RAAF BASE EAST SALE

PFAS ONGOING MONITORING PLAN

April 2026

CONTENTS

GLOSSARY

AFFF	Aqueous Film Forming Foam
AHD	Australian Height Datum
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure, as amended 2013
Base	RAAF Base East Sale
CD	Central Drain
CFI	Capital Facilities Infrastructure
CSM	Conceptual Site Model
DCARM	Directorate of Contamination Assessment Remediation and Management
Defence	Department of Defence
DO	Dissolved Oxygen
DQI	Data Quality Indicators
DQO	Data Quality Objectives
DSI	Detailed Site Investigation
EC	Electrical Conductivity
E&IG	Estate and Infrastructure Group
EMD	Eastern Main Drain
EPA	Environment Protection Authority
EPBC Act	Environment Protection and Biodiversity Conservation Act
HEPA	Heads of EPA Australia and New Zealand
HHA	Haunted Hills Aquifer
HHERA	Human Health and Ecological Risk Assessment
KHD	Kitty Hawk Drain
LAA	Lower Alluvial Aquifer
LOR	Limit of Reporting
MAD	Main Airfield Drain
Management Area	The geographical area subject to Defence risk management actions. May include private or Defence owned detached properties beyond the boundaries of the base.
MEOMS	Mechanical Equipment Operations Maintenance Section
NAD	North Airfield Drain
NATA	National Association of Testing Authorities
NWD	Northwestern Drain
Off-base	Off-base (or other non-Defence property)
OMP	Ongoing Monitoring Plan
OMR	Ongoing Monitoring Report

On-base	On-base (or other Defence property)
PFAS	Per- and poly-fluoroalkyl substances
PFAS NEMP	PFAS National Environmental Management Plan
PFBS	Perfluorobutane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctane sulfonic acid
PMAP	PFAS Management Area Plan
PPE	Personal protective equipment
PSI	Preliminary Site Investigation
RAAF	Royal Australian Air Force
Risk management actions	Remediation and management actions to address potential risks to receptors from PFAS contamination
SAQP	Sampling, Analysis and Quality Plan
SFARP	So Far As Reasonably Practicable
Source	A source can be primary or secondary. Primary sources are generally areas where AFFF was used or stored. Secondary sources may be an accumulation of contamination in the environment, such as in soil, sediments, or surface water bodies.
SWL	Standing Water Level
UAA	Upper Alluvial Aquifer
VFA	Victorian Fisheries Authority
VIC EPA	Victorian Environment Protection Authority
WMD	Western Main Drain

1 INTRODUCTION

Department of Defence (Defence) acknowledges the Traditional Custodians of Country throughout Australia. Defence recognises their continuing connection to traditional lands and waters and would like to pay respect to their Elders both past and present. Defence would also like to pay respect to the Aboriginal and Torres Strait Islander peoples who have contributed to the defence of Australia in times of peace and war.

1.1 Background

In May 2025, Defence prepared a revised PFAS Management Area Plan (PMAP) for managing risks to human health and the environment from per- and poly-fluoroalkyl substances (PFAS) contamination associated with Royal Australian Air Force (RAAF) Base East Sale (the base) and surrounding areas. An important requirement of the PMAP is to undertake ongoing monitoring of PFAS in the environment to assess for changes in risks to human and ecological receptors from PFAS originating from the base.

This Ongoing Monitoring Plan (OMP) replaces the February 2023 revision by Senversa (2023a).

1.2 Purpose

This OMP sets out requirements for collection of adequate data to identify and evaluate:

- Spatial, and temporal (including seasonal) variability of PFAS in the environment
- Changes to sources, transport pathways and/or receptors, described as a conceptual site model (CSM) for the base
- Whether previously identified risks to human and ecological receptors require review
- The influence that risk management activities performed at the base, as outlined in the 2026 PMAP, have had on PFAS in the environment, and
- Whether the identified changes trigger an action and/or review.

The data collected may be used to inform where new risk management actions may be required, or to support a determination that remediation has been completed so far as reasonably practicable (SFARP).

1.3 Supporting information

In developing the OMP, reference has been made to:

- PFAS National Environmental Management Plan (PFAS NEMP), the National Environment Protection Agencies Australia and New Zealand (HEPA, 2025)
- National Environment Protection (Assessment of Site Contamination) Measure 2013 (ASC NEPM), National Environment Protection Council (NEPC, 2013)
- Defence estate, environmental and PFAS-specific policy and guidance, and
- Other information from relevant documents referenced in Appendix A.

1.4 Constraints and assumptions

This OMP has been prepared based on information available at the time of writing and relies on the findings of the Detailed Site Investigation (DSI) (Senversa, 2017), risk assessments (Senversa, 2018 and 2024), mass flux assessment (Senversa, 2023b), ongoing monitoring program data, and

management of risks documented in the PMAP (Defence, 2026). Defence recognises that there may still be gaps in information, and if required these will be progressively addressed while PFAS impacted areas are being managed.

This document has been developed based on the assumption that the OMP focuses on monitoring of general changes and variability in the nature and extent of PFAS contamination in the medium to long term. Specific sampling requirements to investigate or validate remediation actions over the short term are not addressed in this OMP.

2 MANAGEMENT AREA AND BASE SETTING

2.1 Base description and setting

RAAF Base East Sale is located 5 kilometres (km) east of the centre of the town of Sale in Gippsland, Victoria (approximately 220 km southeast of Melbourne) and is an active RAAF base, airport and training centre that supports a capacity of approximately 700 personnel.

The base covers an area of approximately 8 square kilometres and includes a range of land uses that are ancillary to the aerodrome and aircraft support areas, such as accommodation, childcare facilities, recreation areas and cleared open space. The eastern portion of the base is leased for grazing land.

The base is Commonwealth land located in the rural area of the Sale township, with all land surrounding the base zoned by the Wellington Shire Council as 'Farming (FZ)'.

The base is located within a mixed land use setting, including:

- Agricultural land use (pastoral, food production)
- Recreational land use of the Heart Morass (privately owned wetland)
- Recreational land use of the Heart Morass Wildlife Reserve and Dowd Morass State Game Reserve (publicly managed wetlands).

It is also noted the base is also located in an environmentally sensitive area, close to wetlands of ecological significance, including the Heart Morass to the south, and Lake Wellington to the east which is part of the Gippsland Lakes Ramsar site.

Groundwater and surface water are important resources for the local community, noting that ecologically significant wetlands contribute to the overall recreation and cultural identity of the region.

Shallow groundwater is commonly extracted for stock watering and agricultural irrigation across off-base across properties to the north, southeast, south and west of the site for non-potable uses i.e. domestic non-potable supply (bathroom and laundry), outdoor domestic supply, dairy operations, irrigation of pasture, stock watering and abattoir operations. Deeper groundwater (Boisdale Formation) is extracted both on-base and off-base to supplement drinking water supplies, outdoor domestic supply, dairy operations, irrigation of pasture and stock watering.

2.2 Management Area setting

The PFAS Management Area comprises RAAF Base East Sale and surrounding areas (Figure 1 in Appendix B). The management area is the primary region throughout which risk management actions or ongoing monitoring are being applied, divided into three sub-areas, as follows:

- On-base monitoring area:
    - Active RAAF base, and
    - Leased Defence land for grazing
- Off-base monitoring area, to the south and east the base (seven private properties)
- Off-base monitoring area - Heart Morass (six private properties and the publicly managed wetlands).

The primary Management Area is on-base, currently an operating RAAF Base with legacy PFAS source areas. The Management area also includes off-base private properties and the Heart Morass wetlands to the south and east. Private properties incorporating the waters of the Heart Morass are

included as a Monitoring Area due to the potentially elevated risks for human consumption of aquatic animals in this area and to the ecosystems.

The extent of the Management Area was determined from investigations in the Detailed Site Investigation (DSI) (Senversa, 2017) and the Human Health and Ecological Risk Assessment (HHERA) (Senversa, 2018). The two off-base areas were established to continue PFAS monitoring where the risk was considered low and acceptable to off-site land based private properties (Senversa, 2018).

A review of the risk profile was conducted in 2024 and determined that the outcomes of the HHERA remained appropriate (Senversa, 2024).

Information about the Management Area environmental setting, such as climate, topography, geology, hydrology and various other aspects is provided in the sections below, from the DSI.

2.2.1 Regional climate

The Gippsland region has a temperate climate with mild to warm summers, and average maximum temperatures currently 21 to 25°C. Winters are mild near the coast, with average maximum temperatures of 12 to 15°C. The mean rainfall ranges from 40.5 millimetres (mm) in June to 63.0 mm in November (Station 85072, Bureau of Meteorology).

Further information is available on the Victorian Government factsheet.

2.2.2 Topography and geology

The base and surroundings are low lying and generally flat, with the elevation ranging from approximately 11 metres Australian Height Datum (m AHD) in the northwest to 3 m AHD in the northeast. The surrounding agricultural area has a slight gradient from the base, sloping east towards Lake Wellington. To the south of the base there is a drop in elevation of approximately 3 to 4 m into the wetlands of the Heart Morass.

Regional geology indicates that the base is situated on an outcrop of fluvial sands, iron-oxide containing sands, silts and gravels of the Pliocene aged (5.4 to 2.4 million years ago) Haunted Hills Formation. More recent quaternary (2.6 million to present) lagoon, swamp and alluvial deposits are associated with the wetlands and the Latrobe River to the south of the base (approximately 4.5 km from the centre of the base). These consist of grey to black carbonaceous mud, silt, clay and minor peat that are generally unconsolidated.

2.2.3 Hydrology

The base is located in the ‘Gippsland Lakes and Hinterland’ landscape within the West Gippsland region (WGMCA, 2025). The Latrobe River drains east from the Sale Common wetlands into Lake Wellington and ultimately the Southern Ocean via the extended Gippsland Lakes system. All other major rivers across the broader West Gippsland regional catchment also drain towards Lake Wellington.

