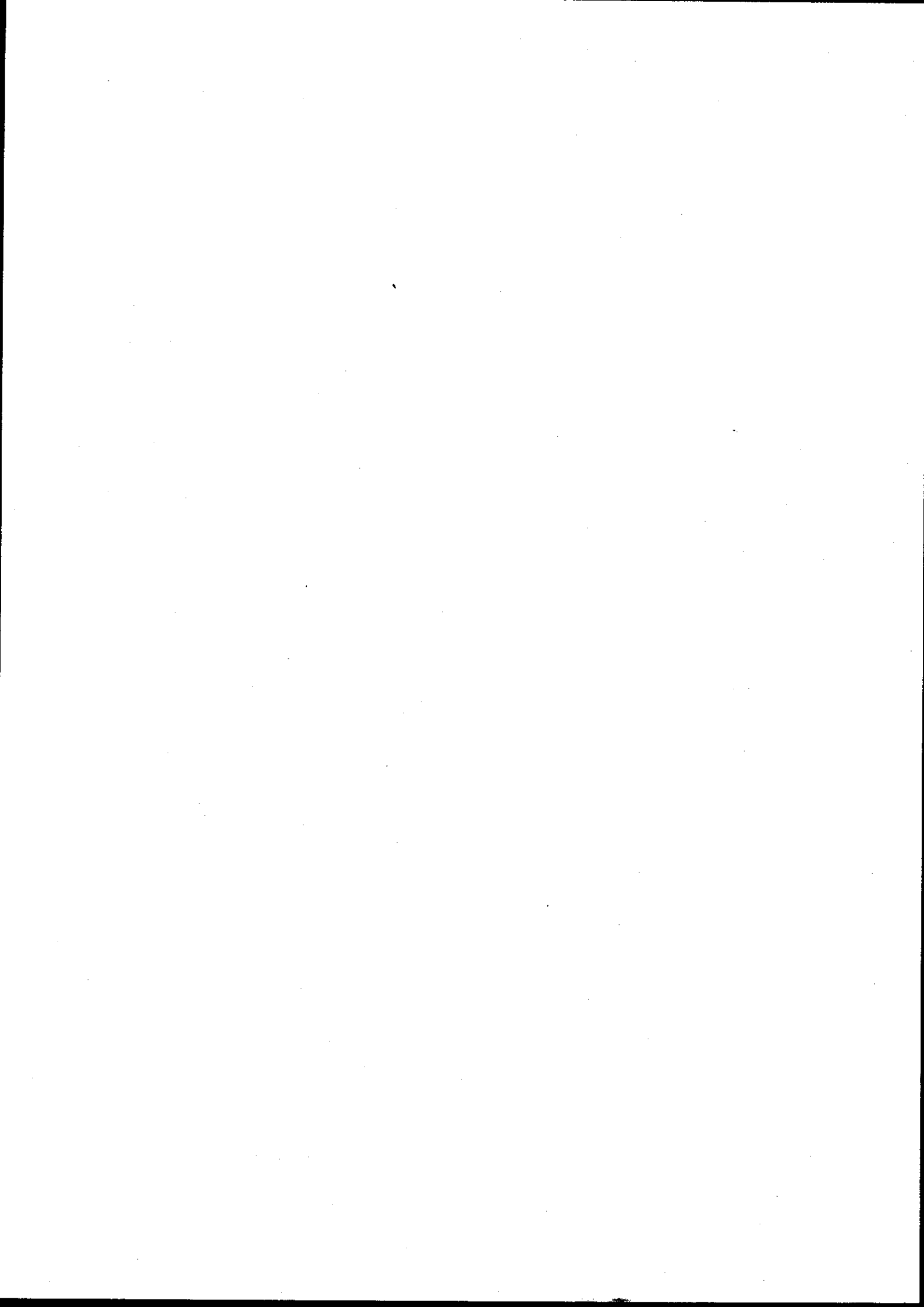
**Procedures**

**1 Implementation**

- 1-1 Subject to these conditions and procedures, the proponent shall implement the proposal as documented in schedule 1 of this statement.
- 1-2 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is substantial, the proponent shall refer the matter to the Environmental Protection Authority.
- 1-3 Where the proponent seeks to change any aspect of the proposal as documented in schedule 1 of this statement in any way that the Minister for the Environment determines, on advice of the Environmental Protection Authority, is not substantial, those changes may be effected.

Published on

29 OCT 1999



## 2 Proponent Commitments

- 2-1 The proponent shall implement the consolidated environmental management commitments documented in schedule 2 of this statement.
- 2-2 The proponent shall implement subsequent environmental management commitments which the proponent makes as part of the fulfilment of conditions and procedures in this statement.

## 3 Proponent

- 3-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the proposal until such time as the Minister for the Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.
- 3-2 Any request for the exercise of that power of the Minister referred to in condition 3-1 shall be accompanied by a copy of this statement endorsed with an undertaking by the proposed replacement proponent to carry out the proposal in accordance with the conditions and procedures set out in the statement.
- 3-3 The proponent shall notify the Department of Environmental Protection of any change of proponent contact name and address within 30 days of such change.

## 4 Commencement

- 4-1 The proponent shall provide evidence to the Minister for the Environment within five years of the date of this statement that the proposal has been substantially commenced.
- 4-2 Where the proposal has not been substantially commenced within five years of the date of this statement, the approval to implement the proposal as granted in this statement shall lapse and be void. The Minister for the Environment will determine any question as to whether the proposal has been substantially commenced.
- 4-3 The proponent shall make application to the Minister for the Environment for any extension of approval for the substantial commencement of the proposal beyond five years from the date of this statement at least six months prior to the expiration of the five year period referred to in conditions 4-1 and 4-2.
- 4-4 Where the proponent demonstrates to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that the environmental parameters of the proposal have not changed significantly, then the Minister may grant an extension not exceeding five years for the substantial commencement of the proposal.



## 5 Compliance Auditing

- 5-1 The proponent shall submit periodic Performance and Compliance Reports, in accordance with an audit program prepared in consultation between the proponent and the Department of Environmental Protection.
- 5-2 Unless otherwise specified, the Chief Executive Officer of the Department of Environmental Protection is responsible for assessing compliance with the conditions, procedures and commitments contained in this statement and for issuing formal, written advice that the requirements have been met.
- 5-3 Where compliance with any condition, procedure or commitment is in dispute, the matter will be determined by the Minister for the Environment.

### Note

- 1 The proponent is required to apply for a Works Approval and Licence for this project under the provisions of Part V of the Environmental Protection Act.
- 2 In addition to this proposal, there will also be changes to the conditions for the Harris River Dam Project (Assessment No. 1293), resulting from a section 46 assessment which was also reported on in Environmental Protection Authority Bulletin 950.

  
CHERYL EDWARDES (Mrs) M.L.A.  
MINISTER FOR THE ENVIRONMENT

29 OCT 1999



## Schedule 1

### The Proposal (1249)

The proposal consists of the following elements:

- construction of a new dam with a full supply level of 78 metres Above Height Datum on the Harvey River, 800m downstream from the existing weir (referred to as the New Harvey Dam);
- construction of a pipeline (referred to as the Stirling-Harvey Pipeline) in the Harvey River Valley from the Stirling Dam to the Water Corporation's Southern Trunk Main pipeline in the town of Harvey;
- diversion of water (approximately 34 Gigalitres per annum) from the Stirling Reservoir for the Perth Metropolitan Water Supply Scheme;
- construction of a pipeline from the Harris Dam to the Stirling Reservoir (the Harris-Stirling Pipeline);
- upgrading of the Stirling Dam by:
  - \* construction of a new concrete intake tower and modification to outlet works;
  - \* widening of the dam spillway and increasing the height difference between the spillway and the dam wall, by raising the embankment level; and
  - \* installation of a new power supply to the dam using an on-site generator or overhead powerline;
- realignment of the Harvey-Quindanning road to replace sections of the road to be inundated; and
- purchase and / or rehabilitation of land for the purpose of offsetting impacts of inundation by the New Harvey Dam and disturbance as a result of the installation of pipelines and other infrastructure.

