



MINISTER FOR THE ENVIRONMENT;
LABOUR RELATIONS

Statement No.

000543

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

**REMEDICATION OF INDUSTRIAL LAND FOR RESIDENTIAL PURPOSES,
SOUTH COOGEE, CITY OF COCKBURN**

- Proposal:** The remediation of portions of the 50.56 hectares of government land along Owen Anchorage coastline in South Coogee, City of Cockburn, approximately five kilometres south of Fremantle, for residential purposes as documented in schedule 1 of this statement.
- Proponent:** Western Australian Planning Commission
- Proponent Address:** 469-489 Wellington Street, Perth WA 6000
- Assessment Number:** 1004
- Report of the Environmental Protection Authority:** Bulletin 957

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

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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 Environmental Management System

- 3-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to ground-disturbing activities, the proponent shall demonstrate to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection that there is in place an environmental management system which includes the following elements:
- 1 An environmental policy and corporate commitment to it;
 - 2 Mechanisms and processes to ensure;
 - (1) planning to meet environmental requirements;
 - (2) implementation and operation of actions to meet environmental requirements;
 - (3) measurement and evaluation of environmental performance; and
 - 3 Review and improvement of environmental outcomes.
- 3-2 The proponent shall implement the environmental management system referred to in condition 3-1.

4 Environmental Management Programme

- 4-1 Prior to ground-disturbing activities, the proponent shall prepare an Environmental Management Programme to achieve the following objectives:
- to ensure remediation meets Environmental Protection Authority objectives for site contamination, groundwater quality and marine water and sediment quality, and
 - to protect the groundwater, the marine environment and the amenity of the public during and post clean-up operations,

to the requirements of the Environmental Protection Authority on advice of the Water and Rivers Commission, the Health Department of Western Australia, the City of Cockburn and the Department of Environmental Protection.

This Programme shall contain the following environmental management plans addressing the specified details:

Soil Investigation and Sampling Plan

- 1 to define the extent and nature of soil contamination at the sites, including lots 22, 33, 35, 50, and 51 for heavy metals, hydrocarbons and pesticides;
- 2 to specify the details of tests to be performed and subsequently the results, as well as their implications for site remediation;
- 3 to define the extent and nature of soil contamination specifically under building structures at the sites, including lots 13, 22, 23, 31, 51 and 1755;

- 4 to estimate the volume of soil to be disposed to landfill, based on site investigations and the class of landfill for disposal; and
- 5 to develop contingency plans in the event of additional contaminated material located on the various lots which may require off-site disposal or other remedial treatment;

Soil Remediation Validation Plan

- 6 details of site validation methods to demonstrate compliance with clean-up validation criteria for soil specified in condition 5;
- 7 site remediation validation results;

Environmental and Health Risk Assessment Plan

- 8 details of environmental and health risk assessment (HRA) process to be adopted (see commitment 2);
- 9 details of a contingency plan for soil management in the event that health risk assessment indicates a risk to public health and the environment.

Dust and Noise/Vibration Management Plan

- 10 dust control measures;
- 11 dust monitoring and reporting;
- 12 dust suppression with water sprays on access roads and operational areas;
- 13 dust suppression for stockpiles;
- 14 wind fencing, where necessary;
- 15 clean down of machinery;
- 16 equipment type;
- 17 compliance with the Department of Environmental Protection guidelines and regulations and Australian Standards for dust, noise and vibration;

Transport Management Plan

- 18 types of waste materials;
- 19 excavation and loading methods;
- 20 controls on vehicles for the transport of wastes;
- 21 types and roadworthiness of vehicles;
- 22 the routes for transport of wastes, and the approvals from relevant authorities to use these routes;
- 23 documentation and records of waste departures and destinations; and
- 24 emergency response plan.

Groundwater Management Plan

- 25 Groundwater Monitoring
 - details on additional groundwater monitoring (see commitments 5 and 21);
 - details of additional groundwater monitoring for ammonia-nitrogen (see commitment 5);
 - details of sample types, bore construction, sample locations, monitoring frequency, analytical protocols, parameters and reporting of monitoring results;
 - the definition of the extent of groundwater contamination plumes;
- 26 Groundwater Fate and Transport Modelling
 - leachate tests for contaminants which might be left on site;
 - fate and transport modelling for lots 31, 34, 35 Ahoy Road and 51 Cockburn Road (see commitment 3);
 - methodology for risk assessment based on fate and transport data obtained above;
 - model validation;

- 27 Groundwater Remediation
- groundwater remediation procedures, including removal of free phase petroleum hydrocarbons from the water table at lots 23, 31, 34 and 51;
 - treatment or disposal method for any hydrocarbon or other waste generated, and its compliance with environmental requirements;
 - controls on groundwater use required;
 - bore capture zones, both for on-site and off-site groundwater abstraction;
- 28 Groundwater Remediation Validation
- groundwater validation for lots 23, 31, 34 and 51;
- 29 Contingency plan
- a contingency plan for groundwater management in the event that fate and transport modelling indicate a risk to the marine environment (commitment 4);

Marine Sediment and Water Quality Management Plan

- 30 sediment monitoring, including sites, number of samples and tests to be performed (see commitments 23 and 24);
- 31 contingency plan for sediment management, if monitoring indicates a risk to the marine environment (commitment 25).