The base is surrounded by waterbodies of environmental significance, including wetlands, lakes and rivers. The Heart Morass wetlands are located approximately 500 m to the south of the base. It includes land covered by a protective covenant, with the eastern portion a State Game Reserve managed by Parks Victoria. The Heart Morass is located between two areas of the Gippsland Lakes Ramsar wetlands (Sale Common wetlands and Lake Wellington), which are wetlands considered to have significant ecological value. Additionally, this area is used as a game reserve for duck hunting, fishing and other recreational purposes and is highly valued by the community. The Dowd Morass

wetlands are located directly south of the Latrobe River and the Sale Common wetlands are located to the east of the confluence of the Thompson and Latrobe Rivers (refer to Figure 1, Appendix B).

There are closed, concrete lined stormwater drains which become open, unlined drainage channels on-base (refer to Figure 2, Appendix B). These networks generally follow the topography of the base and divert surface water runoff off-base to the north, south and east. To the north of the runways, stormwater drainage flows into the Northwestern Drain (NWD) and discharges off-base along Cobains Road, travelling towards low lying areas east of the base and ultimately to Lake Wellington. The remaining three drains, the Eastern Main Drain (EMD), Central Drain (CD) and Western Main Drain (WMD) all discharge off-base to the southeast via the EMD which ultimately discharges into the Heart Morass.

Further information regarding the four main on-base drainage lines are summarised in Table 1.

Table 1. Drainage network

On-base Drainage Network	Summary
Eastern Main Drain (EMD)	The EMD is an open swale drain running north-south down the eastern boundary of the base. Flow in the EMD is intermittent, and the base of the channel gradually deepens from shallow to 4-5 m deep towards its discharge point in the southeastern corner of the base. This drain in unlined and fed by the Western Main Drain at the most southeastern point of the base and the Main Airfield Drain from midway along the runways.
Northwest Drain (NWD)	The NWD is an open swale that runs south to north along the northwestern boundary of the base and then turns to the east along the northern boundary of the base. Flow in the NWD is intermittent and is generated by surface water flow from across the Mechanical Equipment Operations Maintenance Section (MEOMS) area in the northwestern corner of the base. The NWD discharges off-base to a drain at Cobains Road, then ultimately flows towards Lake Wellington.
Western Main Drain (WMD)	The WMD is an open swale drain running from the northwest of the base towards the southern boundary with intermittent flow. The Kitty Hawk Drain discharges into the WMD, which culminates in a retention pond on the southern boundary that is then linked by the southern arm of the WMD to the EMD and subsequently discharges off-base.
Central Drain (CD)	The CD is in the southern portion of the base, south of the airfield. This unlined drain discharges to the WMD and subsequently the EMD off-base discharge point.

Along unlined sections of the drainage channels, Senversa (2023) identified points of groundwater discharge into the drainage channels, namely along the EMD and WMD. Due to the deep invert of the drains and the shallow groundwater table, surface water and groundwater interaction is understood to contribute to PFAS pooling in the drains though is not the main driver of PFAS migration off-base.

2.2.4 Hydrogeology

The hydrogeological units encountered at the base during previous investigations include the following,

- Upper Alluvium Aquifer (UAA): 0-6 m below ground level (bgl)
- Lower Alluvium Aquifer (LAA): 5-12 m bgl
- Haunted Hills Formation Aquifer (HHA): 10-36 m bgl
- Boisdale Formation (Nuntin Clay and underlying Wurruk Sand): >36 m bgl.

The depth to shallow groundwater within the alluvium deposits on-base has been recorded near surface level and up to 10 m bgl. Regional groundwater within the Boisdale Formation (Wurruk Sand Aquifer) has been recorded from 100 to 300 m bgl, which resides below the Nuntin Clay aquitard that is typically encountered between 36 and 100 m bgl (Stantec, 2024a).

The flow of groundwater in all water bearing units is generally to the southeast towards the Heart Morass. Intermittent and localised connection between shallow groundwater and surface water is known to occur on-base (Senversa, 2023) within unlined drainage channels, and is inferred to occur off-base between the UAA and surface water within the Heart Morass.

Deep regional groundwater (>36 m bgl) is used for domestic and agricultural purposes of which irrigation of dairy pasture and stock watering are the primary uses. Both the township of Sale and the base itself are supplied water from production bores within the deeper Boisdale Formation.

3 EXTENT OF PFAS CONTAMINATION

This section provides an outline of the PFAS sources, transport pathways for migration of PFAS from a source area, and potential receptors such as humans and ecosystems (plants and animals) that may be exposed to PFAS from the base.

This information is described as a Conceptual Site Model (CSM), which is provided in Appendix C. As part of the PMAP revision, the CSM for the base and surrounding area was reviewed for currency and updated. One potential new source area that has not been fully characterised has been identified, and investigations are planned to confirm their significance. No new pathways or receptors have been identified.

The current CSM presented in the PMAP identifies:

- sources of PFAS on-base and their current characterisation
- PFAS transport pathways and the significance in PFAS discharging off-base, and
- receptors (human and ecological) that might be exposed to PFAS and the measures in place to manage associated risks.

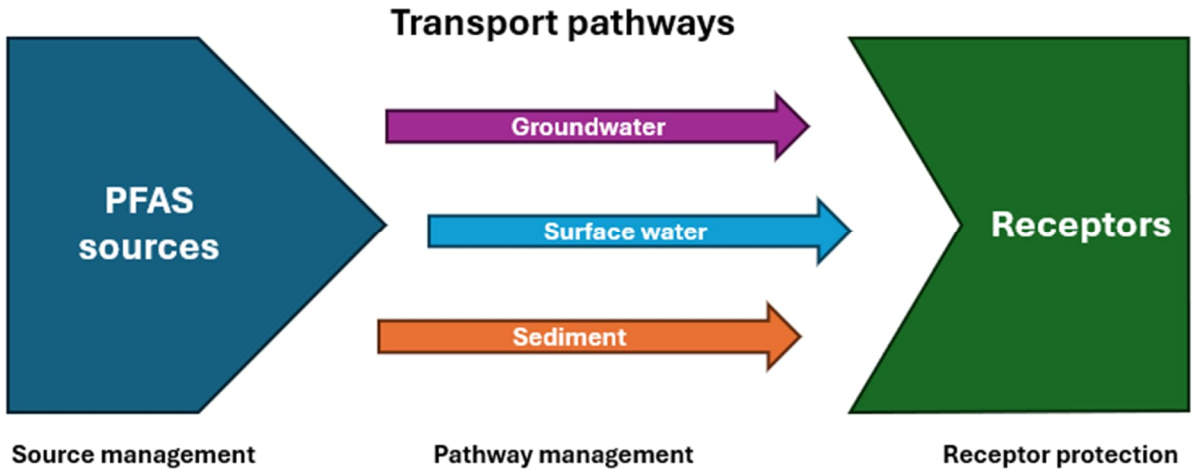

Figure 1 – Sources / Pathways / Receptors

For more detailed information informing the CSM, refer to the reports listed in Appendix A.

3.1 Source areas

Source areas can be primary or secondary. Primary sources are areas of PFAS contamination where aqueous film forming foam (AFFF) was used or stored, for example, at a fire training area. Secondary source areas contain an accumulation of PFAS contamination in the environment, such as in soil or sediment, which has migrated from a primary source area through groundwater or surface water bodies.

The PFAS source areas that have been identified through previous investigations (Appendix A) are summarised in Table 2. A map showing the location of these PFAS source areas is provided as Figure 3 in Appendix B.

Table 2. Known source areas of PFAS

Source area	Description	Contribution to PFAS off-base migration	Current status
Northwestern Area			
SA01	MEOMS waste disposal	Key contributor	High concentrations of PFAS were reported in groundwater where SA01, SA03 and SA14 are located on the western boundary of the base. These source areas are adjacent to the NWD that diverts stormwater off-base to the north.
SA03	MEOMS fire truck hose testing	Key contributor	
SA14	Grassed area near MEOMS	Key contributor	
SA02	MEOMS operational area	Minor contributor	PFAS concentrations reported localised contamination around SA04, SA05 and SA15 in soil, with some PFAS contamination within groundwater.
SA04	Former fire station	Minor contributor	
SA05	Chemical storage area	Minor contributor	
SA15	Grassed area near fire station	Moderate contributor	
Central Area			
SA06	Current fire station	Key contributor	The highest concentrations of PFAS in soil and groundwater across the base were reported in SA06 and SA16, including high concentrations in surface water drainage network samples flowing away from these areas. A limited groundwater well network exists downgradient of these source areas, with the closest groundwater well approximately 1 km to the southeast. SA11 reported low concentrations of PFAS in the soil but higher concentrations in groundwater. Further investigation is required to determine the source of PFAS impacted groundwater in the area.
SA11	Former AFFF testing area	Key contributor	
SA16	Grassed area near runways	Key contributor	
SA19	Former refuelling area	Minor contributor	SA19 reported low PFAS concentrations in soil and groundwater, which are considered representative of diffuse concentrations across the base. There are no plans to undertake further management actions.