The major characteristics of the proposal are summarised in Table 1.

**Table 1: Key Proposal Characteristics**

Element and key characteristic	Description
<b>Harvey Reservoir</b>	
New dam	35 metres earth core and rockfill (above the river bank level)
Dam full supply level	78 metres Above Height Datum
Storage	60 Gigalitres
Additional area inundated	370 hectares
Native vegetation inundated (total)	183 hectares approximately.
Spillway width	30-60 metres
Buffer area	30 metres around reservoir
Rockfill in dam	700,000 cubic metres
Earthfill in dam	400,000 cubic metres
<b>Stirling-Harvey pipeline</b>	
	Buried, alignment down the valley of Harvey River
Length	19 kilometres
Diameter	1.42 metres
Capacity	200 Megalitres per day
Width of disturbance	Maximum 20 metres
Width of clearing	Maximum 20 metres
Vegetation cleared or disturbed	6 hectares approximately
<b>Harris-Stirling pipeline</b>	
	Buried, alignment within transmission line easement
Length	16 kilometres
Diameter	0.8 metres
Capacity	Up to 70 Megalitres per day
Width of disturbance	Maximum 12 metres (within powerline easement)
Width of clearing	Maximum 12 metres (within powerline easement)
Vegetation cleared or disturbed	19 hectares maximum (assumes proponent's preferred option to locate the pipe in the disturbed easement is not possible)
<b>Road Re-alignment</b>	
Length	7.5 kilometres approximately
Width of disturbance	20 metres approximately. (predominantly cleared)
Area of disturbance	20 hectares
<b>Landowner access roads</b>	
	2.8 kilometres, low speed, unsealed

**Figures (attached)**

- Figure 1 Project location: Harvey, Stirling and Harris Dams
- Figure 2 Key elements of the Stirling-Harvey Redevelopment proposal
- Figure 3 Map showing the area inundated by the proposed Harvey Dam and associated facilities
- Figure 4 Vegetation complexes in the reservoir inundation area for the New Harvey Dam
- Figure 5 Remnant vegetation (vegetation complexes) in good condition to be inundated by the New Harvey Dam
- Figure 6 Remnant vegetation (vegetation complexes) outside the inundation area - Rehabilitation Strategy.



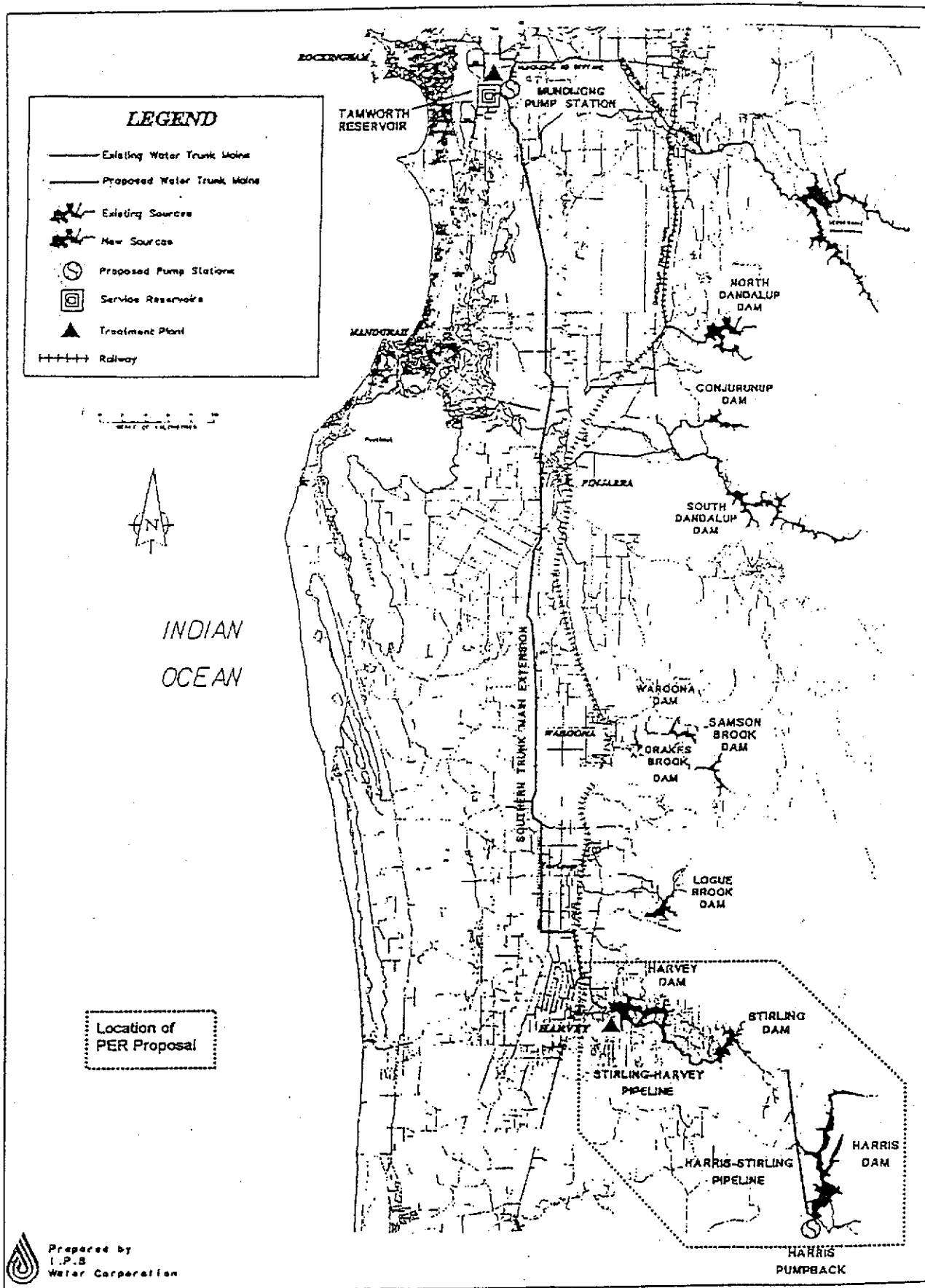


Figure 1. Location map (Source: Welker, 1999a).