Stormwater Management Plan

- 32 provisions for stormwater management in areas with residual soil contamination during and after remediation;

Site Remediation Integration

- 33 integration with other site remediation programmes on nearby sites.

- 4-2 Prior to the development of the site for residential purposes, the proponent shall implement the Environmental Management Programme required by condition 4-1 to achieve the objectives stated under condition 4-1, to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Health Department of Western Australia, the City of Cockburn and the Water and Rivers Commission.

5 Future Development of the Site

- 5-1 Prior to the site being available for development for residential purposes, the proponent shall carry out site remediation validation tests to demonstrate that the contaminant levels in soil do not exceed the Australian and New Zealand (ANZECC) 'B', or Dutch 'B' in the absence of ANZECC 'B', clean-up criteria recommended for residential landuse.

Where contaminant levels at depth exceed the ANZECC 'B' or Dutch 'B' in the absence of ANZECC 'B' clean-up criteria, site-specific criteria based on an environmental and/or health risk assessment may be acceptable as target levels for clean-up, to the requirements of the Environmental Protection Authority on advice of the Health Department of Western Australia, the Water and Rivers Commission and the Department of Environmental Protection.

- 5-2 Prior to any subdivision, or sale of any existing lot, the proponent shall make provision for the placement of memorials by the appropriate authority on the titles of lots where soil or groundwater contamination exists under those lots, advising of the hazard of the abstraction and use of groundwater, both for on-site and off-site bore locations. Such memorials shall be to the requirements of the Minister for the Environment.

6 Flyash Contamination

- 6-1 Where flyash and flyash-contaminated material is intended to be contained on-site, the proponent shall undertake leachate tests to demonstrate that leachate poses no significant risk to the groundwater.
- 6-2 In the event that leachate tests indicate that there is no risk to the environment and the flyash is to be contained on-site, the proponent shall apply a minimum cover of at least one metre of clean fill material (Certified as not containing contaminants above soil criteria for residential landuse. See note 2 following condition 9.) to the requirements of the Environmental Protection Authority on advice of the Health Department of Western Australia, WorkSafe Western Australia and the Department of Environmental Protection.

Note: These sites will not be developed as residential land.

- 6-3 Where flyash and flyash-contaminated material is to be contained on-site, the proponent shall not cause or allow any excavation below the surface that may result in the significant disturbance of the flyash contamination.
- 6-4 In the event that leachate tests indicate that there is risk to the environment, prior to the site being available for development, the proponent shall remediate lot 109 and Reserves 43701 and T/L 2076 contaminated with flyash to Dutch 'B' criteria for contaminants including barium, to a standard suitable for residential landuse, to the requirements of the Environmental Protection Authority on advice of the Health Department of Western Australia, WorkSafe Western Australia, the Water and Rivers Commission and the Department of Environmental Protection.

7 Proponent

- 7-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 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.
- 7-2 Any request for the exercise of that power of the Minister referred to in condition 7-1 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.
- 7-3 The proponent shall notify the Department of Environmental Protection of any change of proponent contact name and address within 30 days of such change.

8 Commencement

- 8-1 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.

- 8-2 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.
- 8-3 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 8-1 and 8-2.
- 8-4 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.

9 Compliance Auditing

- 9-1 The proponent shall submit periodic Compliance Reports, in accordance with an audit programme prepared in consultation between the proponent and the Department of Environmental Protection.
- 9-2 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.
- 9-3 Where compliance with any condition, procedure or commitment is in dispute, the matter will be determined by the Minister for the Environment.

Note

- 1 "Remediation" in this statement means removal or rendering safe contaminants so that they no longer pose an unacceptable risk to human health or the environment. Areas remediated must be validated as such in accordance with a validation program approved by the Chief Executive Officer of the Department of Environmental Protection.
- 2 Soil criteria for residential use must comply with the following clean-up levels, in order of preference: ANZECC 'B' or Dutch 'B' (in the absence of ANZECC 'B') or derived criteria based on site-specific environmental and health risk assessment.
- 3 "Ground-disturbing activities" excludes sampling and monitoring to determine the extent and nature of contamination.
- 4 The City of Cockburn will provide advice in connection with commitments numbers 7, 9, 12 and 14.

CHERYL EDWARDES (Mrs) MLA
MINISTER FOR THE ENVIRONMENT

19 APR 2000

Schedule 1

The Proposal (1004)

Remediation of portions of the 50.56 hectares of government land along the Owen Anchorage coastline in South Coogee, City of Cockburn, approximately 5 kilometres south of Fremantle for residential purposes.

The Key Proposal Characteristics are contained in table 1.