Source area	Description	Contribution to PFAS off-base migration	Current status
SA27	Accidental AFFF releases at Building A0842	Minor contributor	SA27 includes known, accidental AFFF releases at Building A0842, however, the PFAS contamination in soil at this source area was reported as shallow and localised.
South Eastern Area			
SA07	Former waste burial area	Moderate contributor	PFAS concentrations in soil are low across all the source areas in the southeastern area, with some localised high concentrations within SA07, SA08 and SA09. PFAS concentrations in groundwater are moderately high in the area, mostly across SA07, SA08, SA09 and SA13. These source areas are connected via roadside stormwater drains that feed into the wider surface water drainage network at the Kitty Hawk Drain and the WMD. The significance of contribution from these source areas is being monitoring under the OMP, and there no plans to undertake further management actions.
SA08	Former fire training area	Moderate contributor	
SA09	Former fire training area	Moderate contributor	
SA10	Former fire training area	Minor contributor	
SA12	4WD training track	Minor contributor	
SA13	Former sewage treatment plant and fire training	Moderate contributor	
SA18	Revetments	Minor contributor	
Diffuse sources			
SA17	Stormwater drains	Minor contributor	SA17 and SA20-SA26 reported PFAS concentrations in soil and groundwater consistent with low-level diffuse PFAS impacts across the base. No further assessment or management is required. Ongoing monitoring for these source areas is being conducted under OMP.
SA20	Runways	Minor contributor	
SA21	Football club	Minor contributor	
SA22	Oval	Minor contributor	
SA23	Mirage crash	Minor contributor	
SA24	Former waste burial area (southeast)	Minor contributor	
SA25	Lake Edward	Minor contributor	
SA26	Concrete and rubble stockpile	Minor contributor	

Based on the data collected during the DSI (Senversa, 2017) and the assessment of PFAS migration through surface water and groundwater from the base (Senversa, 2023b), source areas were categorised by their significance of contribution to PFAS discharge from the base. Source areas where high PFAS concentrations and/or mass was reported in soil, groundwater and surface water typically have a greater contribution to PFAS movement from the base. The source areas which were identified as key contributors (Senversa, 2018) are:

- SA01 (Mechanical Equipment Operations Maintenance Section [MEOMS] waste disposal)
- SA03 (MEOMS fire truck hose testing)
- SA06 (current fire station)
- SA11 (former AFFF testing area)
- SA14 (grassed area near MEOMS)
- SA16 (grassed area near runway).

Another source area, SA27 (Building 0842), was recently reported to have had accidental releases of spent AFFF. Due to the unquantified nature of potential PFAS contamination in this area, SA27 has recently been included as a potential key source area. The remaining source areas, which are summarised in Table 2 above, were categorised as either moderate or minor contributors to PFAS movement from the base.

The DSI (2017) provided enough data to identify the source areas and their significance, however, further data collection is recommended at key source areas to understand the extent of PFAS contamination that may require remediation to reduce PFAS discharging from the base. Presently, no further action is proposed for the sources area designated as moderate or minor contributors.

PFAS concentrations in surface water and groundwater (in micrograms per litre [µg/L]) for these key source areas are summarised in Table 3.

Table 3. PFAS concentration ranges in surface and groundwater at key source areas

Key Source Area	PFOS+PFHxS concentration ranges in surface water from 2024 (µg/L)	PFOS+PFHxS concentration ranges in groundwater from 2024 (µg/L)
SA01	<0.01 – 34.1*	3.15 – 3.28
SA03	6.55 – 34.1*	284
SA06	13.6 – 65.5	7,680
SA11	0.19	3.23 – 313
SA14	<0.01 – 34.1*	2.65 – 2,260
SA16	0.23	1,590
SA27	Has not been quantified yet	Has not been quantified yet

** This maximum concentration was reported in SW310, an on-base water sample taken from the northwest drain.*

3.2 Transport pathways

The primary pathway for the off-base migration of PFAS contamination is via surface water drainage features, and to a lesser extent, groundwater (Senversa, 2023b). Sediment leaching and sediment transport are not considered to be a major pathway for PFAS discharge from the base.

The surface water drainage network present on-base is extensive and collects surface water flowing from two different catchments: the Western Catchment and the Eastern Catchment. Together, these two catchments meet in the drainage network and discharge from the base through the EMD outlet to the Heart Morass. It is understood that the drainage network has changed with redevelopment works in the central area of the base, however, the main drainage channels remain unchanged and discharge from the base at one point, the EMD.

The drainage network for the base and the extent of the catchments are listed below in Table 4 and presented on Figure 2 (Appendix B).

Table 4. PFAS concentration ranges in primary aboveground surface water drains

Primary aboveground drains	PFOS+PFHxS concentration ranges from 2024 (µg/L)
Eastern Main Drain (EMD)	0.89 – 17.8
Western Main Drain (WMD)	0.29 – 2.33
Central Drain (CD)	1.58*
Kitty Hawk Drain (KHD)	0.20 – 0.30
Main Airfield Drain (MAD)	2.59
North Airfield Drain (NAD)	2.33 – 8.36
Northwest Drain (NWD)	<0.01 – 34.1

** Most recent data, from 2023 Ongoing Monitoring Report (Stantec, 2024a).*

Surface water has been estimated to comprise approximately 90% of the total PFAS mass discharging from the base (1.27 kilograms [kg]/year). It was determined the Western Catchment contributes 42% of PFAS mass in surface water leaving the base, and the Eastern Catchment contributes 48% (Senversa, 2023b). While sediment can transport PFAS through lateral movement when large amounts of surface water flow occur in the drainage network or overland during flooding events, sediment leaching and transport are not considered major pathways for PFAS discharge from the base (Senversa, 2023b).

Intermittent and localised connection between surface water and groundwater exists across the base and potentially off-base, between UAA and the Heart Morass. The highest concentrations of PFAS were identified in the UAA, with decreasing concentrations in the LAA and then in the HHA. Overall, groundwater was estimated to transport approximately 10% of PFAS mass identified from the base (0.14 kg/year). Surface water and groundwater transport pathways are summarised in Table 5.

Table 5. PFAS transport pathways

Environmental Media	PFAS transport mechanisms
Soil and hardstand material (concrete, asphalt)	Soil movements on-base, such as movement of stockpiles across base from redevelopment projects[1]
	Leaching to surface water during rainfall events
	Vertical leaching to groundwater, through surface water filtration
Sediment	Lateral movement with surface water during rainfall events
	Leaching PFAS to surface water bodies / drainage network
	Lateral movement overland through flooding and rainfall events

Environmental Media	PFAS transport mechanisms
Surface water	Lateral movement through surface water drainage network
Groundwater	Vertical migration of PFAS in surface water to groundwater
	Lateral movement through groundwater towards off-base
	Interaction between groundwater discharging to surface water bodies / drainage network
	Discharge of groundwater through extraction wells off-base

(1) Denotes that all stockpiled material is to be managed in accordance with Defence's PFAS Construction and Maintenance Framework (Defence, 2025) to minimise risk of PFAS transport during stockpile management.

3.3 Receptors and risks

Potential receptors that are considered to have elevated risks associated through complete transport pathways were identified by the HHERA (Senversa, 2018). These risks are summarised below for human health (Table 6) and ecological (Table 7) risk receptors.

Management actions are currently in place to reduce or mitigate human exposure, such as the Environment Protection Authority (EPA) Victoria consumption advice for ducks, fish or eel caught from specific locations in the vicinity of the base. Precautionary advice signage was originally installed in late 2021 and has recently been replaced in 2025 at locations shown on Figure 1, Appendix B. The 2024 HHERA review confirmed that the risk profile for the Management Area had not changed since the 2017 assessment, based on the available OMP data (Stantec, 2024b).

The Victorian Government's response to PFAS is being coordinated by the VIC EPA with relevant Victorian Government Agencies. Further information can be found on their website, https://www.epa.vic.gov.au/and-polyfluoroalkyl-substances-pfas.

Table 6. Human health risks receptors

Location	Receptor	Environmental Media	Exposure Summary
On-base (active)	Intrusive workers	Surface water and shallow groundwater	Direct and incidental contact with impacted surface water and shallow groundwater. The potential risks to on-base intrusive workers can be effectively managed through the use of personnel protective equipment (PPE) and administrative controls employed by Defence (Work Health and Safety Strategy 2025-2028).
On-base (leased)	Human consumption	Meat, offal and milk raised on-base	In high consumption scenarios such as home consumption. There is currently no meat consumption by the grazier farming the on-base cattle or sheep, which is a condition of the lease agreement (i.e. no home consumption of livestock raised at on-base properties). No sheep are present on-base.
Off-base	Human consumption	Duck tissue	Home consumption of duck caught from the Heart Morass, even at low rates (i.e. 1 serve of duck a month), can be an exposure pathway. This exposure is currently managed via EPA Victoria consumption advice.

Location	Receptor	Environmental Media	Exposure Summary
		Fish	Home consumption of fish caught recreationally from the Heart Morass. Public consumption of commercial catch from the Heart Morass (around the EMD outlet only). Recreational consumption of fish is currently managed via VIC EPA's consumption advice. It is understood the Victorian Fisheries Authority (VFA) no longer issues commercial fishing licences in the Heart Morass.
		Eels and carp	Home consumption of eel and carp caught from the Lower Latrobe River bounded by the Heart Morass. This human exposure is managed via VIC EPA's consumption advice.

The HHERA assessed ecological risk by reviewing surface water PFAS concentrations in water bodies surrounding the base. Table 7 summarises the conclusions for direct and indirect exposure to ecological receptors.

Table 7. Ecological risk receptors

Location	Risk	Receptor	Environmental Media	Exposure Summary
On-base	Direct ecological risk	Aquatic biota (flora and fauna)	Surface water	Potentially elevated risks were noted for on-base water bodies (ponds) for both direct exposure and bioaccumulation.
	Bioaccumulation risk			
Off-base	Direct ecological risk	Aquatic biota (flora and fauna)	Surface water	Potentially elevated risk was noted for the Heart Morass and the Dowd Morass. The risk evaluation for Sale Common, Latrobe River, Flooding Creek, Thomson River and Lake Wellington were assessed as low and acceptable.
	Bioaccumulation risk			Potentially elevated risk was noted for the Heart Morass, Sale Common, Dowd Morass, Latrobe River, Flooding Creek and Lake Wellington. The risk evaluation for Thomson River was assessed as low and acceptable.
	Indirect ecological risk	Higher order predators	Biota (flora and fauna)	Elevated risk from consumption of biota from the Heart Morass. Higher order predators may source only a portion of their diet within the Management Area, and the assessment of elevated risk does not necessarily indicate adverse effects.