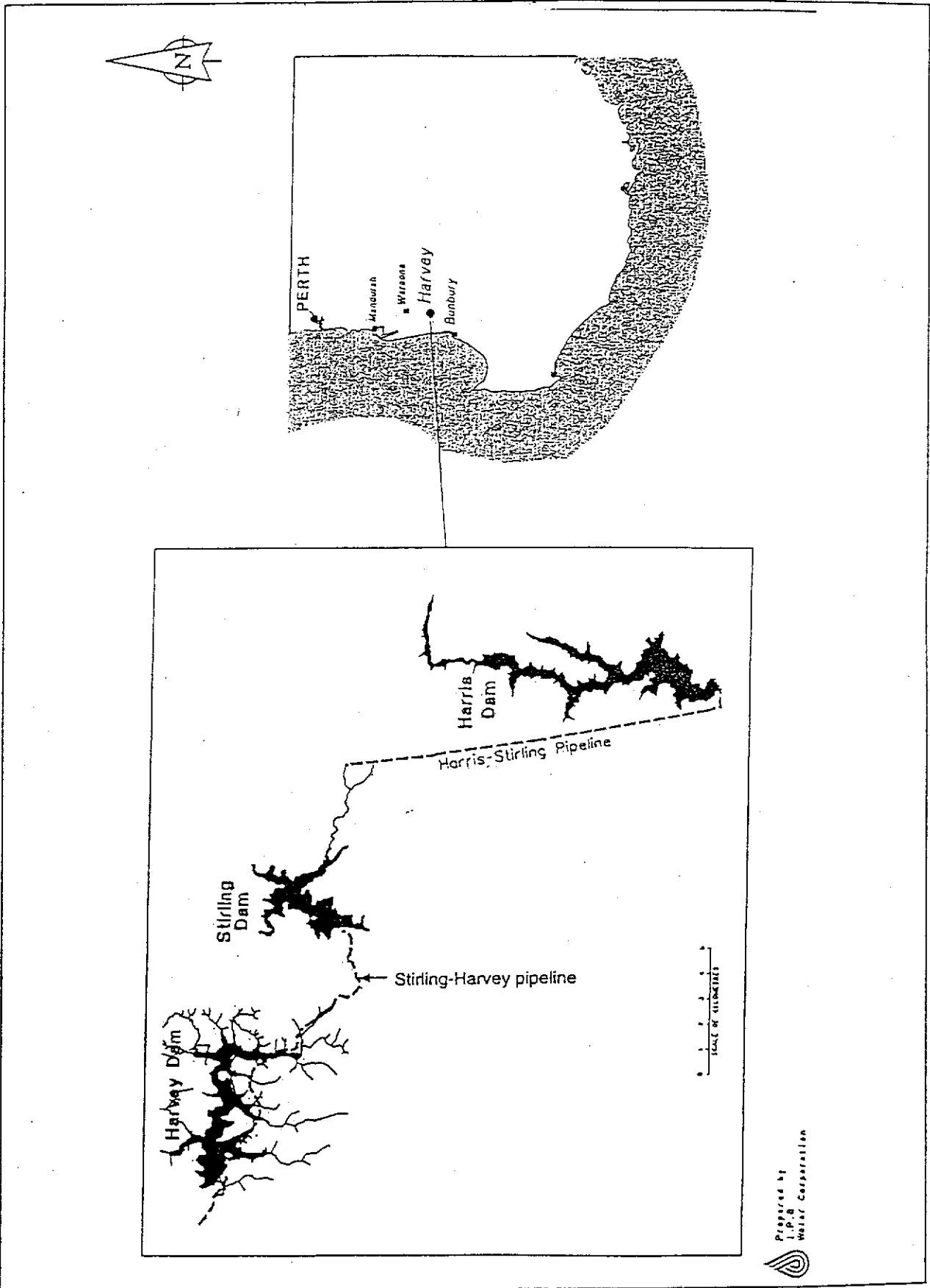


Figure 2. Key elements of the Stirling-Harvey Redevelopment proposal (Source: Welker, 1999a).

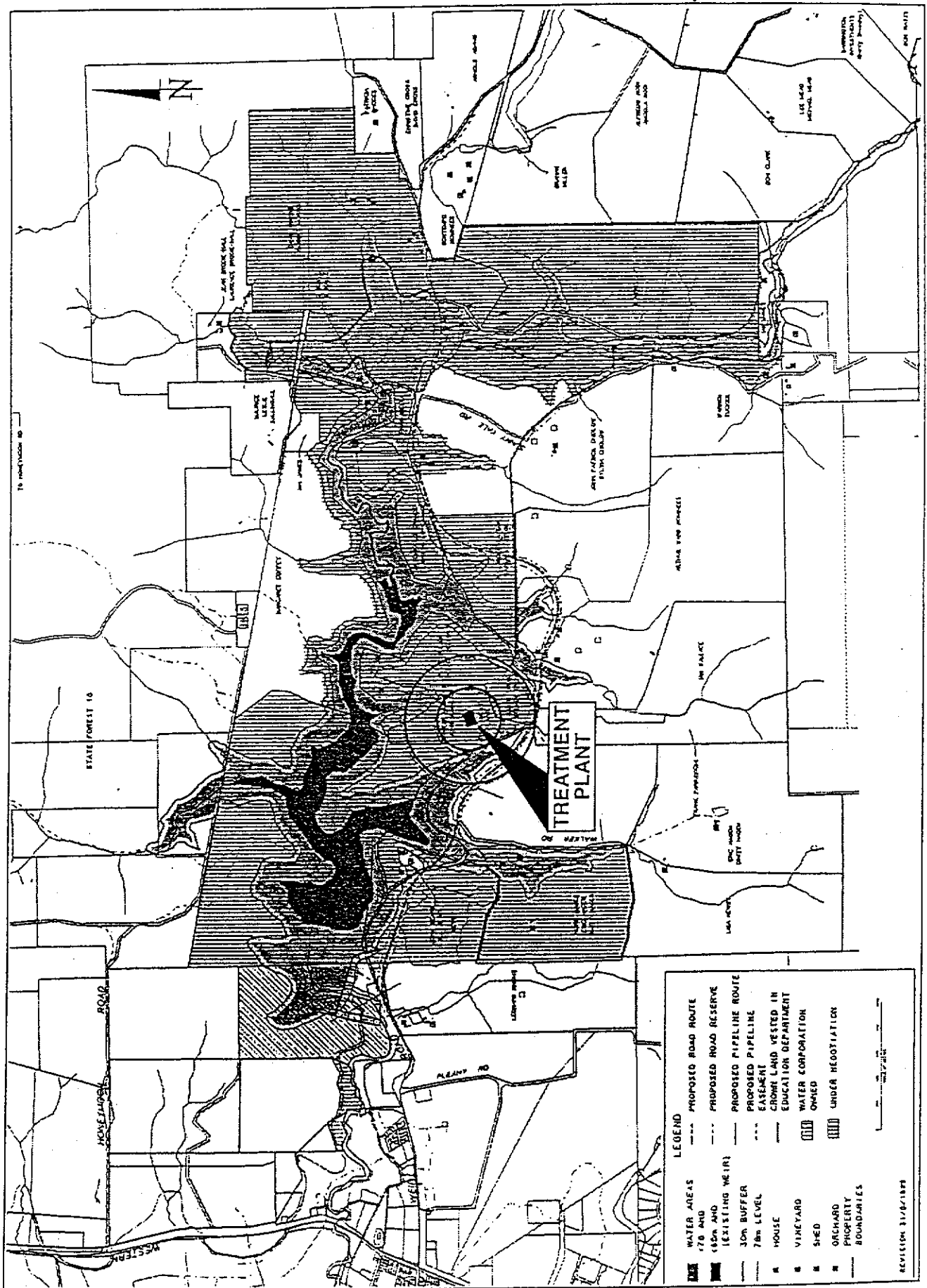


Figure 3. Map showing the area inundated by the proposed Harvey Dam and associated facilities (Source: Water Corporation, 1999).

