HMAS STIRLING

OIL SPILL CONTINGENCY MANUAL

JULY 2025

FOREWORD

These Orders are written to reflect current policy and doctrine contained within Australian Fleet General Orders (AFGOs), National and State policies; however, these documents remain the over-arching references, and in the event of a contradiction they will take precedence.

The aim for the Port Services Manager West is to maintain a positive working relationship and strengthening of ties between Commonwealth and State organisations. These ties include all areas of responsibility under the PSM West, and include but are not limited to the relationship between the Port of Fremantle and HMAS *Stirling*.

This Oil Spill Contingency Manual (OSCM) describes responsibilities and management for oil and fuel spills on the land, on the coastline and within Naval Waters that are under the jurisdiction of the Commanding Officer, HMAS Stirling.

Errors and omissions should be directed to Port Services at portserviceswest.tower@defence.gov.au.

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ISSUE CERTIFICATE

Amendments promulgated in the OSCM Issue Lists have been incorporated in this copy of the OSCM:

Issue List		Amendment Incorporated By:		
No.	Date	Signature	Rank	Date

DISTRIBUTION LIST

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External
Fremantle Ports
WA State Emergency Management Committee
BP Kwinana

Where access to the document on the DPN is not possible, an electronic copy is available upon request from the Port Services Manager.

PROPOSED AMENDMENTS

SECTION/AMENDMENT/SUGGESTION

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GLOSSARY OF TERMS

ABSO	Assistant Base Support Officer
ADF	Australian Defence Force
AFGOs	Australian Fleet General Orders
AIIMS	Australian Inter Service Incident Management System
AMSA	Australian Maritime Safety Authority
AOC	Advanced Operations Centre
API	American Petroleum Institute
FBW-BM	Fleet Base West – Base Manager
CZ	cubic metre (m3) (= 1 000 L)
DBCA	WA Department of Biodiversity Conservation and Attractions
Designed Spill Size	The maximum size of oil spill that an OSCM and supporting resources are configured to combat. The designed spill size is designated on the basis of past incidents and the amount of oil stored and handled in FBW.
DIESO	Fuel Oil Distillate (i.e. F76)
DoD	Department of Defence
DoT	WA Department of Transport
DPN	Defence Protected Network
DPSM	Deputy Port Services Manager
EMP	Environmental Management Plan
EMS	Environmental Management System
EOC	Emergency Operations Centre
EO-FBW	Environment Officer – Fleet Base West
ERG	Executive Response Group
FBW	Fleet Base West
FMEO	Fleet Marine Engineering Officer
FSO	Fleet Support Officer
FSII	Fuel system icing inhibitor
FTL	Flat-top Lighter
GEMS	Garrison and Estate Management System
GSS	Garrison Support Services
ha	hectare (= 10 000 m2, or 100 m x 100 m)
Harbour Master	Includes Regional Harbour Master, PSM and Port Authority
HMAS	His Majesty's Australian Ship
ICC	Incident Control Centre
IC	Incident Controller
IMO	International Maritime Organization
JLU	Joint Logistics Unit
L	Litre
Lead Combat Agency	Combat Agency with responsibility for overall management of an incident response.
LO	Logistics Officer
m^2	square metre
m^3	cubic metre (ie. CZ) (= 1000 L)
MA	Master Attendant (Sydney)
MARPOL 73/78	International Convention for the Prevention of Pollution from Ships 1973 as modified by its Protocol of 1978
MCO	Movement Control Officer
MLO	Media Liaison Officer
SDSs	Safety Data Sheets
National Plan	The National Plan to Combat Pollution of the Sea by Oil
DFI	Defence Fuel Installation
DFIIC	Defence Fuel Installation in Charge

Oil Spill	Spill of petroleum based product onto land or into water
Oil	DIESO (F76), AVCAT (F44), hydraulic oil, lubricating oil and any other petroleum product
OO	Operations Officer
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation
OSCM	Oil Spill Contingency Manual
PAO	Public Affairs Officer
PCAH	Poly Cyclic Aromatic Hydrocarbons
POL	Petroleum/ oils/ lubricants
POLREP	Pollution Report
ppm	parts per million
PSM	Port Services Manager
RAN	Royal Australian Navy
Ranger	DCBA Ranger based at Garden Island HMAS *Stirling*
SADFO	Senior Australian Defence Force Officer
Ships	RAN commissioned and non- commissioned vessels
SITREP	Situation Report
SMPEP	Shipboard Marine Pollution Emergency Plan (for noxious liquid substances)
SOP	Standard Operating Procedures
SOPEP	Shipboard Oil Pollution Emergency Plan
SPWFL	Self-Propelled Water Fuel Lighter
State Committee	WA National Plan State Oil Pollution Committee
WA OWR Manual	WA Oiled Wildlife Response Manual
WA OWR Plan	WA Oiled Wildlife Response Plan
WestPlan MOP	WestPlan Marine Oil Pollution Emergency Management Plan
WestPlan HAZMAT	WestPlan Hazardous Materials Emergency Management Plan

1 INTRODUCTION

The Department of Defence (DoD) has a responsibility to prevent in the first instance any leaks or spills of oil into the terrestrial and marine environments, and to contain and clean up any oil spill it causes on facilities, within or adjacent to Naval Waters. This Oil Spill Contingency Manual (OSCM) sets the framework for the planning and response to oil spills on the land, on the coastline and within Naval Waters at Fleet Base West (FBW), HMAS *Stirling*. The *Stirling* OSCM is in line with the Western Australian State Hazard Plan: Maritime Environment Emergency (MEE).

The FBW OSCM forms a component of the overall framework for the environmental management of *Stirling* and Garden Island, and in this capacity, is an element of the Environmental Management System (EMS) for FBW. Additionally, it is a required plan to complement the FBW Emergency Response Plan.

1.1 APPLICATION OF THE PLAN

The FBW OSCM is to be activated in the event of an oil spill:

- in Naval Waters surrounding Garden Island
- on the lands of Garden Island
- on the lands of Garden Island which threatens to spill into Naval Waters
- in waters surrounding Garden Island and threatening the Island or Naval Waters
- in support of spills occuring within Henderson and AMC dockyards, and
- in Fremantle Port when the cause of a spill is determined to be a visiting ADF or foreign warship.

The Port Services Manager (PSM), or their delegate, is responsible for formally activating the OSCM in the event of a reported spill.

1.2 AIMS AND OBJECTIVES

1.2.1 Aims

The aims of this OSCM are to:

- provide an analysis of the potential for an oil spill, its possible effects on the environment and details of organisational responsibilities and procedures designed to respond to spills
- provide a framework for preparing for spills, including human resource allocations, equipment procurement and maintenance and training activities, and
- provide a response plan to deal with the threat of oil pollution as a result of Naval or other activities at FBW or from activities adjacent to the island and Naval waters.

1.2.2 Objectives

In accordance with the *National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances* (National Plan), the objectives of this plan, as a sub plan, are to describe procedures and process to:

1. Plan to prevent, control or stop outflow of oil from source

2. Activate response operations with a priority to protect sensitive resources

3. Monitor the behaviour and movement of oil spills

4. Take actions to aid in the dispersing or containment and recovery of oil, and

5. Determine and implement appropriate clean-up priorities and other response measures.

1.2.3 Goals

The goals of all operations are to work for the protection of:

1. Human health and safety

2. Significant marine flora and fauna and avifauna

3. Naval assets and infrastructure

4. Commercial resources

5. Environmental features other than significant flora and marine fauna including the maintenance of biodiversity and minimisation of pollution and contamination, and

6. Recreation and amenity areas.

1.3 FORMAT AND LEGISLATIVE AUTHORITY

The format of this plan is generally in accordance with AFGOs, as modified to meet the guiding principles of the *Defence Pollution Prevention Manual 2017*.

The source of legislative authority for this plan is the package of Commonwealth *Protection of the Sea* Acts. This translates into Australian law the requirements of various International Maritime Organization (IMO) marine pollution and response conventions to which Australia is a party. These include the *International Convention on Civil Liability for Oil Pollution Damage 1992*, the *International Convention for the Prevention of Pollution from Ships 1973*, as modified by its Protocol of 1978 (MARPOL 73/78) and the *International Convention on Oil Pollution Preparedness, Response and Cooperation* (OPRC 90).

Further legislative authority for this plan is the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) which requires the Commonwealth to ensure the protection of the environment from human activities. The EPBC Act applies to all commonwealth employees, service personnel, and sub-contractors to the Department of Defence.

The State legislative descriptor is the *Western Australian Emergency Management Act 2005* which describes hazard management agencies and combat agencies responsible for the implementation of WestPlans. *WestPlan Marine Oil Pollution Emergency Management Plan* (WestPlan MOP) drafted under the guidance of the National Plan and *WestPlan Hazardous Materials Emergency Management Plan* (WestPlan HAZMAT) delegate to the DoD at FBW, the role of Oil Pollution Combat Agency.

The main Naval Instructions and references associated with this contingency plan are:

a. AFTP 1(D): *Australian Fleet General Orders* (AFGOs)

b. HMAS *Stirling* Port Orders 2025

c. International Maritime Organization Manual on Oil Pollution: Section II – Contingency Planning

d. International Maritime Organization Manual on Oil Pollution: Section IV – Combating Oil Spills

e. National Plan to Combat Pollution of the Sea by Oil and other Noxious and Hazardous Substances

f. National Plan for Maritime Environmental Emergencies 2020 Edition

g. WA State Hazard Plan Maritime Environmental Emergency (MEE) December 2021

h. WestPlan MOP

i. WA DOT: OSCP 2015

j. WestPlan HAZMAT December 2022

k. Defence Environmental Strategy 2016-2036

l. Defence Pollution Prevention Manual 2023

m. *West Australian Emergency Management Act 2005*

n. Maritime Auxiliary Group In-Port Services

o. Port Services Management Manual

Nothing in this plan shall contradict orders from a higher authority. Any conflict or disparity is to be brought to the attention of the Commanding Officer, via the PSM.

1.4 SCOPE OF PLAN

This OSCM covers spills on Garden Island, surrounding Naval Waters and adjacent areas at Garden Island. It also covers spills in Naval Waters within the confines of Henderson and AMC shipyards and support to Fremantle Ports in responding to spills originating from ADF and foreign warships visiting Fremantle. It is designed to operate in conjunction with State and Commonwealth plans such as the National Plan, WestPlan MOP and Fremantle Ports' OSCM.

1.4.1 Geographical Coverage

The zone of coverage of this OSCM is the land mass of Garden Island and the area of Naval Waters surrounding Garden Island and flanking the Causeway (see Figure 1-1). Naval Waters have been declared in the Fremantle Port along the entire eastern coastline of Garden Island. Within Cockburn Sound, these waters are approximately delineated by a zone extending 1000 metres from the shoreline into the Sound along the length of the island to the centre of the high level bridge and then 200 metres either side of the Causeway to Point Peron. The main ship support area in Careening Bay, the Small Boats Compound, Naval moorings in Careening Bay and the Ammunition Wharf are the principal facilities covered by this OSCM. Most planning effort is focused upon the wharf area in Careening Bay, the most likely location of any spill.

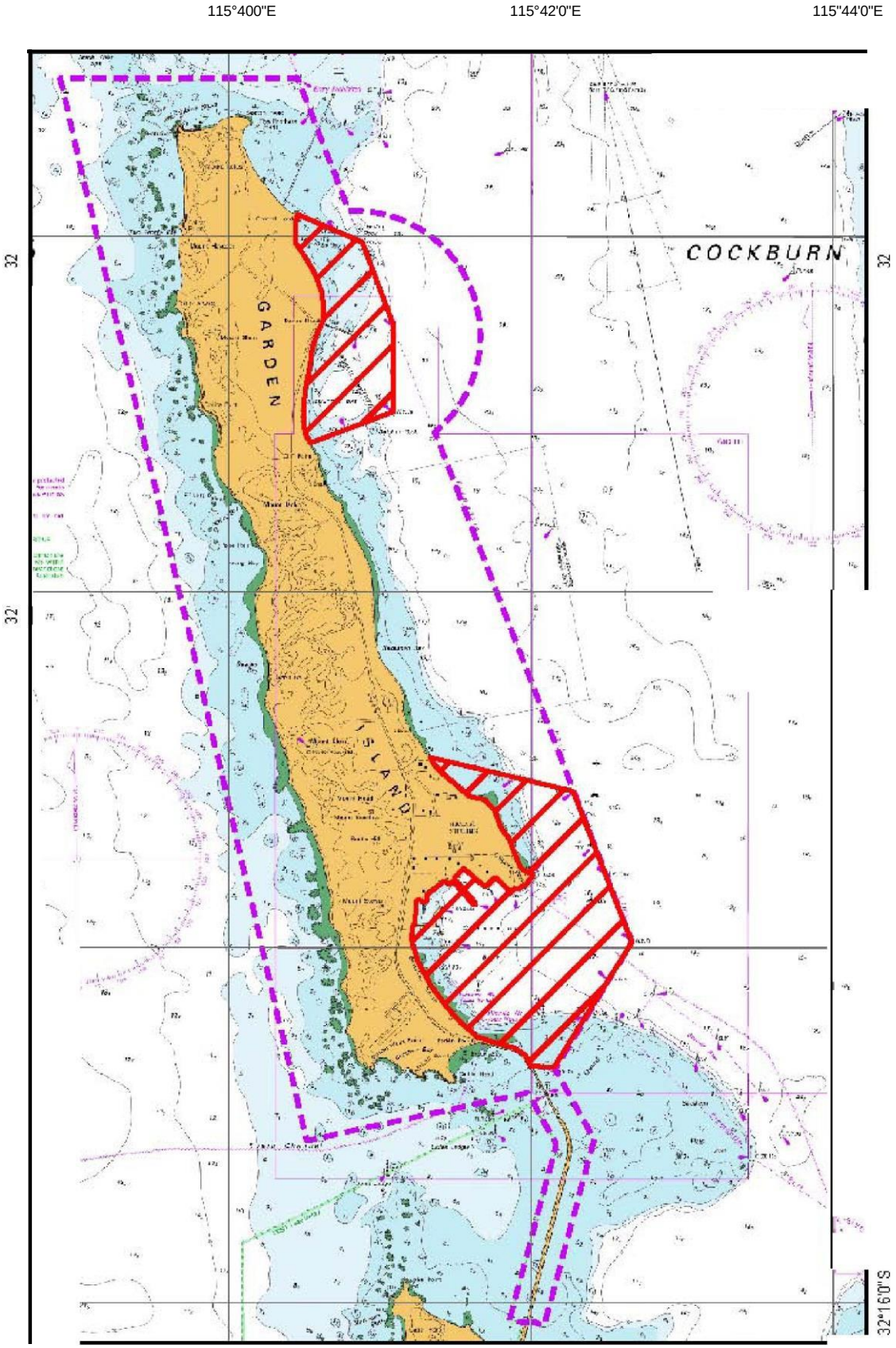
A spill or leak on Garden Island is likely also threaten Naval Waters either directly by surface runoff, via the stormwater drainage system, or through permeation into the water table. Examples of potential spills of this nature include those from road tankers, shoreside refueling activities, vehicle and machinery accidents or leaks, storage drums or the FBW fuel distribution system. In addition to the stormwater drainage system, it should be noted that Parkes and Oxley Wharves drain directly into

marine waters, and that although Diamantina Pier features a drainage interception system, this too will drain directly into Careening Bay if not properly configured.

In addition to spills from sources within Naval Waters, oil spills may also originate from shipping and industrial activities within or around Cockburn Sound, or Fleet units in waters surrounding Garden Island yet external to the boundary of declared Naval Waters. Response organisations and equipment controlled by this OSCM are also available to deal with spills arising from these latter sources, to miminise the likelihood of impact upon Garden Island and contiguous Naval Waters.

This OSCM also covers spills or leaks from ADF vessels inside Henderson and AMC shipyards (see Figure 1-2) and details the support to be provided to Fremantle Ports in responding to spills or leaks originating from ADF and foreign warships visiting Fremantle.

Figure 1-1 Garden Island Naval Waters



Description of the Area

Naval Waters around Garden Island border and encompass popular beaches, rocky foreshores, limestone reefs, seagrass beds, regionally important shorebird, seabird and little penguin feeding, breeding and nesting sites, sea lion haul outs, habitat for marine mammals including the *Tursiops aduncus* (Indian Ocean bottlenose dolphin), fishing grounds, aquaculture facilities and a state Marine Park. Many of these areas are accessible to the public. The area around Careening Bay also features extensive stretches of rock wall, including the wharf area and Small Boats Compound, and the Causeway. The little penguin has established rookeries across multiple locations in these built areas. Most of the colony (400-500 individuals) is located in the Careening Bay area, and within the Small Boats Harbour and Slipway area. The Indian Ocean bottlenose dolphin is regularly sighted feeding, resting and socialising in Careening Bay and elsewhere in the surrounding waters. In all cases, areas around Garden Island should be considered to be highly sensitive to oil pollution, and the utmost precautions to prevent oil spills taken by all Defence personnel and its contractors. Priorities for the protection of the most sensitive areas identified are detailed in Annex A.

Cockburn Sound itself houses commercial port facilities and heavy industry, supports commercial fishing activities (including aquaculture), and features as a regionally important recreation area. All of these human activities can be adversely affected by oil spills, and oil spills have the potential to cause serious harm to the reputation of Defence and the Royal Australian Navy.

1.4.2 Oil Types Considered

This plan specifically focuses upon fuel and other oils used and transferred in bulk by RAN and other Defence assets at FBW, as these are the ones most likely to be spilt in Naval Waters around Garden Island. Oils which fall into this category include, but are not limited to, diesel fuel oil (F76) used in surface ships and submarines (gas turbines and diesels), aviation turbine fuel (JP5, F44) and OMD-113 and other lubricating and hydraulic oils.

Limited quantities of other oils, such as lubricants, hydraulic fluids and outboard fuel, are also handled within Careening Bay. Although not focusing specifically upon these other oils the OSCM and related spill response equipment and procedures are capable of adequately dealing with spills of these oils in the quantities that could conceivably be released, noting the smaller quantities of these products that are carried, often in smaller containers (e.g. 20 or 240 litre drums) likely to be spilled.

Note: if large quantities of oils or liquid (hydraulic liquids, petrols, lubricants etc.) outside of those listed are being stored or handled by visiting and specialist vessels or construction plant, the organisation concerned should immediately seek the advice of the PSM, prior to embarkation of the products. Information required includes the toxicity and persistence of the liquids (including relevant MSDS). These factors should be considered for applicability under the OSCM and management measures applied accordingly to address the risk to onshore and marine environments.

Further information on oil types covered by this OSCM are presented in Annex B.

1.4.3 Response Capacity

This OSCM and associated resources are based upon the ability to respond in all aspects (containment, clean-up and disposal) to a Level One oil spill deemed likely to occur within Naval Waters at FBW as a result of naval controlled activities. While Level One spills are considered to be up to 10 tonnes, any spill into the marine environment may cause serious harm to resident wildlife.

Substantive recovery resources (e.g. skimmers and skimming vessels) are held by Fremantle Ports as part of WestPlan and the National Plan.
In the remote event of a larger spill of over 10 tonnes of light oils the expectation is that oil spill combat resources available through Westplan and the National Plan will supplement local Defence

capabilities at FBW.

1.5 ROLES OF KEY FBW PERSONNEL AND CONTRACTORS

A summary of the role of key FBW personnel and contractors as required by the FBW OSCM is provided below. More detailed information on roles and responsibilities is provided in Annex C.

1.5.1 Commanding Officer HMAS *Stirling*

The Commanding Officer HMAS *Stirling* (Senior Australian Defence Force Officer [SADFO]) will normally fill the role of Navy Spill Commander and will be activated in the event of upper Level 1 or larger spills to coordinate inter-agency responses and high-level liaison.

1.5.2 Port Services Manager

The PSM will normally fill the role of Incident Controller (IC), this role may however be fulfilled by the DPSM or Duty PSM in the absence of the PSM. The IC has overall decision making responsibility and is supported by all FBW personnel, including Defence uniformed and civilian personnel, and contractor personnel.

1.5.3 Environment and Sustainability Manager

The HMAS *Stirling* Environment and Sustainability Manager (ESM) is the most experienced environment officer on the base and can provide the most relevant information to support the PSM in their role as IC. The ESM is central to ensuring that spill response is conducted in a manner that is consistent with environmental best practice, thereby preventing further adverse spill outcomes. The ESM is to be notified alongside the IC of all spills, regardless of size or location.

1.5.4 Construction Site Manager

The Construction Site Manager is responsible for oil spill prevention and spill response within a construction site on HMAS *Stirling*. While construction sites may be terrestrial for construction of buildings and other infrastructure, sites may include marine works within Careening Bay or elsewhere in Naval Waters. The Construction Site Manager must ensure construction activities do not lead to oil spills through sound equipment maintenance, refuelling, and construction staff training. The Construction Site Manager is also responsible for ensuring appropriate spill response equipment is available on-site, and that construction staff are trained in its use. The Construction Site Manager is required to report all fuel and oil spills, regardless of size to the PSM and the HMAS Stirling ESM.

1.5.5 Fire and Emergency Services

The fire section will normally be the first responders in the event of a spill. Outside of business hours, the role of IC will be fulfilled by the senior fire fighter present until such time as relieved by the PSM or DPSM.

1.6 ROLES OF KEY EXTERNAL AGENCIES

Under National Plan and WestPlan arrangements, various Commonwealth and Western Australian agencies have specific responsibilities for oil spill response. Agencies and their responsibilities most likely to be involved in the implementation of the FBW OSCM are as follow. A contact list for key external agencies is provided in Annex D.

1.6.1 Australian Maritime Safety Authority (AMSA)

AMSA is the national coordination body for oil spill planning and responses. AMSA also provides specialist advice on oil spill dispersion modelling and response options.

1.6.2 WA Department of Transport (DoT) (Marine Division)

The DoT is the Hazard Management Agency as defined in the *Emergency Management Act 2005* for

control of oil spills in WA State waters. Where combat responsibilities have been delegated (Ports or Naval Waters), DoT provides support and can coordinate resources. DoT provides administrative support for the governing of the WA State Emergency Management Committee (SEMC), the Maritime Incident Management Team (MIMT) and State Response Team (SRT).

1.6.3 State Emergency Management Committee (SEMC)

The principal focus of the WA SEMC is overall responsibility for emergency planning. It is responsible for the development and review of WestPlans for the DoT, these include the WestPlan Marine Oil Pollution (MOP) and the State Hazard Plan – Maritime Environmental Emergencies (MEE).

1.6.4 Maritime Incident Management Team (MIMT)

The MIMT is comprised of personnel from DoT and other State Government organisations who are trained to perform roles within an Incident Management Team. Activation of individuals in the MIMT during a Maritime Environmental Emergency is through the State Maritime Environmental Emergency Coordinator.

1.6.5 State Response Team (SRT)

The SRT comprises of personnel from DoT, State Government organisations and selected external organisations trained to perform field response operations. Activation of individuals in the SRT during a Maritime Environmental Emergency is through the State Maritime Environmental Emergency Coordinator.

1.6.6 Fremantle Ports

Fremantle Ports has lead agency responsibility for oil spill incident response in all of its Port Waters including Cockburn Sound. Naval Waters are declared adjacent Port Waters and as a result, the Port Authority would play an active response role in spills within thin Naval Waters. Additionally, the Port has significant resources at its disposal including holdings of National Plan oil spill equipment to assist in spills.

1.6.7 WA Department of Biodiversity, Conservation and Attractions (DBCA)

The management and provision of services necessary for wildlife protection and rehabilitation following an oil spill is a Department of Biodiversity, Conservation and Attractions' responsibility. The Department enacts oiled wildlife response in accordance with the Western Australia Oiled Wildlife Response Manual (WA OWR Manual) and Western Australia Oiled Wildlife Response Plan for Maritime Environmental Emergencies (WA OWR Plan). The Department also has vessels and equipment (through the MIMT) available to assist the IC, and can also provide specialist wildlife protection advice. The involvement of the Department of Biodiversity, Conservation and Attractions is coordinated through the ERG.

1.6.8 Bureau of Meteorology

The Bureau of Meteorology is available to provide weather and coastal waters forecasts. This information is necessary in order to predict spill movement and dispersion, identify areas of risks, and assess options for containment and clean up.

1.6.9 Local Governments

Local councils are responsible for the care and maintenance of shorelines. The City of Rockingham and Town of Kwinana are available to provide advice on local shoreline conditions (in the event of potential impact) and assist in shoreline clean up. These local authorities also have significant

resources, including machinery that can be mobilised in support of Garden Island shoreline clean up. (NB: Shoreline controlled by the City of Rockingham extends from Singleton to Kwinana Beach. Shoreline from Kwinana Beach north to Challenger Beach is under the jurisdiction of the Town of Kwinana).

1.6.10 BP Kwinana

The BP Kwinana Refinery maintains oil spill response equipment. This equipment may be available via the ERG to augment FBW spill response capabilities.

1.6.11 Specialist Support

Expert assistance is available to provide the Navy Spill Commander and IC with specialist advice on matters such as the fate and dispersion of spilt oil, the selection and deployment of spill combat equipment, and environmental sensitivities. The Environment and Sustainability Manager (ESM) within the Security and estate Group (S&EG) is able to provide or source specialist environmental advice where spills have potential to adversely affect the environment or species. Advice on oil spill dispersion and pollution control options is available from a variety of sources, including the Marine Environment section within AMSA, Fremantle Ports and through the ERG of the WA SEMC.

1.6.12 SERCO Defence

SERCO Defence is contracted by Defence to provide marine pollution containment, clean up and disposal capability at HMAS *Stirling* in compliance with the AMSA sponsored National Marine Oil Spill Contingency Plan. SERCO Defence is also responsible for maintaining spill response equipment and providing and supporting spill response training.

2 OPERATIONAL RESPONSE

This OSCM describes four phases in notification, reporting and response. They are:

PHASE 1: Incident Notification and Reporting

PHASE 2: Establishment of Control and Assessment

PHASE 3: Protection, Containment and Recovery

PHASE 4: Termination of Operations

2.1 PHASE 1: INCIDENT NOTIFICATION AND REPORTING

2.1.1 Describing Spills - Levelled Response

Three levels of spill exist under National Plan arrangements. These are presented in Table 2-1.

Table 2-1 Oil Spill Levels

Level	Quantity of Oil Involved
1	15 ppm* – 10 tonnes
2	10 – 1000 tonnes
3	1000 tonnes or more.

**Oil in water at a minimum concentration of 15 ppm is considered by the IMO as the threshold of oil pollution.*

Under National Plan arrangements, local harbour authorities are expected to be able to deal with a Level 1 spill in most circumstances, without calling on external assistance. Regional and national response arrangements are in place to combat Level 2 and Level 3 spills, and may also be called upon in the event that a large Level 1 spill is beyond the capability of the harbour authority or poses particular problems or threatens valued resources.