Potential receptors where the risks were considered low and acceptable by the HHERA (Senversa 2018) include:

- Public consumption of meat, milk or offal raised on-base
- Home and public consumption of meat, milk or offal raised off-base
- Public consumption of commercially caught fish from the Latrobe River at any rate, or eels and carp at low rates
- Home consumption of fish caught recreationally in the Latrobe River
- Incidental contact with groundwater or surface water in drains either on-base or off-base
- Livestock health either on-base or off-base.

These receptors have been reviewed in the context of subsequent investigations, including the most recent OMP monitoring data (Stantec, 2024b), and the risk profile was not considered to have changed since the HHERA was reviewed (Senversa, 2024).

4 ONGOING MONITORING PLAN

This section sets out the data quality objectives, monitoring scope and assessment requirements for the OMP. Monitoring and sampling locations included as part of this revision of the OMP are listed in Appendix D. Changes made to the 2023 OMP are summarised in the following sections, and supporting rationale is provided in Section 4.4.

4.1 Sampling, analysis and quality plan

A Sampling, Analysis and Quality Plan (SAQP) will be developed prior to implementation of the OMP. The SAQP provides information on data quality assurance procedures and measures including data quality indicators (DQI), sampling methodologies and analytical methods. The SAQP will be updated as required.

4.2 Data quality objectives

The Data Quality Objective (DQO) process is an iterative planning approach used to define the type, quantity and quality of data that is needed to inform decisions relating to the environmental condition of a site. The seven-step DQO process:

- Clarifies the study objective
- Defines the most appropriate collection of data as relevant to the study objective
- Determines the conditions from which to collect data
- Specifies tolerable limits on decision errors, which will be used as the basis for establishing the quantity and quality of data, needed to support the decision.

The DQOs for monitoring are presented in Table 8**.** They have been prepared in line with the DQO process outlined in the ASC NEPM (Schedule B2).

Table 8. Data quality objectives

Process	Description
Step 1: State the problem	Defence and State agencies require up-to-date data on PFAS contamination within the Management Area to enable informed risk management decisions to protect human health and the environment. The PFAS concentrations in surface water off-base, including the water within the Heart Morass are not considered to pose a risk to human health from recreational direct contact. However, PFAS are contributing to elevated risks for sensitive receptors as the PFAS migrates from the base to the Heart Morass. The data collected by implementing this OMP will provide an up-to-date dataset that can be used to assess spatial and temporal changes in PFAS concentrations in environmental media on- and off-base. This will facilitate refinement of the CSM, allow updates of the human health and ecological risk assessment to inform management decisions by Defence and relevant Victorian Government Agencies.
Step 2: Identify the decision/goal of the study	The goal is to establish a systematic routine groundwater, surface water, sediment and biota sampling and analysis program, to provide current and on-going information on the distribution of PFAS and associated risks. Key issues for consideration are:

Process	Description
	• What is the optimal field sampling design (groundwater, surface water, sediment and biota monitoring locations) required to meet the OMP objectives? • What is the suitable analytical suite for each monitoring location? • What frequency of sampling is required? • Are the concentration trends increasing, decreasing or stable? • Are the data reliable and adequate to enable informed risk management decisions to be made by Defence and State or Commonwealth agencies? • Is the approach scientifically suitable and defensible?
Step 3: Identify the information inputs	To inform the assessment required to obtain representative data to meet the objectives of the OMP, inputs will be considered as follows: • Quantitative site characterisation data (historical and current), primarily: - Laboratory analysis results - Field measurements. • Groundwater standing water level (SWL), regional rainfall data and other field observations • Adopted health and ecological assessment criteria • Recommendations made in previous reports and risk assessments.
Step 4: Define the boundaries of the study	The spatial and temporal boundaries that apply for data collection are detailed below and will influence the decision-making process for ongoing monitoring: • The spatial boundary for sample collection is the Management Area, shown in Figure 1 (Appendix B) • The sampling completed as part of the OMP will be limited to groundwater, surface water, sediment and biota at the frequencies defined in Section 4.3 • The monitoring will be ongoing, depending upon the regular review and findings of the OMP and PMAP.
Step 5: Develop the analytical approach/decision rules	Primary environmental samples are to be collected and analysed for the 28 PFAS compounds identified in Appendix F. Perfluorooctane sulfonic acid (PFOS), perfluorohexane sulfonic acid (PFHxS), perfluorobutane sulfonic acid (PFBS) and perfluorooctanoic acid (PFOA) concentrations will be compared against the adopted assessment criteria, in order to detect changes to risk profile. Where required, changes in adopted screening criteria will be reviewed and updated. The concentrations of all analysed PFAS compounds over time in environmental samples will be used to assess changes in the extent or magnitude of contamination.
Step 6: Specify performance or acceptance criteria	A decision error in the context of the decision rule presented in Step 5 would lead to either underestimation or overestimation of the potential risk level associated with a particular location. Specific limits for the works included in the OMP are in accordance with the appropriate guidance made or endorsed by state and national regulations, appropriate indicators of data quality, and standard procedures for field sampling and handling. Decision errors may include: • Limitations in available site history information • Constraints associated with the ability to access certain areas of a site

Process	Description
	• Non-conformance with the sampling plan • Data not representative of site conditions. Trigger points and follow-up actions (if trigger points are met) are provided in Section 7 of this OMP.
Step 7: Develop the plan for obtaining data	The methodology and rationale for obtaining relevant data for the OMP is described in Sections 4.3 and 4.4. Optimisation of the data collection process will be achieved by: • Sampling undertaken by suitably qualified and experienced field staff • Basing the sampling upon a CSM developed using the information available at the creation of the SAQP. Updating the CSM as required as new data becomes available during implementation of the SAQP • Working closely with the analytical laboratories and sampling equipment suppliers to ensure that appropriate field procedures and processes are developed and implemented prior to and during the fieldwork, to ensure that sample handling, and transport to and processing by the analytical laboratories is as smooth as possible • Working closely with Defence to allow safe access to all monitoring locations.

4.3 Proposed monitoring intervals

Monitoring intervals for groundwater, surface water, sediment and biota sampling are summarised in **Table 9**.

Table 9. Proposed monitoring intervals

Matrix	Monitoring Frequency	Approximate Monitoring Period	Rationale
Surface Water (on/off base)	Annually	October-December	Historical PFAS concentrations reported on-base have been relatively consistent. Seasonal flooding of the Heart Morass may influence surface water concentrations (i.e. dilution), however, this is considered to be statistically non-significant. Annual monitoring is considered sufficient for monitoring PFAS concentrations along transport pathways and at identified receptors, and to undertake trigger actions as required. A monitoring period of October-December is recommended, based on the increased likelihood of capturing recent rainfall and surface water flows.
Groundwater (on/off base)	Annually	October-December	Seasonality considered to have negligible effect on PFAS concentrations within groundwater. Annual monitoring is considered sufficient, with ad hoc events interspaced where trigger points are met for further sampling locations. Monitoring recommended in the same period as surface water sampling to assist in the assessment

			of surface water-groundwater interactions along the drainage network and monitor spatial and temporal variations of PFAS concentrations within groundwater.
Sediment (off-base)	Annually	October-December	On-base sediment sampling has been removed, with reported concentrations consistent to historical results and sediment migration is not considered a major pathway (refer Section 3.2). Sediment sampling in off-base monitoring areas is for ongoing assessment of PFAS loading in sediments, and in similar off-base locations to the annual collection of biota sampling.
Biota (off base)	Annually	October-December	Benthic and aquatic invertebrates are to be sampled annually, in order to: • supplement existing concentration data, and • provide an indicator for potential changes in risk to human and ecological receptors.

Since seasonality has minimal influence on PFAS concentrations across each sampling media, conducting surface water sampling in October–December is recommended, as it increases the likelihood of capturing recently generated surface water following a rainfall. Further, it is recommended that all surface water, groundwater and sediment sampling be completed concurrently to generate a 'snapshot' of conditions.

4.4 Monitoring locations

The proposed monitoring locations are shown on Figures 4 to 8 (Appendix B), comprising three monitoring areas as summarised in Section 2.2.

Sample media and the justification for monitoring locations are described in the following sections. Where changes have been made to specific monitoring locations listed in the previous OMP (Senversa, 2023), the rationale and location changes have been provided in Appendix D.

4.4.1 Groundwater monitoring locations

Groundwater monitoring wells identified for ongoing monitoring are presented in Figures 4 and 5 (Appendix B). Selection of groundwater wells for ongoing monitoring included the following rationale:

- Areas of AFFF use and/or storage, identified as key contributor source areas (refer Section 3.1), resulting in known PFAS contamination to shallow groundwater
- Locations considered hydraulically upgradient and downgradient of PFAS source areas
- Along the on-base surface water drainage network, where surface water-groundwater interactions are likely to occur,
- At the base boundary to the northwest, south and southeast, where groundwater leaves the base via the shallow aquifer system, and
- Potable water extraction locations within the off-base monitoring areas

Rationale for the selection of each groundwater monitoring well location is presented in Table D-1 (Appendix D).

During monitoring events, the condition of the monitoring well network will be recorded to assess any changes that may impact the well integrity (requiring well repair or replacement), and therefore data reliability. Where a monitoring well has been damaged or destroyed, then its location within the network should be reviewed for suitability in meeting the DQOs. Alternative monitoring locations (where available) have been identified if the original bore cannot be sampled, as presented on Table D-1 (Appendix D).