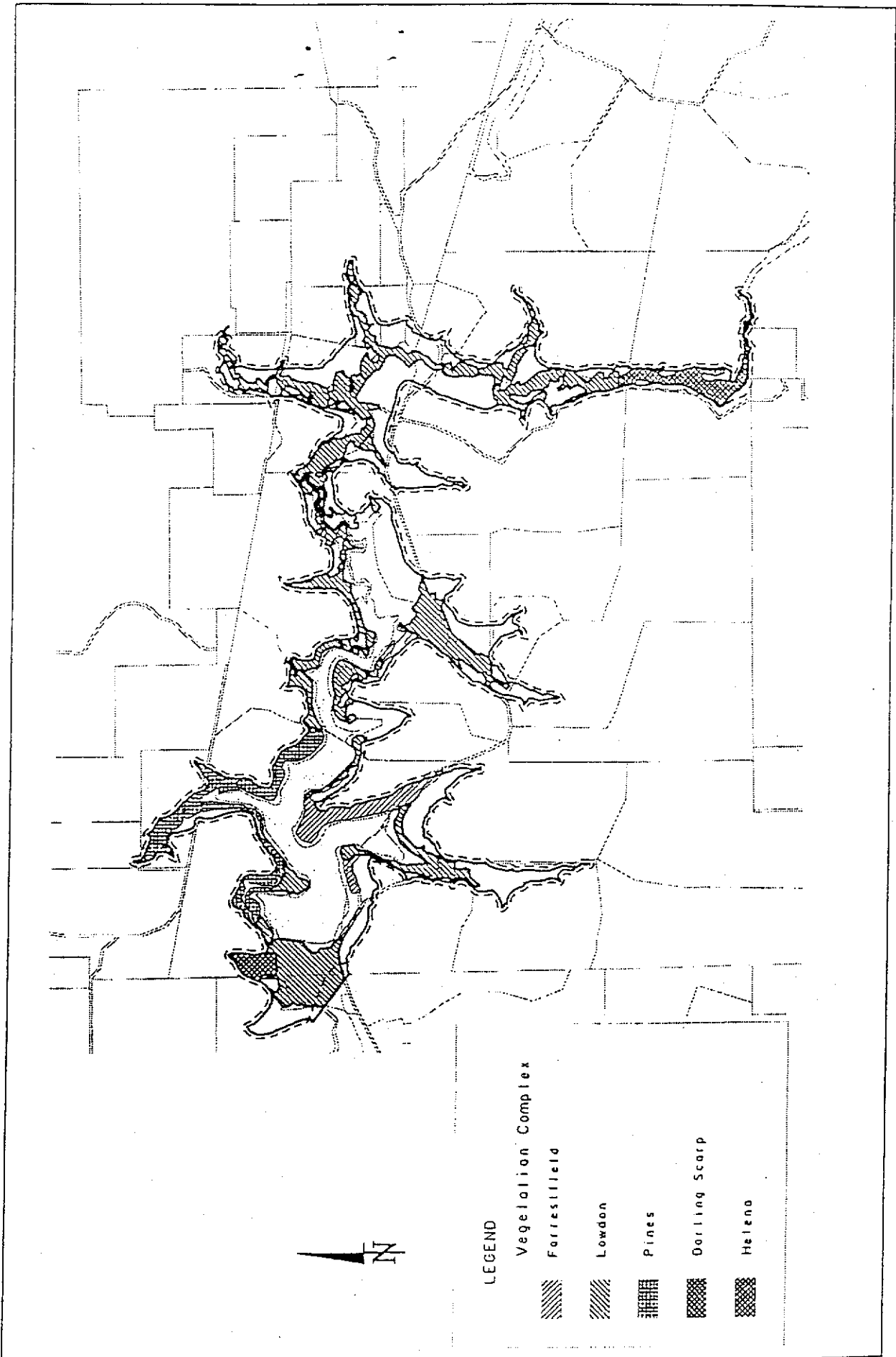
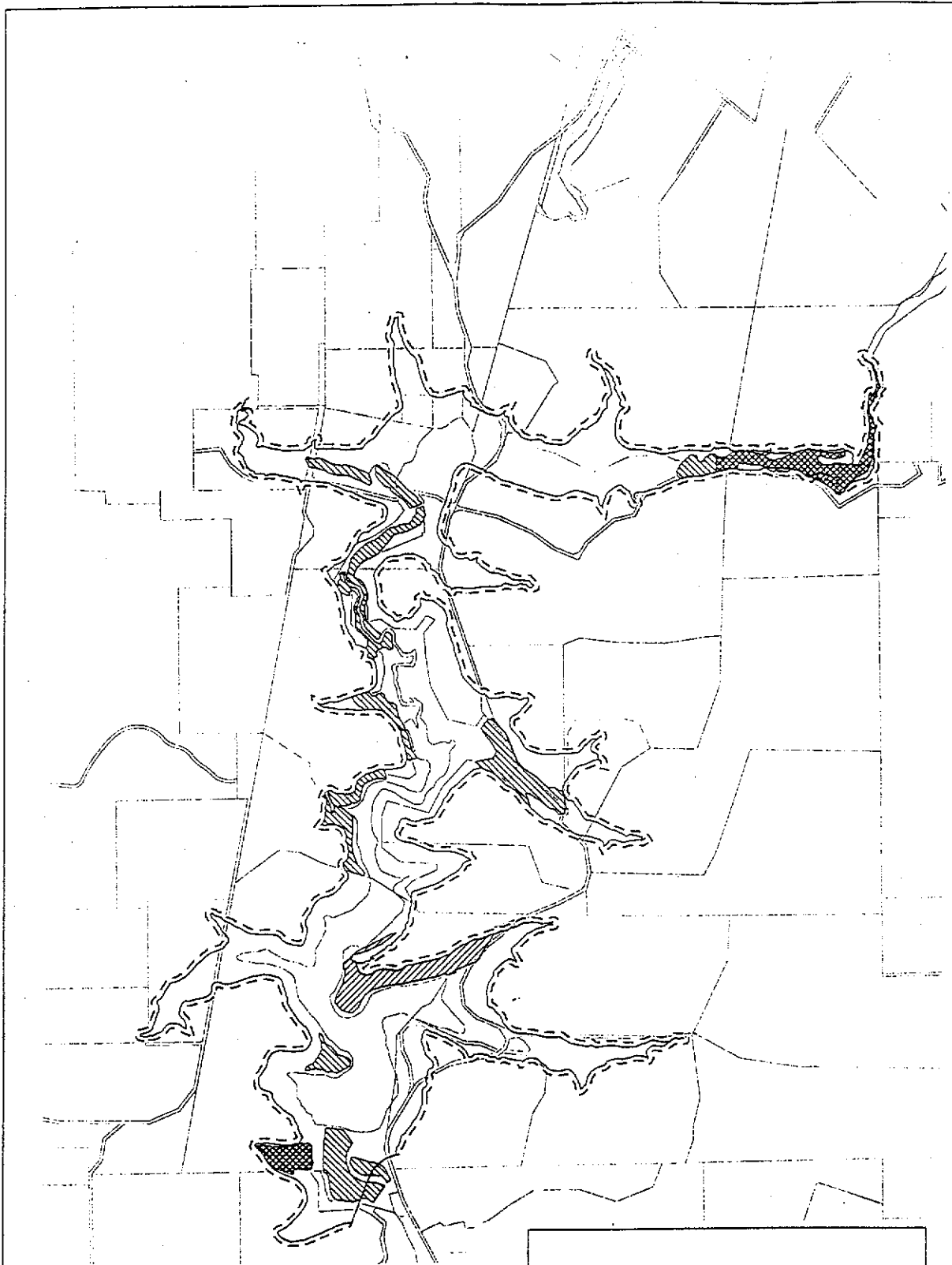


Figure 4. Vegetation complexes in the reservoir inundation area for the new Harvey Dam (Source: Water Corporation).