FBW has a reasonable capacity to contain oil spills, and moderate spills may be contained and oil recovered using absorbent material, pads and the small skimmers available for immediate use. There is, however, only a limited capacity to clean up larger spills.

For the purposes of the FBW OSCM, Level 1 has been modified to delineate between smaller spills and leaks and larger spills, albeit still less than 10 tonnes but possibly beyond FBW response capacity. These FBW specific classifications recognise that a spill of up to 10 tonnes of oil would be a substantial amount in the confined area of Careening Bay, and that the release of minor amounts of oil has occurred on occasion in Careening Bay. It also recognises that a spill of up to 10 tonnes of oil would have a potentially significant impact on wildlife known across Garden Island and the area of Naval Waters, including penguins, dolphins and diving birds. For this reason, the FBW specific oil spill classifications have been substantially reduced and are presented in Table 2-2.

Table 2-2 FBW Specific Oil Spill Classifications

National Plan Level	Size (FBW-use only)	Quantity of Oil Involved	Hydraulic and Lubricating Oils (approx)		Amount of F76 (approx.)	
			Litres	***m^3***	***Litres***	***m^3***
1	Small	>15 ppm – 0.3 tonnes	Up to 285	Up to 0.28	Up to 350	Up to 0.35
	Moderate	0.3 tonnes – 3 tonnes	286-2850	0.28-2.85	351 – 3500	0.35 – 3.5
	Upper	3 tonnes – 10 tonnes	2851-9500	2.85-9.5	3501–11500	3.5 – 11.5
2	-	10 – 1000 tonnes	9501-950000	9.5-950	11501–1150000	11.5– 1150
3	-	1000 tonnes or more.	>950000	>950	> 1150000	> 1 150

As denoted by Table 2-2, a 250 litre spill would be classified as Level 1 (Small); a 2 500 litre spill would be classified as Level 1 (Moderate); and a 5000 litre spill would be classified as Level 1 (Upper).

FBW OSCM classifications are ONLY to be used for internal reports within FBW. National Plan classifications are the standards to be used for all reports to and correspondence with authorities external to FBW, including DoT Pollution Reports (POLREPs).

The scale of the response will vary for each situation, and is influenced by:

1. Volume of material spilt
2. Type and character of the oil spilt
3. Location of the spill
4. Weather and sea conditions
5. Environmental sensitive receptors
6. Trajectory of the slick
7. Resources at risk, and
8. FBW capacity to deal with the spill.

Duty personnel should always realise it is better to assume the worst case and later scale down a response, rather than finding a response has been too little, too late.

An indication of how much oil has been spilled can be estimated using details contained in Section 2.2.7.

2.1.2 Notification of Spills

All HMAS *Stirling* personnel are empowered to and obligated by the OSCM to report oil spills, regardless of size. The following direct contacts are to be made by any person reporting a spill, depending on whether the spill is onshore (land based; low threat of entering the marine environment), shoreside (high threat of entering the the marine environment), or marine.

2.1.2.1 Land Based Spills (Onshore) or in Naval Waters (Offshore)

All Spills
Spills onshore or in Naval Waters detected by any personnel (Defence uniformed, civilian or contractor) are to be immediately reported to the Emergency Operations Centre (EOC).

The report to the EOC is to include location, source of spill and an estimate of the quantity of spilled oil or fuel.

Note: Given the proximity of all sites on Garden Island to the marine environment, there is a risk of even small spills entering the waters surrounding the island through surface runoff, rainwater discharge, and infiltration to groundwater systems.

1. FBW EOC (Onshore & Offshore)	(08) 9553 2222 (all emergencies)
2. FBW Duty PSM (if EOC unanswered or spill is large)	0410 694 301
3. FBW Fire Section	Use of EOC 'turn-out' button or via radio (all emergencies), 9553 2528 (non-emergencies)

The FBW EOC will make immediate contact with the Garrison Support Services (GSS) Fire and Emergency Services for their immediate response to site with the appropriate equipment as required for onshore or offshore spills.

The FBW EOC will make immediate contact with the HMAS *Stirling* ESM to oversee the management of the spill and to provide specialist advice on environment and heritage risks.

Dependent on the location of the spill and proximity to protection areas, the Incident Controller should provide notification to the Wildlife and Shoreline Coordinator. Refer to Annex C for contact details.

Onshore Spills

The FBW EOC will make immediate contact with the GSS Fire and Emergency Services personnel for their immediate response to site with the appropriate equipment as required for onshore spills.

The role of IC for onshore spills will be conducted by the leading fire fighter present until such time as relieved by the Western Australian Fire and Emergency Services Authority (FESA) if required and as appropriate. The IC is to immediately notify the PSM and seek guidance on spills, and the HMAS *Stirling* ESM for advice on environment and heritage management.

All onshore spills regardless of size may enter the marine environment, and the IC should assume this is the case until proved otherwise. Where the IC considers the risk of the spill directly or indirectly (via the water table) entering the marine environment, the OSCM is to be activated and the spill response upgraded accordingly. This upgrade will likely be necessary where the land based spill exceeds 20 litres (e.g. holed vehicle fuel tank, overturned vehicle, damaged fuel coupling).

Further information regarding the general FBW response to onshore spills, which are of no threat to the marine environment, is contained in Annex E.

Reporting environmental incidents and emergencies to the regional environmental personnel (segewzenvironment.sustainabilitywa@defence.gov.au) is required under the Defence Pollution Prevention Management Manual, Annex 1D Chemical and Fuel Storage and Handling. Environmental incident reporting is through the Garrison and Estate Management System (GEMS), further outlined in the Defence Environmental Incident Reporting Guideline. Following notification of a spill, the regional environmental personnel may direct that contamination assessment should be undertaken where appropriate, with the investigation recorded.

Onshore Spills Entering or Threatening to Enter Naval Waters

Should a land based spill be suspected or observed to flow, drain or seep onto the foreshore or mix with surrounding waters in any capacity, then the OSCM is activated. Land based spills have the potential to impact sensitive receptors including known flora and fauna communities around Garden Island and the Naval Waters areas. Land based spills should be notified, reported, controlled and assessed to reduce the likelihood of a release causing significant harm or having downstream impacts through contaminant transport pathways of surface water run-off and stormwater.

Spills directly observed to be 'crossing over' from land based spills to offshore spills are to be immediately reported to the EOC and PSM, and the notification process for offshore spills is to be followed. The EOC is to be stood up to manage the incident in this eventuality, taking advice from the ESM on environmental protection.

Offshore Spills

Following initial contact with FBW Fire and Emergency Services, the EOC will make the following contacts:

1. Duty PSM	0410 694 301
2. Officer of the Day	0417 917 047

During working hours the PSM is to assume immediate responsibility as the IC for offshore oil spill response. Outside of working hours, the role of IC will be fulfilled by the senior fire fighter present until such time as relieved by the Duty PSM or PSM.

2.1.2.2 Ship and support/contractor Sourced Spills

RAN Fleet Units causing oil spills are to advise the PSM and report in accordance with the requirements detailed in AFTP1D Chapter 317.

Fleet units berthed at FBW or anchored or moored in Cockburn Sound, are to advise Master Attendant (MA), AUSFLTSAFETY, and PSM-WEST, for information HMAS *Stirling*, by ROUTINE or IMMEDIATE precedence signal (SIC group LAL/HBJ/EUL). The signal is to conform with the Defence POLREP format presented in Annex F. The incident is also to be reported immediately and direct to the PSM by telephone, or if the ship is at anchor or moored, by VHF Channel 14.

Stirling Sections and FBW lodger units are to advise the PSM immediately by telephone or in person.

The Construction Site Manager is to advise the PSM immediately by telephone or in person.

Contractor and support craft captains/coxswains are to advise the PSM immediately by telephone or VHF radio or in person.

2.1.3 Formal Reporting Requirements

2.1.3.1 First Action Defence POLREP

Upon notification of an oil spill on land or in the water, the IC will assess the threat, manage and coordinate the response and also raise the necessary report using the standard POLREP format (except for spills arising from Fleet units, which are to signal FHQ direct, using the POLREP format presented in Annex F).

2.1.3.2 Second Action State (DoT) POLREP

If the spill is >100L, the PSM will also notify the DoT Maritime Environmental Emergency Response Unit (MEER) Duty Officer via the 24 hour Oil Spill reporting number 08 9480 9924 with the DoT

POLREP or SITREP provided in Annex G.

2.1.4 Situation Reporting

All communications with outside authorities as represented by the State Executive Group, are to be routed through the FBW Commanding Officer (Navy Spill Commander), and recorded in the oil spill incident log in the EOC (or activated ICC).

The IC and EOC are responsible for issuing SITREPs as the situation warrants. SITREPs are to be used to report progress and outcomes of the spill response, and to advise of expected developments. All SITREPs are to be issued through the EOC (or activated ICC), using the standard format presented in Annex F.

The WA Water police, FPA and DoT are to be notified as soon as practicable and the IC is to articulate requirements from outside agencies.

2.2 PHASE 2: CONTROL AND ASSESSMENT

2.2.1 Establishing Control

The PSM is to assume the role of the IC in response.

The broad sequence of events following the report of a spill and subsequent activation of the OSCM are presented in Figure 2-1 and Table 2-3. The Garden Island Coastal Resource Atlas (Annex A) provides guidance with determining the appropriate level and priority of response to a spill according to protection priorities and policy promulgated in the National Plan. In all instances, the IC should consult with the HMAS *Stirling* ESM to ensure that at risk elements of the environment are identified and taken into proper consideration when planning and implementing the response.

2.2.2 Command Control & Coordination

For all spills occurring within Naval Waters, the DoD will normally assume the role of Lead Combat Agency. This responsibility may be transferred to the WA State Committee or Fremantle Ports, or the role may be deputised depending on the circumstances. The Commanding Officer HMAS *Stirling* has the ultimate command decision for all oil spill response activity in Naval Waters, and fulfils the role of Navy Spill Commander. The FBW PSM, under the authority of the Navy Spill Commander, has the primary responsibility for preparation and response to oil spills and will normally fulfil the role of IC.

The DoT (Marine Division) is the Lead Combat Agency for spills in the state including spills external to both Naval Waters and Cockburn Sound. Fremantle Ports is the Lead Combat Agency for a spill within Port Waters including Cockburn Sound. In the event of the latter two scenarios, the FBW oil spill response organisation will be activated as necessary to assist the Lead Combat Agency in protecting Naval Waters, Naval assets and Garden Island from any spill.

All spills are to be reported immediately as per Section 2.1.2.

IC to conduct Hourly SITREP Meetings with Photographs being taken of the Incident Board for records every 30 Minutes by a member of EOC.

Any Level 1 Spill defined (or potentially defined) as >100 litres should also be reported immediately to the oil pollution hotline monitored by the DoT. The IC will determine the scale of response required (see Section 2.1.1) and initiate implementation.

An Incident Control Centre (ICC) will be established for all spills within Naval Waters. An EOC is established at Building B119, and is contactable on 9553 2222. The FBW EOC will usually be the site

of the ICC. For smaller spills, however, the IC may determine that the formal activation of an ICC is not warranted. However, the FBW EOC will be aware of any response activity and will work to its existing Security and Emergency SOPs as required.

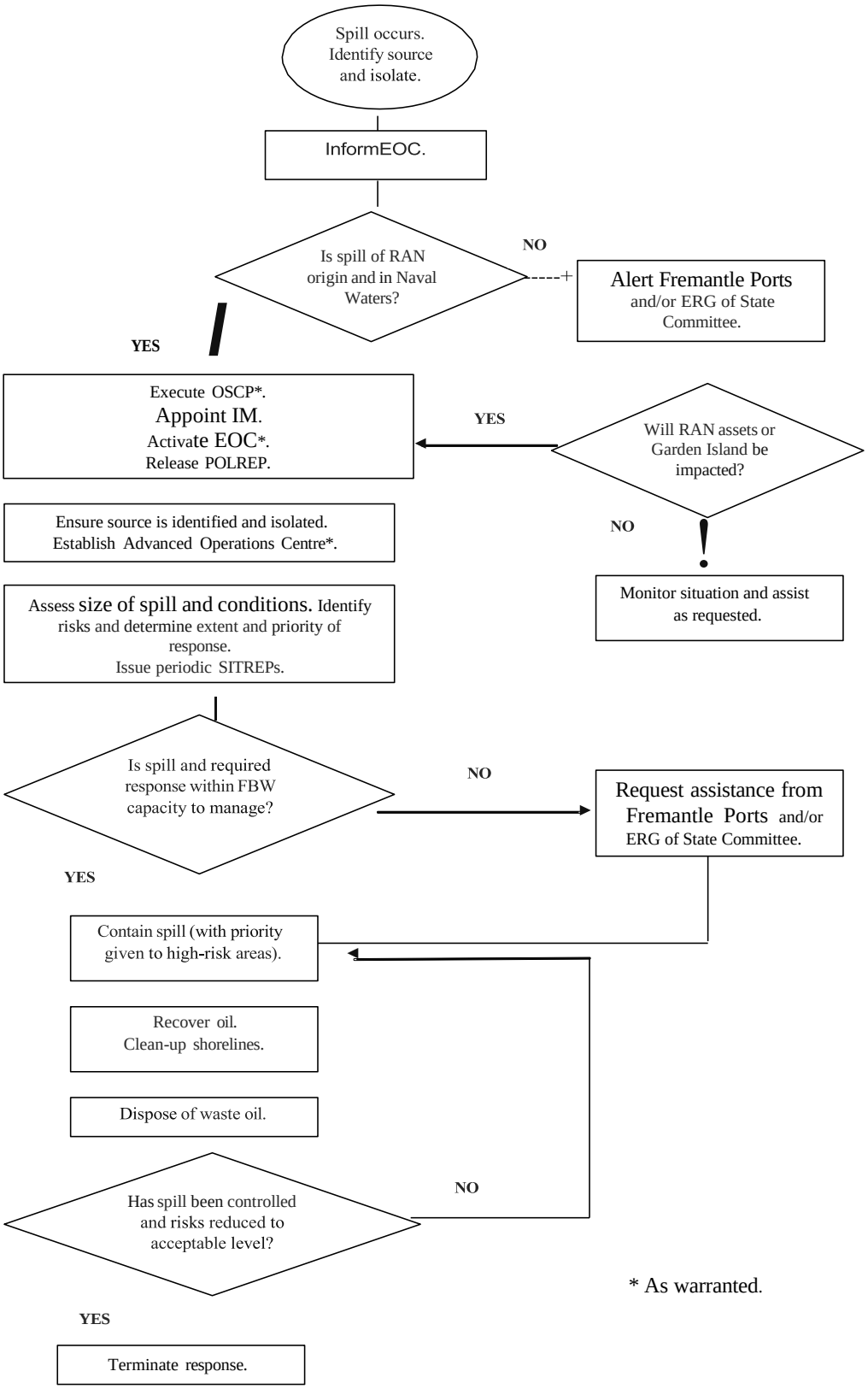


Figure 2-1 FBW Oil Spill Response Process

Table 2-3 Phase and Role Response Guide

SITUATION	SERIAL	POSITION/ ORGANISATION	ACTION
PHASE 1 **Incident Occurs**	1.1	Spill Source	a. Isolate source. b. Report spill to EOC. c. Initiate immediate containment and clean-up measures.
Notification & Warning	1.2	PSM	a. Receive notification of pollution incident. b. ENSURE SOURCE IS ISOLATED (if possible). c. Commence recording of all aspects of spill and response. d. Alert CO *Stirling* and ships/submarines alongside. e. Assess origin and size of spill and FBW capacity to respond, and subsequently identify and alert Lead Combat Agency (as follows): ***In Naval Waters*** • FBW organisation for spills of RAN origin in Naval Waters. • DoT for light oil spills greater than Level One Upper (>10tonnes) or HFO spills greater than Level One Moderate (>3 tonnes). ***Outside of Naval Waters*** • Fremantle Ports for any spills within Cockburn Sound external to Naval Waters. • DoT for spills outside Cockburn Sound that will impact on Garden Island. ***Onshore at HMAS Stirling*** • FBW Organisation. • GSS Fire and Emergency Services • Western Australian Fire and Emergency Services Authority (FESA) (if required) f. Activate Navy Spill Commander, as required. g. Alert other support services that may be required to assist such as Water Police, Fremantle Ports, City of Rockingham (as required). h. Appoint an Operations Officer as required. i. Appoint Planning Officer to attend EOC as required. j. Activate ICC (Logistics) as required k. Alert MA (if required). l. Release Defence POLREP m. Release DoT POLREP (if spill size >100 L) n. Assume role as IC
PHASE 2 **Assessment and Establishment Of Control**	2.1	Navy Spill Commander	a. In consultation with IC, determine appropriate response. b. If deemed liable to Parliamentary or media comment, dispatch signal to administrative authorities in accordance with AFTP1(D) Chapter 103 c. Undertake briefings of higher Navy authorities and external spill assistance agencies. d. Liaise with and coordinate support and assistance from external agencies, as required.

SITUATION	SERIAL	POSITION/ ORGANISATION	ACTION
		IC (PSM)	a. Assign and review Coastal Resource Atlas (Annex A) and assign response priorities. b. Activate HMAS *Stirling* ESM and DCBA Ranger to provide guidance on environmental risk management and response priorities from the Coastal Resource Atlas. c. Determine response requirements and direct or place on stand-by as necessary: • **Bosun's Store/SERCO** for dispatch of watercraft and personnel as required for boom deployment and/or dispersal of oil by agitation with boat propellers. • **SERCO** to provide FTLs for boom deployment or use as sullage platforms. • **SERCO** to provide SPWFL for collection of oily waste. • **Fire Section** to dispatch spill response equipment to scene. • **Defence Fuel Installation (DFI)** to send truck-mounted spill kits to scene. • **DFI** to prepare road tankers for collection of oily waste. • **Powerhouse** to prepare trailer-mounted tanks for collection of oily waste. • **Powerhouse** to prepare fixed sullage system for acceptance of oily waste (<5% oil content). • **Powerhouse** to prepare portable trailer pump. d. Nominate location for Forward Control Point (usually oil spill scene), if required. e. Nominate location for an oiled wildlife response field station, if required. f. Advise EOC of status a. to c. above. g. Review planned port movements and activities and exercise positive control to ensure harbour movements do not exacerbate spill or interfere with response operations.
		Bosun's Store	As directed by IC: a. Man boats for assistance with deployment of booms or dispersion of oil (via surface agitation with propellers).
		SERCO	As directed by IC: a. Prepare SPWFL to collect skimmed oil. b. Prepare FTL for boom deployment or as sullage platforms c. Deploy and recover all pollution absorbing materials d. Collect and dispose of all waste materials and product
		Fire Section	As directed by IC: a. Dispatch spill response equipment to scene. b. Assist with initial incident response. c. Assist to contain and clean all Oil Spill's as directed by the IC.
		DFI	As directed by IC: a. Dispatch spill response equipment to scene. b. Prepare oily waste containers/trucks to receive recovered oil.
		Powerhouse	As directed by IC: a. Prepare fixed sullage system to accept skimmed oily water (<5% oil). b. Prepare trailer-mounted tanks to collect oily waste.

	2.2	ICC (most likely the FBW EOC [activated], see 2.2.2)	a. Maintain a log of all aspects of the spill and response, including communications. b. Obtain spill response equipment requested by IC: • via request to State Committee ERG for release of National Plan equipment held by Fremantle Ports. • via direct contact with Fremantle Ports for supply of Fremantle Ports equipment. • via request to ERG for loan of industrial equipment (BP Kwinana). c. Organise any additional manpower, as requested by IC. d. Coordinate deployment of resources as directed by IC. e. Direct NPC/security staff to control access to scene. f. Issue SITREPS. g. Field media and political inquiries (via Navy Spill Commander and PAO, iaw AFTP1(D)) h. Review legal obligations in the event of prosecution or cost recovery (with assistance of Legal Officer). i. Activate medical services, as required. j. Activate hotel services, as required. k. Monitor weather conditions and forecasts and advise IC of expected changes in wind direction/strength or sea conditions. l. HMAS *Stirling* ESM and DBCA Ranger to consider activation of wildlife rescue resources, as required. m. Obtain additional communications equipment, as required. n. Coordinate logistic arrangements in support of IC.
	2.3	FBW-BM	a. Maintain records of expenditure b. Provide road transport to move personnel, equipment and recovered oil. c. Organise collection and disposal of oily wastes.
	2.4	Operations Officer	a. Identify type and quantity of fuel/oil spilt and advise IC and EOC. b. Ensure source is isolated. c. Cooperate with response operations, as requested by IC. d. Provide personnel to assist with clean up, as deemed appropriate by IC.
	2.4	Fleet units alongside	a. Cooperate with response operations, as requested by IC.
	2.5	HMAS *Stirling* ESM and DCBA Ranger	a. DCBA Ranger to enact the WA OWR Plan where potential for wildlife impacts are identified and notify the DBCA State Duty Officer (SDO) on (08) 9219 9208. b. Maintain close liaison with IC (PSM) c. Provide guidance on environmental protection, d. Oversee protection of wildlife and habitat efforts e. Consider callout of wildlife rescue organisations if required, and assess requirement for further impact and mitigation assessment.

PHASE 3 **Protection Containment And Recovery**	3.1	Planning Officer	a. Plan response operation. b. Generate SITREPs through EOC, as warranted. c. Continually reassess situation (in the context of effectiveness of response and weather/sea conditions) and modify response priorities and actions as appropriate. d. Continually assess risks to the environment and seek advice from the HMAS *Stirling* ESM. e. Identify requirement for additional response equipment (such as booms, skimmers, absorbent pads, oiled wildlife response equipment) and source through FBW-BM and response support agencies (e.g. Fremantle Ports, DoT, DBCA).
	3.2	ICC	a. Monitor situation. b. Issue SITREPs (via Navy Spill Commander and IC) to outside agencies (WA State Committee, AMSA, MA, and Rockingham Council). c. Handle media release/queries (via Navy Spill Commander and PAO). d. Liaise with Legal Officer with regard to collection of evidence if either disciplinary action or civil proceedings are anticipated. e. Identify suitable waste product disposal site (in consultation with FBW-BM and Garrison Support Services Contractor. f. Obtain additional response equipment (via hire or purchase) as requested by IC. g. Obtain beach/rock cleaning equipment as and if required by IC, such as: • High pressure water blasting equipment. • Earth moving plant. • Fertiliser and spreaders. h. Ensure that use of equipment and materials identified in Paragraph g are only deployed with the concurrence of the HMAS *Stirling* ESM and DBCA Ranger.
	3.3	Operations Officer	a. Conduct Response Operation • Deploy booms, soaker pads, and boats/FTL as required. • Employ boats and/or fire hoses to break-up slick. • Deploy skimmer/s as required. • Deploy SPWFL if required for oily waste recovery. b. Maintain records of incident for follow-up investigation. c. Draft POLREP signal for IC/OSC for release (NB: only for Fleet units; *Stirling* will release POLREP for lodger units). d. Provide personnel and equipment to support IC, as requested. e. Seek advice on deployment of assets and priorities for protection from HMAS *Stirling* ESM and DBCA Ranger. f. Establish and activate wash down station and oiled wildlife response field station as required.
	3.4	FBW-BM	a. Assist EOC with obtaining additional material and equipment resources required by IC. b. Monitor resource use for eventual cost recovery or payment for use of external resources. c. Provide road transport and plant as required. d. Commence provision of refreshments to clean-up teams. e. Maintain detailed records of resource expenditure

	3.5	JLU-W & BM	a. Provide/source protective clothing and other personal protective equipment, as required. b. Acquire additional equipment and stores as requested by IC
PHASE 4 **Termination**	4.1	IC	a. Stand down personnel and assets as no longer required. b. Determine completion of response activity with Navy Spill Commander and EOC. Scale-down or terminate incident as deemed appropriate. c. Inform ERG and other external agencies of termination of response, as required. d. Arrange on-site de-briefing. e. Finalise incident records. f. In consultation with Navy Spill Commander, FBW EO and other parties as necessary, determine need for and scope of any ongoing remediation work or monitoring. Initiate if deemed to be required.
	4.2	EOC	a. Issue final SITREP. b. Arrange organisational debrief. c. Prepare report on incident for CO *Stirling* and PSM, including any recommendations for improvements to OSCM or response procedures. d. Forward resource expenditure data to FBW-BM. e. Add records to databases for reporting – State Committee (for the National Plan); FBW Environmental Working Group; MA Sydney.
	4.4	HMAS *Stirling* ESM and DBCA Ranger	a. Identify ongoing environmental monitoring or wildlife care actions. b. Continue to monitor spill site as long as spill is visible or damage can be identified. c. Ensure shore spills are removed and remediated, including remediation of hydrogen contaminated soils to minimise the risk of water table pollution. d. Ensure records and documentation on remedial activities and outcomes are kept and stored in GEMS.
	4.5	FBW-BM	a. Consolidate resource expenditure. b. Review effectiveness of supply and contracting arrangements.

2.2.3 Spill Incidents External to FBW (Henderson/Fremantle)

First response for containment and clean-up of spills external to FBW (i.e. Henderson or Fremantle) are the responsibility of the vessel concerned and the associated controlling agency (i.e. Port of Fremantle or AMC) through their respective Oil Spill Contingency Plan and the Nation Oil Spill Response Plan. Navy, through employment of SERCO and Port Services personnel, will provide assistance as required/requested.

2.2.4 Spill Response Team Organisation

A schematic diagram of the spill response team is presented in Figure 2-2. The structure is that as is adopted nationally and by the state and allows for the allocation of roles to specialist and competent support personnel regardless of organisation in what is now referred to as the Australian Inter Service Incident Management System (AIIMS). It is usually built around the initial action of appointing an IC and can be sized up and down as required. The actual composition and tasking of the oil spill response team is dependent upon the size of spill and the conditions under which it has occurred, and the threat/s posed by the spill. The IC is responsible for tailoring available personnel and resources for the incident at hand.

Roles of key FBW personnel in the spill response team are detailed in Annex C, along with initial response actions upon detecting an oil spill. Annex C also outlines indicative FBW positions which would undertake particular roles within the spill response team structure. The organisation depicted in Figure 2-2, always commencing with an IC will apply to oil spills within Naval Waters.