Based on review of the current PFAS data, the density of monitoring wells and how locations provide monitoring of exposure risk to receptors, seven groundwater well monitoring locations have been removed from the OMP. One off-base monitoring well (MW744) along the south-west boundary was added to monitor potential PFAS mass heading off-base within the UAA, located just north of MW014 which is understood to be within the Wurruk Sands aquifer (Boisdale formation). A summary of the changes made from the previous OMP (Senversa, 2023a) and the rationale for removing or adding each location are summarised in Table E-1, Appendix E.

It is noted that several groundwater bores selected for ongoing monitoring are private/residential bores. These have been selected to monitor for PFAS at the exposure point in key areas. Off-base monitoring locations will require the agreement of the landholder or leaseholder, refer to Section 8.2, and therefore some location information may not be available in this document.

4.4.2 Surface water monitoring locations

Surface water monitoring locations identified for ongoing monitoring are presented in Figures 6 and 7 (Appendix B) and listed in Table D-2 (Appendix D). On-base sampling locations have been reduced to focus on the cumulative PFAS concentrations heading off-base via the EMD (SW250, SW251 and SW260) and the NWD (SW049). Off-base locations have been nominated to assess concentrations in receiving waterbodies (i.e. the Heart Morass, Latrobe River and Dowd Morass).

A significant reduction in on-base surface water sampling has been identified, with the primary focus to assessing PFAS mass heading off-base from the primary aboveground drains and towards the Heart Morass, which are summarised in Table E-1 (Appendix E). Previous locations are presented in Figure 6 for reference, whereby additional sampling may be considered in response to an identified increasing trend in surface water concentrations along the EMD or WMD. Where a monitoring location cannot be accessed (such as unstable or unsafe access conditions), a suitable alternative location will be determined as close as practically possible to the original location, and sampled during that monitoring round.

As with groundwater sampling, off-base surface water monitoring locations will require the agreement of the landholder/leaseholder prior to sample collection.

4.4.3 Sediment sampling locations

Sediment sampling locations are presented in Figure 8 (Appendix B) and listed in Table D-3 (Appendix D).

Sediment sampling has previously been co-located with surface water samples (Stantec, 2024b). This OMP revision has been updated to target sediment sampling at and around areas of benthic invertebrate sampling, with potential for sediment results to inform benthic invertebrate environment concentrations. All on-base sediment sampling locations have been removed, with risk to on-base maintenance workers considered not significant in the HHERA (Senversa, 2018), and sediment not considered a major transport pathway for PFAS leaving the base (Senversa, 2023). The changes to sediment sampling locations are summarised in Table E-1 (Appendix E).

Sampling should occur at the same time as benthic sampling, and when developed the OMP SAQP should identify a combination of surface sediment sampling and sediment column sampling methodologies, to provide an understanding of the off-base human health and ecological receptor conditions, including benthic invertebrate (refer Section 4.4.4 below).

4.4.4 Biota monitoring locations

Biota monitoring of aquatic invertebrates which inhabit the bottom of water bodies (referred to as 'benthic' organisms) have been included in this OMP revision in order to:

- Supplement existing biota concentration data assessed in the HHERA (Senversa, 2018)
- Provide an indicator for potential changes in risk to human and ecological receptors since the HHERA and subsequent reviews.

The proposed monitoring locations are shown on Figure 8, Appendix B. The OMP focuses on benthic invertebrate biota because:

- Their benthic habitat (i.e., bottom of the water body) makes them likely to reflect changes in PFAS concentration over time which can demonstrate temporal variability
- Unlike other biota present (i.e. finfish, eels, waterfowl) in the monitoring area, benthic organisms are not migratory or have large home areas and therefore represent more local, in-situ PFAS concentrations within their habitat
- Invertebrates are expected to be relatively cost effective and accessible to sample
- Invertebrates are a potential food source for both human consumption (e.g. shrimp, molluscs, crayfish) and ecological (e.g. fish and ducks that feed on benthic invertebrates) receptors, and can therefore serve as a proxy indicator of potential exposure risk for humans and higher-order animals.

Biota sampling will be incorporated into the OMP SAQP, with appropriate permits and approvals obtained prior to sample collection. Whole invertebrate samples will be collected to reflect the potential consumption of biota, with the exception of bivalves (i.e. mussels) where the shell will be discarded. The SAQP, when prepared, will include specific details regarding sampling locations, sample collection methods, target species and sampling preparation methods. This will be consistent with invertebrate sample collection previously undertaken for the HHERA (Senversa, 2018).

Targeted biota will be based on:

- Those that are potential target species for human consumption
- Those that are potential prey for higher-order predators (e.g. waterbirds and predatory fish)
- Those collected in previous assessments to allow for comparisons.

As presented in Table 10 below, sampling events will aim to collect at least 10 invertebrate samples from the EMD, and separately, at least 10 invertebrate samples from the main body of the Heart Morass. These areas are targeted based on where the highest concentrations have previously been reported within the EMD, around the EMD outlet into the Heart Morass, and also within upstream and downstream locations of the Heart Morass.

The target areas for biota sampling are presented in Figure 8, Appendix B.

Table 10. Minimum target sample sizes

Sampling locations	Total target samples for this location	Intent of these samples
Eastern Main Drain	Minimum 10 samples, any combination of: • small invertebrates • bivalves • shrimp • crayfish	Accurate characterisation of invertebrate biota concentrations within the EMD.
The Heart Morass	Minimum 10 samples, any combination of: • small invertebrates • bivalves • shrimp • crayfish	Accurate characterisation of invertebrate biota concentrations within the Heart Morass.

The collection of the identified samples size is intended to allow:

- Review for changes in risk profile from the previous biota sampling in the HHERA
- Improved estimation of exposure risk, and
- Comparison of biota concentrations between the EMD and areas of the Heart Morass.

4.5 Sample analysis

Samples will be analysed by a National Association of Testing Authorities (NATA) accredited laboratory for a suite of PFAS as outlined in Appendix F, using NATA accredited methods.

Biota samples are to be analysed as wet-weight, to allow comparison with relevant screening criteria. For consistency with previous events, invertebrates will be combined as composite samples to meet laboratory minimum tissue weight requirements (0.5 grams), with composite samples comprising macroinvertebrates to a family level.

Laboratory levels of reporting (LORs) must be selected to achieve the OMP objectives (Section 1.2) and the DQO's. The rationale for selecting LORs below the standard LOR must be provided.

Quality control and quality assurance measures will be outlined within the SAQP.

In addition to PFAS, field measurement of water quality parameters such as pH, electrical conductivity (EC), redox potential, dissolved oxygen (DO), temperature, total dissolved solids, salinity, and turbidity (where feasible) will be undertaken on all surface and groundwater samples.

5 OTHER ASPECTS

To inform updates to the CSM and allow assessment of the risk profile and meet OMP objectives, a review of other program elements will be undertaken including water use surveys, registered bore/well searches, changes in land use zoning and any changes in land use on and off-base.

Information included within the water use surveys completed by residential stakeholders will inform how much and for what purposes residents may use their bore water, informing potential exposure risk and subsequent actions.

There is also a requirement for the OMP to consider works being undertaken or planned to be undertaken at the base. This additional information may also be considered as relevant to the CSM and/or assessment of the risk profile. This will be assessed as arises and may include:

- Directorate of Contamination Assessment Remediation and Management (DCARM) remediation or investigation projects including Water Quality Monitoring Programs
- Estate and Infrastructure Group (E&IG) projects
- Capital Facilities Infrastructure (CFI) project and/or medium works projects.

Future infrastructure works or stockpile movement and disposal may enable opportunistic sampling or access to previously inaccessible areas. This opportunistic sampling may assist in addressing any remaining data gaps and support remediation activity planning.

Noting that the PMAP and OMP documents function together, regular review and revision of the OMP is required to ensure that data collected is adequate to meet the objectives of the PMAP and assess whether risk management actions remain appropriate.

6 PFAS SCREENING CRITERIA

PFAS screening values have been adopted for groundwater, surface water and biota from the PFAS NEMP (HEPA, 2025) and NHMRC (2025).

The adopted screening criteria for groundwater and surface water to protect environmental values are provided in Table 11 and should be reviewed and updated annually as and when changes to guidance occurs.

The maintenance of ecosystems screening criteria was adopted based on the following rationale, consistent with Senversa (2018):

- On-site (classed as slightly to moderately disturbed): 95% species protection levels for assessment of direct toxicity effects to aquatic ecosystems, and 99% species protection levels for assessment of potential bioaccumulation
- Off-site wetland areas (classed as high conservation value / largely unmodified): 99% species protection levels for assessment of direct toxicity, and 99% species protection levels for assessment of potential bioaccumulation
- Off-site Latrobe and Thomson Rivers and Lake Wellington: 95% species protection for assessment of direct toxicity, and 99% species protection levels for assessment of potential bioaccumulation.

Table 11. Groundwater and surface water screening criteria

Analyte	Ecosystems [a] (µg/L)	Recreation water [b] (µg/L)	Drinking water [c] (µg/L)
PFOS	0.00023 (99%) 0.13 (95%)	2	0.008
PFHxS	-		0.03
PFOA	19 (99%) 220 (95%)	10	0.2
PFBS	-	-	1.0

a: NEMP (HEPA, 2025), Table 8: Maintenance of Ecosystems (Modified Ecosystems) Freshwater.
b: NHMRC (2019), Recreational water quality guideline for human health exposure.
c: NHMRC (2025), Australian Drinking Water Guidelines, updated June 2025. Note, this version introduced separate criteria for PFOS and PFHxS, and new criteria for PFBS.

The assessment of benthic invertebrates will be undertaken as an indicator for PFAS exposure to human and ecological health, given the biota do not migrate out of the monitoring area (unlike fish and ducks). Screening values have been adopted for the assessment of invertebrate biota for human consumption (FSANZ, 2017) and predatory ecological receptors (HEPA, 2025), as listed in Table 12.