Table 1 - Key Proposal Characteristics

Element	Description
SITE IDENTIFICATION	<p>The site is government-owned land in the Port Catherine Project area with an area of 50.56 hectares along the Owen Anchorage coastline in South Coogee, approximately 5 kilometres south of Fremantle.</p> <p>The project area includes: lots 2, 3, 4, 13, 51, 78, 1755, 9474 (Cockburn Road); lots 21, 22, 23, 27, 27/2, 31, 33, 34, 35, 36, 37 (Ahoy Road); lot 38 (King Street); lot 50 (Ocean Road); Reserves 24306, 43701, 11430 and 1945, Town Lot (T/L) 2076; lot 109.</p>
CURRENT ZONING	Industrial
PROPOSED ZONING	Residential [Rezoning of the site is not included in the proposal.]
DEMOLITION	Old buildings to be demolished and removed
NATURE OF CONTAMINANTS	<p><i>Soil:</i> Heavy metals (arsenic, chromium, copper and zinc), petroleum hydrocarbons and flyash (barium).</p> <p><i>Groundwater:</i> Heavy metals (copper, nickel), petroleum hydrocarbons and nitrate.</p> <p><i>Sediment:</i> Heavy metal (arsenic).</p>
REMEDICATION and MANAGEMENT	
Soil	<ul style="list-style-type: none"> • remove approximately 52 000 cubic metres (80%) of contaminated soil which exceeds ANZECC 'B' or Dutch 'B' criteria and dispose to approved landfill; • remediate remaining 20% of contaminated soil at depth to site-specific criteria based on environmental and health risk assessment to the requirements of the Environmental Protection Authority; • undertake leachate tests on flyash to assess the risk of contamination to groundwater, if flyash is to be contained on-site; • test contaminated soil for the likely generation of volatile organic compounds particularly at sites (lot 31, 34, 1755 and 9474) where petroleum hydrocarbons were detected; • monitor the volatile organic compounds levels during remediation at sites likely to pose a significant risk; • cover approximately 38 000 cubic metres (0.75 hectares) of flyash with at least one metre of clean fill, if leachate tests on flyash indicate no significant risk to the environment; • reuse soil with contamination levels less than ANZECC 'B' for backfill.

Groundwater	<ul style="list-style-type: none"> • remove completely free phase petroleum hydrocarbons contamination source from the water table; • conduct long-term monitoring of groundwater at plume sites and downgradient of plume; • conduct fate and transport modelling of particular contaminants in groundwater to determine risk posed to the marine environment; • undertake pumping tests to determine off-site impacts to domestic bore water quality by determining groundwater capture zones; • prepare and implement groundwater contingency plan, if groundwater monitoring, fate and transport modelling indicates a risk to the environment; • validate model with further groundwater monitoring; • discourage the use of contaminated groundwater by placing memorials on titles;
Marine sediments	<ul style="list-style-type: none"> • monitor sediments and predict impact based on data; • identify arsenic form in sediments in excess of the Effects Range Low (ERL) criteria recommended for the maintenance of the ecosystem; • implement remedial contingency plan, if necessary.
Dust	<ul style="list-style-type: none"> • prepare and implement a dust management plan for both site works and transportation of contaminated material off-site.
Noise and vibration	<ul style="list-style-type: none"> • prepare and implement a noise management plan, outlining noise mitigation measures and monitoring procedures.
Public safety and environmental health	<ul style="list-style-type: none"> • prepare and implement a public safety and environmental health plan.
Worker safety and occupational health	<ul style="list-style-type: none"> • prepare and implement an occupational health and safety plan.
Transport management	<ul style="list-style-type: none"> • prepare and implement a transport management plan.

Figures (attached)

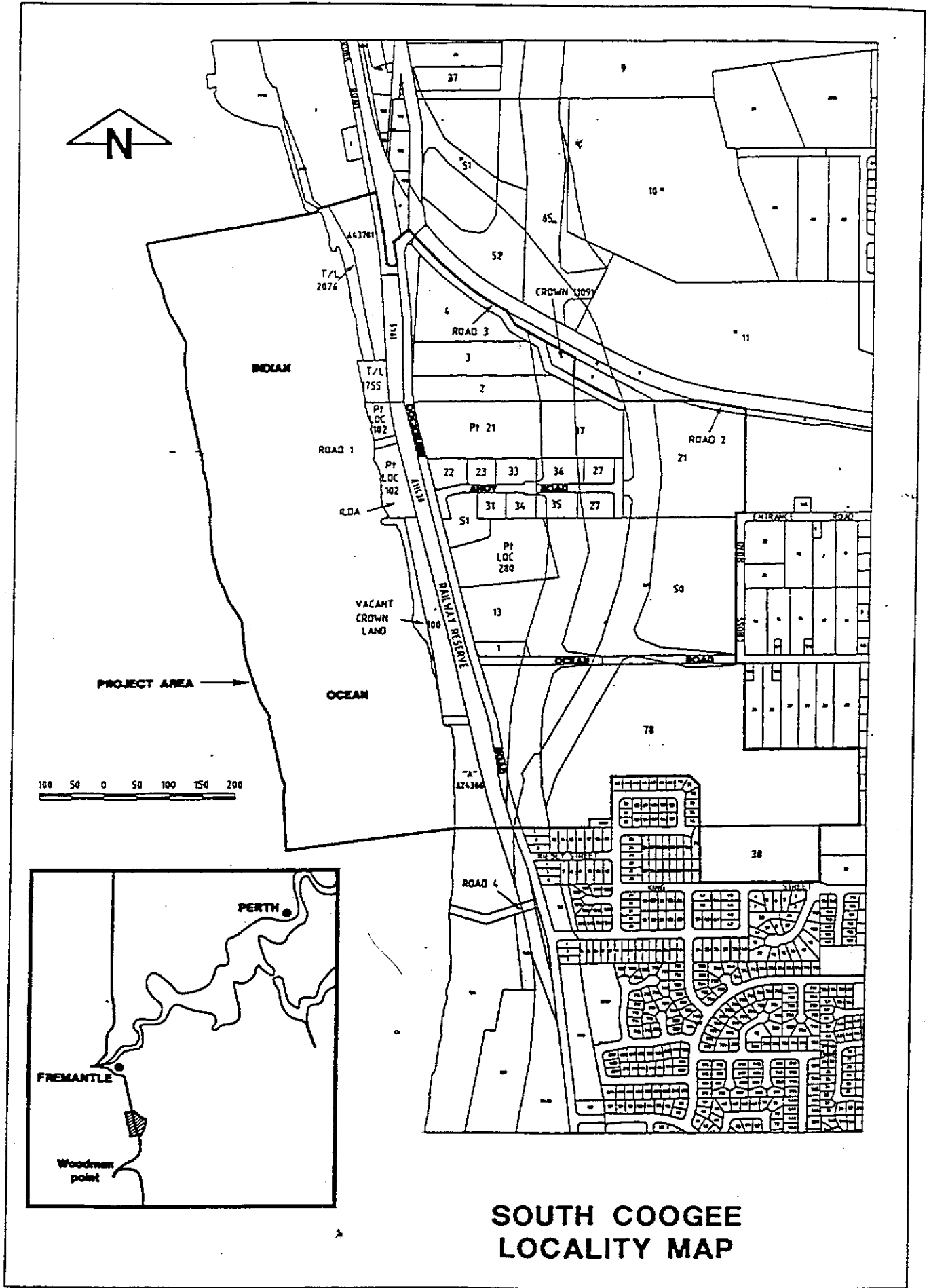
Figure 1: Location of Western Australian Planning Commission residential development in South Coogee.