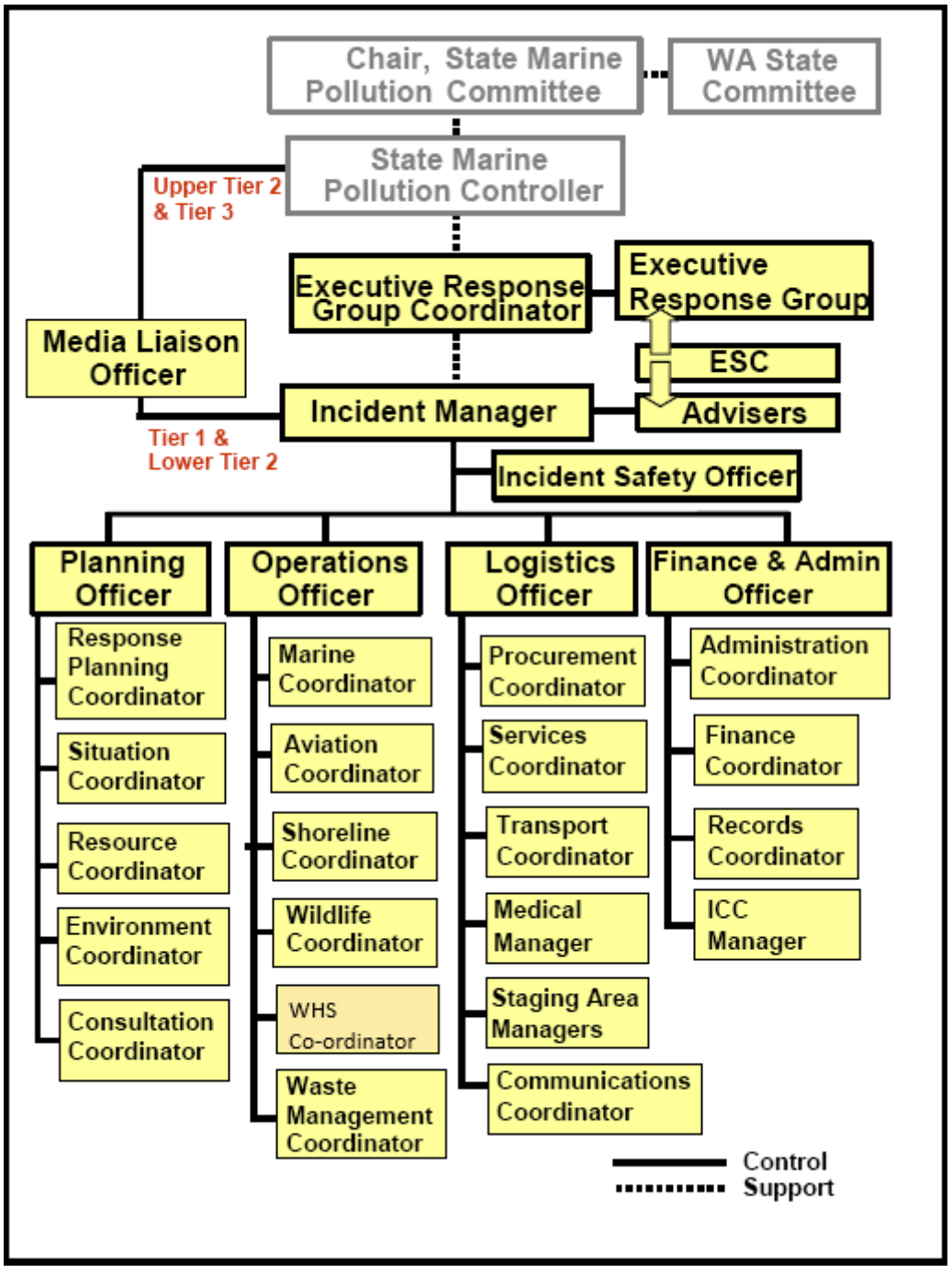


Figure 2-2 FBW Spill Response Organisation

Note that this OSCM is generic in concept in order to cover all contingencies and its practical application for most small spills will not require activation of many of the resources/organisations that are listed in the plan or the appointment of the roles described in the command and control structure. The IC retains overall responsibility for determining the level and timing of activation of elements of this OSCM.

2.2.5 On Scene Liaison

The IC has delegated authority for initiating contact with outside authorities and support agencies. Once an outside authority becomes involved in a spill response, the FBW IC is responsible for direct, on scene liaison between the RAN and the outside authority. All external authorities should be directed to attend the ICC initially upon arrival.

The Navy Spill Commander, supported by the PAO, is responsible for all liaisons with the media. Specific duties of media liaison are detailed in Annex C.

2.2.6 Health and Safety

The requirement to ensure the health, safety and welfare of personnel attending in response is a primary goal. Personnel hazards and first aid associated with commonly used oil is contained in Safety Data Sheets (SDSs) that are to be maintained by DFI-IC, and also available on Defence's ChemAlert System accessible by the EOC. A list of oils most likely to be spilt at FBW is contained in Annex B.

All medical emergencies at FBW are addressed according to the FBW Health Centre Emergency Response Casualty Management Plan. The FBW Health Centre is available to provide first aid and follow-up medical support to military personnel engaged in oil spill response. If resources are available, they will also provide immediate first aid to all other personnel engaged in oil spill response. Medical assistance from external agencies is coordinated by the EOC (or activated ICC).

2.2.7 Lines of Communication

The following key contacts also represent the clear lines of communication during a significant incident.

Navy Spill Commander (Normally in contact with the IC and State Executive Group)	Telephone	9553 2223
	Mobile	0412 261 808
IC (Works directly with the Commander and team members in the ICC)	PSM	VHF Ch 14
	PSM	0407 223 015
	Duty PSM	0410 694 301
ICC (FBW EOC) (General contact for all operations)	General	VHF Ch 14
	Secondary	VHF Ch 69
	Telephone (FBW EOC)	9553 2222 for emergencies (Ext 32222 within FBW)
Operations Officer (On Scene Control) (In direct contact with the IC and ICC only)	General / Boat Control	VHF Ch 14
	Secondary	VHF Ch 69
HMAS *Stirling* ESM	Mobile	0419 357 931 If unanswered: segewzenvironment.sustainabilitywa@defence.gov.au
DBCA Ranger Garden Island	Mobile	0455 604 646

2.2.8 Visible Spill Assessment

Properties of selected oils in RAN use (those most likely to be involved in an oil spill at FBW) are contained at Annex B. An estimate of the amount of oil spilled on water is necessary in any response and provides a basis for determining the level of response required. Accurate assessment of the amount of oil spilled is usually difficult, relying on the experience of the observer and environmental conditions. An estimate of how much oil is on water can be made using the guidance in Table 2-4, supported by Figure 2-3.

Additionally the ship or unit responsible for the spill is to make every practicable attempt to accurately assess the amount of oil spilled, such as by dipping tanks or assessing flow rates.

Table 2-4 Visual Cues to Estimating Quantity of Oil Dispersed on Water

Appearance of Oil	Approx Thickness (µm)	Approx. No. Litres (notes a & b)	
		per km^2	per 10,000 m^2
Barely visible under most favourable conditions	0.04	> 40	> 0.4
Visible as silvery sheen on water surface	0.1	> 100	> 1
First trace of colour	> 0.15	> 150	> 1.5
Bright bands of colour	> 0.3	> 300	> 3
Colours begin to turn dull	> 1.0	> 1 000	> 10
Colours are much darker	> 2.0	> 2 000	> 20
Black/dark brown	> 100	> 100 000	> 1 000
Water-in-oil emulsion (“mousse”)	> 1 000	> 1 000 000	> 10 000

Notes:
a. 1000 m x 1000 m = 1 km^2 = 1 000 000 m^2 = 100 ha
b. 100 m x 100 m = 10 000 m^2 = 1 ha

Calculation of Volume of Oil Spilt
Litres of Oil Spilt = Area of slick (in 10,000 m2 units) (1) x Approx no. Litres per 10,000 m2(2)
(NB: 1 cubic metre = 1 000 L)

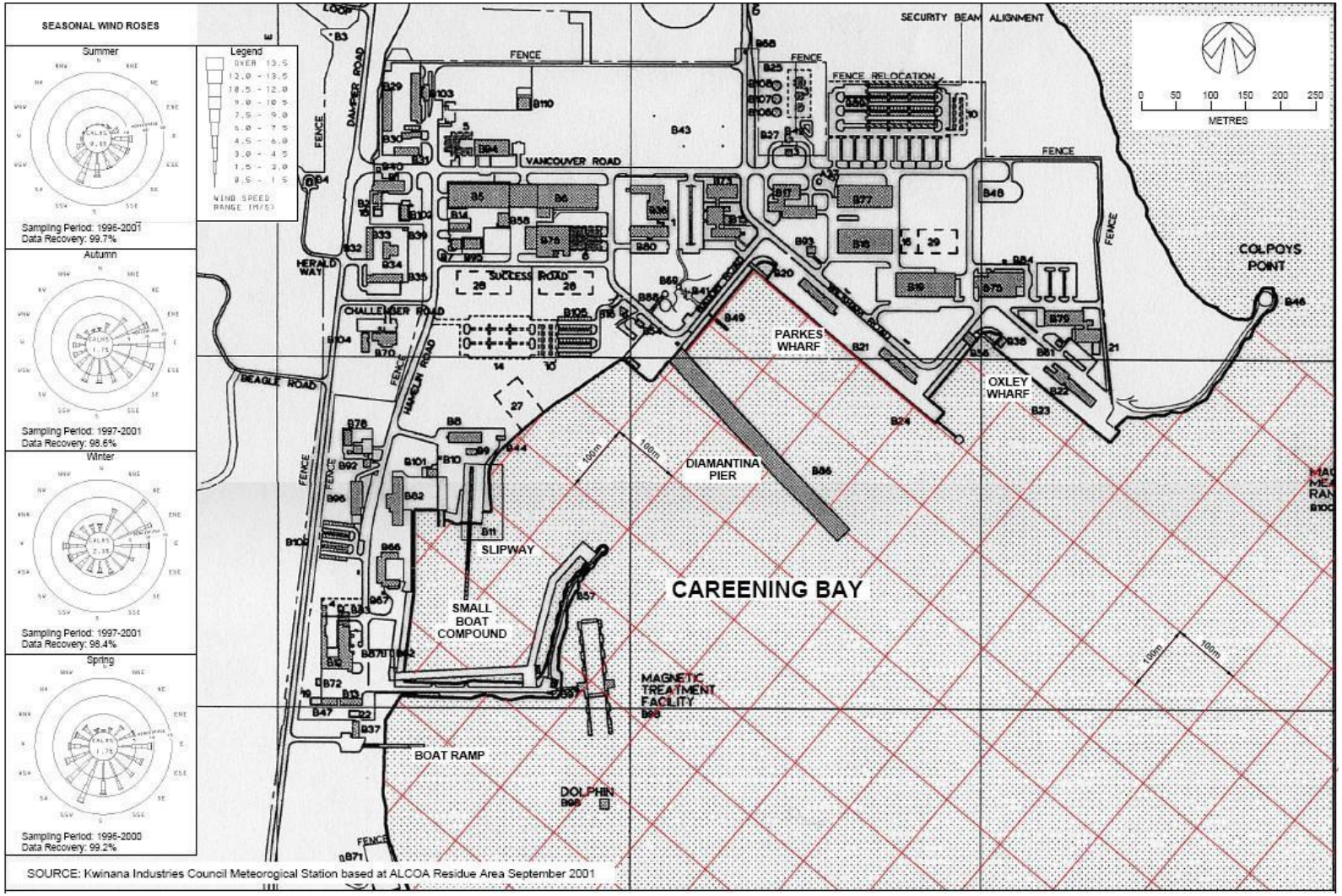


Figure 2-3 Careening Bay and Seasonal Windroses

(1) Each grid square in Figure 2-3 represents 10,000 m2. (2) Thickness of oil assessed visually using Table 2-4.

2.2.9 Predominant Wind Patterns in Careening Bay

The major seasonal effect that will impact on recovery operations is the wind. Wind is a significant determinant of water movement within Careening Bay. FBW experiences predictable winds based on the following typical patterns, notwithstanding storm related weather conditions. These are summarised in Table 2-5 (see also Figure 2-3).

While seasonal patterns are clearly consistent, the likely change of wind direction in any 24 hour period will add significant challenge to a major spill. On this basis it should be assumed that any spill not contained over a 24 hour period is likely to move in many different directions and this should be considered in initial planning.

Table 2-5 Summary of Seasonal Wind Conditions at Garden Island

Summer (December – February)	
Early Forenoon	Strong Easterly usually associated with the passage of a high pressure system across the Great Australian Bight
Midday	Light winds
Mid Afternoon	Moderate to strong south-westerly sea breeze
Evening	Calm
Autumn (March – May)	
Light conditions with occasional moderate to strong South-Westerly winds associated with Frontal systems	
Winter (June – August)	
Predominantly Westerly winds associated with High-pressure systems to the North. Pattern is regularly affected by strong to gale force winds North Westerly and then South Westerly /Southerly, associated with frontal and low-pressure systems.	
Spring (September – November)	
Forenoon	Light Easterly
Afternoon	Light South-Westerly
Evening	Calm

NB. Strong Easterly winds generate considerable chop in Careening Bay, which will hamper or halt clean-up operations.

2.3 PHASE 3: PROTECTION, CONTAINMENT AND RECOVERY

2.3.1 Clean Up Technology and Methods

Broad ranges of options are available to the IC for dealing with spilled oil. These range from no active intervention, to containment, recovery and clean up. Oil may be recovered from the surface of the water, or cleaned from rocks, beaches or the metal and concrete surfaces of coastal installations and infrastructure. Additionally, natural processes of degradation (eg. volatilisation or microbial degradation) may be employed in addition to active processes. Details of FBW spill response equipment are contained in Annex H.

Any oil recovered from a spill, as well as contaminated material and cleaning materials must be handled and disposed in an appropriate manner. This is expanded upon in Section 2.3.2.

2.3.1.1 Containment

The immediate priority of response, in parallel with isolating the spill source, is to contain the spill in order to limit harm and to facilitate recovery of the oil.

In the case of spills on land, including those which could enter marine waters, containment is best achieved on paved surfaces by the use of booms (eg. sausage booms) and the blocking of stormwater drains. For spills on unpaved permeable surfaces (e.g. sand) containment can be achieved by bunding the area to limit the extent of the area impacted. This can be achieved to a degree by sand bunding or in some cases the use of booms. (Note that spills on unpaved surfaces risk contaminating the water table, and that any soil or sand exposed to hydrocarbons will need subsequent remediation – seek advice from the HMAS *Stirling* ESM and DBCA Ranger).

Containment of oil on water is most effectively obtained using booms.

2.3.1.2 Deployment of Booms

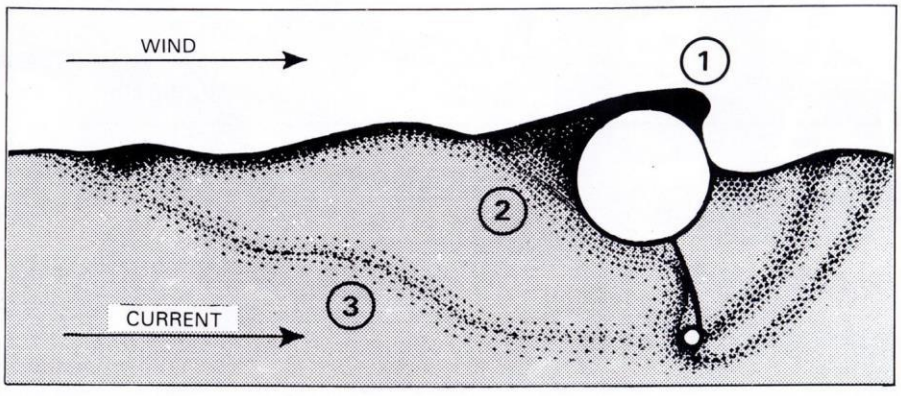
Booms may be used in a variety of roles, dependent on the type of oil, the nature of the spill and the response priorities. The IC may decide to deploy booms as follows:

a. **Absorbent Boom**. Absorbent booms are able to contain oil while simultaneously removing it from the sea surface by absorption. Small lengths of absorbent boom that clip together can be deployed quickly and are ideal for isolating oil in areas such as between a ship and the wharf. In general terms, absorbent booms are able to absorb in the order of 10 L of oil per metre of boom.

b. **Containment Boom**. Containment booms are used to limit the spread of oil, and thus can be used to capture oil until such time as it is removed from the sea surface by other mechanisms. The use of workboats will be required for the positioning of GP boom. GP boom is generally ineffective when the water velocity at right angles to the boom exceeds 0.5 knots.

c. **Defensive Booms**. A defensive boom is capable of imposing a barrier between an oil slick and a sensitive resource. Accordingly, these booms may be deployed as deemed necessary to protect sensitive areas. Sensitive areas and priorities for protection are at Annex A.

Booms have some limitations in operation, mainly influenced by wind, current and wave conditions (Figure 2-4).



1 splashover by wave action
2 flow down the face of the boom
3 droplets sheared from the underside of the contained slick

Figure 2-4 Diagrammatic Representation of Escape of Oil from a Boom

The oil containing capability of a boom is a function of its profile, size, shape and ability to conform to waves, as well as the type of oil being contained. Inability to contain oil may be due to one or a combination of the following situations:

1. Wave action-causing splash over.
2. Poor connections between boom sections or the boom and shore connection point

3. Inadequate mooring of the boom.
4. Tilting (possibly due to inadequate weighting).
5. High current velocity relative to the boom, or excessive towing speed, causing entrainment of the oil (NB: entrainment is where oil is able to flow beneath the skirt of the boom).

Entrainment normally occurs when water velocity relative to the boom exceeds 0.5 m/s (eg. a 1 kt current or a 30 kt wind, noting that winds induce surface currents at a speed of about 3% of the actual wind speed). Water velocity relative to the boom can be reduced by angling the boom relative to the direction of water flow, as indicated in Table 2-6.

Table 2-6 Angling of Boom Relative to Current Direction to Reduce Effective Current Velocity

Current (kts)	Velocity (m/s)	Angle of Boom
0.7	0.35	90º
1.0	0.5	45º
1.5	0.75	28º
2.0	1.0	20º
2.5	1.25	16º
3.0	1.5	13º

(IMO, 1988)

2.3.1.3 Recovery

For spills onshore, the main method of recovery used by Lodger units at FBW is absorbent pads and Peat Sorb. The use of absorbent pads is also appropriate for oil absorption on any shoreline hard surfaces such as fringing rocks etc. Sand may also be used to boom the spill and to soak up spilled oil, on hard or permeable surfaces. Any materials in contact with spilled oil should be considered contaminated and so will require remediation or disposal as contaminated waste after the spill has been neutralised.

Oil in water along the shoreline can be recovered by using the shore boom and surface skimmers. The absorbent pad method, whilst effective, is time consuming, messy and creates a great deal of waste product. Consequently, if a large quantity of oil is contained, absorbent material should not be used; the IC will request alternatives such as skimmers.

2.3.1.4 Dispersal

Dispersal and evaporation of light oil fuel spills may be achieved by breaking up a spill to enhance natural evaporation. In order of preference the methods available to Defence units and their contractors at FBW are:

1. Natural wave action – no active intervention necessary;
2. Surface agitation using boat's propellers; and
3. Spraying with fire hoses (taking care not to divert spills under wharves where evaporation rates are low and booming is difficult).

Hydralic and lubricating oils

hydraulic and lubricating oils are less likely to disperse easily, even when employing the above methods. In open oceans, the aerial spraying of dispersant (particularly in deep and agitated waters) has been effective, albeit dispersants have negative environmental consequences. these negative consequences are amplified in the shallow waters of Cockburn Sound and the likely accumulation of dispersants in bio-diverse environments is not acceptable in this response plan. Dispersants are NOT to be used at FBW.

This OSCM has as its objective, the immediate containment of any hydraulic or lubricating oil spilt

and its retrieval from the surface of the ocean as soon as possible.

Note: spills of hydraulic and lubricating oil have a high risk of injuring wildlife. The IC is to seek advice from the HMAS *Stirling* ESM and DBCA Ranger as to whether wildlife rescue services need to be activated.

Hydraulic and lubricating oil Containment
FBW has sufficient booms to either encircle a small spill, or create a barrier to ensure the oil does not impact onto sensitive areas. Additionally, significant stocks of boom are inventoried with Fremantle Ports (see Annex M), as well as additional boom being held at the Port as part of the National Plan. Any reported spill of hydraulic and lubricating oil should trigger a decision on ordering the immediate deployment of existing boom and forward staging of additional boom without delay. For spills greater than 20 litres containment and removal in Careening Bay will be needed.

Note: if during containment activities oiled wildlife are identified, the IC is to seek advice from the HMAS *Stirling* ESM and DBCA Ranger, and the WA OWR Plan activated.

Hydraulic and lubricating oilRecovery
The techniques of recovering hydraulic and lubricating oilfrom booms at sea are difficult. It is envisaged however that the semi-calm waters of Cockburn Sound, particularly areas adjacent to the eastern bays of Garden Island, would provide for the capability to retrieve floating oil from the surface of the water by the use of floating skimmers or dedicated skimmer vessels.

This technique involves significant resources and includes vessels, weir, disc and manta skimmers, pumps, skimming vessels and recovery tanks. Sufficient quantities of this equipment are not readily available at FBW. Stocks are held by Fremantle Ports, as well as additional retrieval equipment held at the Port as part of the National Plan (see Appendix M). Any reported spill of hydraulic and lubricating oilshould trigger the immediate forward staging of this equipment without delay, noting that spills larger than 20 litres may have significant environmental consequences in Careening Bay.

Note: if during recovery activities oiled wildlife are identified, the IC is to seek advice from the HMAS *Stirling* ESM and DBCA Ranger and the WA OWR Plan activated.

2.3.1.5 Clean Up

Cleaning-up of oil is difficult and the need to do so should be avoided in the first instance by taking all practicable measures to prevent spilled oil from reaching shorelines or coastal infrastructure. Actual cleaning objectives and methods depend upon the nature of substrate (eg. sand, rock, concrete), the amount and type of oil involved, and the degree of impact (eg. the depth to which oil has penetrated into a sandy beach).

Available methods include physical removal (eg. excavating oiled beach sand or soil), dispersal (e.g. high-pressure or low-pressure water blasting on rocks and concrete surfaces) or natural degradation processes. Natural degradation processes can be enhanced by the addition of fertiliser or aeration (eg. spreading oiled sand thinly or placing into windrows).

Note: The decision for physical removal and to use water blasting must be reviewed in the light of the negative environmental consequences of these activities to shoreline ecosystems and the resident little penguin population and Indian Ocean bottlenose dolphin. The decision to use these methods is to be made in consultation with the HMAS *Stirling* ESM and DBCA Ranger, in accordance with best practice. It is outlined in Annex A that high-pressure washing is not to be performed in the vicinity of penguin burrows, and this caution should be applied across all sensitive or protection areas.
Further, the National Oceanic and Atmospheric Administration (NOAA) Office of Response and Restoration suggests that by slightly modifying this [washing] technique in a number of ways may remove the oil just as well while also minimising possible injuries from response activities. For example, you can lower the water pressure, use a broad water fan or flow rather than a jet nozzle, or flush the area with warm or ambient temperature water. This is to be considered when implementing

clean-up efforts, based on review of potential sensitive receptors and protections areas identified in Annex A.

In addition to the shoreline itself, additional material on the shore may be impacted. A typical example on Garden Island is seagrass wrack. Depending upon the degree of impact, oiled shoreline material may be allowed to weather naturally or can be removed for appropriate disposal elsewhere. The IC is to seek advice from the HMAS *Stirling* ESM and DBCA Ranger on whether the oiled shoreline material poses a significant threat to wildlife.

2.3.1.6 Remediation

The focus of this OSCM is on the initial response to oil spills, with an emphasis upon containment, recovery and clean up. In some instances, longer-term remediation measures may be required following a spill event, especially in the sensitive marine environment of Garden Island. In some on shore locations, remediation may be a technique that could be considered in ensuring the natural breakdown of oil. It is incumbent upon the IM to identify the need for and initiate longer-term remediation, monitoring or other follow-up action as may be required. This is to be done in consultation with the Navy Spill Commander, FBW EO and other relevant authorities.

Note: any spill that impacts on the shore or rock wall adjacent to the little penguin colony or shorebird nesting and feeding sites will require ongoing monitoring.

2.3.2 Disposal of Waste

All waste material arising from an oil spill response is to be handled, stored, transported, treated and disposed in an environmentally responsible manner and in accordance with regulations such as the WestPlan and National Plan. This is especially relevant to recovered oil in all of its forms; this includes free oil and oil/water mixes, as well as contaminated clean-up material (eg. Peat Sorb, soaker pads).

Note that in many cases for land based spills significant quantities of sand or soil may be contaminated with hydrocarbons. These contaminated soils are to be targeted for remediation, but in small quantities may be considered waste and disposed of in accordance with state and/or national waste classification regulations.

Temporary storage of large quantities of used absorbent pads and Peat Sorb is to be in empty oil spill clean-up kits (red bins with yellow lids). These kits are located at the Powerhouse, Fire Section, Port Services and DFI and can be delivered to the spill site by the DFI and Port Services. In the event that rubbish skips are required for larger quantities, users are to ensure that drain plugs are in place. If not immediately available on site, suitable bins for disposal of waste can be requested from the GSS contractor via a Works Request or the ‘Help Desk’ on 1300 658 975.

Larger amounts of recovered oil will be disposed of in consultation with the PSM and FBW-BM. The FBW stationed SPWFL MOWAMABA may be useful as a vessel for temporarily holding oil, or oil/water mix, recovered from the water by the skimmer. MOWAMBA has a total capacity of 690 m^3. Additionally, a 20 m^3 waste oil holding tank is situated at the Small Boats Compound..

The fixed sullage system (connected to wharf cope points) is capable of accepting recovered oil/water mix with an oil (or petroleum/oils/lubricants [POL]) content of no greater than 5%. Higher percentages of POL can be diluted within the system by using the saltwater flush pump. System capacity is, however, limited to approximately 300 tonnes with a processing rate of 6-8 tonnes per hour. This may be insufficient for acceptance of material from larger spills, in which case temporary storage facilities or alternative disposal arrangements will be required.

2.4 PHASE 4: TERMINATION OF OPERATIONS

2.4.1 Authority to Terminate

In any clean-up operation a point is reached when the effort and cost of continuing outweigh the marginal benefits of further clean up. In consultation with environmental and other advisers, the IC, in consultation with the Navy Spill Commander (if activated) will determine the point when further effort and cost is not justified.