Table 12. Biota screening criteria

Description	PFAS	Human health [a] (µg/kg)	Ecological [b] (µg/kg)
Crustaceans*	Sum of PFHxS + PFOS	65	-
	PFOA	520	-
Mammalian Diet	Sum of PFHxS + PFOS	-	3.1
	PFOA	-	2.8

Avian Diet	Sum of PFHxS + PFOS	-	8.2
	PFOA	-	2.4

a: Perfluorinated Chemicals in Food (FSANZ, 2017) proposed trigger point for investigation, human consumption derived for children 2-6 years, median consumption

b: NEMP (HEPA, 2025), Table 7: Biota guideline values.

** Organisms occasionally consumed by humans; noting that Senversa (2018) invertebrate samples predominantly contained insects which are not typically consumed by humans.*

It is noted that there are no current Australian regulatory endorsed assessment criteria for risk posed to ecological or human health receptors by PFAS in sediment. Sediment results will be compared to historical values to evaluate consistency within historical ranges.

7 TRIGGERS FOR ACTION AND REVIEW

Trigger points, response actions and supporting rationale are outlined in Table 13. Triggers may prompt actions such as additional, or modified monitoring regimes, additional assessment of risk and review of the PMAP. The trigger response actions have been determined to ensure that they are relevant, actionable and commensurate with identified risks.

Table 13. OMP trigger points

Location	Trigger Point	Action
Surface water locations	An increasing trend in concentration and/or the concentration increases by an order of magnitude.	• Request the analytical laboratory to reanalyse the sample to verify detection • Consider the likely source of mass increase (i.e. EMD, WMD or both) • Consider additional surface water samples • Further assessment of the data to determine whether updates to the CSM and/or risk profile are required
Off-base residential bores		• Request the analytical laboratory to reanalyse the sample to verify detection • Further assessment of the data to determine whether updates to the CSM and/or risk profile are required • Confirm outcomes of the water use survey, determine if any changes in the exposure scenario
Sediment sampling locations within the Heart Morass monitoring area		• Request the analytical laboratory to reanalyse the sample to verify detection • Consider the likely source of mass increase (i.e. sediment load from water movement in Heart Morass) • Review surrounding sediment samples to assess concentration variability
Off-base surface water and groundwater locations	First time detection of PFAS in groundwater/ surface water	• Assess if first time detection is related to decreased LOR. • Request the analytical laboratory to reanalyse the sample to verify detection • Collect a confirmatory sample • Review data in sentinel wells, downgradient of base boundary across UAA, LAA and HHA aquifers • Consider increasing the frequency of monitoring • Consider additional sampling locations
Groundwater locations MW312 and MW321, located along the southeastern boundary and screened within the HHA	New exceedances reported	• Request the analytical laboratory to reanalyse the sample to verify detection • Collect a confirmatory sample • Consider increasing the frequency of monitoring • Consider additional sampling locations

All groundwater and surface water locations	Updated regulatory guidelines and relevant changes to adopted screening criteria	• Consider where analysis at a lower LOR may be required in locations to adequately assess for complete or potentially complete exposure pathways • Consider further surface water and groundwater sampling locations that may be required to determine the extent of contamination to the revised guideline values • Review all ambient groundwater and surface water sampling locations to advise where additional analysis of PFAS at a lower LOR may be required to understand ambient PFAS condition
Off-base properties	Change in land use and/or groundwater use	• Further assessment of the data to determine whether updates to the CSM and/or risk profile are required • Confirm outcomes of the water use survey, determine if any changes in the exposure scenario
All monitoring areas for all media	Completion of Mass Flux and HHERA Review.	• Revisit DQOs and evaluate appropriate frequency and location of monitoring locations for future monitoring.

8 REPORTING REQUIREMENTS

8.1 Reporting

After each monitoring event, information, field and laboratory data and any required changes to the SAQP will be documented in a sampling event report.

At the end of a specified monitoring period (typically 12 months but may vary) the whole data set (including the current and historical data) will be reviewed, and an Ongoing Monitoring Report (OMR) prepared.

The OMR will report on the objectives of the OMP, which are to identify and evaluate:

- Spatial and temporal variability of PFAS in the environment
- Changes to sources, transport pathways or receptors, described as a conceptual site model (CSM) for the base
- Changes in risks to human and environmental receptors
- The influence that risk management activities at the base, as outlined in 2026 PMAP, have had on PFAS in the environment, and
- Whether the identified changes trigger a prescribed action and/or review (Section 7).

8.2 Stakeholder engagement

Engagement with a range of stakeholders, such as the Environment Protection Authority Victoria, Field & Game Australia, Councils, Traditional Owners, other agencies, and the community will be undertaken. A stakeholder engagement plan has been prepared and will be maintained to manage the engagement process.

Where off-base monitoring is undertaken, a separate letter will be provided to the stakeholder presenting the results of the monitoring event for locations on their property.

The OMP will be published on the Defence website, along with the current PMAP and OMRs.

APPENDIX A REFERENCES

Australian Government Bureau of Meteorology - (Station 85072)

Department of Defence (2018), *RAAF Base East Sale PFAS Management Area Plan*, dated August 2018.

Department of Defence (2026), *RAAF Base East Sale PFAS Management Area Plan Revision 1,* dated December 2025.

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Stantec [formerly Cardno] (2024b), *PFAS OMP Factual Report, Annual Sampling Event November 2023, RAAF Base East Sale*, dated 8 May 2024.

West Gippsland Catchment Management Authority (WGCMA, 2025), *West Gippsland Regional Catchment Strategy – Gippsland Lakes and Hinterland, https://westgippsland.rcs.vic.gov.au/local-areas/local-area-3/ accessed 21 October 2025*.

APPENDIX B FIGURES

Figure 1 – Site Location and Monitoring Areas

Figure 2 – Drainage Channels and Catchments

Figure 3 – PFAS Source Areas

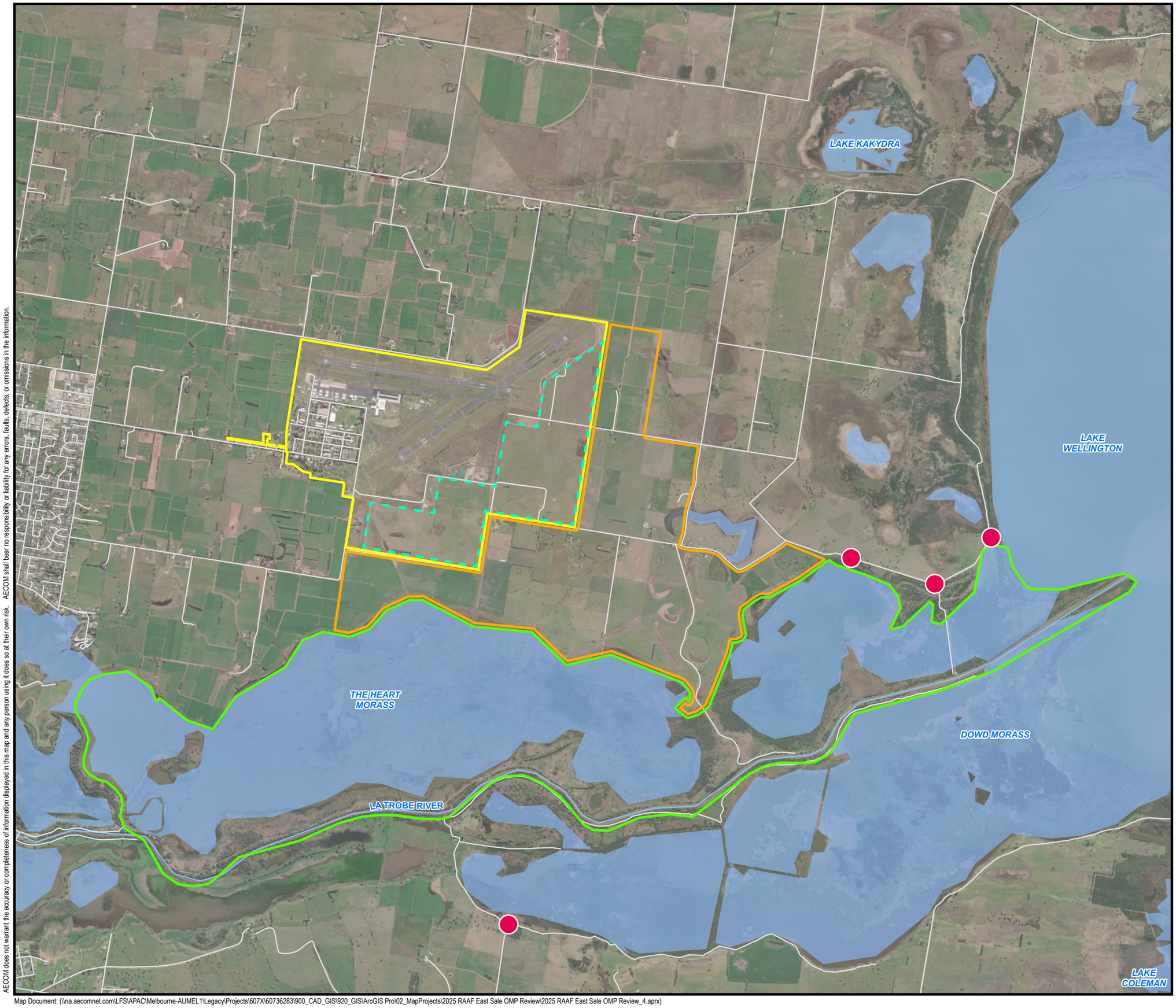
Figure 4 – On-base Groundwater Monitoring Network

Figure 5 – Off-base Groundwater Monitoring Network

Figure 6 – On-base Surface Water Monitoring Network

Figure 7 – Off-base Surface Water Monitoring Network

Figure 8 – Off-base Sediment and Biota Sampling Locations



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LEGEND

- Base Management Area
- Base Management Area: Leased Land
- Off-site Monitoring Area: Heart Morass
- Off-site Monitoring Area
- Waterbodies
- Roads
- Rivers and Streams
- Precautionary Signage Locations