Figure 2: Government and non-government land.

Figure 3: Extent of soil contamination.

Figure 4: Location of groundwater contamination in South Coogee.

Figure 5: Extent of arsenic sediment contamination.



SOUTH COOGEE LOCALITY MAP

Figure 1. Location of WAPC residential development in South Coogee.

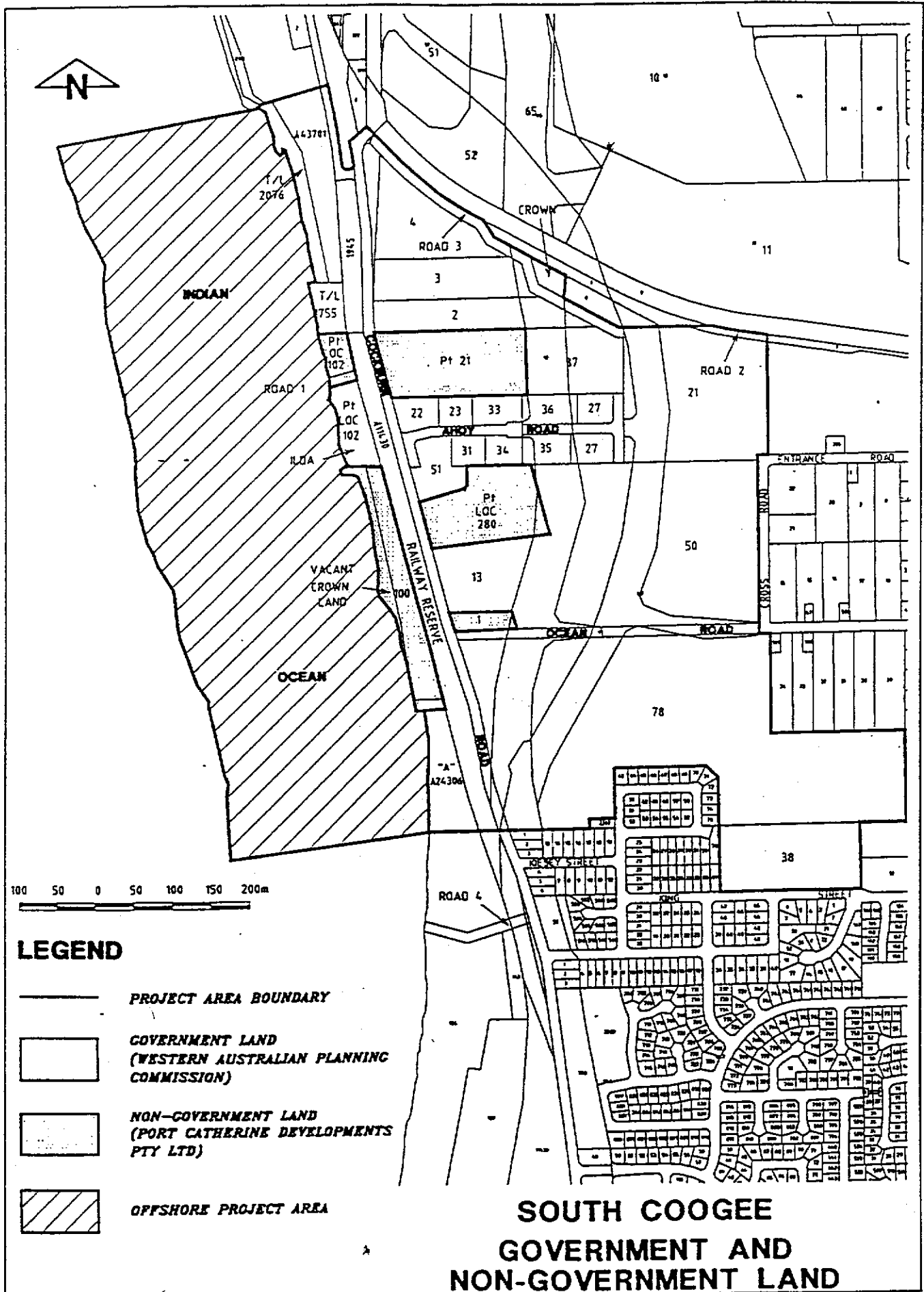


Figure 2. Government and non-government land.

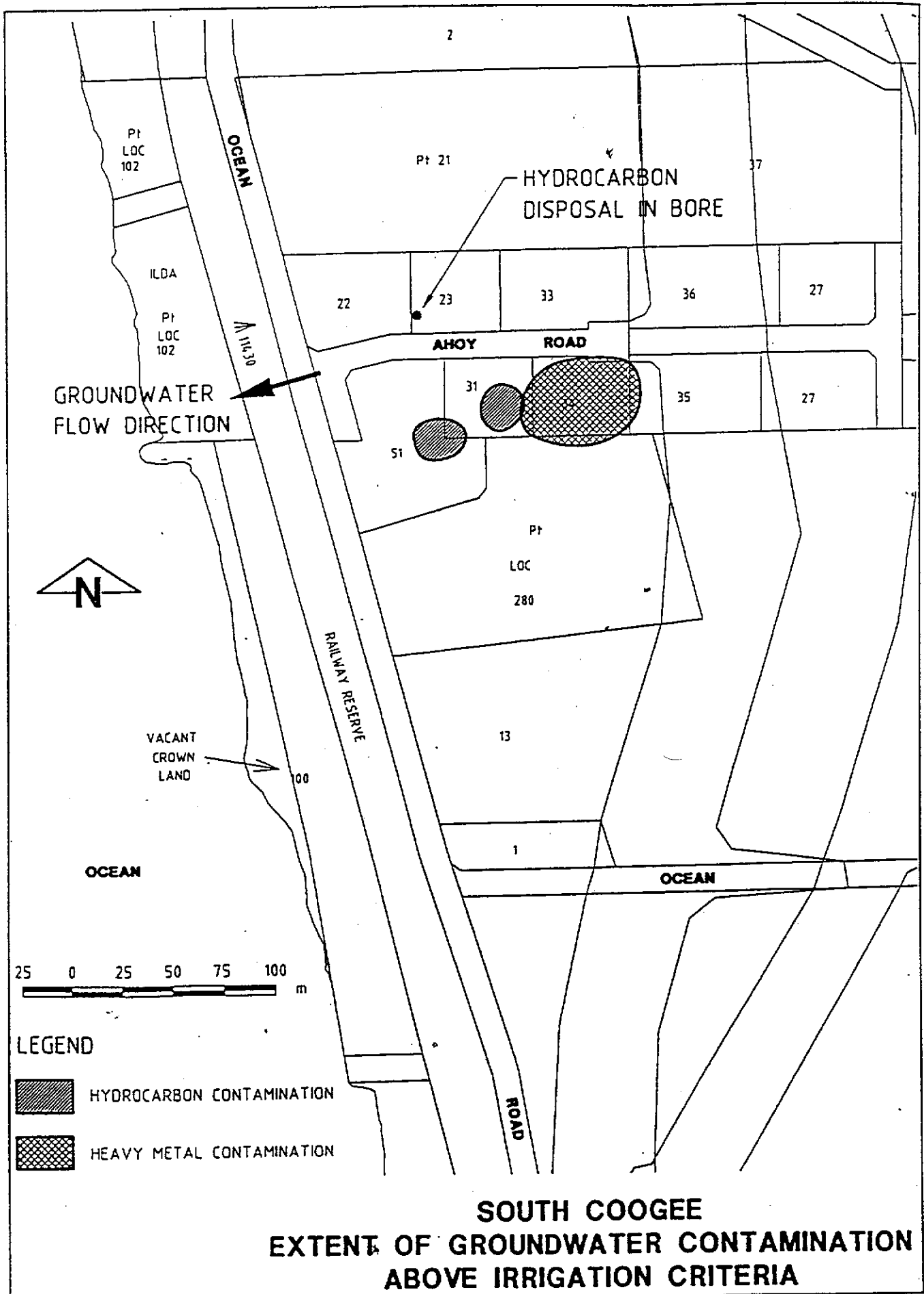


Figure 4. Location of groundwater contamination in South Coogee.