The termination phase will encompass:

1. Return, clean up and audit of equipment (with action subsequently initiated to replace gear consumed in the spill response)

2. Debriefing

3. Finalisation of cost capture and initiation of any cost-recovery processes

4. Preparation of an incident report, and

5. Post-response restoration, monitoring and remediation.

2.4.2 Debriefing Arrangements

All responses to oil spills will conclude with a debrief during the termination phase. Debrief arrangements will be made by the Navy Spill Commander (if activated), or the IC. The objective of the debrief is to determine the effectiveness of the response and the OSCM. The debrief should consider:

1. Spill source and cause

2. Speed of response

3. Effectiveness of procedures

4. Equipment suitability

5. Health and safety issues

6. Communications, and

7. Integration of FBW OSCM and response procedures with other response agencies.

3 PLANNING AND PREPARATION

3.1 PLANNING RESPONSE PRIORITIES

Table 3-1 presents potential sources and scenarios of oil spills within, or which could impact upon, Naval Waters at Garden Island.

Table 3-1: Potential Oil Spill Scenarios and Impacts

Possible Source/Scenario	Consequence	Exposure	Risk Rating
A spill from a holed fuel tank on light vehicle, light truck, or road accident, or a split or holed oil drum (up to 205 litres capacity), or a hydraulic oil tank rupture/hose rupture on construction plant	**Minor** Release causes no significant environmental damage. Short term disruption, and minor soil or hard surface contamination. Limited cost, media and community interest unlikely.	**Possible** If occurs is usually of short term duration and has been well managed in the past. Risk is managed.	**Moderate** There has been some experience of short duration events in the past at similar facilities or in similar operations. There is an expectation that the risk is managed and response procedures are in place and well practiced and events should be well controlled.
A spill from a road tanker on Garden Island as a result of accidental discharge or vehicle accident.	**Moderate Event** Release causes no significant change. Minor environmental damage likely, including injury to wildlife. Short term disruption. little cost, some media and community interest.	**Quite possible** If occurs is usually of short term duration and has been well managed in the past. Risk is managed	**Moderate** There has been some experience of short duration events in the past at similar facilities or in similar operations. There is an expectation that the risk is managed and response procedures described in this OSCM are in place and well practiced and events should be well controlled.
A spill from a road tanker on Garden Island such that the fuel enters the stormwater drains and discharges to marine waters.			
A spill from an unmanned (partially open) valve on the reticulated sullage wharf pipeline during concurrent activity at another cope point.			
A spill that occurs during transfer between ship-shore of oil lubricated equipment or packaged quantities of oil.			
A spill that occurs during fuel/oil transfer to Fleet units in Careening Bay, using either the reticulated wharf pipelines or portable supplies, at the point of transfer due to hose or coupling failure or incorrect procedures in the ship or ashore.	**Major Event** Likely to require external resources and liaison to manage Impact on environment significant including injuries and mortalities to wildlife and damage to marine ecosystems. Noticeable disruption to normal activities, significant cost in containment and clean up, adverse media reaction and likely legal enquiry. Ongoing and significant site remediation and monitoring will be required.		
A spill that results from discharge of fuel from unmanned (partially open) valves on the reticulated wharf pipeline concurrent with a fuelling activity at another berth.			
An oil spill that occurs during internal transfer of oil within a ship that results in a discharge to marine waters.			
A spill that occurs as a result of the rupture of a packaged quantity of oil on a wharf, resulting in a discharge to marine waters, or the escape of oil captured in a stormwater/oil separation system on a wharf.			

A spill that occurs during fuel transfer to the DFI or AVCAT Facility from a commercial tanker, due to hose or coupling failure or incorrect procedures.			
A spill occurring as a result of an DFI, AVCAT Facility or Quarantine Fuel Facility pipeline rupture.			
A spill from a sullage truck during transfer of oily waste from a ship due to hose or coupling failure or over filling the truck.	**Disaster** External resources controlling operation. Significant costs, long term environmental impact, public and legal review of capability, reputation damaged.	**Unusual but possible** The event is predictable with some indications of failure of systems and processes in the past	**Substantial – Very High Risk** While events are rare, it is accepted that it can occur and when it does, it is likely to cause significant environmental, social, political and economic concern. While mitigation measures may not be the direct ability of the agency, interagency and support arrangements and plans should be reviewed and tested to respond to these threats. The procedures described in the OSCM will provide the methodology to minimise the risk to the marine environment and resident species.
A major spill of crude oil or petroleum products emanating from either a refinery or a ship at or in the vicinity of the refinery			
A spill following rupture of a ship's tank following collision or berthing accident in Careening Bay.			
A spill occurring as a result of loss from a ship (such as due to a collision or grounding) in Cockburn Sound or waters to the west or south of Garden Island.			

Assessment Tool: IFAP Nomogram based on AS/NZS 4360:2004, AS/NZS 4804:2001,ISO/DIS 31000:2018

Note that in the enclosed waters of Careening Bay and Cockburn Sound it is likely that even a minor spill would threaten shorelines and coastal infrastructure. Guidance on the location of coastal resources and their sensitivity to oil are contained in the Garden Island Coastal Resource Atlas (Annex A). The Coastal Resource Atlas also contains information on beach access points around Garden Island and recommended forward response staging areas. The Coastal Resource Atlas should be used in conjunction with Annex I, which describes the behaviour on water of spilt oil, in assessing threats and determining response priorities.

In all cases the HMAS *Stirling* ESM and DBCA Ranger are to be consulted when an oil spill occurs ashore or within Naval Waters due to the environmental sensitivities of Garden Island and Cockburn Sound.

The safety of human life is paramount in any response operation.

3.2 PREPARATION AND PREVENTATIVE MEASURES

There is capability for FBW in its operations to have in place measures that would mitigate the impacts of spills in sensitive environments. These measures that should be reviewed either regularly or be included in operational hazard assessments include:

1. The prepositioning of ready to deploy booms on jetties in order to protect valuable environmental assets

2. The placement of permanent deployed booms in high vessel activity areas

3. The construction of boom anchor points on shore and in water to facilitate quick deployment and containment in sensitive areas, and

4. The deployment of booms in operations where there is an elevated likelihood of a spill or release during the operation

Ongoing preventative measures to ensure the prevention of spills, or capability to respond quickly in containment is maintained, are provided in Annex J.

The Defence Pollution Prevention Management Manual, Annex 1D Chemical and Fuel Storage and Handling, outlines expectations for the storage of fuels, lubricants, and oils, during operation and maintenance of Defence facilities and activities. The policy also describes requirements for the design of new facilities storing fuels and chemicals.

Additionally, the PPMM Annex 1D outlines groundwater monitoring requirements that would be activated in the event of a spill ashore. Note that the risk of contamination of groundwater increases exponentially with the size of the spill.

3.3 PERSONNEL AND TRAINING

Effective oil spill response hinges upon adequate training of personnel and periodic test and evaluation of procedures. To achieve these outcomes, it is essential that nominated key personnel at FBW receive billet pre-requisite training in oil spill preparedness and response. To practice and assess the FBW oil spill response organisation and procedures, it is necessary to periodically test and evaluate the OSCM and attendant procedures, and continually reassess and modify the OSCM based on the results of the exercise evaluations.

The PSM is responsible for identifying billet pre-requisite training requirements and for periodic test and evaluation of the OSCM. JFLA is responsible for all billet prerequisite OSCM training billet descriptions.

Government and Non-Government Agencies provide a range of training programs for Oil Spill Responders.

Table 3-2 suggests the training regime to be reviewed by the PSM.

Table 3-2 Suggested Training Regime for OSCM

Program Title	Target Group
OSCM Orientation Programs	All likely participants in Oil Spill response and recovery operations
Introduction to Oil Pollution (Level 1)	All FBW personnel likely to be involved in equipment deployment
Shoreline Response	All FBW personnel likely to be involved in equipment deployment
Oil Spill Administration	All likely participants in roles in the EOC
State Marine Pollution Controllers Workshop	ICs
Environmental and Scientific Coordinators Workshop	FBW Environmental officers.

Oil Spill Response Workshop	All likely participants in roles in the EOC
Oil Spill Management Course	ICs
EOC Exercises	All likely participants in roles in the EOC
Australian Inter Service Incident Management System Training	All likely participants in Oil Spill response and recovery operations

The FBW OSCM will be exercised at regular intervals as determined by the PSM and Commanding Officer HMAS *Stirling*.

The following FBW positions, as a billet prerequisite, should attend the Australian Maritime Safety Authority Oil Spill Management Course:

- PSM
- DPSM
- Fleet Support Officer
- Wharf Manager, and
- GSS Fire and Emergency Services Senior Fire Fighters.

The PSM is also to maintain a record of oil spill response training (individual and unit level) and drills.

3.4 EQUIPMENT MANAGEMENT

The current levels of equipment held in FBW will meet the requirements of equipment for a response to a Level 1 spill of light oil or up to three tonnes of hydraulic or lubricating oil. This equipment is listed in Annex H.

Additional equipment, capable of dealing with spills up to a Level 3, and additional equipment placed as per the pre planning arrangements of the National Plan are available from Fremantle Ports (see Annex M) and will be activated to support operations in Naval Waters on request, either directly or via the DoT ERG.

Some equipment is purchased and placed by a range of stakeholders at different locations across the island. However, a single oil spill response equipment manager will be identifiable by this plan, which is the PSM.

All proposals for new oil pollution control equipment at FBW are to be coordinated by the PSM. Suggestions for the acquisition of new equipment or the management of equipment in existing inventory by any party are to be submitted to the PSM for consideration. Where oil pollution control equipment is utilised in a spill incident, the equipment should be replaced, coordinated through the PSM.

Used equipment should be managed and disposed of (if required) as contaminated waste.

For construction related activities at HMAS Stirling, the Construction Site Manager is to consult with the PSM and the HMAS *Stirling* ESM and DBCA Ranger to identify the appropriate levels of additional spill response equipment that will be required. The requirement for additional equipment will depend on the nature of the works, the machinery that will be employed, and the location of the

works. In all cases, the Defence Pollution Prevention Management Manual should be adhered to, as well as State and Commonwealth legislated fit-out requirements (such as embarked spill kits on support vessels). In some cases, prepositioning spill equipment at the construction site may be prudent given the sensitivities of Garden Island and the highly porous soils.

The Western Australia Oiled Wildlife Response Plan (WA OWR Plan) for Maritime Environmental Emergencies details the equipment available to support an oiled wildlife response (OWR). OWR equipment is divided into three tiers based on accessibility and urgency of need:

• Tier 1: stockpiled and readily available on site within a few hours

• Tier 2: widely available from identified suppliers and on-site within 24-48 hours

• Tier 3: regionally/globally available in stockpiles or by retail, on-site within 72 hours.

DBCA at Regional and District levels may have access to equipment such as catering, communications equipment, aerial surveying, specialised wildlife capture (e.g. turtle and marine mammal slings), vehicles (4x4 vehicles, quad bikes, watercraft and spotter planes) and chest freezers.

Additionally, mobile oiled wildlife wash units equipped with water heaters, a water softener, a pressurisation pump, ventilation plant and electrical distribution board. The working area has water outlets, ducted air extraction, lighting and floor drainage and can run up to three cleaning stations, with sufficient water capacity to run four more wash stations in an adjacent facility. The units are available by request from DoT if the National Plan is activated.

Whilst the WA OWR Plan details a projected inventory of DBCA equipment stockpiles, the DBCA Oiled Wildlife Advisor (OWA) should be contacted via the DBCA Ranger to determine the status of the stockpile if equipment is required for a response.

3.5 RECORD-KEEPING AND REPORTING

3.5.1 Record-keeping

A database is to be maintained of all reported oil spills. The database is to record all aspects of the spill, including:

1. date and time of incident
2. source and cause
3. type of oil involved
4. amount spilt
5. type and level of response
6. what (if any) impacts caused by the spill
7. the support or assistance of external agencies, and
8. an assessment of the effectiveness of the response, including any identified strengths or deficiencies of the FBW OSCM and supporting arrangements.

The oil spill database is to be used for the periodic assessment of risks (encompassing likelihood, size of spill and potential consequences). This information is to be used for identifying activities and facilities, which may require improvement and enhance spill prevention measures.

An appropriate location of the spill database would be the FBW Environmental Incident and Improvement Register, which is maintained by the EO-FBW.

Environmental incidents reported through the Garrison and Estate Management System (GEMS) will be recorded for FBW for future reference.

3.5.2 Reporting

Reports of oil spills of greater than 1 tonne (or otherwise requiring the assistance of external authorities for response and support) are to be forwarded by the PSM to the Commanding Officer HMAS *Stirling*.

All POLREPS from all spills regardless of size are to be forwarded by the PSM to the HMAS *Stirling* ESM for inclusion in the FBW Environmental Incident and Improvement Register. Incidents will be tabled at the monthly Shore Force Command WHS Committee Meetings and reports will remain "open" until all corrective action has been taken, after which the Committee Chair may "close" the incident.

Reporting Major Environmental Incidents

In the event of a spill, consideration needs to be given as to whether it may be classified a major environmental incident and if so the need to report it to the Commonwealth Department of Climate Change, Energy, the Environment and Water as per requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The decision on whether this requirement has been triggered will be made by DEPAC on the advice of the HMAS *Stirling* ESM.

Environmental incidents are reported using the GEMS Estate Incident process through two main pathways;

1. If you do not have access to GEMS, please complete the GEMS Incident form.

2. If you have access to the GEMS incident module, incidents can be directly entered into GEMS using the Incident Notification and Recording reference guide.

Reference should be made to the Defence Environmental Incident Reporting Guideline.
If assistance is required, seek guidance from the HMAS *Stirling* ESM.

3.6 DELEGATED RESPONSIBILITIES

The OSCM for FBW is issued for direction and guidance in prevention of oil spills and preparation and response in the actual event.

This plan and its guiding intentions in respect to preparation, response, recovery, liaison, training, exercising and equipment maintenance is the direct responsibility of the PSM.

Within this delegation, the following annual actions are at the direction of the PSM.

JANUARY
The training matrix is to be reviewed and training for nominated personnel is to be coordinated.

FEBRUARY
Dedicated Oil Spill Equipment Audits for all equipment held on FBW are to be conducted.

APRIL
An operational exercise is to be conducted.

JULY
This Plan is to be reviewed biennially in July. A pro forma for submitting suggested amendments is contained in this OSCM.

NOVEMBER
A desktop scenario is to be conducted biennially in November and is to involve Fremantle Ports.

Any instruction within this plan, which is inconsistent with a Defence policy or directive issued by higher authority, is of no effect to the extent of the inconsistency. Any inconsistency is to be reported to the plan sponsor, the PSM.

3.7 FBW OSCM AMENDMENTS

The PSM is responsible for the biennial review and update of the OSCM as well as all other corrections, amendments or updates. The PSM will liaise with EO-FBW before changes are endorsed to ensure the alignment of the OSCM with the environmental values of the area.

ANNEX A

GARDEN ISLAND COASTAL RESOURCE ATLAS: QUICK REFERENCE

Determining Sensitivities and Response Priorities

In general terms, the following protection priorities apply:

Priority 1.
Rocky foreshores and breakwaters - difficult to clean up, very sensitive species present.
The Little Penguin permanently resident in the rock walls from Moresby Harbour (Area 2A in Figure A3) to Colpoy's Point (Figure A3), with nesting sites above the high tide mark throughout Careening Bay. The penguins move daily between the nesting sites and feeding areas throughout Cockburn Sound. Penguins congregate or "raft" in the evening around sunset before coming ashore to rest in burrows. Penguins present year-round breeding cycles. The breeding season and pre-moult season for the penguins runs between January and April. Between March and December, penguins may have eggs or young.
Other sensitive species are also present in the surrounding areas, including sea and shorebirds.

Prescribed oil spills responses must protect these species. The principle method of protection is spill containment within Careening Bay using floating booms to keep the oil from entering the rock wall. Laying booms to protect these areas is Priority 1.

In difficult meteorological conditions, winds from the east reach up to 30 knots, wind wave action will make booming less effective in controlling an oil spill. If there is evidence of boom entrainment or overtopping by oil, the PSM is to consider deploying a second inshore boom as a second line of defence. It is strongly recommended that a second boom be deployed early if adverse wind conditions are present or anticipated.

If an oil spill threatens the rock wall or large areas of Careening Bay, the PSM and HMAS *Stirling* ESM are to consider early callout of wildlife response resources, given the daily migration and habits of the little penguin place them at high risk of exposure. Early call out is necessary due to the likely protracted call out times for specialist wildlife responders.

High pressure water blasting and/or nutrient enhancement is NOT to be used in the vicinity of little penguin burrows due to the risk of oil being forced into burrows and nests.

As a last resort, high pressure water blasting may be used to force surface oil AWAY from the rock wall, with the decision to take this action to be considered and agreed by HMAS *Stirling* ESM and DBCA Ranger. Note that the physical presence or noise from these actions may disturb nesting penguins, but the priority should be to prevent oil ingress to the rock wall.

Note that any spill entering the rock wall is to trigger a post-spill monitoring programe with the scale and nature of the program to be agreed with the HMAS *Stirling* ESM and DBCA Ranger.

Priority 2.
Wharf areas - Difficult to clean and confined areas may generate an explosion hazard as oil is volatised if the vapours do not readily disperse. Parkes and Oxley Wharves are underlain by rock walls.

Wharf areas are in proximity to known seagrass areas and other flora and fauna sensitive receptors. A spill in these areas require a response to protect sensitive species, which will likely be included in penguin protection strategies described as Priority 1. The Indian Ocean bottlenose dolphin is regularly sighted feeding, resting and socialising in Careening Bay and elsewhere in the surrounding waters.

Any spill entering seagrass areas is to trigger a post spill monitoring program, to be agreed with the HMAS *Stirling* ESM and DBCA Ranger.

Priority 3.
Sandy beaches – Most beaches have access tracks (or can be made accessible in the event of an emergency) and can be cleaned-up quickly and effectively. Note, some beaches may also be able to be reached by small boat.

Note: sandy beaches include resident shorebirds, resting seabirds and important feeding and breeding habitats. This is of particular note at Parkin Point, identified as the roost site supporting large numbers of shorebirds, seabirds, and waterbirds. Prior to access by heavy equipment or vehicles, or significant numbers of personnel, the approach is to be discussed and agreed with the HMAS *Stirling* ESM and DBCA Ranger.

These overall priorities are modified according to specific locations where, and at times when, wildlife particularly vulnerable to an oil spill may be present. Refined priorities are reflected in this Coastal Resource Atlas. Timely advice is to be sought from the HMAS *Stirling* ESM and DBCA Ranger when identifying environmental resources at risk following a spill.

In all instances when determining priorities for protection, consideration must be given to the limited amount of boom available, effective skimming rates, difficulties with shore access and ease of cleaning-up spilt oil from different substrates.

Seawater intakes are also considered vulnerable to oil pollution. Apart from the intakes on Fleet units and submarines alongside, the only seawater intake within Careening Bay is one fitted beneath Diamantina Pier at the landward end. This intake is used as a feed source for the FBW seawater firemain. Its position below the surface renders it invulnerable to floating oil, and therefore unlikely to be adversely affected by a floating oil spill however if significant oil accumulates around the intake, the depth of the oil is likely to cause significant interference and failure and should be protected by boom.

GARDEN ISLAND AREAS AND THEIR SENSITIVITY TO IMPACT BY OIL SPILL

Areas within Naval Waters around Garden Island have been categorised according to common features and their sensitivity to adverse impact arising from an oil spill. These are presented in Table A-1. A more detailed description of each area is also presented in this Coastal Resource Atlas.

Specially marked charts and maps are contained in this Annex as components of the Coastal Resource Atlas.

Figure A5 outlines the potential nesting and burrowing areas for the little penguins over time. While not all areas are utilised year-round, it is recommended during initial response activities that they are treated as such for the protection of wildlife while further investigation is undertaken.

Table A-1 Areas of Garden Island Categorised According to Oil Spill Sensitivity – Coastal Resource Atlas

Area	Location	Specific Protection Priority (if assigned)
Within Careening Bay		
1	Parkin Point to Boatshed	**HIGHEST PRIORITY**
2	Boatshed to Colpoys Point	HIGH
2a	Slipway Beach (and rock wall to Diamantina Pier carpark)	**HIGHEST PRIORITY**
2b	Diamantina Pier to Captains Landing	**HIGHEST PRIORITY**
Naval Waters external to Careening Bay		
2c	Colpoys Point	**HIGHEST PRIORITY**
3	Colpoys Point (North side) to Buchanan Bay (South end)	HIGH
4	Buchanan Bay	
5	Sulphur Bay	
6	Luscombe Bay	
7	Pig Trough Bay	
8	Beacon Head to Entrance Point (North end)	HIGH
9	Herring Bay	HIGH
10	Calista Point to Gilbert Point (North West Coast)	HIGH
11	Gilbert Point	HIGH
12	Hokin Bay, Ewing Bay, Bauche Bay to Beagle Rd Point (West coast)	HIGH
13	Quarry Rd Beach	
14	Baudin Point to Collie Point (South end)	HIGH
15	Broun Bay	HIGH
16	Parkin Point	HIGH
17	Southern Flats	HIGH
18	Area North East of Pig Trough Bay	HIGH

Careening Bay

Noting the concentration of ship activities and facilities, Careening Bay is the most likely location for an oil spill to occur. The following area descriptions relate to those shown on Figure A2 in Annex A.

Area 1: Careening Bay - Parkin Point to Boatshed
Sandy beaches with ready vehicle access except at high tide. High recreational beach use at Camp Markham. Shallow seagrass beds in the beach margins. High presence of feeding and resting shorebirds, waterbirds and seabirds.

Area 2: Careening Bay - Boatshed to Colpoys Point (except Slipway Beach) **HIGH PRIORITY**
Main wharf area of FBW. Continuous rock wall, including beneath Parkes and Oxley Wharves, Diamantina Pier and Moresby Harbour. Resident little penguin colony in burrows scatted along the rockwall. High presence of diving seabirds breading, feeding and resting. Some presence of shorebirds.. Limited vehicle access and restricted boat access beneath wharves.

Area 2a: Careening Bay - Slipway Beach HIGHEST PRIORITY
Site of major little penguin colony, in rock retaining wall. Penguins present year-round breeding, moulting and sheltering (area frequented by penguins extends from Slipway to carpark at base of Diamantina Pier). Small beach exposed at low tide; not accessible by vehicle for clean-up. High presence of diving seabirds breading, feeding and resting. Some presence of shorebirds.

Area 2b: Careening Bay - Diamantina Pier to Captains Landing HIGHEST PRIORITY
Site of a little penguin colony, in rock retaining wall. Penguins present year-round breeding, moulting and sheltering. High presence of feeding and resting diving seabirds.

Areas of Garden Island other than Careening Bay

Area 2c: Colpoys Point HIGHEST PRIORITY
Site of a little penguin colony. Penguins present year-round breeding, moulting and sheltering. High presence of feeding and resting shorebirds, and diving seabirds.

Area 3: Colpoys Point (North side) to Buchanan Bay (South end) HIGH PRIORITY
Area of intense year-round activity by seabirds, including nesting of fairy terns over summer months. Shallow seagrass beds in the beach margins. Sandy beaches and limited rock walls with ready vehicle access. High presence of feeding and resting shorebirds, and diving seabirds.

Area 4: Buchanan Bay
Sandy beaches with ready vehicle access. Rocky headland at Cliff Point. Shallow seagrass beds in the beach margins. High presence of feeding and resting shorebirds, and diving seabirds. High recreational use at picnic areas.

Area 5: Sulphur Bay
North Sulphur Bay and Armament Jetty have high use by *Phalacrocoracidae* (cormorants), *Anhinga novaehollandiae* (darters) and other seabirds for roosting and feeding. High presence of feeding and resting shorebirds, and diving seabirds. Shallow seagrass beds in the beach margins. Vehicle access available.

Area 6: Luscombe Bay
Sandy beaches, vehicle access from Armament Jetty/Demolition Area. High presence of feeding and resting shorebirds, and diving seabirds.

Area 7: Pig Trough Bay
Sandy beaches with ready vehicle access. High presence of feeding and resting shorebirds, and diving seabirds. High recreational use including recreational moorings.

Area 8: Beacon Head to Entrance Point (North end) HIGH PRIORITY
Rocky shores, headlands and cliffs. Limited vehicle access, difficult to clean-up. High presence of feeding and resting shorebirds, and diving seabirds.. Some recreational use.

Area 9: Herring Bay HIGH PRIORITY
Near surface reefs and rock platforms surround beach. High presence of feeding and resting shorebirds, and diving seabirds. High recreational use with moorings and picnic ground. Vehicle access available.

Area 10: Calista Point to Gilbert Point (North West Coast) HIGH PRIORITY
Near surface reefs and rocky platforms, headlands and cliffs, inaccessible coves. High seabird activity. High presence of feeding and resting shorebirds, and diving seabirds. Possibility of seals (NB: Seals may occur at any location around Garden Island).

Area 11: Gilbert Point HIGH PRIORITY
A sandy point that is a major roosting site for wading birds and a fairy tern rookery during summer. Shallow, nearshore limestone reefs. High presence of feeding and resting shorebirds, and diving seabirds. Nil vehicle access to beach. High recreational use.

Area 12: Hokin Bay, Ewing Bay, Bauche Bay to Beagle Rd Point (West coast) HIGH PRIORITY
Extensive sandy beaches that are inaccessible for clean-up. Beaches are main habitat for the *Calidris alba* (Sanderling), a migratory wader of high conservation status for Garden Island (beaches suitable for Sanderling are scarce elsewhere in the region due to human disturbance). Sanderlings occur on Garden Island over the summer months. They feed along the water edge where they are particularly susceptible to oil pollution. *Sternula nereis* (Fairy tern) colonies may become established on sandy

points within this area over summer months. High presence of other feeding and resting shorebirds, and diving seabirds. High recreational use at Beagle Rd with users gaining access by both road and boat.

Area 13: Quarry Rd Beach
Sandy beach inaccessible by vehicle for clean-up. High presence of feeding and resting shorebirds, and diving seabirds. Some recreational use with access by road. Nearshore rocky reefs.