Data sources:
Disclaimer:
StreetPro © 2011 Pitney Bowes Software Pty Ltd. All rights reserved
Base Data: © Nearmap

SITE LOCATION, MANAGEMENT AREA AND MONITORING AREAS

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure

1

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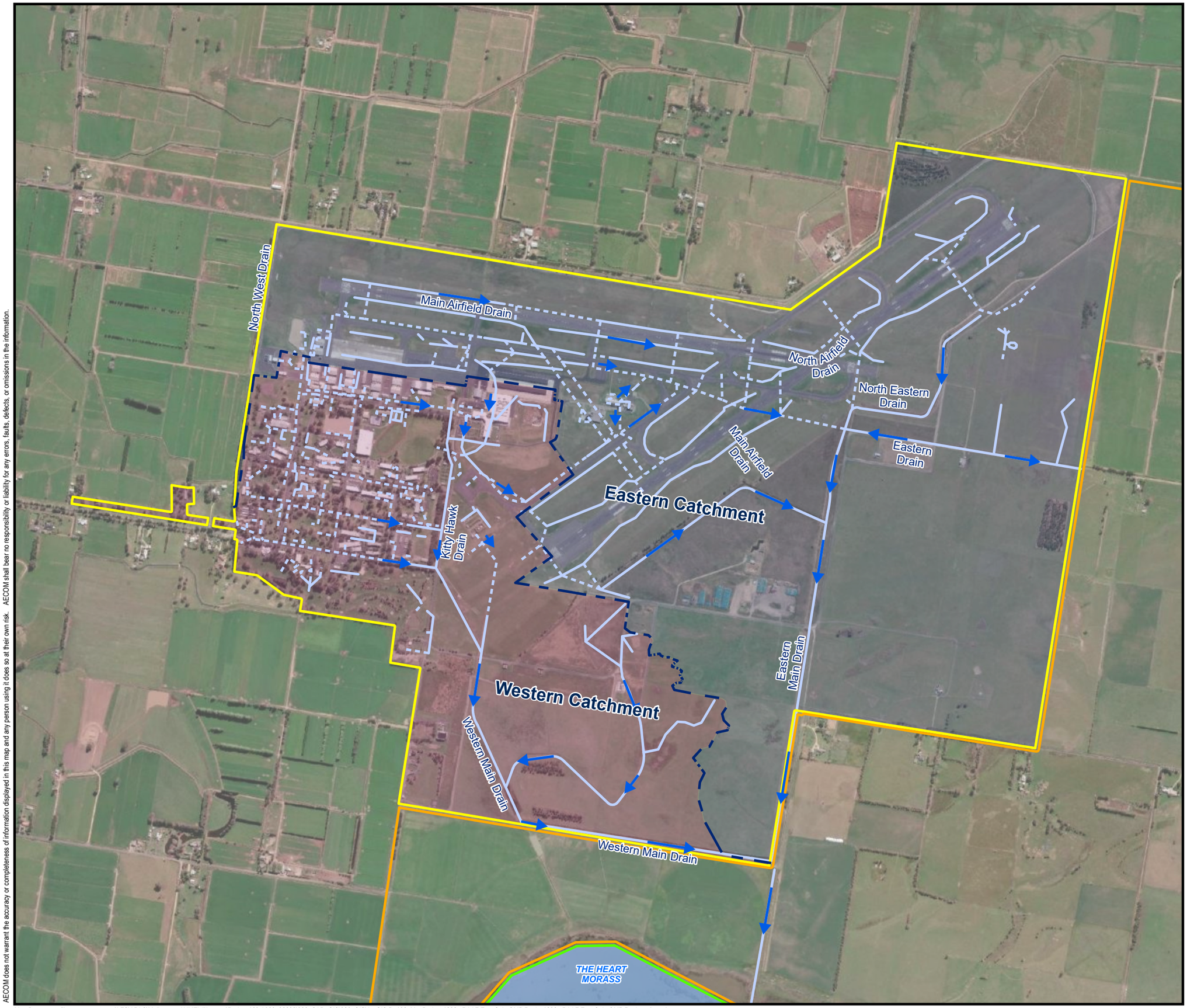

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LEGEND

- Base Management Area
- Off-site Monitoring Area: Heart Morass
- OffsiteMonitoringArea
- Western Catchment
- Eastern Catchment
- Waterbodies
- Open Drain
- Closed Drain
- Catchment Boundary
- Inferred Surface Water Flow Direction

Data sources:
Disclaimer:
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Base Data: © Nearmap World Terrain Base: Vicmap, Esri, TomTom, Garmin, FAO,

DRAINAGE CHANNELS

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure 2

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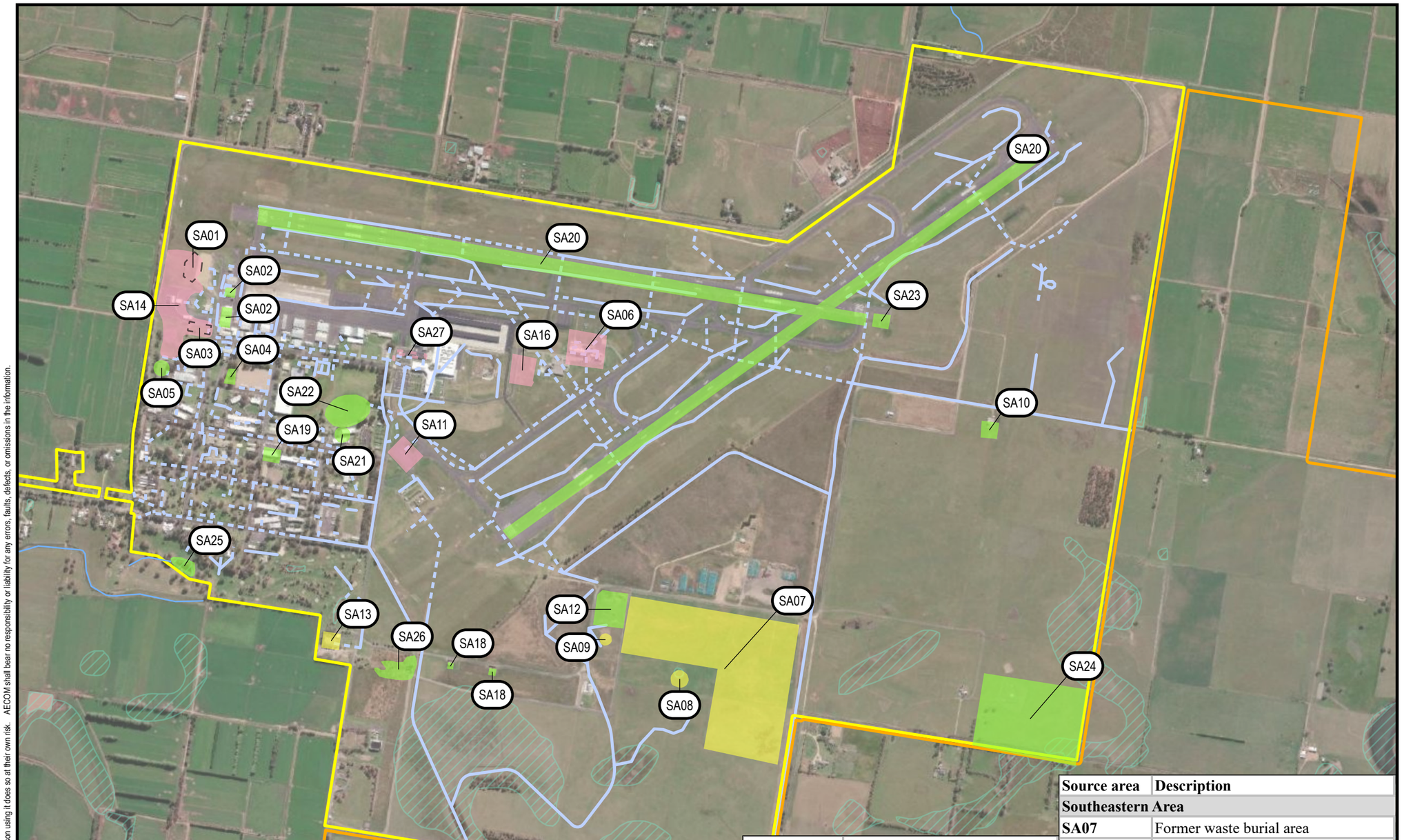

Source area	Description
Northwestern Area	
SA01	MEOMS waste disposal
SA02	MEOMS operational area
SA03	MEOMS fire truck hose testing
SA04	Former fire station
SA05	Chemical storage area
SA14	Grassed area near MEOMS
SA15	Grassed area near fire station
Central Area	
SA06	Current fire station
SA11	Former AFFF testing area
SA16	Grassed area near runways
SA19	Former refuelling area
SA27	Accidental spent AFFF releases at Building A0842

Source area	Description
Southeastern Area	
SA07	Former waste burial area
SA08	Former fire training area
SA09	Former fire training area
SA10	Former fire training area
SA12	4WD training track
SA13	Former sewage treatment plant and fire training
SA18	Revetments
Diffuse sources	
SA17	Stormwater drains
SA20	Runways
SA21	Football club
SA22	Oval
SA23	Mirage crash
SA24	Former waste burial area (southeast)
SA25	Lake Edward
SA26	Concrete and rubble stockpile

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LAST MODIFIED CummingsL 01 SEP 2025

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N

DATUM GDA 1994, PROJECTION MGA ZONE 54

0 400 800
metres
(when printed at A3)

1:15,345

LEGEND

- Base Management Area
- Off-site Monitoring Area: Heart Morass
- OffsiteMonitoringArea
- Waterbodies
- Area Subject to Inundation
- Open Drain
- Closed Drain
- Watercourse