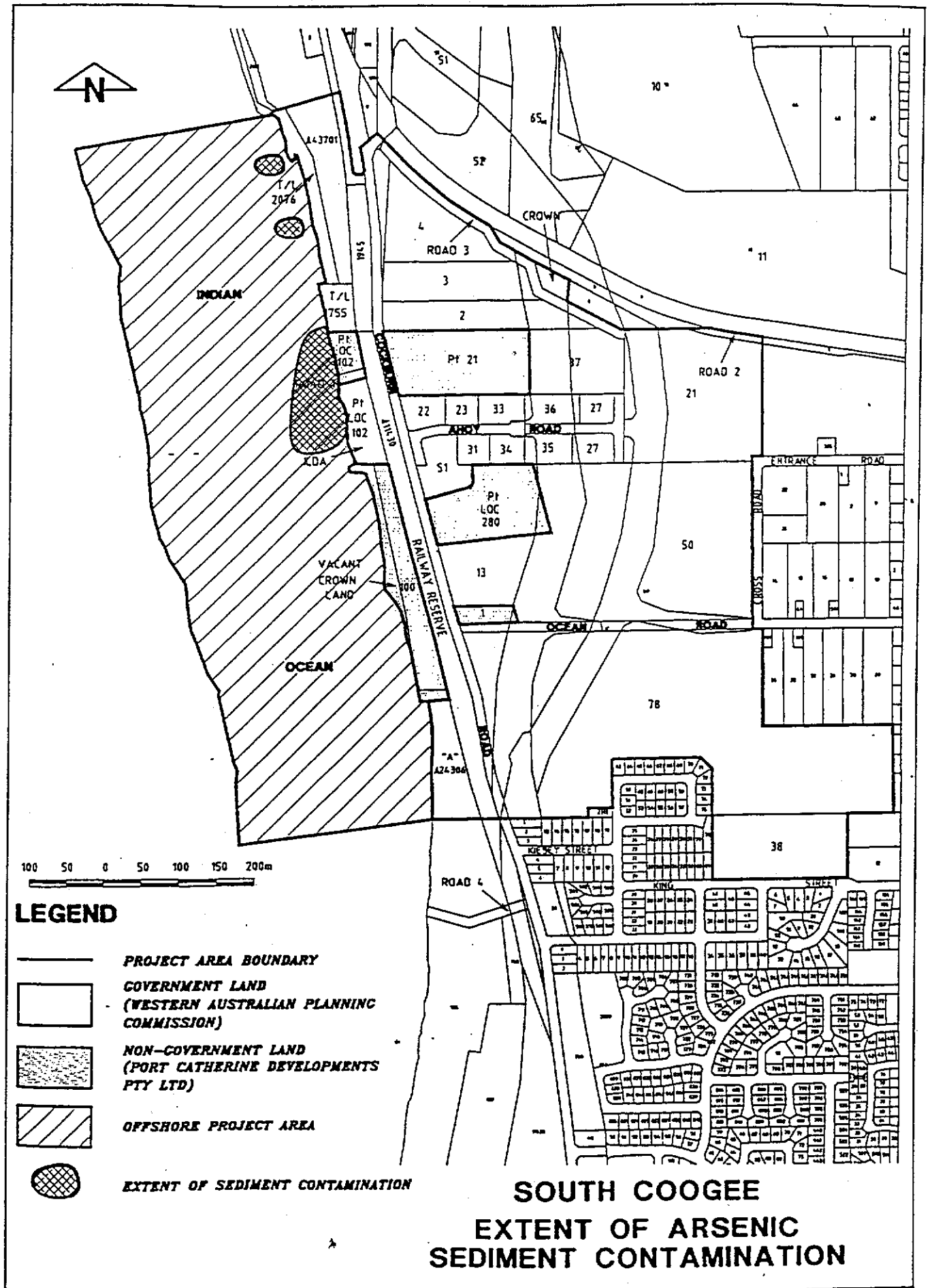


Figure 5. Extent of arsenic sediment contamination.

**Proponent's Consolidated Environmental Management
Commitments**

November 1999

**REMEDICATION OF INDUSTRIAL LAND
FOR RESIDENTIAL PURPOSES
SOUTH COOGEE, CITY OF COCKBURN (1004)**

Western Australian Planning Commission

Proponent's Environmental Management Commitments (1004)