**LEGEND**

**Vegetation Complex**

- Forresilfield
- Lowdon
- Pines
- Dorling Scorp
- Heleno

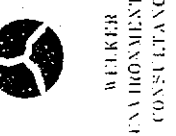
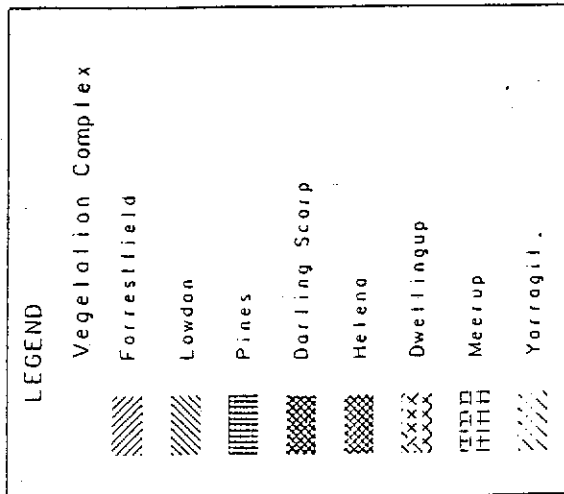
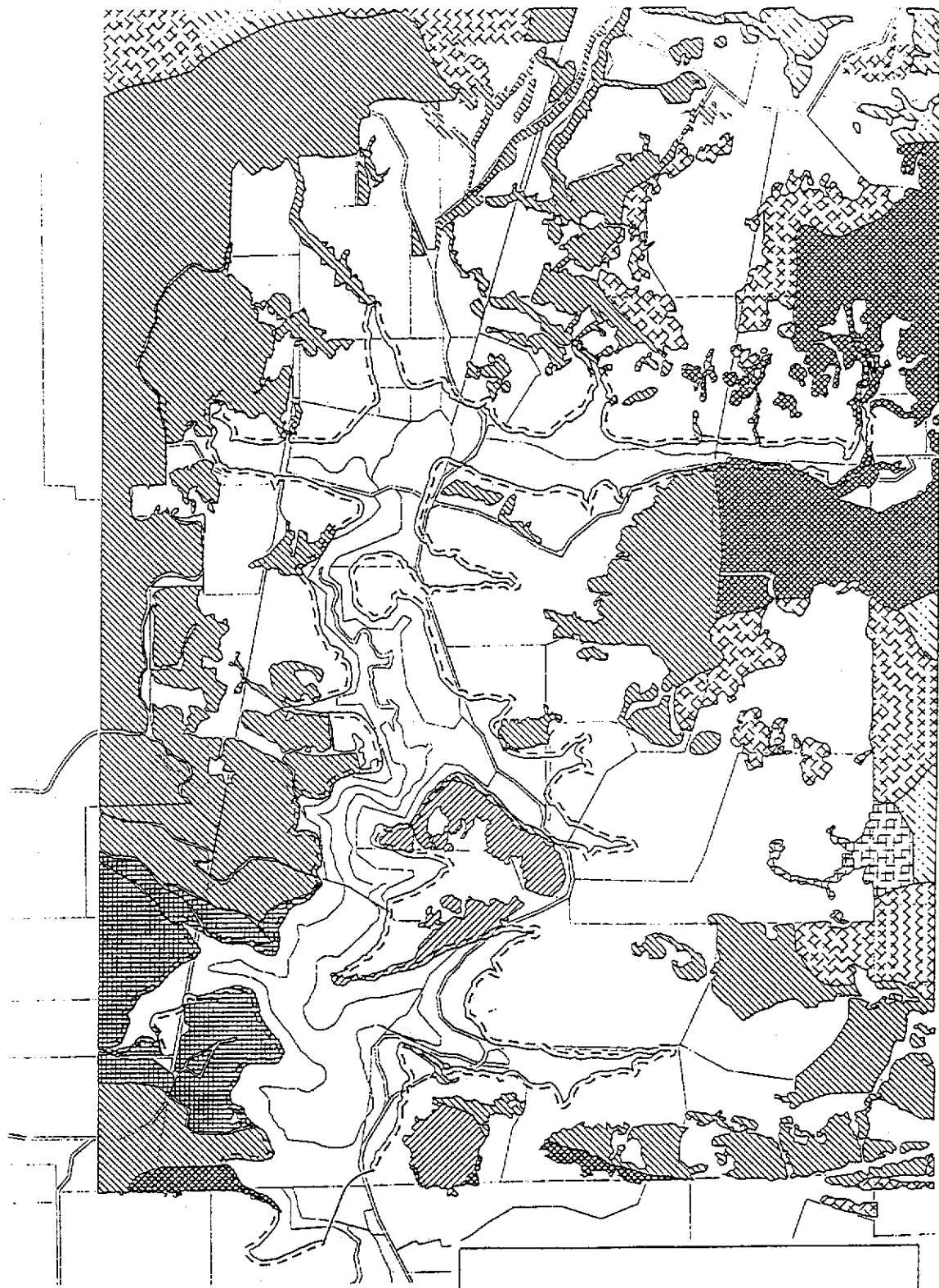


WELKER  
ENVIRONMENTAL  
CONSULTANCY

VEGETATION COMPLEXES IN THE RESERVOIR INUNDATION AREA  
RELATIVELY GOOD VEGETATION COVERAGE

FIGURE '5

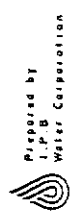
Prepared by  
I.P.B.  
Welker Corporation



WEIRER  
ENVIRONMENTAL  
CONSULTANCY

Vegetation Complexes Outside the Inundation Area

FIGURE 6



Prepared by  
J.P.B.  
Water Corporation

Schedule 2

**Proponent's Consolidated Environmental Management  
Commitments**

28 August 1999

**STIRLING-HARVEY REDEVELOPMENT SCHEME  
(1249)**

**WATER CORPORATION**

## Proponent's Commitments (1249)

Commitment	Objective (Why)	Action (How/where)	Timing (When)	Whose Advice	Measurement Compliance Criteria
<p>P1 In order to manage the environmental impacts of the proposal, an environmental management system will be developed and implemented which includes the following elements:</p> <ol style="list-style-type: none"> <li>1. An environmental policy and corporate commitments;</li> <li>2. Mechanisms and processes to ensure:               <ul style="list-style-type: none"> <li>• Planning to meet environmental requirements;</li> <li>• Implementation of actions to meet environmental requirements;</li> <li>• Measurement and evaluation of environmental performance.</li> </ul> </li> <li>3. Review and improvement of environmental outcomes.</li> </ol>	<p>To manage the environmental impacts of the proposal.</p>	<p>Incorporate into project into the Proponent's environmental management system.</p>	<p>Prepare prior to and implement during and following construction.</p>	<p>CALM *</p>	<p>Submission of EMS document</p>
<p>P2 Prepare and implement a vegetation protection plan which includes forest hygiene procedures and is accordance with the EMS.</p>	<p>To minimise impacts on vegetation.</p>	<p>Within the proposal area.</p>	<p>Prepare prior to and implement prior to, during and following construction.</p>	<p>CALM</p>	<p>Submission of EMS document</p>
<p>P3 Develop and implement a weed and fire control strategy for the construction of the pipeline.</p>	<p>To protect vegetation values along pipeline routes.</p>	<p>Along pipeline routes.</p>	<p>Prior to pipeline construction.</p>	<p>CALM</p>	<p>Submission of EMS document</p>
<p>P4 Conduct a dieback survey and detailed survey for Declared Rare Flora and Priority Flora along pipeline routes prior to construction.</p>	<p>To protect vegetation values along pipeline routes.</p>	<p>Along pipeline routes.</p>	<p>Prior to pipeline construction.</p>	<p>CALM</p>	<p>Submission of EMS document</p>
<p>P5 Acquire land for incorporation into the conservation estate, State Forest or water reserve system as described in the attachment to schedule 2.</p>	<p>To increase security and protection of native vegetation complexes that have been extensively cleared by previous land use activities.</p>	<p>By acquisition of available land with substantial conservation value.</p>	<p>Prior to dam construction.</p>	<p>CALM</p>	<p>Advice from proponent advising of DEP and CALM approval.</p>
<p>P6 Facilitate the preparation of interim management guidelines for the proposed Korjukup Conservation Park and Falls Brook Nature Reserve (including additions proposed as part of this proposal) to the requirements of CALM and assist with the rehabilitation of degraded areas in accordance with P17.</p>	<p>To protect nature conservation values in the proposed Korjukup Conservation Park and the Falls Brook Nature Reserve</p>	<p>By provision of financial resources to CALM</p>	<p>Prior to and during construction of the dam.</p>	<p>CALM</p>	<p>Advice from CALM</p>



Commitment	Objective (Why)	Action (How/where)	Timing (When)	Whose Advice	Measurement Compliance Criteria
P7 Prepare and implement a fauna protection plan.	To minimise impacts on fauna.	Within proposal area.	Prepare prior to and implement prior to, during and following construction of the proposal.	CALM	Submission of EMS document
P8 Prepare and implement a management strategy for Western Ringtail Possum to the requirements of CALM.	To protect rare fauna.	Within and around inundation area of reservoir.	Prepare prior to and implement during and following dam construction.	CALM	Advice from CALM
P9 Include in the rehabilitation/restoration and buffer areas (refer P 17), habitat and native plant species suitable for rare and vulnerable fauna known or likely to occur in the general area.	To enhance the amount of faunal habitat.	Within rehabilitation areas.	Prior to, during and following dam construction.	CALM	Advice from CALM
P10 Complete investigations into the inter-catchment transfer of fish species	To protect faunal diversity.	In the Stirling catchment.	Prior to construction of the Harris-Stirling pipeline.	Fisheries Dept	Submission of report
P11 Comply with the requirements of the Fisheries Department on the inter-catchment transfer of fish.	To protect faunal diversity.	In the Stirling catchment.	Prior to construction of the Harris-Stirling pipeline.	Fisheries Dept	Letter from Fisheries Dept
P12 Develop and implement a water quality and channel morphology monitoring program.	To determine impacts of the new dam and discharges from the Harris-Stirling pipeline.	Below the Harvey Dam and discharges from the Harris-Stirling pipeline.	Develop prior to and implement during and following construction.	WRC	Submission of EMS
P13 Prepare and implement a channel erosion contingency plan which includes trigger levels for action in the case of erosion being identified.	To mitigate any channel erosion impacts if they occur.	Below the Harvey Dam and discharges from the Harris-Stirling pipeline.	Develop prior to construction.	WRC	Submission of EMS document
P14 Contribute \$750,000 to the Harvey River Restoration Trust for river restoration projects and preparation of a river restoration program.	To facilitate the regeneration of riverine areas.	By supporting the Harvey River Restoration Trust.	Implement following detection of channel erosion.	WRC	Advice from WRC
P15 Prepare and implement an investigations program to verify the adequacy of environmental water provisions downstream from the proposed new dam wall.	To verify the adequacy of environmental water provisions.	Downstream from new dam.	During and following dam construction.	WRC	Advice from WRC