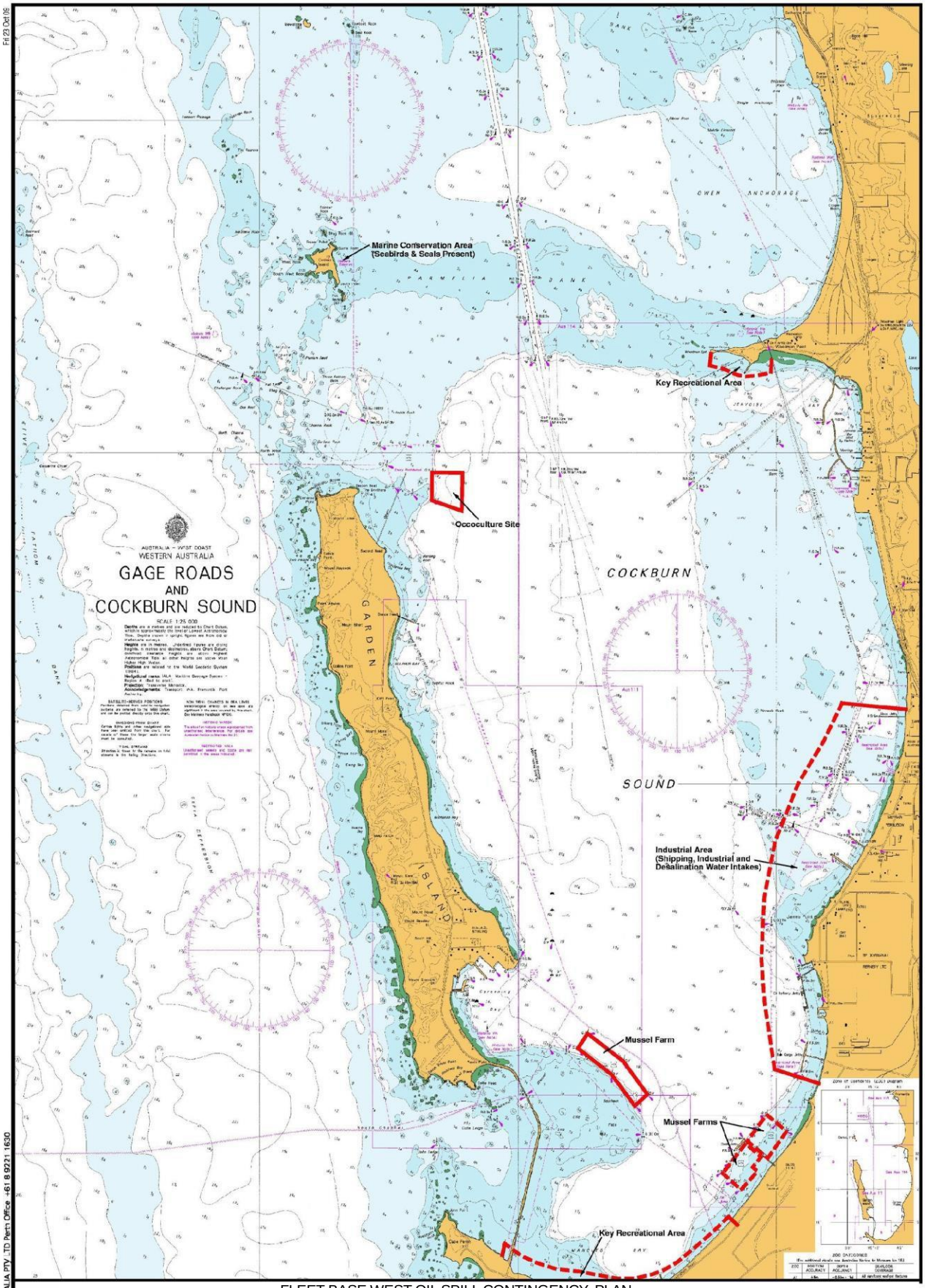
Area 14: Baudin Point to Collie Point (South end) HIGH PRIORITY
Rocky shores, headlands, cliffs and coves. High presence of feeding and resting shorebirds, and diving seabirds..

Area 15: Broun Bay HIGH PRIORITY
Eastern end is a major roosting site for terns, plovers, oyster catchers and other coastal birds, mainly over summer. High presence of other feeding and resting shorebirds, and diving seabirds. Vehicle access difficult but possible at low tides.

Area 16: Parkin Point HIGH PRIORITY
A permanent sand spit exists on the east side of the Causeway, and is more prominent over summer months. The spit is used as a roosting and wading site by many coastal birds. High presence of feeding and resting shorebirds, and diving seabirds.

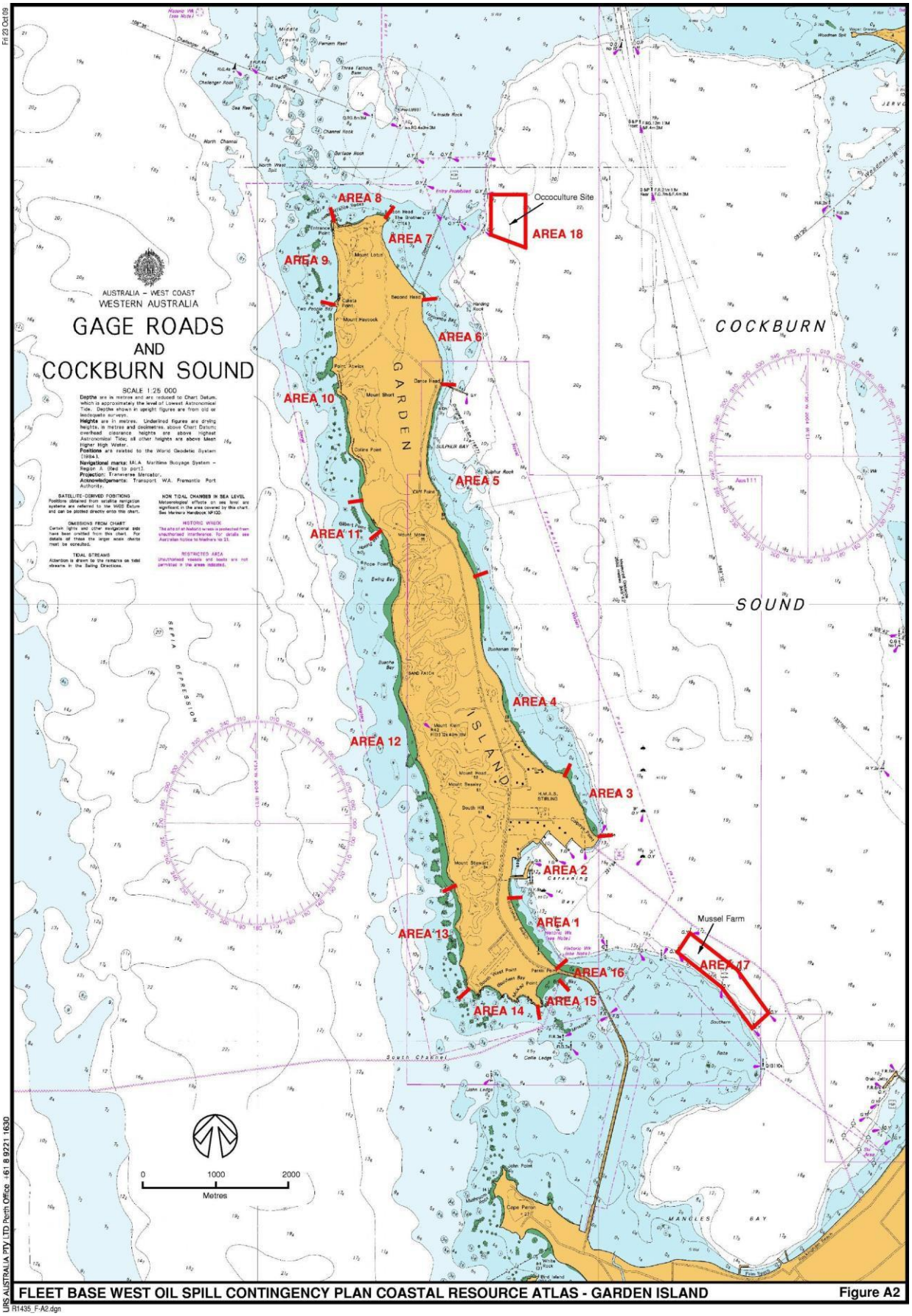
Area 17: Southern Flats HIGH PRIORITY
Area on the eastern side of the Causeway to the south east of Careening Bay and on the edge of the Southern Flats. Contains commercial mussel farms which could be severely affected by oil spill. High presence of feeding and resting and diving seabirds.

Area 18: Area North East of Pig Trough Bay HIGH PRIORITY
Area to the north east of Pig Trough Bay contains occoculture farm, with pontoons and containment cages used to grow octopus. The occoculture farm could be severely affected by oil spill. High presence of feeding and resting and diving seabirds.



FLEET BASE WEST OIL SPILL CONTINGENCY PLAN
COASTAL RESOURCE ATLAS - GARDEN ISLAND AND COCKBURN SOUND

Figure A1



FLEET BASE WEST OIL SPILL CONTINGENCY PLAN COASTAL RESOURCE ATLAS - GARDEN ISLAND Figure A2

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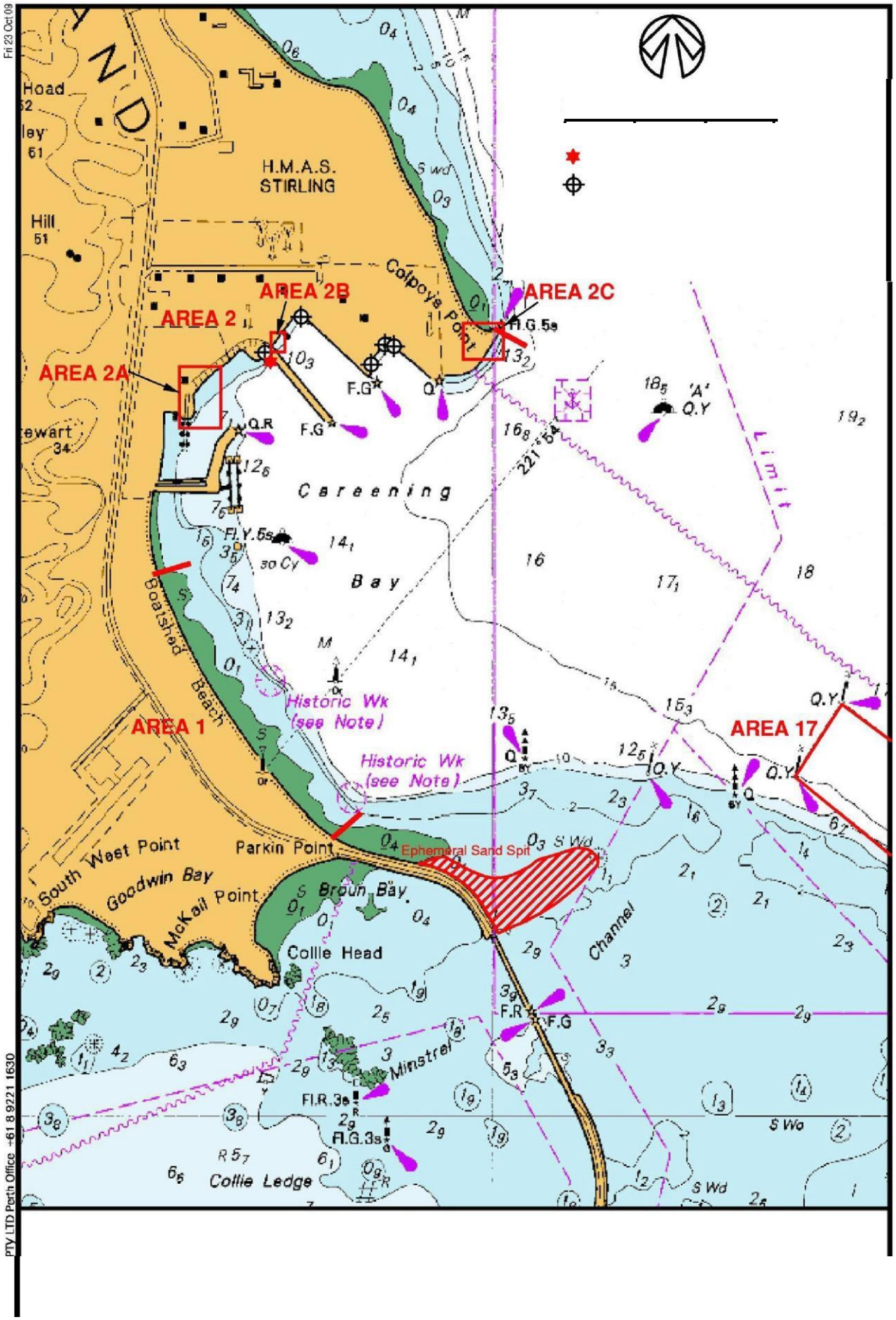
AREA 2A
AREA 2
AREA 2B
AREA 2C
AREA 1
AREA 17
H.M.A.S. STIRLING
Careening Bay
Boatshed Beach
Historic Wk (see Note)
Historic Wk (see Note)
Ephemeral Sand Spit
Parkin Point
South West Point
Goodwin Bay
McKail Point
Broun Bay
Collie Head
Collie Ledge
Minstrel
Channel
Limit
Colpoys Point
Fl.G.5s
F.G
Q.R
Fl.Y.5s
30 Cy
Q.Y
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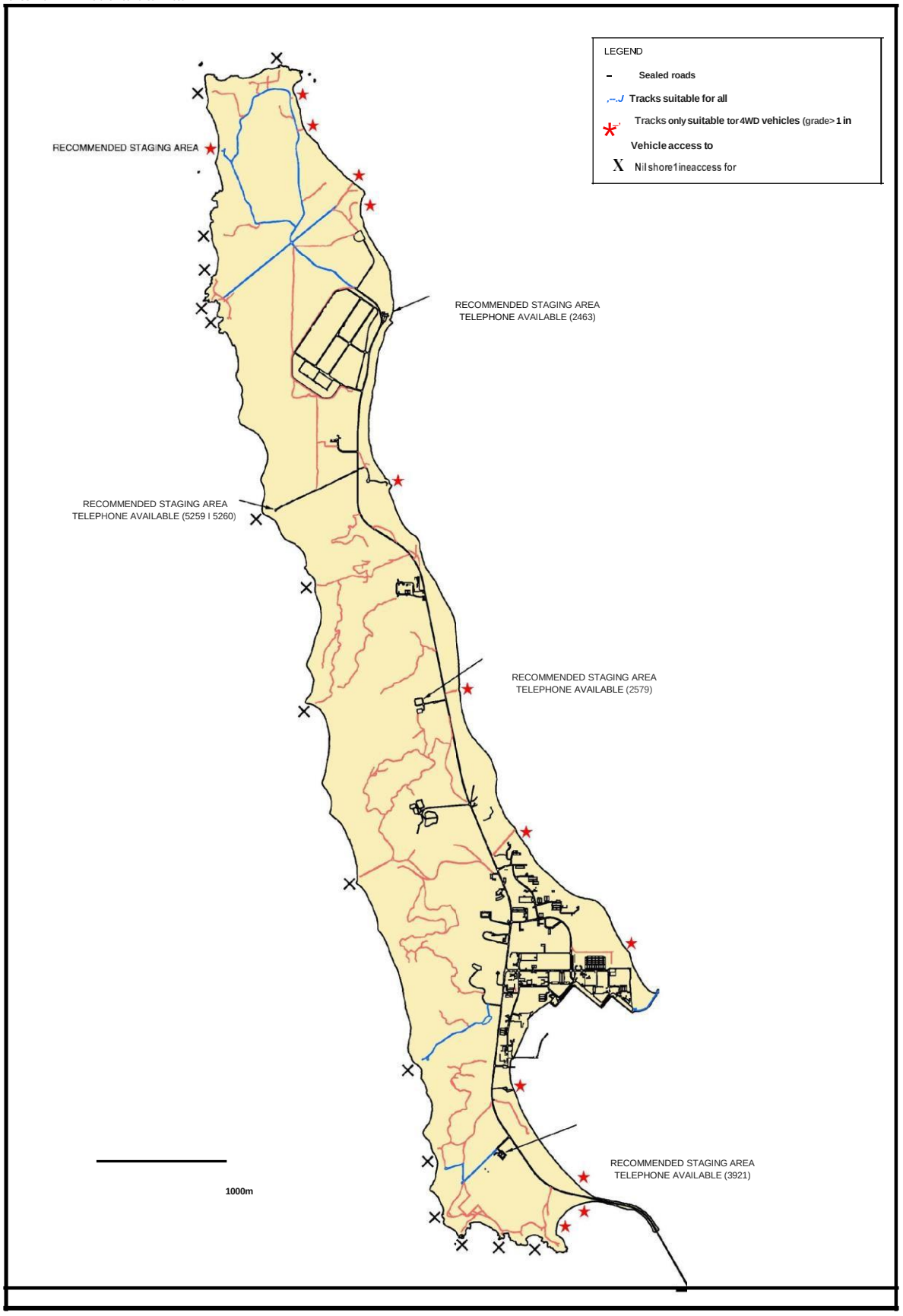
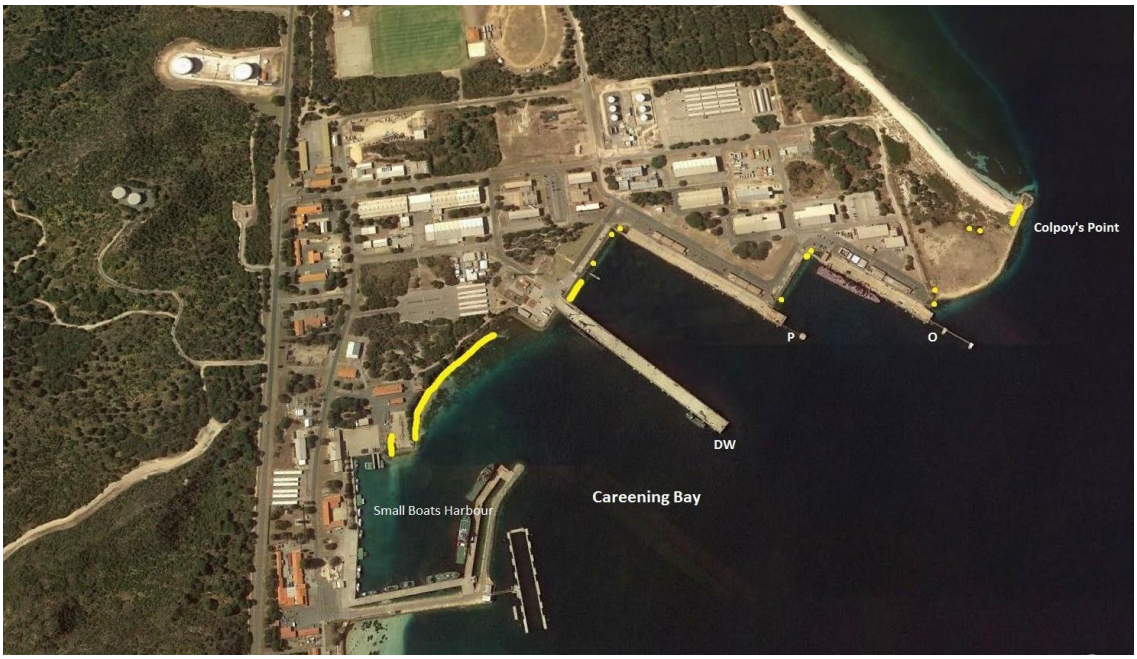


GARDEN ISLAND BEACH ACCESS POINTS AND STAGING AREAS **Figure A4**

Source: SEA 1010-1 USW Biodiversity Values Report (GHD 2025)



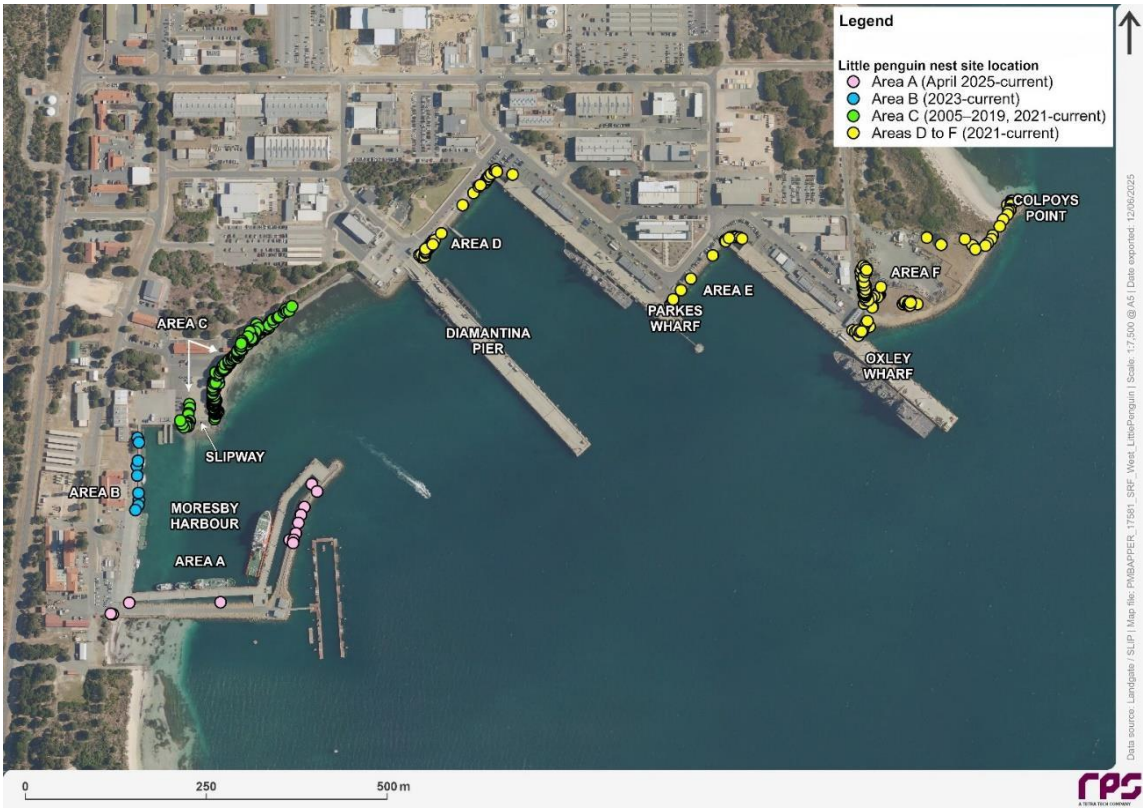


Figure A5*- Location of Current and Historical Penguin Nesting Sites – figure from (RPS 2025)

*Figure A5 outlines the potential nesting and burrowing areas for the little penguins over time. While not all areas are utilised year-round, it is recommended during initial response activities that they are treated as such for the protection of wildlife while further investigation is undertaken.

From left to right - at the Slipway; Rockwall in Small Boats Harbour; between Diamantina (DW) and Parkes (P) Wharves; between Parkes and Oxley (O) Wharves and at Colpoys Point in 2017.

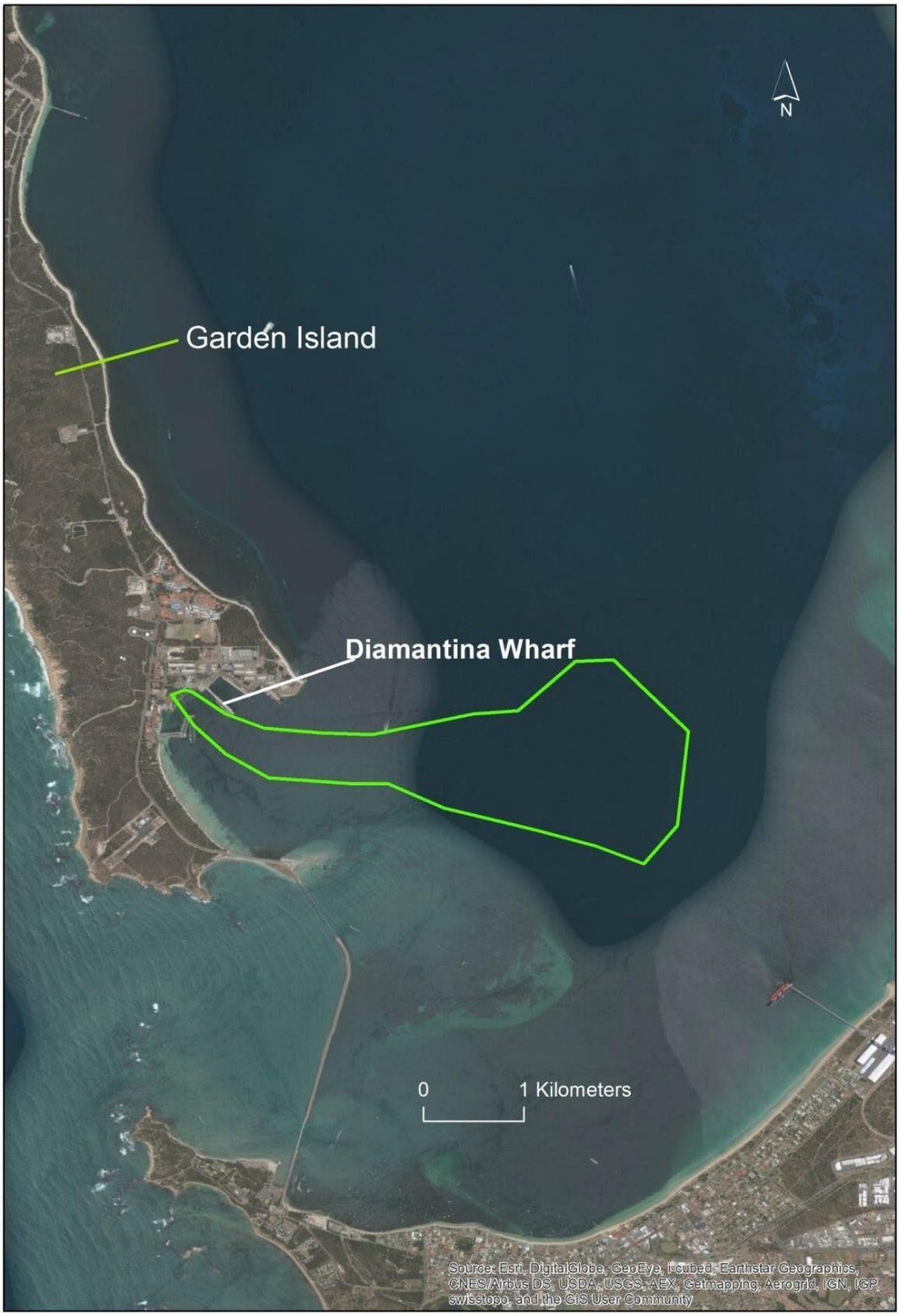


Figure A6 - General Penguin Departure Area

General Area Covered by the Little Penguins from Time of Departure from the Main Colony on Garden Island to Morning Civil Twilight. Data Collected from GPS Tags Deployed on Little Penguins Raising Chicks in 2012.

Figure A7 - Location of the Penguin Evening Rafting Area (yellow polygon)

Evening rafting area of the Little Penguin from the Main Colony on Garden Island. Data Obtained from GPS Tags Deployed on Penguins Raising Chicks in 2012.

ANNEX B

PROPERTIES OF SELECTED OILS IN RAN USE

This Annex provides a summary of the properties of key oil types considered by the FBW OSCM. Full details of fuel types and characteristics are contained in DEF(AUST) 206G. Additional oil types stored and/or handled by visiting and specialist vessels, or construction plant, should be considered under the OSCM. A Safety Data Sheet for any oil type stored and handles by all vessels and onshore plant or stowages should be kept available on-site. Further information can be found in Annex 1D – Chemical and Fuel Storage and Handling, of the Pollution Prevention Management Manual.