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
1.	Remediation Report	<ul style="list-style-type: none"> • Prepare a site remediation report 	<ul style="list-style-type: none"> • To remediate contaminated land and groundwater to the EPA criteria. • To apply the following soil remediation criteria hierarchy (1) ANZECC B, where no (1), (2) 1983 Dutch B, or criteria derived from a site-specific environment and health risk assessment. • To recover free petroleum product floating on the water table to meet the EPA /DEP requirements. • To remediate Lots 31, 34 and 35 Ahoy Road to soil criteria developed from a site specific environmental and health risk assessment meeting EPA requirements. 	<p>During and at completion of remedial works.</p> <p>Remediation and post-remediation.</p>	<p>DEP</p> <p>HDWA</p> <p>WRC</p>	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
2.	Environmental and Health Risk Assessment	<ul style="list-style-type: none"> Undertake an environmental and health risk assessment on Lots 31, 34 and 35 Ahoy Road with contaminants to be assessed including chromium, copper, nickel, tin, zinc and total petroleum hydrocarbons. Prepare and implement a contingency plan in the event the risk assessment shows that significant health impacts are likely to occur as a result of the contaminant concentrations in the soil. 	<ul style="list-style-type: none"> To demonstrate that any residual contamination does not adversely affect the health of future residents, or compromise the marine environment or groundwater use. to determine the need for drainage management associated with any residual contamination. to determine the impacts on groundwater use to put in place controls, if required, with respect to land use, site development or groundwater use. 	Pre-remediation.	DEP HDWA	DEP
3.	Groundwater Modelling	<ul style="list-style-type: none"> Undertake groundwater fate and transport modelling for copper, nickel and total petroleum hydrocarbons (as applicable) on contaminated groundwater emanating from Lots 31, 34, 35 Ahoy Road and Lot 51 Cockburn Road. 	<ul style="list-style-type: none"> To predict long term contaminant levels in groundwater at and downgradient of these sites to determine the area that should be excluded from groundwater abstraction 	Pre-remediation.	DEP WRC	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
4.	Groundwater Contingency Plan	<ul style="list-style-type: none"> Prepare a Groundwater Contingency Plan in the event that groundwater fate and transport modelling shows that significant environmental impacts are likely to occur as a result of the contaminant concentrations in groundwater entering the marine environment. This plan will describe measures to ameliorate such impacts, and consider practical management techniques and groundwater extraction, treatment and containment options. Implement the Groundwater Contingency Plan should groundwater fate and transport modelling show potential environmental impacts are likely to occur. 	<ul style="list-style-type: none"> To ensure that contaminated groundwater meets EPA criteria 	Pre-remediation.	DEP WRC	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
5.	Environmental Sampling	<ul style="list-style-type: none"> • Undertake additional soil investigations on Lots 13, 22, 23, 31, 33 and 35 Ahoy Road, Lot 50 Ocean Road, Lots 51 and 1755 Cockburn Road and T/L2076 which will include testing beneath any existing building structures. • Review the organochlorine testing program undertaken to date (28/10/99) and perform additional testing on sites where required. • Retest groundwater on T/L 2076 for mercury. • Install three groundwater monitor wells along the eastern boundary of the project area and test for the nutrient - nitrate. • Perform validation testing prior to redevelopment on sites with a low contamination potential (Lot 36, 37 and 38 Ahoy Road, CR 1945, CR 11430, CR 24306, CR 43701 and T/L 2076). 	<ul style="list-style-type: none"> • To assess the nature and extent of contamination on sites where access has not been possible. • Provide further information on the presence of organochlorine contamination of soils. • Provide further information on the background nitrate levels entering the project area. • Confirm status of sites not considered to be of risk. 	Pre-remediation.	DEP WRC	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
6.	Execution of Remedial Works	<ul style="list-style-type: none"> • Test contaminated soil for volatile organic hydrocarbons at sites where previously detected (lot 31, 34, 1755 and 9474) • Monitor the volatile organic hydrocarbons levels at sites where found • Remove contaminated soil in accordance with the site management techniques described in the Consultative Environmental Review modified, if necessary, in light of further information. • Remove free floating petroleum product from Lots 23, and 31 Ahoy Road and Lot 51 Cockburn Road. • Dispose of contaminated material removed from sites in accordance with remediation plan and relevant DEP regulations and guidelines. 	<ul style="list-style-type: none"> • To minimise the risk to workers, the public and the environment from exposure to contaminated materials. 	Remediation.	DEP Worksafe HDWA WRC	DEP
7.	Transportation of Contaminated Material	<ul style="list-style-type: none"> • Transport materials from the site in appropriately equipped and labelled trucks in compliance with the Dangerous Goods Regulations. • cover contaminated soil during cartage. • Prepare and implement a Transport Management Plan 	<ul style="list-style-type: none"> • To minimise the risk to transport personnel, the public and the environment from the transportation of contaminated materials from the site. 	Remediation.		DME