Commitment	Objective (Why)	Action (How/where)	Timing (When)	Whose Advice	Measurement Compliance Criteria
P16 Prepare and implement an investigations program to determine environmental water requirements on the Harvey River between the new Harvey Reservoir and the Stirling Dam.	To determine environmental water requirements of the existing hydrological regime on the Harvey River between the dams	The Harvey River between the new Harvey Reservoir and the Stirling Dam.	Prior to the completion of construction of the Harvey Dam	WRC	Advice from WRC
P17 Prepare and implement to DEP requirements a rehabilitation plan (which includes consideration of visual amenity) for areas disturbed by the proposal, vegetation between the 75m and 78m inundation level, the buffer zone and peppermint woodland and Forrestfield Complex vegetation rehabilitation areas as described in the attachment to schedule 2.	To establish a self-sustaining vegetation communities that are consistent with the current composition of vegetation complexes found in the area.	Areas disturbed by the proposal, reservoir buffer area and peppermint woodland and Forrestfield rehabilitation areas.	Prepare prior to and implement during and following dam construction.	CALM	Submission of and compliance with relevant EMS documents
P18 Prepare and implement a mosquito monitoring and management program.	To determine any change in the mosquito breeding from the new Harvey Reservoir and manage impacts to the requirements of the Health Dept of WA.	On and around the Harvey Reservoir	Prepare prior to dam construction. Implement during and following dam construction.	CALM/ Health Dept*	Submission of Plan & Written Advice from Health Dept
P19 Prepare and implement a construction dust monitoring and management plan.	To ensure dust level external to construction site area are acceptable.	Within the dam construction site.	Prepare prior to and implement during dam construction.		Submission of EMS document.
P20 Prepare a compensation claim procedure for any alleged adverse impacts on the marketability of table grapes jointly with vineyards owners operators east of the South Western Highway.	To compensate for any reduced economic returns caused by dust from construction of the dam.	West of the dam construction site to the South Western Highway.	Prepare prior to construction of the dam		Letter from table grape growers east of the South Western Highway
P21 Prepare and implement a construction noise and vibration management plan in consultation with nearby residences, the Shire of Harvey and according to the requirements of DEP.	To minimise noise impacts and meet appropriate standards including AS 2436-1981.	Within and external to dam construction site.	Prepare prior to dam construction. Implement during construction.		Submission of EMS document
P22 Conduct noise monitoring in the residential area on Weir Road for the dam construction period.	To establish noise levels from construction.	External to dam construction site.	Prior to and during dam construction.		Submission of EMS document
P23 Make available the results of any noise audit and noise and vibration monitoring to the local community.	To inform residents of noise levels and actions to control noise.	External to dam construction site.	During dam construction.	Shire of Harvey	Advice from the Shire of Harvey
P24 Comply with regulatory standards and take all reasonable measures to minimise impacts at the nearest noise sensitive premises for air blast noise and overpressure.	To minimise impacts and comply with noise regulations.	External to dam construction site.	During dam construction.		Submission of noise monitoring report.

Commitment	Objective (Why)	Action (How/where)	Timing (When)	Whose Advice	Measurement Compliance Criteria
P25 Negotiate with the occupiers of residences within 500 m of the dam construction site to mitigate the impact of noise levels.	To reduce noise effects on nearest resident.	External to construction site.	Prior to dam construction.		Advice from residents
P26 Conduct a survey of residences within about 1.5 km of the dam construction site, at no cost to the owner, to determine the baseline condition of the residences.	To determine baseline housing integrity.	External to construction site.	Prior to dam construction.		Submission of survey report.
P27 Conduct trial blasting to determine a procedure to protect nearby residential dwellings.	To protect dwellings from vibration impacts	External to construction site.	Prior to dam construction.		Submission trial report.
P28 Prepare and implement a program of aesthetic water quality monitoring in the Tourist Precinct, around Stirling's Cottage to the requirements of WRC.	To ensure the maintenance of appropriate aesthetic water quality near Stirling's cottage.	Downstream of the new dam.	Implement prior to construction	WRC	Advice from WRC.
P29 Prepare and implement a water quality monitoring program for the construction period downstream of the new dam to the requirements of WRC.	To determine any impact from construction on water quality.	Downstream of the new dam.	Prior to, during and following dam construction.	WRC	Advice from WRC.
P30 Develop and implement a community consultation and information program.	To inform landowners of consequences of the proposal.	Within the community	Prior to, during and following dam construction.	WRC	Submission of EMS document.
P31 Provide fire management access for CALM to the Harvey Weir pine plantation.	To ensure fire CALM fire management is not adversely affected.	Downstream of the new dam.	During and following dam construction.	CALM	Advice from CALM
P32 Support the development of facilities in the Tourism Precinct in accordance with the Memorandum of Understanding between the Shire of Harvey and the proponent.	To alleviate social impacts on the Shire of Harvey.	Within the Shire of Harvey.	During and following dam construction.	Shire of Harvey	Advice from the Shire of Harvey
P33 Ensure the release of aesthetic flows to the Tourism Precinct are in accordance with the requirements of the WRC.	To maintain amenity within Tourism precinct.	Within Tourism Precinct.	Following dam construction.	WRC	Advice from WRC
P34 Prepare a heritage management plan in accordance with the requirements of the Heritage Council of WA and in consultation with the Shire of Harvey.	To protect significant heritage places.	In inundation area.	Prior to dam construction.	Heritage Council	Advice from Heritage Council

Commitment	Objective (Why)	Action (How/where)	Timing (When)	Whose Advice	Measurement Compliance Criteria
P35 Conduct a further Aboriginal site survey of creek line crossings (which were previously unsurveyed) along the Harris-Stirling pipeline route.	To survey for further Aboriginal sites on creek lines.	On Harris-Stirling pipeline route.	Prior to construction of Harris-Stirling pipeline.		Submission of Report
P36 Consult with the Aboriginal community prior to submitting an application to disturb two Aboriginal sites pursuant to section 18 of the Aboriginal Heritage Act 1972.	To ensure the significance of Aboriginal heritage sites are understood.	In the area of the proposal.	Prior to dam construction.	DAA	Advice from DAA
P37 Consult with Aboriginal people and organisations on construction of the pipelines.	To ensure that the proposal minimises impact on significant Aboriginal sites.	In the area of the proposal.	Prior to pipeline construction.	DAA	Advice from DAA
P38 Conform with any requirements relating to recreational flow releases from the Harvey or Stirling reservoirs imposed through an allocation licence issued by the WRC.	To provide for releases for whitewater in accordance with allocation licence.	Downstream of Stirling Reservoir.	Prior to, during and following dam construction.	WRC	Advice from WRC
P39 Restore recreational use around Gibbs Pool following the construction phase of the proposal.	To develop recreation facilities below the new dam.	Downstream of the new dam.	Following dam construction.	Shire of Harvey	Advice from the Shire of Harvey
P40 Conduct an investigation of the competency of the section of Weir Road to the construction site.	To determine road condition.	Scaled section of Weir Road.	Prior to dam construction.		Submission of report
P41 Prepare and implement a construction traffic management plan in consultation with the Shire of Harvey and the local community.	To ensure road safety and protect amenity of residents.	Traffic routes to the construction site.	Prepare prior to and implement during dam construction.	Shire of Harvey	Submission of EMS document
P42 Prepare and implement a safety monitoring and surveillance program for the Harvey Dam which supplements the existing program for the Stirling Dam.	To ensure dam safety.	Within the area of the proposal.	Following dam construction.		Submission of EMS document
P43 Prepare a dam safety emergency plan for the Harvey and Stirling dams.	To ensure dam safety.	Within the area of the proposal.	Prior to completion of dam construction.		Submission of EMS document
P44 Conduct a quantitative risk assessment of chlorination facility prior to construction.	To ensure the location and design of facility is acceptable.	Surrounds of the chlorination facility.	Prior to construction of disinfection plant.	DME	Submission of assessment report