1. JP5 (F44) AVCAT/FSII - Turbine Fuel, Aviation

Composition: Hydrocarbons with Fuel System Icing Inhibitor (FSII), Lubricity Improver Additive (LIA) and Static Dissipater Additive.

Uses: For aviation turbine engines in ship-borne aircraft and in times of emergency in Fleet units' main and auxiliary engines in lieu of F-76 diesel, up to a maximum volume percentage blend of 10:90 (F-44:F-76) to preserve the lubricity characteristics of F-76.

Characteristics:
Flash point, closed cup, min: 61.0º C
Freezing point: - 46º C
Viscosity: 8.5mm^2/s (at -20º C)

2. F76 47/20 DIESO - Fuel, Naval, Distillate

Composition: Hydrocarbons with static dissipater additive, corrosion inhibitor and fuel system icing inhibitor (for biocide characteristics).

Uses: In compression ignition engines of high and medium speed types, for naval gas turbines, for steam raising plants in HMA ships.

Characteristics:
Flash point, closed cup, min: 61.0º C
Freezing Point: Not established
Viscosity: 1.7 – 4.3,mm^2/s (at 40º C)

3. OMD-113 – Lubricating Oil, Naval Diesel

Composition: Mineral Oil with additives

Uses: Crankcase lubrication of land and marine diesel engines, including supercharged and high-speed engines, particularly
where good water separability characteristics are required.

Characteristics:
Flash point, closed cup, min: 180º C
Freezing Point: Not established
Pour point, max: -15ºC
Viscosity at 100 ºC: 12.5-16.3 mm^2s^{-1}

4. Oils – General

General: Full details of oils in ADF use are contained in DEF(AUST) 206G.

5. Volatile Fuels and Solvents – (eg. corrosion preventatives, water displacing fluids, gasoline, etc)

General: Full details are contained in DEF(AUST) 206G

ANNEX C

ROLES OF KEY FBW PERSONNEL

The Australian Inter Service Incident Management System (AIIMS) structure identifies key roles for the implementation of incident management and control. This structure, in reference to the implementation of this plan, is summarised in figure C-1, with indicative FBW positions^ listed which may fulfil particular roles. The roles of key positions within this structure in the event the OSCM is activated is also summarised within this section.

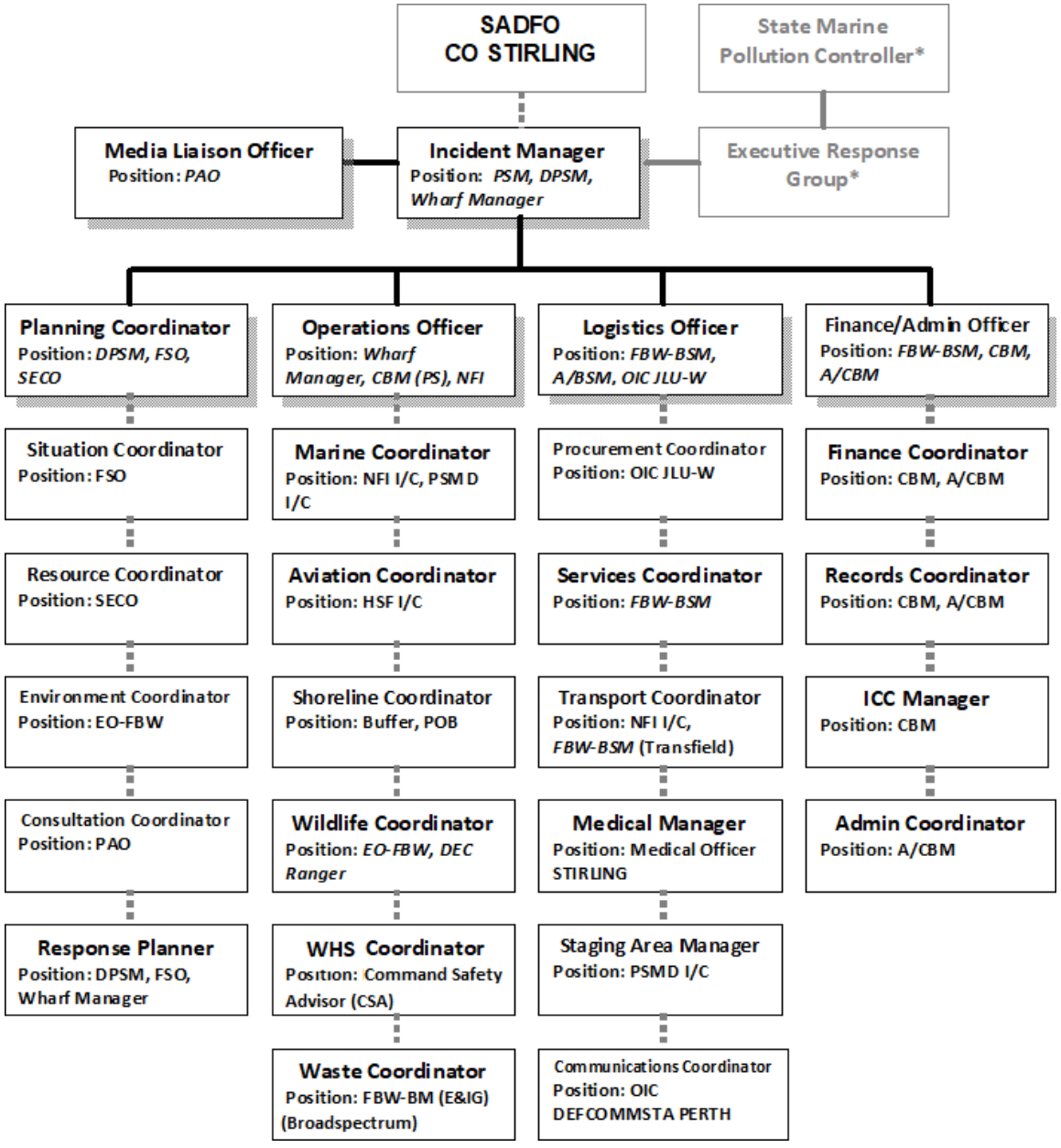


Figure C-1 FBW Oil Spill Response Structure

^Positions are indicative as a guide only and may be amended/revised as necessary. Not all functions may be required for particular circumstances. ICs and all 4 subsections should have three (3) registered nominated persons to ensure ongoing role capability during long duration incidents. Note that the Environment Coordinator position is filled by the HMAS Stirling ESM.

*External response assistance activated as required

1. Navy Spill Commander.

The Navy Spill Commander (SADFO) will be activated in the event of upper Level 1 or larger spills to coordinate inter-agency responses and high level liaison. He will be based at the EOC HMAS *Stirling*. The duties of the Navy Spill Commander are:

- brief of higher authorities within Navy
- arrange formal requests to other areas in the ADF for personnel or equipment support
- arrange requests to the Fremantle Port Authority for assistance, as advised by IC
- arrange requests to the ERG of the State Committee for assistance, as advised by IC
- initiate mobilisation and employment of Command PAO and arranging media briefings
- arrange Naval Police/Water Police assistance to isolate the operations area, and
- request assistance from external authorities such as the Police, Fire and Rescue Service, Rockingham City Council, etc.

2. Incident Controller/ Incident Manager (IC/IM).

The IC is responsible for directing the overall response operation and for coordinating the activities of the various organisations involved in the clean up. The objective of the IC is to achieve the most cost-effective and least environmentally damaging resolution to the spill, consistent with occupational health and safety requirements.

The PSM will normally fill the role of IC however in their absence the role may be filled by a suitably qualified person within the Port Services Organisation who, during silent hours, will be the Duty PSM. The IC has overall decision-making responsibility and is supported by all FBW personnel. The duties of the IC are:

- assess the spill, define the spill area, and assess its potential for impact upon sensitive resources
- determine priorities for protection of areas, and reassess priorities as the situation evolves
- determine the level of response and the scale of the response team required
- initiate and direct response measures to stop and contain the spill and disperse or recover oil both within and outside of contained areas
- recommend activation of the Navy Spill Commander, as warranted
- arrange for surveillance of spill area, behaviour of slick, and monitoring of effectiveness of response efforts
- notify appropriate organisations and authorities and keep them informed of developments
- arrange for the collection of oil samples if the type or origin of the oil is in doubt
- appoint Support Coordinators (eg. transport, support craft, logistics)
- ensure that a record of events is maintained

- ensure periodic SITREPs are generated and distributed
- maintain effective communications
- recommend to the Navy Spill Commander, if and when, to request support of the State Committee, Fremantle Port Authority or other external organisations
- ensure timely release of information through the Navy Spill Commander
- arrange photographic recording of the incident
- coordinate work plans
- decide when to scale down/terminate the response
- in the termination phase, ensure all equipment is cleaned, repaired and returned
- provide input to debriefs, and
- prepare a report covering all aspects of the spill and response operation, and identify requirements for site remediation and monitoring.

3. Operations Officer (OO).

The Wharf Manager would normally take on the role of OO and directly command resources working in the field. The duties of the OO are:

- coordinate support craft movements
- recall boat crews after hours as required
- in liaison with FBW-BM, arrange for additional spill containment and clean-up equipment
- liaise with *Stirling* Fire Services to remove/dispose waste oil, and
- coordinate the recovery and cleaning of equipment in the termination phase.

4. Planning Coordinator (PC).

The Planning Coordinator will be nominated by the IC depending on the spill type and circumstances. This role is usually filled by the DPSM. The role of the planning coordinator includes the gathering, assessment and dissemination of information including the use of all available information in prediction modelling and action planning. Details of duties can include:

- gathering of information and intelligence
- developing prediction models based on environmental values and predicted weather
- providing briefing of situation for team members and stakeholders
- advising on priority protection areas
- providing input into likely resource requirements based on prediction planning

5. Logistics Officer (LO).

Normally, the FBW-BM is to act as the Logistics Officer. The LO will normally be responsible for:

- provision of personnel and equipment assets to support the IC
- maintain an account of all manpower, -equipment and materials used
- identification of sites suitable for Advanced Operations Centre
- assigning locations for delivery points, muster points and wharf work areas
- arranging storage areas for spill response equipment
- assist in arranging relevant business agreements such as hire of equipment
- obtaining names and addresses, and other relevant details of property owners affected by a spill arising from Naval activities in Naval Waters (eg. water frontages, boats, aquaculture operations, etc)
- liaising with FBW Health Centre to ensure provision of adequate medical resources

- liaising with catering staff to arrange fresh water, food and drink facilities and planned meal break/s, and
- arranging shelter, respite and sanitary facilities.

6. Media Liaison Officer (MLO).

Media Liaison is to be provided by the Public Affairs Officer, who is responsible for coordinating all media statements and the issuing of press releases as directed by the Navy Spill Commander. The duties are:

- liaise with State and Federal community information officers
- review SITREPs from the EOC
- prepare draft media releases for the Navy Spill Commander
- establish communications with media units of other response and support organisations
- escort media as required
- arrange media facilities, and
- prepare material for press conferences and interviews.

7. HMAS *Stirling* ESM

The ESM is to provide specialist advice to the IC and the Navy Spill Commander during the course of the oil spill response and subsequent cleanup. The duties are:

- Provide specialist advice to the IC for terrestrial and marine oil spill response
- Assist the IC to identify and prioritise protection of the marine environment using the Coastal Resource Atlas (Annex A to the OSCM)
- Provide on-site advice to spill response team
- Review oil spill risks and advise on need for specialist wildlife rescue services
- Oversee wildlife rescue activities
- Assist with incident reporting
- Liaise with Commonwealth and State environmental staff as required
- Identify need for site remediation and monitoring programs, and
- Oversee remediation and monitoring programs.

ANNEX D

KEY EXTERNAL CONTACTS

Organisation	Position	Contact
Department of Transport	Oil Spill Response Coordinator	Emergencies – (08) 9480 9924 (24hrs) General Enquiries – (08) 9480 9924 marine.pollution@transport.wa.gov.au.
Australian Maritime Safety Authority	24 hour Oil Spill Emergencies	1800 641 792
Fremantle Ports	VTS	(08) 9431 6333 (24hrs)
DBCA	Kwinana Regional Office	(08) 9411 1777
	DBCA Ranger Garden Island	0455 604 646

EMERGENCY/IMMEDIATE RESPONSE – CONTACT DETAILS

Issue – Problem	Agency – Organisation to Contact	Contact Details
Sick or Injured Wildlife	Department of Biodiversity, Conservation and Attractions Wild Care Helpline WA Seabird Rescue	(08) 9219 9000 (08) 9474 9055 (08) 6102 8464
Fisheries incidents/Illegal Fishing	Department of Primary Industries and Regional Development (Fisheries) - FishWatch	1800 815 507
Foreshore/Wetland/Native Vegetation Issues/Drainage/Erosion	Department of Biodiversity, Conservation and Attractions City of Rockingham	(08) 9219 9000 (0830-1630, Mon-Fri) (08) 9528 0333 (0830-1630, Mon-Fri)
Cockburn Sound Management Council	Department of Biodiversity, Conservation and Attractions	(08) 6364 7012

ANNEX E

FBW RESPONSE TO LAND BASED SPILLS

This section summarises the general application of response procedures in regard to land based spills at FBW which are identified as presenting a low threat to the marine environment.

Note: Garden Island is a relatively small island, with porous soils and groundwater flows to the marine environment. Any land based spill could conceivably enter the marine environment. Principal pathways for entry to the marine environment are:

- direct flow into the ocean via surface or stormwater systems, or

- infiltration into the soil and contamination of the water table, which flows into the ocean.

Thus any land based spill of significant size (>100 litres) is likely to impact the marine environment unless it is remediated promptly.

The terrestrial environment of Garden Island is a designated Nature Reserve. As such it contains sensitive species that could be impacted by a terrestrial oil spill. Sensitive species including the little penguin and rainbow bee-eater nest ashore in burrows, and other species that are protected may be impacted including the *Macropus eugenii* (Tammar wallaby), and *Lerista lineata* (Perth slider).

Rapid response to terrestrial spills is required to limit adverse environmental consequences. The sandy soils mean spills will rapidly infiltrate and contaminate the substrates and enter watercourses or the water table creating long lasting hydrocarbon plumes.

Introduction

In Western Australia, land based spills are responded to in accordance with the procedures provided in WestPlan HAZMAT, with the Hazard Management Agency (HMA) being the Fire and Emergency Services Authority (FESA). It should be noted that marine based pollution is described in Westplan MARPOL and the HMA is the Department of Transport (DoT).

All FBW uniformed, civilian and contractor personnel are to report detected oil spills immediately to the FBW Garrison Support Services (GSS) Fire and Emergency Services and the HMAS *Stirling* ESM and WA Department of Biodiversity Conservation and Attractions (DCBA) Ranger.

INITIAL FBW ROLES AND RESPONSIBILITIES

Turnout

At FBW, upon notification of a shore-based spill, the Garrison Support Services (GSS) Fire and Emergencies Services are turned out via notification to the Emergency Operations Centre (EOC). The fire services are trained and have the minimum equipment and procedures to combat a spill.

Objective of FBW Response

In most circumstances the objective of the Fire and Emergencies Services is to protect life from the spill, stop the spill at its source, contain it and recover and remove the contaminants.

Containment and Recovery

The immediate priority of the FBW response, in parallel with isolating the spill source, is to contain the spill in order to limit harm and to facilitate recovery. Containment is best achieved on paved surfaces by the use of booms (e.g. sausage booms) and the blocking of stormwater drains, and use of sand or other material as bunding. For spills on unpaved permeable surfaces (e.g. sand) containment can be achieved by bunding the area to limit the extent of the area impacted, considering the oil will rapidly absorb into the soil and substrates. Containment can be achieved to a degree by sand bunding or in some cases the use of booms.

The main method of recovery for small spills is through the use of absorbent pads and Peat Sorb. Note that any sand or substrate contaminated with oil during the spill will need to be removed for remediation or disposal.

Land spills have the potential for contaminant transport through surface water, groundwater and stormwater pathways. While spills on sealed surfaces can be generally controlled and contained through pollution control equipment, a release to unsealed areas may cause transport of contaminants to sensitive environments. Deploying immediate remedial measures during a release to the environment onshore may include drain diversion/bunding and excavation of material to limit the exposure of the spill to surrounding sensitive receptors.

A contamination assessment and sampling should be undertaken in conjunction with other environmental assessments, to identify additional response or remediation actions, including environmental monitoring. Refer to Table 1D.5 in Annex 1D of the PPMM for more information.

Where construction activities or operations are being undertaken in proximity to watercourses (within 200 m), or if open stormwater drains are present at the site, emergency booms, spill kits and other appropriate control equipment should be stored on-site for use.

Reporting

Land based spills are to be immediately reported to the FBW Garrison Support Services (GSS) Fire and Emergency Services and the HMAS *Stirling* ESM and DCBA Ranger via telephone in the first instance. This is to be followed up with the FBW incident reporting procedure in accordance with Base Instructions.

Reporting Major Environmental Incidents

In the event of a spill, consideration needs to be given as to whether it may be classified a major environmental incident and if so the need to report it to the Commonwealth Department of Climate Change, Energy, the Environment and Water as per requirements of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). This decision should be taken on the advice of the HMAS *Stirling* ESM and/or DCBA Ranger. Environmental incidents are reported using the GEMS Estate Incident process through two main pathways;

1. If you do not have access to GEMS, please complete the GEMS Incident form.

2. If you have access to the GEMS incident module, incidents can be directly entered into GEMS using the Incident Notification and Recording reference guide.

Reference should be made to the Defence Environmental Incident Reporting Guideline.

Scaling-up Operations

Should the spill be of a type, size or complexity not able to be dealt with by local resources, the

FBW Fire and Emergency Services will contact FESA where specialist trained personnel and equipment will mobilise to FBW in support. On arrival, IC will be transferred to the FESA Officer-in-Charge.

H.E.A.T. & FBW Liaison

In circumstances where there is a threat from hazardous substances, the FESA Incident Manager will activate the Hazardous Emergency Action Team (HEAT), which will assemble in Perth and provide advice to the Incident Manager.

In this circumstance FBW should appoint an on-site liaison officer to the response team and a liaison officer to the HEAT team assembled at FESA Perth.

Transition to Marine Water

Should a spill of any description seep, flow or drain onto any part of a shoreline where it can mix with the marine environment in any quantity, then the FBW PSM is to be immediately notified. The PSM will take an onsite liaison role in the first instance. Should the amount of spill crossing over be significant, then the FBW EOC is to be activated.

Coordination of Recovery

The IC in consultation with HEAT, the HMAS *Stirling* ESM and the FBW liaison officer/s must determine when the site is safe for recovery. The emergency response phase is completed once the IC declares that the site is safe for recovery. At this point under the provisions of the WA *Fire Brigades Act 1942*, the site will no longer be under FESA jurisdiction. Therefore, along with the recovery procedure, a handover of responsibility, either back to the site owner or to another jurisdiction, is required.

To ensure a coordinated approach to recovery, FESA as the HMA, is required to (within the scope of Westplan HAZMAT):

a. identify the line of responsibility for on-site recovery

b. identify the jurisdictions involved

c. identify all the elements required for on-site recovery

d. identify the agreed process by which all jurisdictions will use to facilitate recovery, and

e. establish links with the local community arrangements as required.

Contamination Remediation

Despite the initial containment and recovery response to land based spills, residual contamination, notably of soil and/or groundwater, is likely to remain. Through liaison between the HMAS *Stirling* ESM and/or DCBA Ranger, and Directorate of Environment, Planning, Approvals and Compliance (DEPAC),, appropriate approaches to remediation and ongoing site monitoring will be investigated in accordance with Defence's Contamination Strategy. In addition, if it is suspected or confirmed that residual contamination remains, then the site will be added to Defence's Contaminated Sites Register, and a remediation plan developed. The Defence Contamination Management Manual (DCMM) contains the guidance required to comply with the contamination goals of the Defence Environmental Strategy (2016-2036).

ANNEX F

INTERNAL DEFENCE REPORTING – POLREP AND SITREP INSTRUCTIONS

POLREP

1. RAN Fleet Units causing oil spills are to advise the PSM and report in accordance with AFTP1(D) Chapter 317.

2. **Fleet units.** Fleet units berthed at FBW or anchored or moored in Cockburn Sound, are to report oil spills by ROUTINE or PRIORITY precedence signal to MASTER ATTENDANT, PSM-WEST, and AUSFLTSAFETY, for information HMAS *Stirling* (SIC group LAL/HBJ/EUL). The signal is to adhere to the POLREP format below. The FBW PSM is also to be advised directly by telephone.

3. **HMAS *Stirling* and Lodger Units.** Sections and lodger units within *Stirling* are to immediately advise the PSM by telephone or direct contact.

SITREP

4. The standard format for an FBW SITREP is presented below. SITREPS would normally be transmitted by e-mail to addressees.

Fleet Base West Oil Spill Response – SITREP

Precedence: (Urgent, Priority or Routine)

DTG: (date and time SITREP raised, ZULU time)

From: (IC, AOC or EOC)

To: All authorities and support agencies involved

Incident Title: (eg. HMAS STIRLING Oil Spill – dd mmm yy)

SITREP No.: (Sequential number to be given to each SITREP as it is generated. The last SITREP to be issued for a particular response should be clearly marked **'FINAL SITREP'** in addition to the sequential number)

Report Details:

1. Names and contact details for response and support organisations.
2. Summary of events subsequent to last SITREP, or identification of source if first SITREP after initial POLREP.
3. Expected developments.
4. Areas and resources threatened.
5. Planned course of action.
6. Details of assistance and resources required.
7. Other relevant information.

ANNEX G

EXTERNAL REPORTING - DoT WA Marine Pollution Report (POLREP) and Oiled Wildlife Response

The following POLREP (also accessible digitally at: https://www.transport.wa.gov.au/mediaFiles/marine/MAC-F-PollutionReport.pdf) or SITREP (also accessible digitally at: https://www.transport.wa.gov.au/mediaFiles/marine/MAC-F-SituationReport.pdf) should be used when providing a report to the Department of Transport (DoT) either via the Oil Spill Report line 08 9480 9924 or submission via email at: marine.pollution@transport.wa.gov.au and rccaus@amsa.gov.au

The oil wildlife response organisation can be accessed here:

https://www.transport.wa.gov.au/marine/maritime-environmental-emergencies/reporting

Manuals supporting oiled wildlife can be accessed here:

https://www.dbca.wa.gov.au/wildlife-and-ecosystems/marine/marine-wildlife-response-oiled-wildlife-response

All communications with State Regulators are to go through Navy Regulator Relations until advised otherwise.

Government of West,unALJstnlia
Deparimenl of Transport

Marine Po,llutio,n !Report (P,QLRE,P) MEER

When blank, this form is classed as **OFFICIAL,** when filled out, this form is classed as **OFFICIAL-SENSITIVE**.

BEFORE complettng this form p ease contact the MEER duty officer on (08) 9480 9924 (24hrs). Immediate reporting will enable a rapid response.

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Depattment of Transport
Eimall: marine.pollutlon@llar\!\POrt.wa.go .au and rccaus@amsa..go1tau
Phone (08) 9481'.9i 924

INCID.EN1' DESCR:IPfI0N

Incid:ml Name: _____ Date and Timeof Incident(24 hr format): _____

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OILDEIAILS

PDlhrtant source

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DRshing ☐ Defence D Recreational Dottier (Specify) _____

Vessel name: _____ Fla◆State/ Callsigri: _____ Auslralian VBSSel? DYes D No

PDlhrtant

0 Oil (type) 0Bilge Ooiesel 0 HFObunker O Critlde Dun oown D Other (Sp,eoif)1 _____

D Chemical Namt'I: _____ ltMRPOLcat /UN Nos: _____

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Extent

Size of spill(length& widll:7i11 melres)'. _____

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☐ PhDtos taken Details: _____ held bl':. _____

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D Samples taken DBscriptioo: _____ held b)': _____

D 1tems rntrieved Descriplioti: _____ heldb)': _____

ANNEX H

MINIMUM OIL POLLUTION EQUIPMENT REQUIRED TO BE HELD IN AT FBW AND CURRENT LOCATION AT FBW

The following outlines the minimum oil pollution equipment required to be held in at FBW. Under the FMSC SERCO is responsible for:

- The maintenance, deployment, operation, recovery and cleaning of RAN supplied marine pollution equipment.
- The regular replacement of oil spill booms.
- The replacement of consumable clean up materials employed by shore establishments as required.
- The deployment and recovery of pollution absorbing materials.
- The collection and disposal of all waste materials and product, whether employed by the contractor or establishment concerned to an approved site designated by appropriate State Environmental Protection Agency.

Note: WestPlan MOP contains details of additional equipment available locally.