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
8.	Disposal of Waste Materials	<ul style="list-style-type: none"> Dispose of contaminated material in accordance with the DEP Waste Acceptance Criteria for landfills in WA. The ultimate destination of all contaminated material will be selected on the basis of criteria set by the Landfill Waste Classification and Waste Definitions. 	<ul style="list-style-type: none"> To ensure all contaminated material from the site is managed or disposed in a manner which reduces environmental impact and risk to human health. 	Remediation.	DEP	DEP
9.	Public safety and environmental health	<ul style="list-style-type: none"> Prepare and implement a public safety plan 	<ul style="list-style-type: none"> To ensure remedial works and transport of contaminated material is carried out in a safe manner and that all members of the public are adequately protected from hazards. 	Pre-remediation	DEP	HDWA
10.	Occupational Health	<ul style="list-style-type: none"> Prepare and implement an Occupational Health and Safety Plan prior to remedial works commencing. 	<ul style="list-style-type: none"> To ensure remedial works and transport of contaminated material is carried out in a safe manner and that all personnel are adequately protected from hazards. 	Pre-remediation.	Worksafe	Worksafe
11.	Dust	<ul style="list-style-type: none"> Comply with DEP Guidelines for dust discharges from sites. 	<ul style="list-style-type: none"> To ensure that dust discharges during implementation of the project do not pose a risk to human health or cause loss of amenity. 	Remediation.	DEP	DEP
12.	Dust	<ul style="list-style-type: none"> Prepare and implement a Dust Management Plan for site works and transportation of contaminated material. 	<ul style="list-style-type: none"> Prevent the airborne spread of contaminated material during remedial works. 	Pre-remediation.	DEP	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
13.	Noise Emissions	<ul style="list-style-type: none"> Comply with the EP(Noise) Regulations 1997. 	<ul style="list-style-type: none"> To ensure noise generated from site remedial activities does not cause loss of amenity to nearby residents. 	Remediation.	DEP	DEP
14.	Noise Emissions	<ul style="list-style-type: none"> Prepare and implement a Noise Management Plan outlining noise mitigation measures and monitoring. 	<ul style="list-style-type: none"> To ensure noise generated from site remedial activities does not cause loss of amenity to nearby residents. 	Pre-remediation.	DEP	DEP
15.	Machinery Vibration	<ul style="list-style-type: none"> Keep machinery vibration to a minimum and comply with the Australian Standard 2670.2. monitor vibration near residential areas 	<ul style="list-style-type: none"> To ensure vibration from earthmoving machinery used in remedial works does not affect the amenity of nearby residents or damage properties. 	Remediation	DEP	DEP
16.	Public Amenity	<ul style="list-style-type: none"> Keep the closure of beach fronts for remedial works to hours outside of weekends and public holiday periods using safety barrier fencing 	<ul style="list-style-type: none"> Maintain reasonable public access to the coastal areas 	Remediation.	City of Cockburn.	City of Cockburn.
17.	Public Complaints	<ul style="list-style-type: none"> Maintain a Complaints Register on-site. 	<ul style="list-style-type: none"> To ensure the public is not adversely affected by remedial works. 	Pre-remediation and remediation.	DEP	DEP
18.	Public Consultation	<ul style="list-style-type: none"> Provide community consultation and communication by way of regular newsletters, articles in local papers and information sessions for the public. 	<ul style="list-style-type: none"> To inform the community of the performance of the remedial works. 	Pre-remediation and remediation.	DEP	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
19.	Road Traffic	<ul style="list-style-type: none"> Vehicles will be roadworthy, under loaded and comply with the Road Traffic Act (1974). 	<ul style="list-style-type: none"> To ensure roads are maintained and not degraded as part of the remedial works. To ensure traffic emanating from the sites does not cause a hazard or undue inconvenience to other road users. 	Remediation.		MRWA-main roads. City of Cockburn-local roads.
20.	Validation Report-Implementation.	<ul style="list-style-type: none"> Implement a remedial and validation program to demonstrate compliance with EPA site clean-up criteria. 	<ul style="list-style-type: none"> To ensure compliance with site clean-up EPA criteria. 	Pre-remediation.	DEP	Police-vehicles DEP
21.	Flyash Management	<ul style="list-style-type: none"> Undertake leachate testing on flyash for heavy metals including barium A 1 m clean soil cover will be installed over sites with flyash deposits to provide a physical barrier to human contact. No residential landuse will occur on the flyash deposit sites. 	<ul style="list-style-type: none"> To determine the risk of contamination to groundwater from flyash leachate To minimise the risk to future residents, workers, the public and the environment from exposure to contaminated materials. 	Remediation.	DEP HDWA	DEP
22.	Groundwater Monitoring	<ul style="list-style-type: none"> Implement a Groundwater Monitoring Plan on and downgradient of Lot 31 and 34 Ahoy Road. 	<ul style="list-style-type: none"> To prevent use of contaminated groundwater unsuitable for irrigation purposes. 	Pre-remediation.	DEP WRC	DEP
23.	Groundwater Usage	<ul style="list-style-type: none"> Restrict groundwater usage in impacted areas by placing memorials on titles. 	<ul style="list-style-type: none"> To prevent use of contaminated groundwater unsuitable for irrigation purposes. 	Post-remediation.	DOLA	DEP
24.	Sediment Management	<ul style="list-style-type: none"> Monitor and reassess sediments containing arsenic levels above the DEP Southern Metropolitan Coastal Waters Study ERL value. Arsenic testing to include the chemical form. 	<ul style="list-style-type: none"> To ensure sediment quality does not compromise the marine environment. 	Remediation.	DEP WRC	DEP

Commitment Number	Topic	Action	Objectives	Timing (Phase)	Advice (Advisory Agency)	To the requirements of (Monitoring Agency)
25.	Sediment Management	<ul style="list-style-type: none"> Implement a Sediment Monitoring Plan in those locations where contaminant levels exceed the refined sediment criteria. 	<ul style="list-style-type: none"> To ensure sediment quality does not compromise the marine environment. 	Post-remediation.	DEP WRC	DEP
26.	Sediment Management	<ul style="list-style-type: none"> Prepare a contingency plan for sediment management if monitoring indicates a risk to the marine environment. 	<ul style="list-style-type: none"> To ensure sediment quality does not compromise the marine environment. 	Post-remediation.	DEP WRC	DEP

* Agencies:

DEP Department of Environmental Protection
DME Department of Minerals and Energy
DOLA Department of Land Administration
EPA Environmental Protection Authority
HDWA Health Department of Western Australia
MRWA Main Roads Western Australia
WRC Water and Rivers Commission
Worksafe WA