Commitment	Objective (Why)	Action (How/where)	Timing (When)	Whose Advice	Measurement Compliance Criteria
P45 Prepare and implement a Stirling Reservoir draining and water release management plan to the requirements of WRC.	To prevent channel erosion below the Stirling Dam from releases during the construction of the Stirling intake tower.	Harvey River between the Stirling Dam and Harvey Reservoir.	Prepare prior to intake tower construction. Implement during intake tower construction. By September 2000	WRC	Advice from WRC
P46 Upgrade sections of Honeymoon Road.	To remove the current restriction on the use of Honeymoon Road by logging traffic	Honeymoon Road		Shire of Harvey/ CALM *	Advice from the Shire of Harvey
P47 Prepare and implement a recreation site redevelopment plan for recreational facilities below the Stirling Dam.	To ensure that the reinstatement of facilities at the site is undertaken to provide a similar level of amenity to the existing recreation area	Downstream from Stirling Dam	Prior to pipeline construction	CALM	Advice from CALM
P48 Fund the preparation of a Regional Recreational Opportunities Spectrum Study (to the level agreed with CALM) and facilitate the necessary changes to existing recreation facilities (or development of new facilities) to compensate for the displacement of recreation facilities resulting from the proposal.	To address recreational displacement that may result from the proposal and identify offsets	By provision of financial resources to CALM	Prior to dam completion	CALM	Advice from CALM
P49 Provide details of pipeline construction methods and final site configurations.	To address minimal disturbance and adequate site restoration	Stirling - Harvey and Harris - Stirling pipelines	Prior to pipeline construction	CALM	Advice from CALM

Note \* For those issues affecting CALM

#### Abbreviations

- CALM Department of Conservation and Land Management
- DAA Department of Aboriginal Affairs
- DEP Department of Environmental Protection
- DME Department of Minerals and Energy
- EMS Environmental Management System
- WRC Water and Rivers Commission

## Other Commitments

- 1 Establish a management presence in the proposal area.
- 2 Cooperate with CALM on fox and feral cat control programs in the area.
- 3 To ensure that the restoration program achieves at least 30,000 tonnes of carbon dioxide sequestration within 10 years.
- 4 Implement the proponent's land acquisition policy.
- 5 Inform landowners affected by the proposal of the land acquisition policy.
- 6 Assist the WRC in resourcing the preparation of a catchment management plan.
- 7 Initiate the Government Heritage Disposal Process.
- 8 Liaise with Rally Australia, the Shire of Harvey, WRC and CALM to facilitate the selection of an alternative route for Rally Australia, or management measures to protect water quality.
- 9 Undertake screen planting of trees in the vicinity of the embankment and by agreement near residences within 1 km of the proposed dam.

**Attachment 1**

# Stirling-Harvey Redevelopment Scheme

Land Acquisition and Rehabilitation Strategy

## Conservation Offset Measures

The offset measures offered should be considered as a package of a number of initiatives to obtain a range of ecological and conservation benefits that result in a net environmental gain through the implementation of the project.

For instance, the restoration of the riparian zone in the Harvey Basin not only provides substantial sediment and erosion control benefits, but also:

- reduces the export of nutrient to the Peel Harvey Estuary;
- restores and protects local vegetation communities;
- increases biological diversity and fauna habita; and
- restores ecological processes in the Harvey riverine system.

While the project will result in the loss of some botanical and ecological values through inundation by the new Harvey Dam, there are many environmental benefits gained through the protection or restoration of botanical and ecological values in other areas. The proposal also provides an opportunity to protect and manage some remaining values inside and outside the project area that are under threat from existing land use activities. In addition the package offered provides the opportunity to expand the conservation estate to included some of the Forrestfield and Lowdon vegetation complexes (which are under-represented in the conservation estate if the 10% of original distribution is adopted as a criterion).

The initiatives offered to offset the loss of environmental values through the implementation of the project are described in the attached table and include:

- Acquisition, increased security, protection and management for conservation of a substantial amount of land containing native vegetation complexes that have been extensively cleared by previous land use activities.
- Substantial researching of the restoration of the Harvey River and its tributaries through the Harvey River Restoration Trust to facilitate the restoration of ecological processes and communities lost through previous land use activities.
- Rehabilitation and subsequent protection of substantial areas to re-establish faunal habitat and self-sustaining vegetation communities that are consistent with the current composition of vegetation complexes found in the area.
- Development of a management framework for the proposed Korijekup Conservation Park and Falls Brook Nature Reserve to protect conservation in these areas.

The attached table also describes the existing condition and values of the vegetation complexes affected by the project. Vegetation maps covering the area of the inundation are also attached for your information.

## Rehabilitation Plan

The recommended scope and contents of a rehabilitation plan that is consistent with commitment 17 is attached.



## Land Acquisition and Rehabilitation Strategy

Location	X-ref	Area ha	Before Implementation				After Implementation				Comment	
			Condition	Con value	Threatening Processes	Tenure/Purpose	Management	Condition	Temure/Purpose	Management		Con value
<b>Impacts</b>												
<b>Inundation area</b>												
Lowdon		56	Native vegetation, relatively good condition, potentially habit for Western Ringtail Possum	High	Weeds fire grazing	Freehold Farmland	Private land	52 ha lost, 4 ha affected by occasional inundation (3)	Water Reserve	N/A (4)	Low	Loss
Lowdon		77	Degraded by clearing and grazing understorey almost absent	Low	Weeds fire grazing	Freehold Farmland	Private land	68 ha lost, 9 ha affected by occasional inundation (3)	Water Reserve	N/A (4)	Low	Loss
Lowdon		12	Degraded, by clearing and grazing understorey almost absent	Med to low	Weeds, fire, uncontrolled access	Water reserve 24002 & VCL	None	Inundated	Water Reserve	N/A	Nil	Loss
Helena		14	Native vegetation good condition	Med	Weeds fire grazing	Freehold Farmland	Private land	5 ha lost, 9 ha affected by occasional inundation (3)	Water Reserve	N/A (4)	Low	Loss
Forrestfield (West Lot 1)		16	Native vegetation, very good condition in atypical location	Very high	Weeds, fire, uncontrolled access	Water Reserve 15515	None	14 ha lost, 2 ha affected by occasional inundation (3)	Water Reserve	N/A (4)	Low	Loss
Forrestfield (North Lot 2)		3	Degraded, high weed invasion and cleared understorey	Low	Weeds fire grazing	Freehold Farmland	Private land	Inundated	Water Reserve	N/A	Nil	Loss
Darling Scarp		5	Degraded as partly cleared and tracks present	Med	Weeds fire grazing	Freehold Farmland	Private land	Inundated	Water Reserve	N/A	Nil	Loss
<b>Pipeline routes</b>												
Helena		6	Native vegetation	Med to high	Weeds fire grazing	Freehold Farmland	Private land	Rehabilitated native vegetation	Freehold/Farmland	Rehabilitated Private land	Medium - high (long term)	Short term loss
Dwellingup and Yarragil (1)		19	Native vegetation, good condition, dieback infected	Low	Weeds fire grazing	State Forest	None	Rehabilitated native vegetation	State Forest	Rehabilitated State Forest	Medium - high (long term)	Short term loss