FBW Oil Spill Contingency Plan Equipment List

Last Updated: 2023

ID / NSN	DESCRIPTION (label, size/length, colour, etc)	QTY	LOCATION	COMMENTS
Containment Booms				
	CI Agent Boom	1	Container on Moresby Wharf	
	Fence Boom, Orange and white, 15m sections, 500m total	2	Oxley and Diamantina Wharves	
	Zoom Boom, bag, 25m per bag, 275m total	11 Bags	Cages (Firehouse)	
	Shoreline Boom, bag, 25m per bag, 325m total	13 Bags	Cages (Firehouse)	
Absorbent Booms				
NSN 661223567	Sausage Boom, 3m Lengths	76	Cages (Firehouse)	
NSN 66-136-3876	Absorbent Booms, Roll of, Approx 20m in length	12	Cages (Firehouse)	
Absorbent Materials				
NSN 66-136-3875	Peat Sorb, bag, 25kg	45	Bosun Store - End Bay	45x50L
NSN 013798376	Absorbent Spunbonded Pads (ie. Pillows), boxes	9	Bosun Store - End Bay	
NSN 661223566	Soaker Pads, bag, 100 pads/pack	1050	Bosun Store - End Bay	
NSN 66-136-3875	Suckerup, bags	32	Cages (Firehouse)	
NSN 66-136-3867	240L Mobile Containment Bins (each containing 12 spill socks of various sizes 0.5-3m, 100 absorbent mats, 10 disposable bags, PPE for one operator)	6	1 x @ Oxley 1, Parkes 2, Parkes 3, Diamantina 1, Diamtina 2 and Bosun Store	6 ready to deploy with in Bosun's Store which will be swaped out with the bins currently on the wharfs - Exp Date for all mask's is Feb 23

Blackwoods 01950809	HAZCHEM Spill Kits (each containing 5 boxes of 16 small Envirosorb worms and 2 boxes of 4 large yellow and orange sausages	7	Bosun Store	
Miscellaneous Gear				
	Tidal Compensators	4	Fire House	
	Floated Tow Bars	2	Fire House	
NSN 660777901	Sea Anchors and ropes	2	Bosun Store	
	Yanmar Pump	2	Planned Maintanence & Firehouse	2 Yanmar Air Compressors held by Planned maintanence. 2 Additional pumps held at Fire House
Oil Pollution Trailer				
	Angus Coverlites Hoses	3	Fire House	
	Power Blower PB-4600	1	Fire House	
NSN 660962392	Supasorb Bag 25kg	1	Fire House	
NSN 660962392	Floorsorb Bags 25kg	2	Fire House	
NSN 660768362	Boat Hooks	2	Fire House	
	Bucket of Dirt	1	Fire House	
	Pump Hoses	3	Fire House	
	Slickbar Mat	2	Fire House	
	Manta Ray Surafce Skimmer (shoreline use)	2	1 located in the Oil Spill trailer and the other in the pen outside SERCO	
	Air Inflator for booms	1	Fire House	
NSN 661517689	Contaminated waste bags	50	Fire House	
Personal Protective Equipment				
NSN 661356094	Disposable overalls	160	Bosun Store	
	Waders - Size 8	4	Bosun Store	
	Waders - size 9	8	Bosun Store	
	Waders - Size 12	8	Bosun Store	
Blackwoods 02298187	Gumboots- Size 9	5	Bosun Store	
Blackwoods 02298204	Gumboots- Size 10	7	Bosun Store	
Blackwoods 02298221	Gumboots- Size 11	7	Bosun Store	
Blackwoods 02298238	Gumboots- Size 12	7	Bosun Store	
Blackwoods 02298255	Gumboots- Size 13	4	Bosun Store	
10137382/661352501	Elbow Length Rubberised Gloves	66	Bosun Store	
Blackwoods 07712380	Clear Safety Glasses	30	Bosun Store	

Blackwoods 00809982 SML, 00337280 MED, 01009355 LGE	Chemical Res Cartigae Masks	30	Bosun Store	
Blackwoods B0364-2046	Portable Field Showers / Temp Cleaning Station	2	Bosun Store	
Boats				
	7.2m RHIB	2	SERCO SBC	
	Oil Spill LUB	1	SERCO SBC	
Additional DFI Holdings				
	General Purpose Absorbant	21	OFI Facility	
	Soaker Pads	400	OFI Facility	
	Organic Pillows	40	OFI Facility	
	Snakes	30	OFI Facility	
	Hydrocarbon Absorbant Roll	6	OFI Facility	
	Blue Spill kit	1	OFI Facility	
	Spill Recovery Bag	1	OFI Facility	

ANNEX I

THE BEHAVIOUR OF SPILT OIL

Diesel and Its Environmental Effects

1. Oil on the sea surface undergoes a range of processes and transformations. In the absence of human intervention, the fate of spilt oil is determined by environmental conditions (wind speed, currents, sea state, air temperature, water temperature, presence of bacteria and nutrients in seawater) and the characteristics of the oil itself (chemical and physical properties). Natural processes to which oil is subject are:

1. spreading;
2. drift;
3. evaporation;
4. dissolution;
5. dispersion;
6. oxidation;
7. emulsification;
8. sedimentation;
9. biodegradation;
10. atomisation; and
11. photo-oxidation

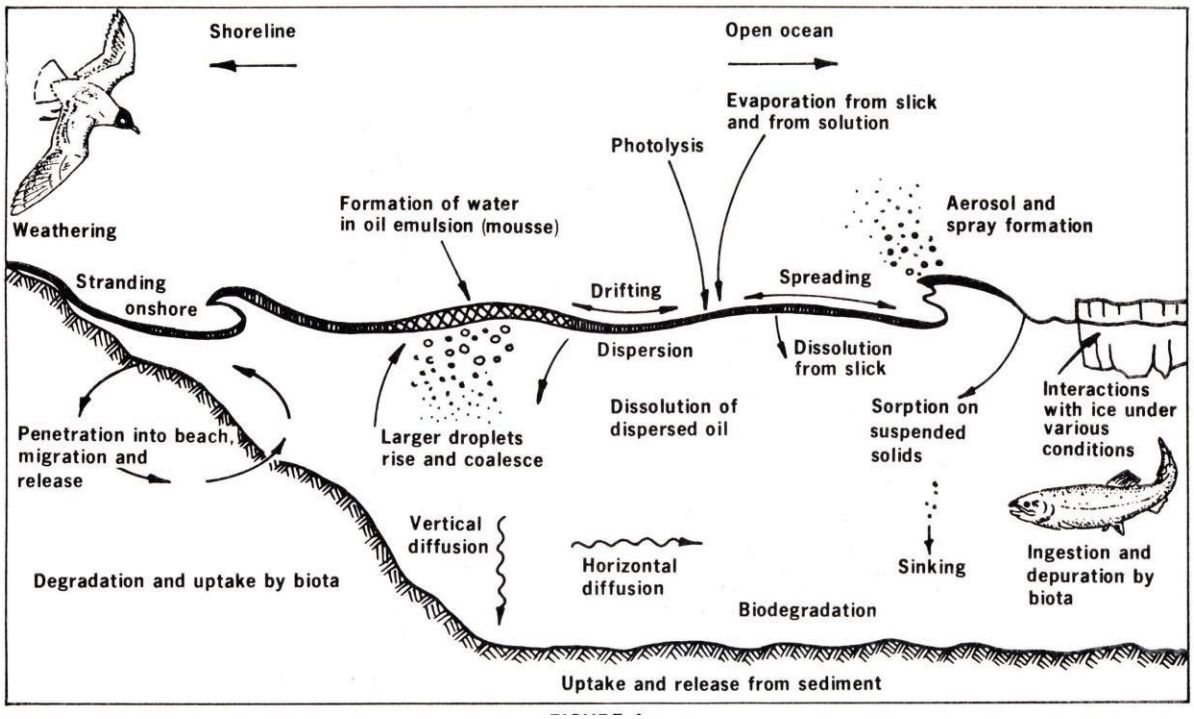


Figure I1: Depiction of the Fate of Oil Spilt in the Marine Environment
(IMO, 1982)

2. ‘Weathering’ is the collective term for many of these processes and represents the principal means by which spilt oil, particularly lighter and middle grades such as diesel, breakdown and dissipate in the marine environment. Diesel is a middle distillate fuel with an American Petroleum Institute (API) gravity of around 33. Laboratory testing of Australian diesel fuel estimates that about 23% of the initial volume would weather within five days on the sea surface on the North West Shelf, with slightly slower rates in cooler, southern waters such as at FBW.

3. During evaporative weathering, low weight aliphatic and aromatic hydrocarbons and phenols are lost from the oil, leaving higher concentrations of less volatile, higher molecular hydrocarbons. Diesel does not form stable oil in water emulsions and is amenable to dispersants.

4. Toxicity testing has identified diesel as being toxic to a range of marine species. Diesel fuel appears to retain its toxicity during weathering due to the slow loss of light ends (low molecular weight hydrocarbons). Additionally, the additives used to improve certain properties of diesel (eg. ignition quality, flow improvers, corrosion inhibitors) contribute to the toxicity of the diesel oil.

5. Small diesel spills can affect marine birds by direct contact, though the number of birds affected is usually small because of the short time the oil is on the water surface. This is not the case during specific circumstances and for the little penguin. Small spills could result in serious impacts to penguins such as from a spill occurring immediately next to colonies, rafting birds, birds entering or exiting the burrow sites, or when young are present during nesting season. Small spills can also impact the Indian Ocean bottlenose dolphin in Careening Bay and elsewhere in the surrounding waters.

6. Bird mortality is caused by ingestion during preening as well as hypothermia arising from loss of insulation due to oiled feathers. If birds are discovered in an oiled condition, wildlife response resources are to be contacted immediately. Note that in extreme conditions (30 knot easterly winds), the likelihood of bird oiling or impacts on the Indian Ocean bottlenose dolphin will increase significantly, so rapid response by oiled wildlife personnel will be required. T

Spreading Rates of Diesel

7. Oil spreads as a result of natural viscosity; in a marine setting, the extent and direction of spreading are also influenced by currents and winds. Surface slicks generally move in the same direction as currents, modified by the influence of winds. The trajectory of a spill can be approximated by vector addition of the speed and direction of the surface current with direction of the wind and 3% of the wind speed (see Figure G-2). The spreading rates of diesel on water in the absence of any current or wind influence are given in Table G-1. These are also presented in Figure G-3.

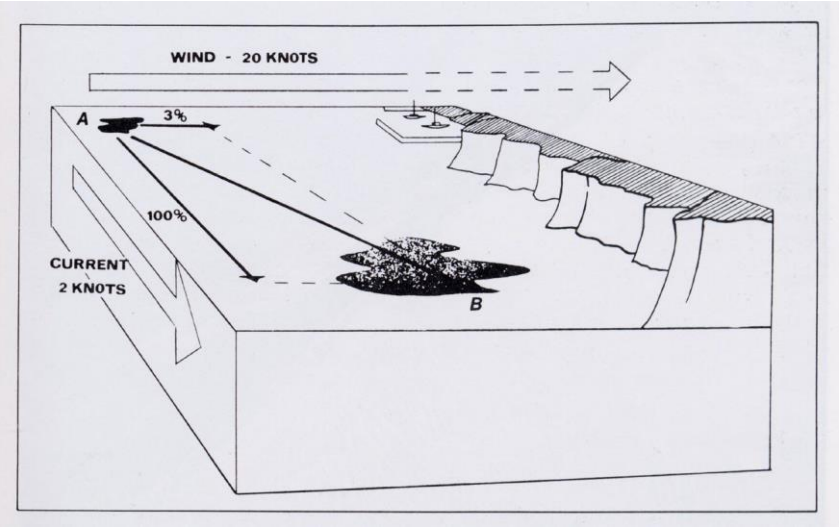


Figure I-2: The Influence of Wind and Current on the Movement of an Oil Spill
(IMO, 1988)

Table I1 Spreading Rates of Diesel on Water without the Influence of Surface Currents or Winds

Time (min / hr)	Spill Diameter (m)		
	2 tonne spill (2.3 m^3)	10 tonne spill (11.5 m^3)	50 tonne spill (57.5 m^3)
10 / 0.17	75	130	220
20 / 0.33	95	160	275
40 / 0.67	120	200	345
60 / 1.0	135	230	395
100 / 1.7	160	275	470
200 / 3.3	205	345	595
500 / 8.3	275	470	805
1 000 / 16.7	345	590	1,020
2 000 / 33.3	430	745	1,200

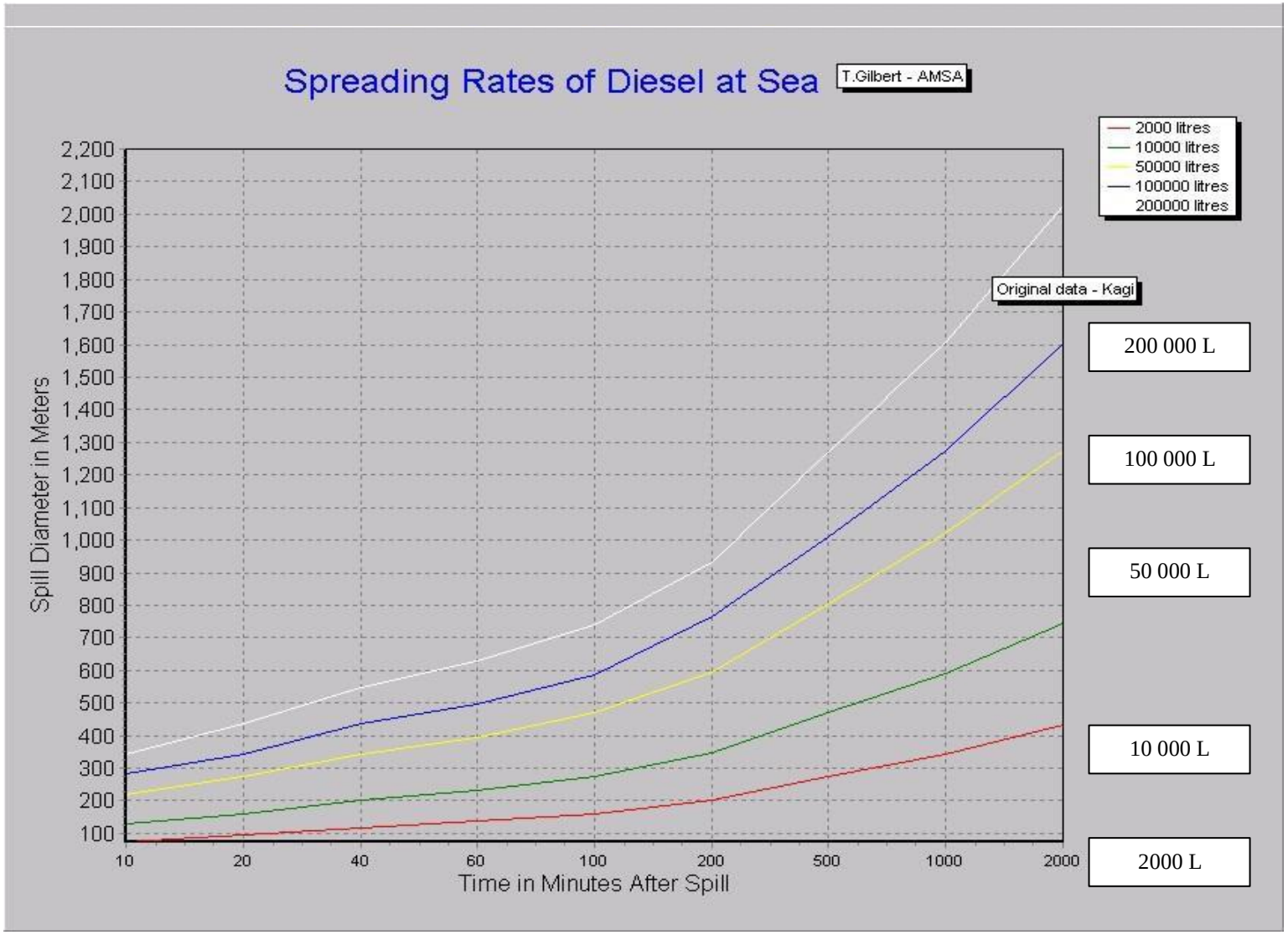


Figure I-3: Predicted Spreading Rates of Diesel on Seawater in the Absence of Current and Wind Influences.

Sensitive Values

8. Table G-2 summarises selected sensitive environmental values occurring in and adjacent to Careening Bay. These features are considered sensitive because of their rarity, high primary productivity, commercial value, high profile in terms of human interest and/or known susceptibility to disturbance from oil spills.

9. Noting that oil floats on seawater, organisms active on the sea surface or in intertidal areas are more vulnerable to exposure than organisms restricted primarily to subtidal areas. Therefore, little penguins and dolphins are more vulnerable to surface oil than subtidal populations of seagrasses and mussels.

Table I-2 Sensitive Organisms in and Adjacent to Careening Bay and Estimated Time of Arrival of a 10 tonne Diesel Spill, Originating at Diamantina Pier, Based on the Spreading Rates under Still Conditions and a 15 knot Breeze

Sensitive Values	Ecological Significance	Distance from Diamantina Pier (southern end)	Estimated Time of Arrival Based on the Spreading Rate of a 10 Tonne Diesel Spill	
			Nil wind	18 kt wind
Little penguin colony	Regional	≈ 350/500 m north west and due west	2-3 hrs*	~ ½ hr (easterly)
Seagrass beds	Regional	Variable distance	< 1 hr*	< 10 mins.
Southern Flats mussel farms	N/A	≈ 3.5 km south east	> 24 hrs*	~ 3 ½ hrs (north westerly)

***Note: this time can be markedly reduced by rapid changes in wind speed and direction and should not be relied upon. Ensure booms are deployed promptly after spill is detected to give best chance of avoiding impacting little penguins and other sensitive species. See paragraphs 10 and 11 below.**

Diesel Spills and Sensitive Values – Contact Period

10. The probability of a diesel spill reaching sensitive areas or ecological features is dependent on the rate of spread, the areas or ecological feature's distance from the spill's source, and the rate at which the spill can be controlled and removed. The estimated time for a diesel spill, originating at the southern end of the Diamantina Pier, to reach each of the three demonstration values is given in Table G-2. It should be noted that in most circumstances, wind is the greatest factor influencing currents within Careening Bay.

11. As noted, spreading rates will vary with wind speed, so it is important to estimate 'contact periods' under different wind speeds. In autumn, easterly winds predominate, with maximum average wind speeds of 9 m/s (approx. 18 kts). Assuming that a diesel spill will spread at a rate of 3.5% of the wind speed (wind speed 9m/s = spread rate of 0.315m/s) then the spill could reach a penguin colony in less than 28 minutes under the influence of an 18 kt easterly. With easterly winds of 30 knots there will be very little time available to deploy booms and so timely response is to be the utmost priority in these circumstances. This is a likely to be an overtly pessimistic prediction because it does not take into account the possible influence of the Diamantina Pier, and any Fleet units alongside, acting as a windbreak for a spill on its western side during easterly winds. The Indian Ocean bottlenose dolphin is regularly sighted in Careening Bay and elsewhere in the surrounding waters, and so individuals may be impacted by spills almost immediately.

ANNEX J

OPERATIONAL PREVENTATIVE MEASURES

The following summary provides ongoing preventative measures that continue to be reviewed to ensure that the prevention of spills or capability to respond quickly in containment are maintained.

Port Services Manager

- Maintain FBW OSCM, including regular review and update.
- Include all programmed oil transfers (except packaged quantities) in Daily Activities Schedule. This report is to include ship-internal transfers if reasonable possibility exists of inadvertent release to marine waters.
- Review weather conditions and forecasts in relation to planned oil transfers, especially for bulk oil transfers (to/from shore or ship internal) from Fleet units berthed on western side of Diamantina Pier when strong easterly winds are occurring or forecast.
- Ensure booms are available to be deployed around all Fleet units transferring bulk oil to/from shore or internally.
- Regularly test and exercise OSCM, with follow-up review of effectiveness.
- Ensure all relevant personnel (eg. port management staff, road tanker drivers) receive requisite spill prevention and response training.
- In cooperation with SERCO, FBW-BM and other agencies, ensure adequate spill response gear is available and maintained, and that contingency measures are in place to source other equipment and services as required for spill response.
- Provide kits for immediate response to Fleet units preparing to transfer oil in bulk.
- Maintain effective liaison with other spill response agencies (WA State Committee, Fremantle Ports, BP Kwinana).

SERCO

- Have boats (including FTL) and crews available for oil spill response.
- Ensure boat crews are adequately trained and drilled in the deployment of booms and oil recovery techniques.
- Ensure ready access to boats available for RAN boat crews if OSCM activated during non-working hours.
- Have SPWFL and crew available to assist in recovery of spilt oil.
- Ensure crew is adequately trained and drilled in oil recovery techniques.
- In cooperation with PSM, ensure spill response gear is maintained.
- Comply with FBW planning and reporting procedures with respect to bulk oil transfers.
- The maintenance, deployment, operation, recovery and cleaning of RAN supplied marine pollution equipment.

- The regular replacement of oil spill booms.
- The replacement of consumable clean up materials employed by shore establishments as required
- The deployment and recovery of pollution absorbing materials
- The collection and disposal of all waste materials and product, whether employed by the contractor or establishment concerned to an approved site designated by appropriate State Environmental Protection Agency.

Fire and Emergency Services

- Ensure fire crews are familiar with procedures for boom deployment and recovery.
- Review programmed oil transfers in Daily Activities Schedule to assess likelihood of requirement for Fire Section call-out and factor into daily activities.

DFI

- Ensure vehicles carry adequate, properly maintained spill containment and clean-up gear, optimised for immediate response.
- Have trucks available on wharf during oil transfers.
- Ensure DFI staff are properly trained and drilled in spill prevention and immediate response actions.
- Refrain wherever possible (based on operation demands and risk) from transferring oil to/from shore between sunset and sunrise.
- Maintain tanker trucks and trailers available for collection of oily waste.

Powerhouse

- Ensure watch keeping personnel are familiar with procedures for aligning sullage system to accept skimmed oil waste following oil spill.
- Maintain vacuum/discharge tankers for potential use for collection of oily waste.

FBW-BM

- Establish and maintain register of sources of equipment and services likely to be required for purchase or hire in the event of an oil spill.
- Ensure EOC is equipped and maintained as necessary for implementation of OSCM.

Fleet Units Alongside FBW

- Ensure no oil transfers (including internal transfers which could result in external release) occur without prior notification of PSM.
- Notification should normally be given at least 24 hours in advance of planned activity via Incompatible Operations process.
- Refrain wherever possible (based on operation demands and risk) from transferring oil to/from shore or internally between sunset and sunrise (**i.e. daylight hours only**).

- Ensure onboard procedures compatible with FBW OSCM.
- Ensure oil spill response gear on-hand or readily accessible during oil transfers which may result in loss of oil to the marine environment.
- Ensure relevant personnel (eg. ME Department and OOD) are familiar with immediate response actions in the event of an oil spill.
- Be available to assist in the response to a spill generate by Fleet units alongside.

JLU-W & BM

- Maintain suitable ready-use stocks of protective clothing and other personal protective equipment likely to be required for an oil spill of the designed spill size.

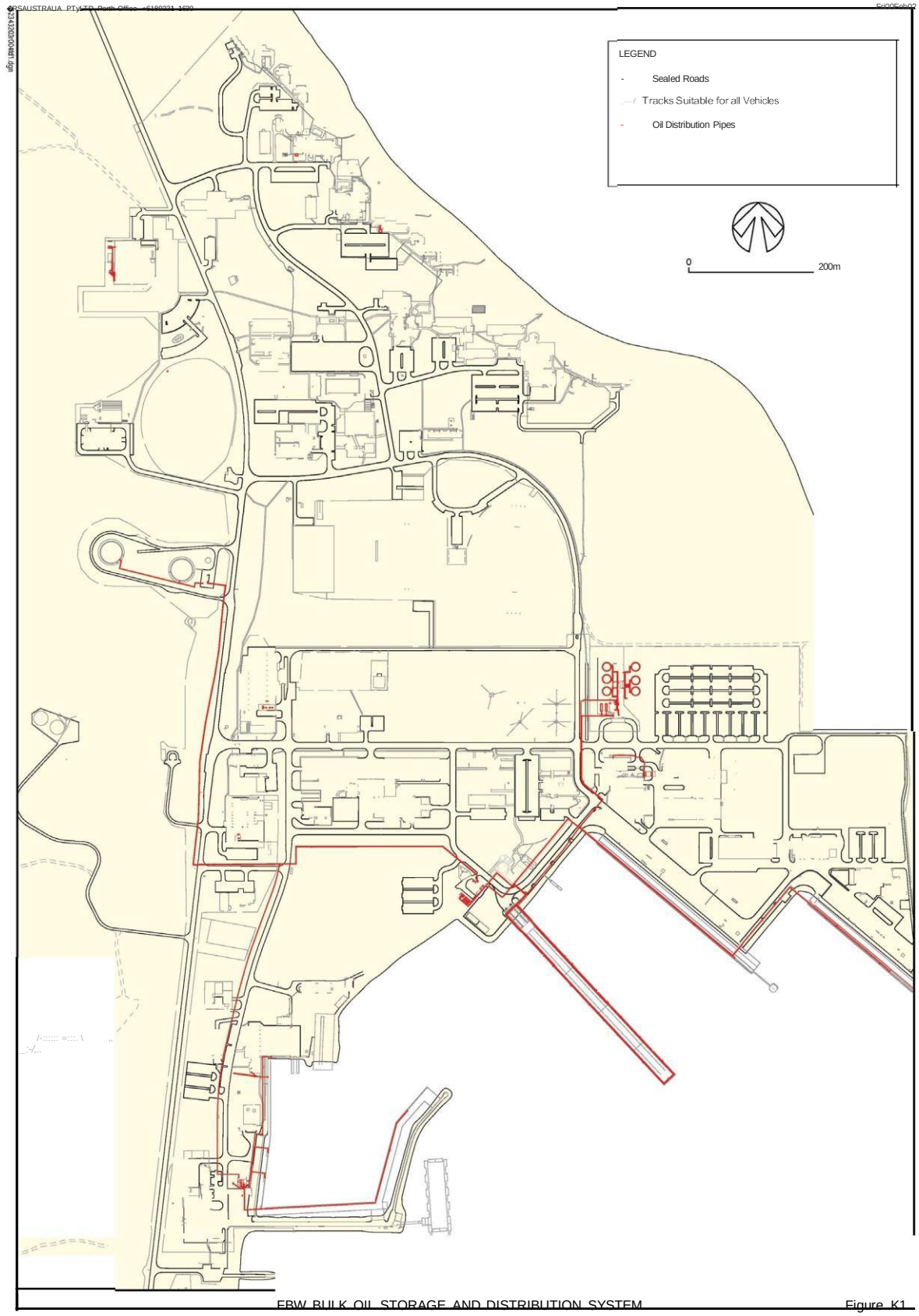
HMAS *Stirling* ESM

- The ESM is to provide specialist advice to the IC and the Navy Spill Commander during the course of the oil spill response and subsequent cleanup. The duties are:
- Provide specialist advice to the IC for terrestrial and marine oil spill response
- Assist the IC to identify and prioritise protection of the marine environment using the Coastal Resource Atlas (Annex A to the OSCM)
- Provide on-site advice to spill response team
- Review oil spill risks and advise on need for specialist wildlife rescue services
- Oversee wildlife rescue activities
- Assist with incident reporting
- Liaise with Commonwealth and State environmental staff
- Identify need for site remediation and monitoring programs
- Oversee remediation and monitoring programs
- Maintain database of all oil spills in FBW and Garden Island within the FBW Environmental Incident and Improvement Register. Information to be recorded to include date, source, reason for spill, size of spill, type of oil spilt, isolation and response actions taken and their effectiveness

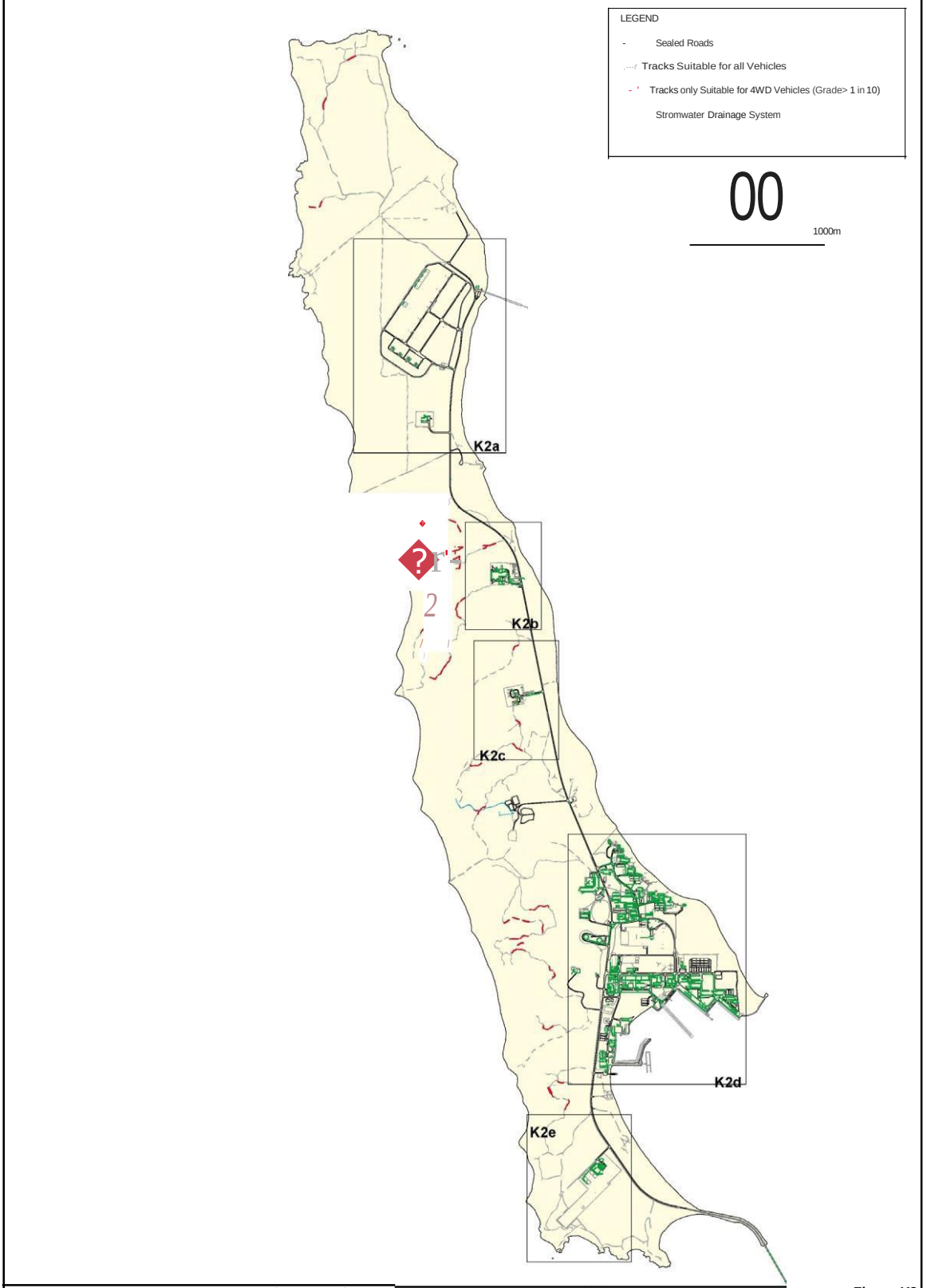
ANNEX K

CAREENING BAY STORMWATER DRAINAGE SYSTEM

Note: Information on oil storage and distribution and stormwater drainage systems is also available on Defence's National Spatial Information Management System (NSIMS). This system is best accessed via DS-WA Corporate Information and Data Systems.

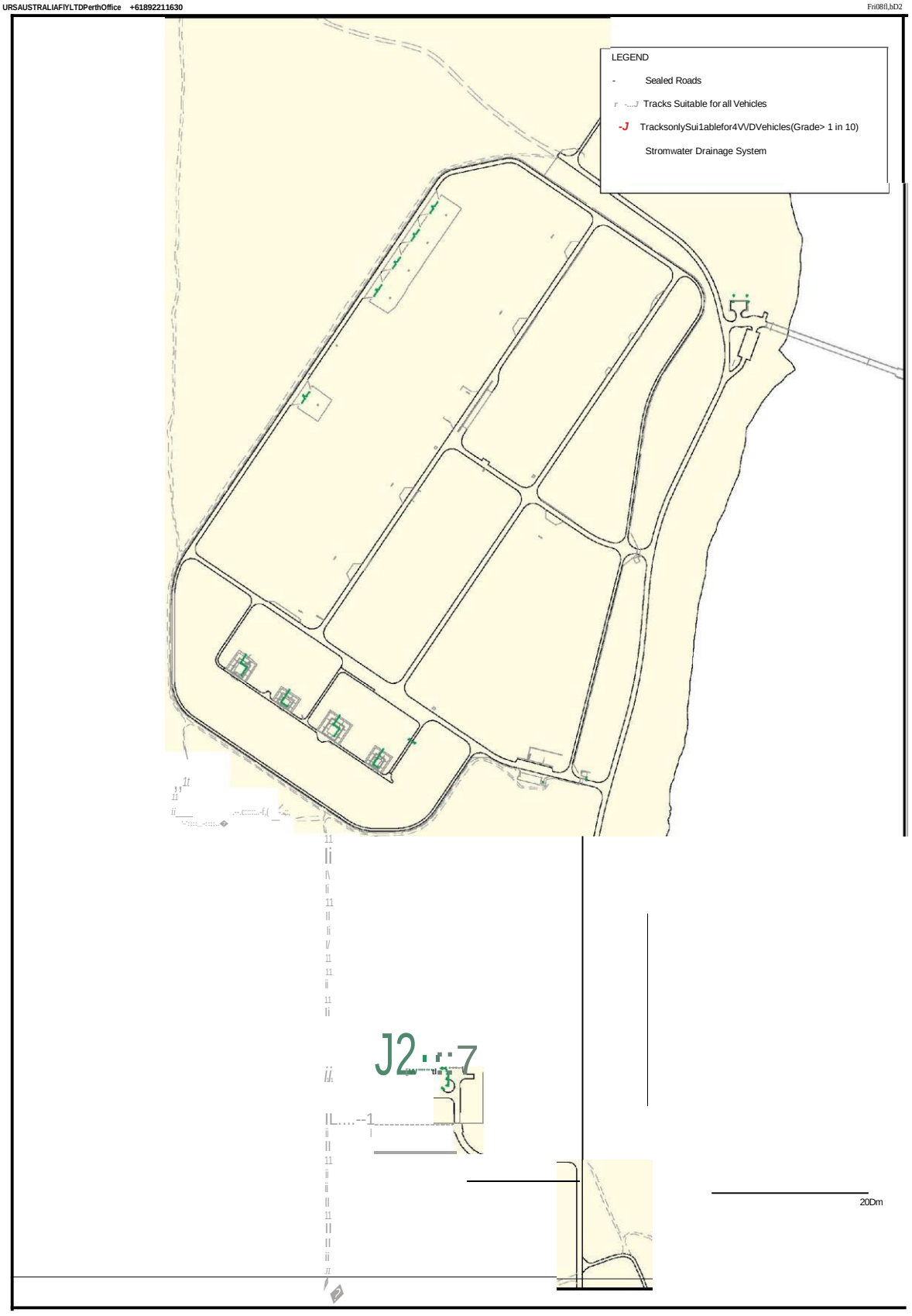


FBW BULK OIL STORAGE AND DISTRIBUTION SYSTEM Figure K1

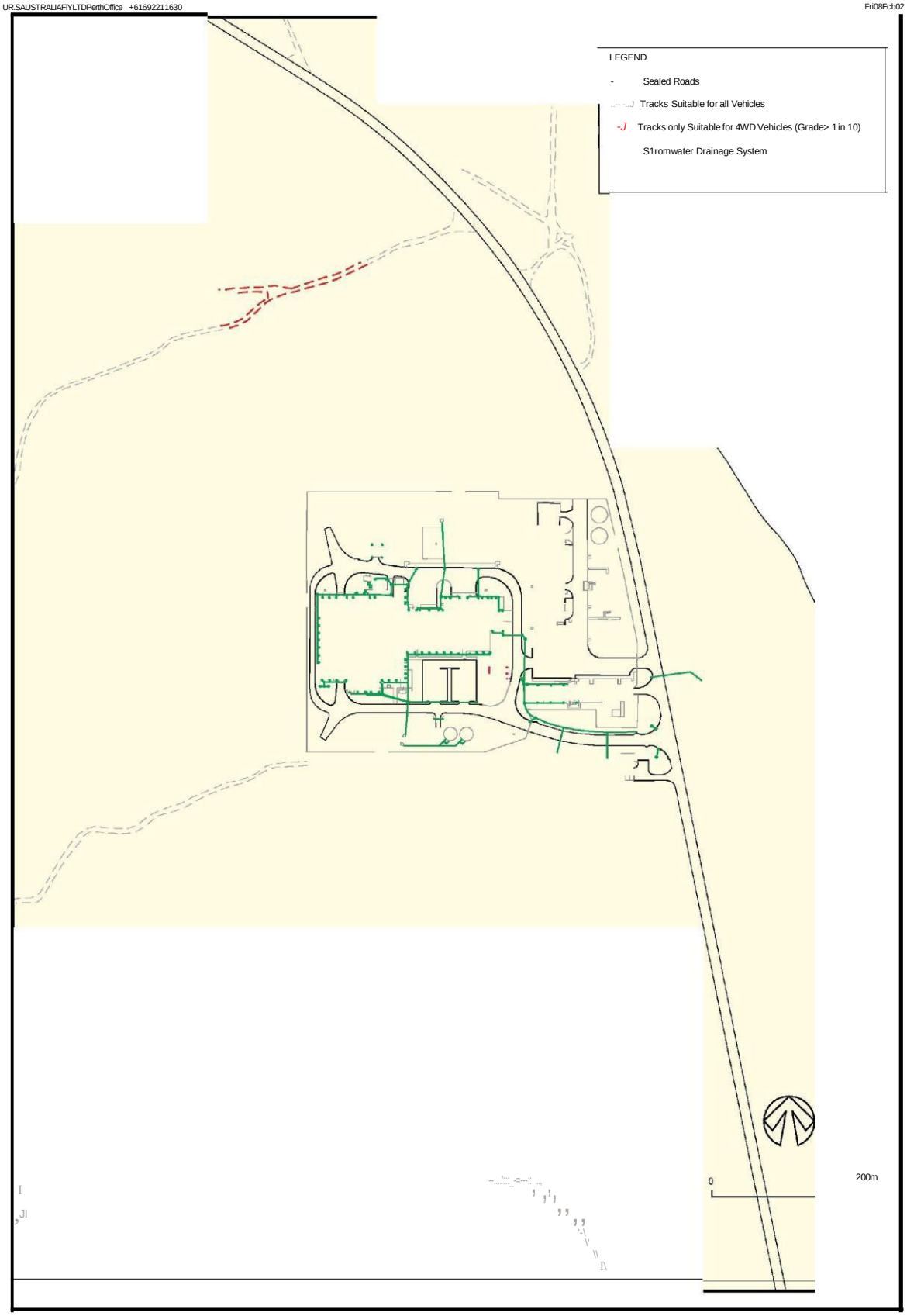


GARDEN ISLAND STORMWATER DRAINAGE SYSTEMS

Figure K2



STORMWATER DRAINAGE SYSTEM -ARMAMENTS STORAGE AREA **Figure K2a**



STORMWATER DRAINAGE SYSTEM - RANAWED NON-EXPLOSIVE AREA Figure K2b

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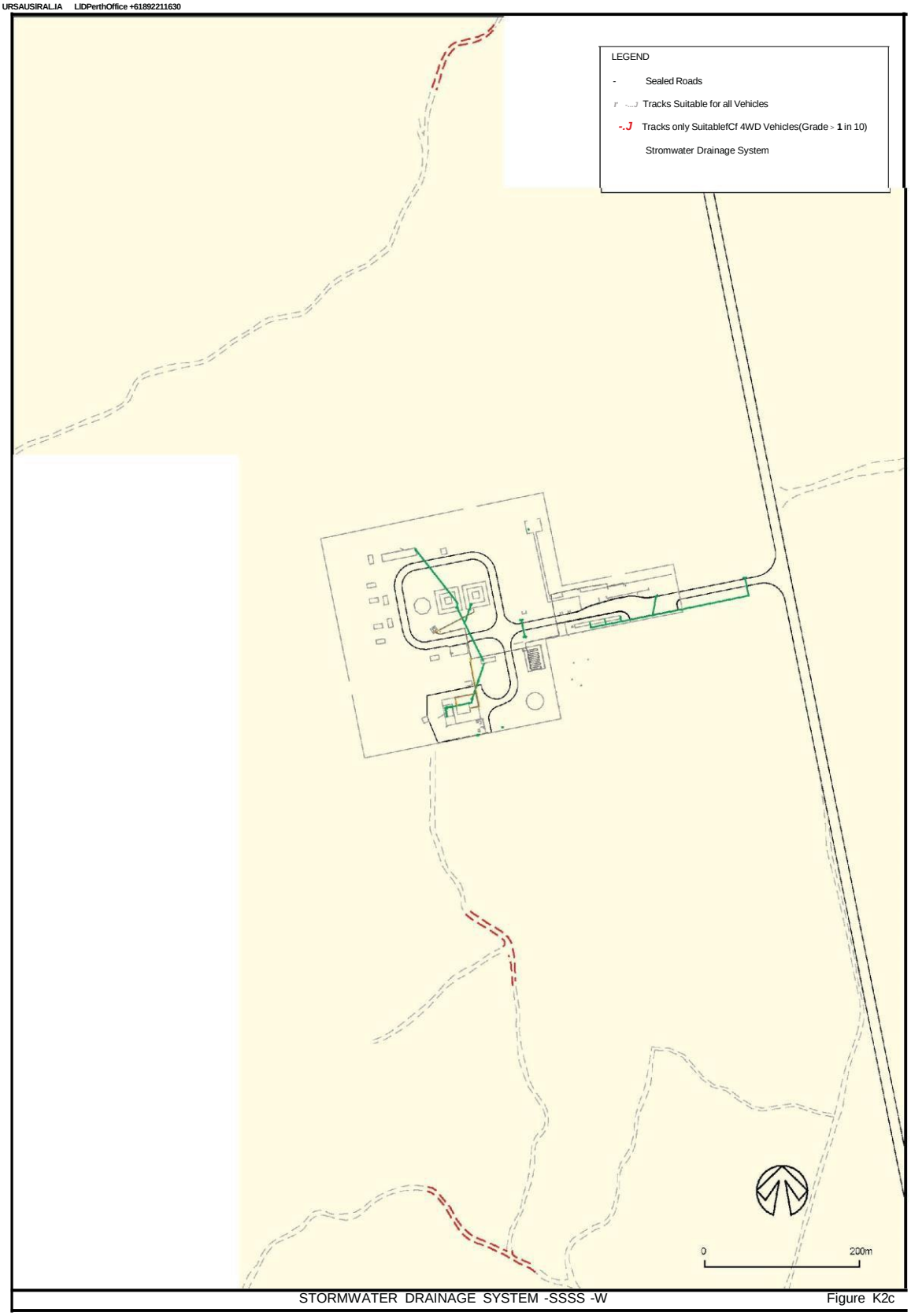

STORMWATER DRAINAGE SYSTEM -SSSS -W Figure K2c

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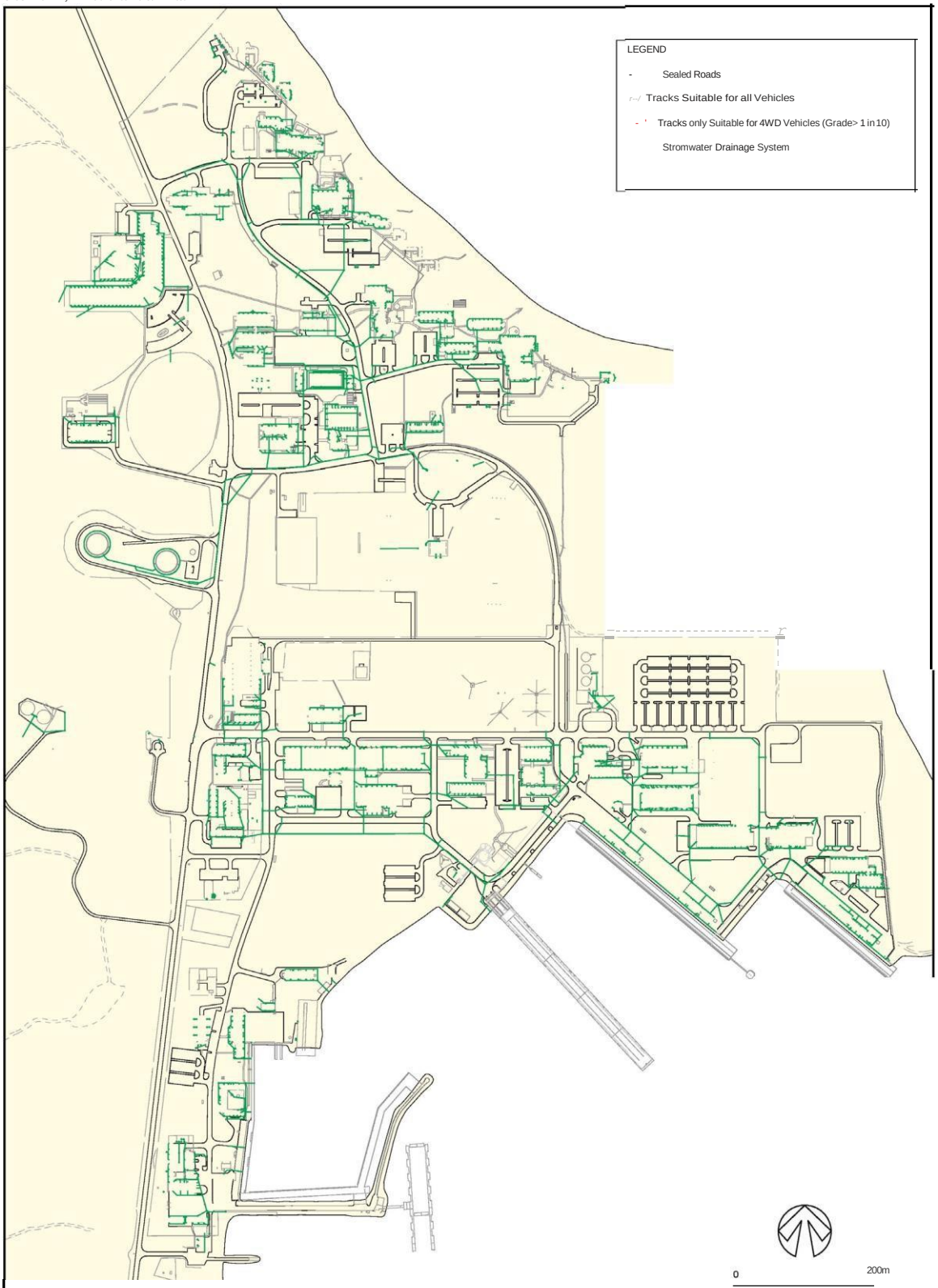

STORMWATER DRAINAGE SYSTEM - FBW WHARF AND FACILITIES ZONES Figure K2d

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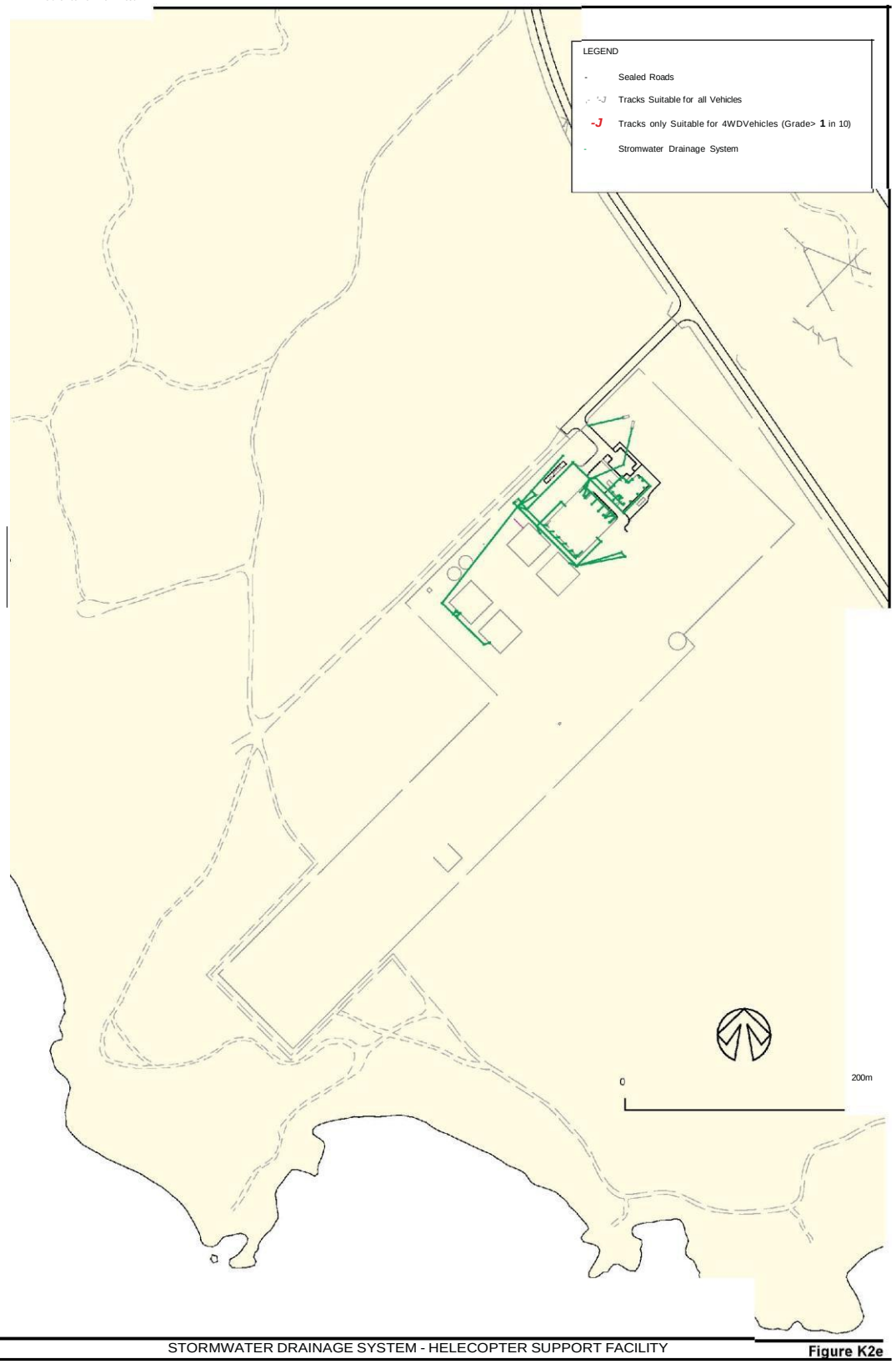

STORMWATER DRAINAGE SYSTEM - HELECOPTER SUPPORT FACILITY

Figure K2e

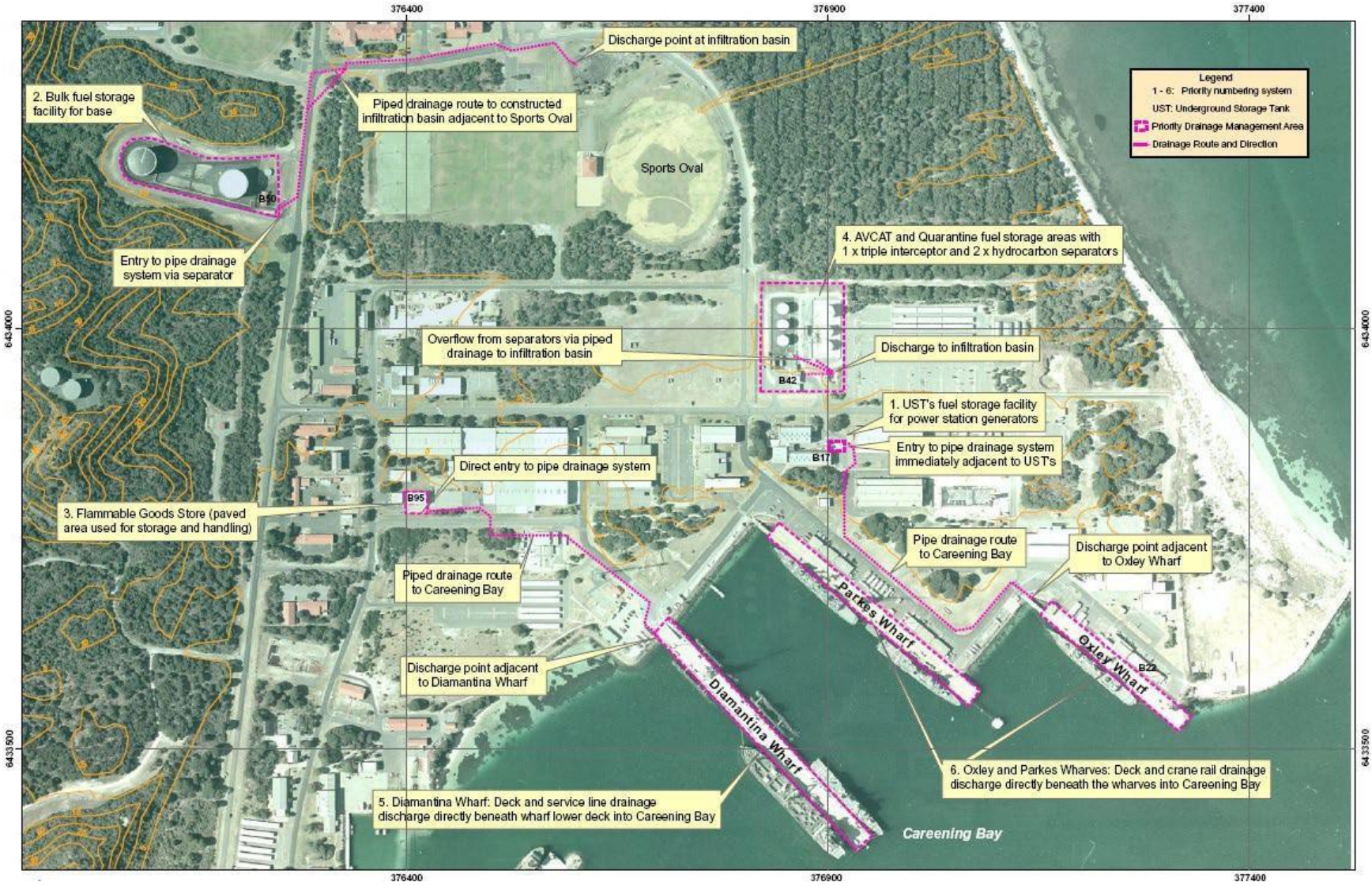

Figure K-3 Priority Drainage Management Areas – Careening Bay