Location	X-ref	Area ha	Before Implementation					After Implementation				
			Condition	Con value	Threatening Processes	Tenure/Purpose	Management	Condition	Tenure/Purpose	Management	Con value	Comment
Land Acquisition Lowdon	P5	30-40	Native vegetation, very good condition	High	Weeds, fire, grazing	Freehold Farmland	Private land	Native vegetation	A class conservation	Reservation for conservation	High	Gain
Yarloop Loc 5322 (Forresfield)	P5	5	Native vegetation, very good condition	Very high	Weeds, fire and residential development	Freehold rural residential	Private land	Native vegetation	A class conservation	Reservation for conservation	Very high	Gain
Western Part of Lot1 (Forresfield)	P5	8	Native vegetation, good condition	High	Weeds, fire, grazing	Freehold Farmland	Private land	Native vegetation	Water Reserve/Conservation	Fenced, weed control, conservation	Very High	Gain
Eastern Part of Lot 2 (Forresfield)	P5	31	Native vegetation, slightly disturbed	Med	Weeds, fire, grazing	Freehold Farmland	Private land	Native vegetation	Water Reserve/Conservation	Fenced, weed control, conservation	High	Gain
Land Rehabilitation												
Eastern Part of Lot1	P17	20	Gravel/sand quarry	Neg	Cleared, gravel extraction	Freehold Farmland	Private land	Rehabilitated (Forresfield) conservation	Water Reserve/Conservation	Fenced, rehabilitated, conservation	Medium to high (long term)	Gain
Part of Slabwell	P17	35	Cleared /degraded	Low to neg	Weeds, fire, grazing	Farmland Freehold	Private land	Rehabilitated (Lowdon) ringtail habitat	Water Reserve	Fenced, rehabilitated, conservation	Medium to high (long term)	Gain
Buffer area (Lowdon, Helena, Forresfield)	P17	31 (5)	Native vegetation	Med	Weeds fire grazing	Freehold Farmland	Private land	Native vegetation	Water Reserve	Fenced, weed control, conservation	Medium to high	Gain
Buffer area	P17	104 (5)	Cleared/ degraded	Low to neg	Weeds fire grazing	Freehold Farmland	Private land	Rehabilitated (Lowdon) conservation	Water Reserve	Fenced, rehabilitated, conservation	Medium (long term)	Gain
Kortjekup	P6		Native Vegetation	High	Weeds, fire, uncontrolled access	Reserve	None	Native Vegetation	Reserve	Weed control, controlled access	High	Gain

Location	X-ref	Area ha	Before Implementation				After Implementation				Comment		
			Condition	Con value	Threatening Processes	Tenure / Purpose	Management	Condition	Tenure / Purpose	Management		Con value	
Other Offset Measures													
Part of Water reserve 15515 (Forrestfield)		10	Native vegetation, good condition	High	Weeds, fire, grazing	Water reserve	None	Native vegetation	Water Reserve/ Conservation	Fenced, weed control, conservation	Very high	Gain	
Kuriyekup	P6		Native Vegetation	High	Weeds, fire, uncontrolled access	Reserve	None	Native Vegetation	Reserve	Management framework in place	High	Gain	
Falls Brook Nature Reserve	P6		Native Vegetation	High	Weeds, fire, uncontrolled access	Reserve	None	Native Vegetation	Reserve	Management framework in place	High	Gain	
Contribution to Harvey River Restoration Trust	P14	230 (2)	Cleared /degraded	Low	Weeds fire grazing, erosion	Freehold Farmland	Private land	Rehabilitated conservation	River Reserve	Fenced, rehabilitated, conservation	Medium (long term)	Gain	

Notes

- 1 outcome.
- 2 The Water Corporation is currently negotiating with Western Power to install the Harris pipeline entirely within the existing powerline corridor - this is expected to be the final outcome.
- 3 The area of rehabilitation resulting from the Corporation's contribution to the Harvey River Restoration is an estimate based on the Commission's guidelines for the Trust. The actual area of rehabilitation is expected to be greater.
- 4 Vegetation between the 75m and 78m AHD level will not be cleared.
- 5 The vegetation left uncleared between 75 and 78m AHD will be managed as part of the reservoir buffer system (ie, fenced and weed control). The buffer area is expected to be greater than that stated because of land rationalisation constraints.

## SCOPE AND CONTENT OF REHABILITATION PLAN

### 1. Rehabilitation objectives

Rehabilitation objectives will be provided for the following rehabilitation areas. Preliminary rehabilitation objectives are as follows:

#### Areas disturbed by the pipeline construction in native forest

- To create a stable landscape with self-sustaining vegetation communities that are consistent with the current composition of vegetation complexes found in the area.
- All seed to be collected from local native species and applied in mixtures based on the recognised floristic composition of the site-vegetation types (as used in the rehabilitation planning) which occur within this valley system.

#### Forrestfield Complex Rehabilitation Area (gravel pit site)

- Reinstatement of self-sustaining vegetation communities that approach the form, cover, diversity and resilience of the original Forrestfield Vegetation complex found in the vicinity.
- All seed to be collected from local native species and applied in mixtures based on the recognised floristic composition of the site-vegetation types (as used in the rehabilitation planning) which occur within the Forrestfield Complex Area.

#### Peppermint woodland area (cleared grazing land)

- To encourage the development of a peppermint woodland with habitat values for Western Ringtail possums and other significant fauna that may occur in the vicinity.
- To encourage peppermint woodlands, restoration work to be based on a mixture of seeding and planting to enable both a range of native species to be re-introduced into these largely modified landscapes and also to provide a mosaic of different peppermint ages for assisting with fauna habitat restoration. Further investigative work, as well as trials, will be completed as part of the rehabilitation programme to assess the viability of transplanting.

#### Borrow pit and quarry areas

- Create a safe, stable, landscape with visual amenity and a cover of native vegetation based on local native flora species.

#### Buffer area (previously cleared areas)

- To establish habitat for locally significant fauna and encourage the establishment of native vegetation with flora species that are consistent with vegetation complexes that occur in the local area.
- To reduce the risk of turbid runoff to the Harvey Reservoir and improve water quality.

## **2. Management of vegetation disturbance**

Procedures to be employed to minimise the disturbance of native vegetation by construction operations.

## **3. Pattern of rehabilitation**

Site plans area will be included which will describe rehabilitation in each area. In some areas opportunities may be taken to create a diversity of habitats and communities. Such habitats and communities would be consistent with those that occur in the local area.

## **4. Description of rehabilitation methodologies**

Methodologies will be described which incorporate best practice in rehabilitation including:

- the use of smoke for seed germination, collection of local provenance seed, direct seeding, planting of seedlings and direct translocation of non weed-infested topsoil from inundation areas into rehabilitation areas;
- retention of as much forest debris as possible in rehabilitation areas;
- transplanting of mature peppermints;
- increasing the range of species present in disturbed and modified areas, which in turn will lead to a diversity of structural layers and communities for the fauna species;
- respreading of topsoil, ripping, seeding and fertilising, in quarry and borrow pit areas above the zone of inundation;
- construction of specific fauna habitat.

## **5. Dieback and Weed management**

The methods to be employed for weed control may include removal of topsoil containing weed seeds from cleared grazing areas and application of herbicides that are consistent with protection of reservoir water quality.

Forest hygiene and weed management measures (to CALM requirements) will be written into contract documents.

Monitoring protocol for weeds and dieback will be described and remedial actions in the event of unacceptable weed infestations and dieback disease being detected (outside existing infested areas) will be identified.

## **6. Description of completion and rehabilitation performance criteria**

Preliminary completion criteria related to rehabilitation stages will be provided for each rehabilitation area. Criteria and rehabilitation may be based on a number of factors including:

- Soil stability;
- Recruitment of fauna into rehabilitation areas;

- Diversity and abundance of native flora species;
- Development of a diversity of structure (height and plant cover) and composition of local plant communities;
- Presence of weeds and dieback disease;
- Establishment of ecological processes;
- Resilience to fire.
- Preliminary performance targets and criteria will be established for each rehabilitation stage. These will be reviewed annually following monitoring.

#### **7. Monitoring Program and contingency measures**

A monitoring program to assess the effectiveness of rehabilitation will be outlined and contingency plans outlined where performance criteria have not been met.

#### **8. Allocation of rehabilitation resources**

The equipment and personnel that will be applied to rehabilitation will be described.