Contribution to PFAS off-base migration

- Key contributor
- Moderate contributor
- Minor contributor
- Has not been quantified yet

Data sources:
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Base Data: © Nearmap World Terrain Base: Vicmap, Esri, TomTom, Garmin, FAO,

POTENTIAL PFAS SOURCE AREAS

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure 3

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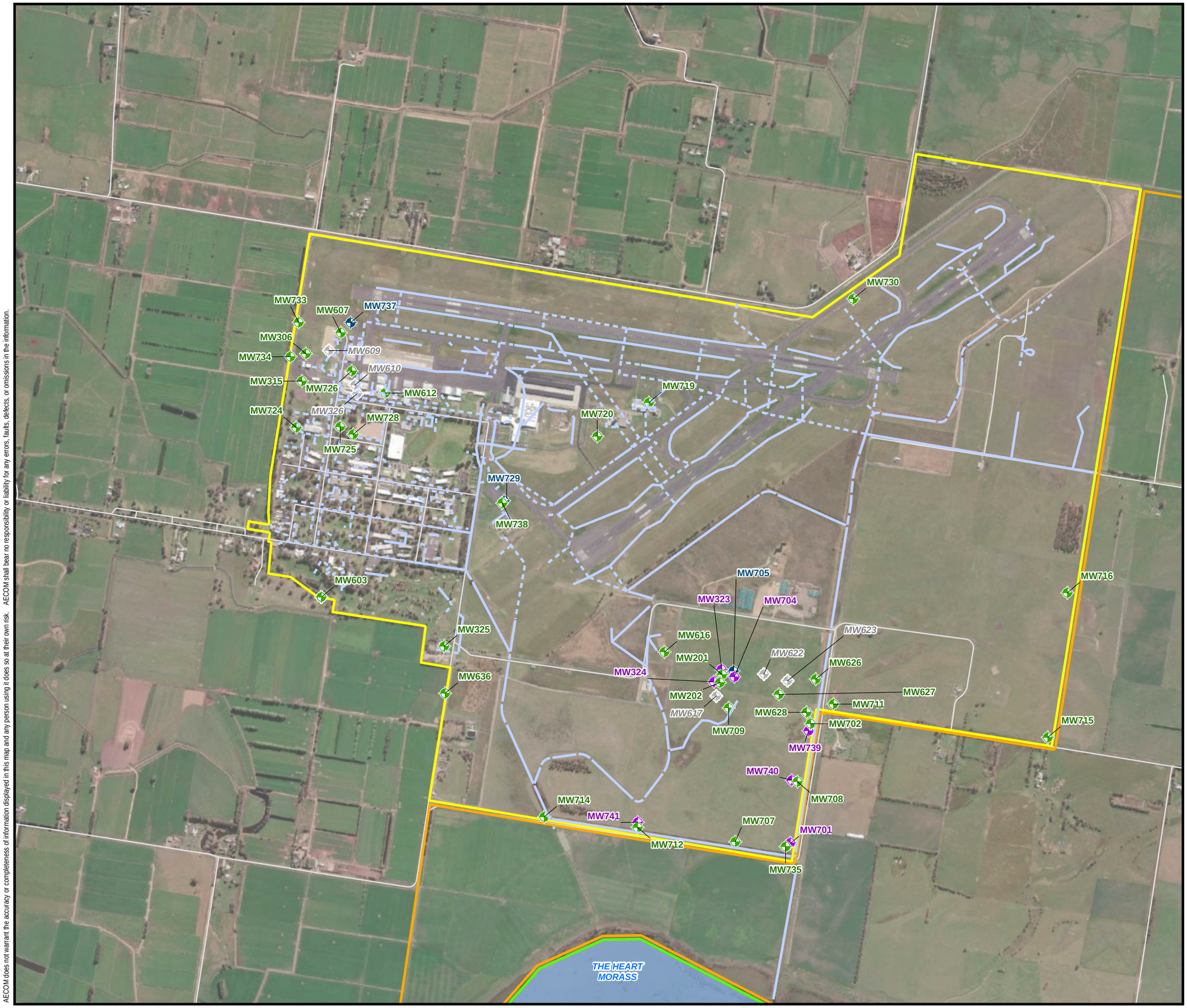
A3 size



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DATUM GDA 1994, PROJECTION MGA ZONE 54

0 250 500 750
metres
1:15,686 (when printed at A3)

LEGEND

- Base Management Area
- Off-site Monitoring Area: Heart Morass
- Off-site Monitoring Area
- Drainage
- Waterbodies
- Open Drain
- Closed Drain

Groundwater Monitoring Well

- Haunted Hills Formation Aquifer
- Lower Alluvial Aquifer
- Upper Alluvial Aquifer
- Previous Monitoring Well Location

Data sources:
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ON-BASE GROUNDWATER MONITORING NETWORK

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure
4

A3 size

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DATUM GDA 1994, PROJECTION MGA ZONE 54

0 250 500 750
metres
1:16,590 (when printed at A3)

LEGEND

- Base Management Area
- Off-site Monitoring Area: Heart Morass
- Off-site Monitoring Area
- Drainage
- Waterbodies
- Open Drain
- Closed Drain

Groundwater Monitoring Well

- Haunted Hills Formation Aquifer
- Lower Alluvial Aquifer
- Upper Alluvial Aquifer
- Boisdale Formation (Wurruk Sands)
- Extraction well - unknown aquifer

Note: POT034 not shown on figure due to privacy reasons.

Data sources:
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Base Data: © Nearmap

OFF-BASE GROUNDWATER MONITORING NETWORK

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure 5

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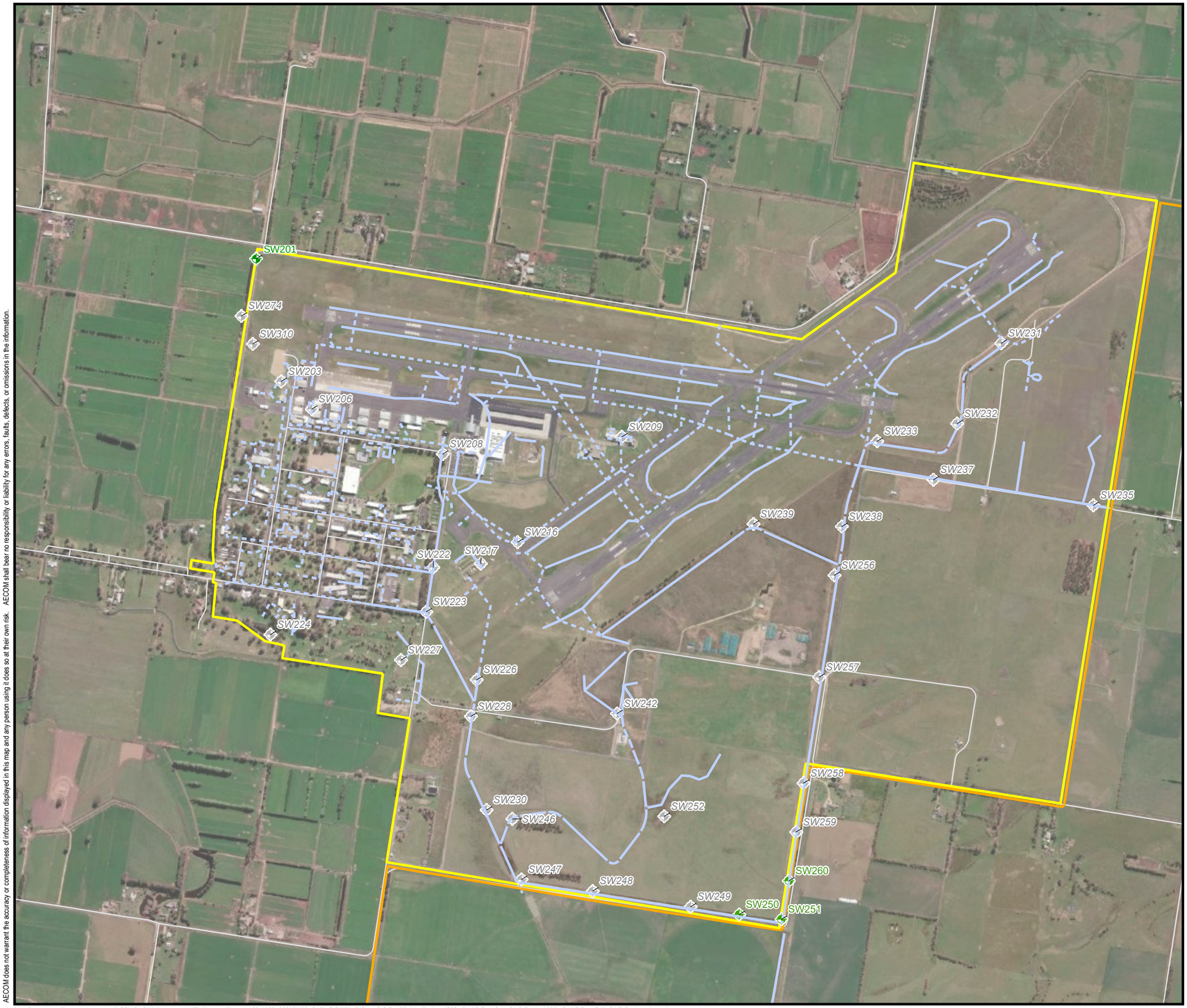

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DATUM GDA 1994, PROJECTION MGA ZONE 54

0 250 500 750
metres
1:14,500 (when printed at A3)

LEGEND

- Base Management Area
- Off-site Monitoring Area
- Drainage
- Open Drain
- Closed Drain
- On-base Surface Water Sampling
- Former Surface Water Sampling Location

Data sources:
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ON-BASE SURFACE WATER MONITORING NETWORK

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure 6

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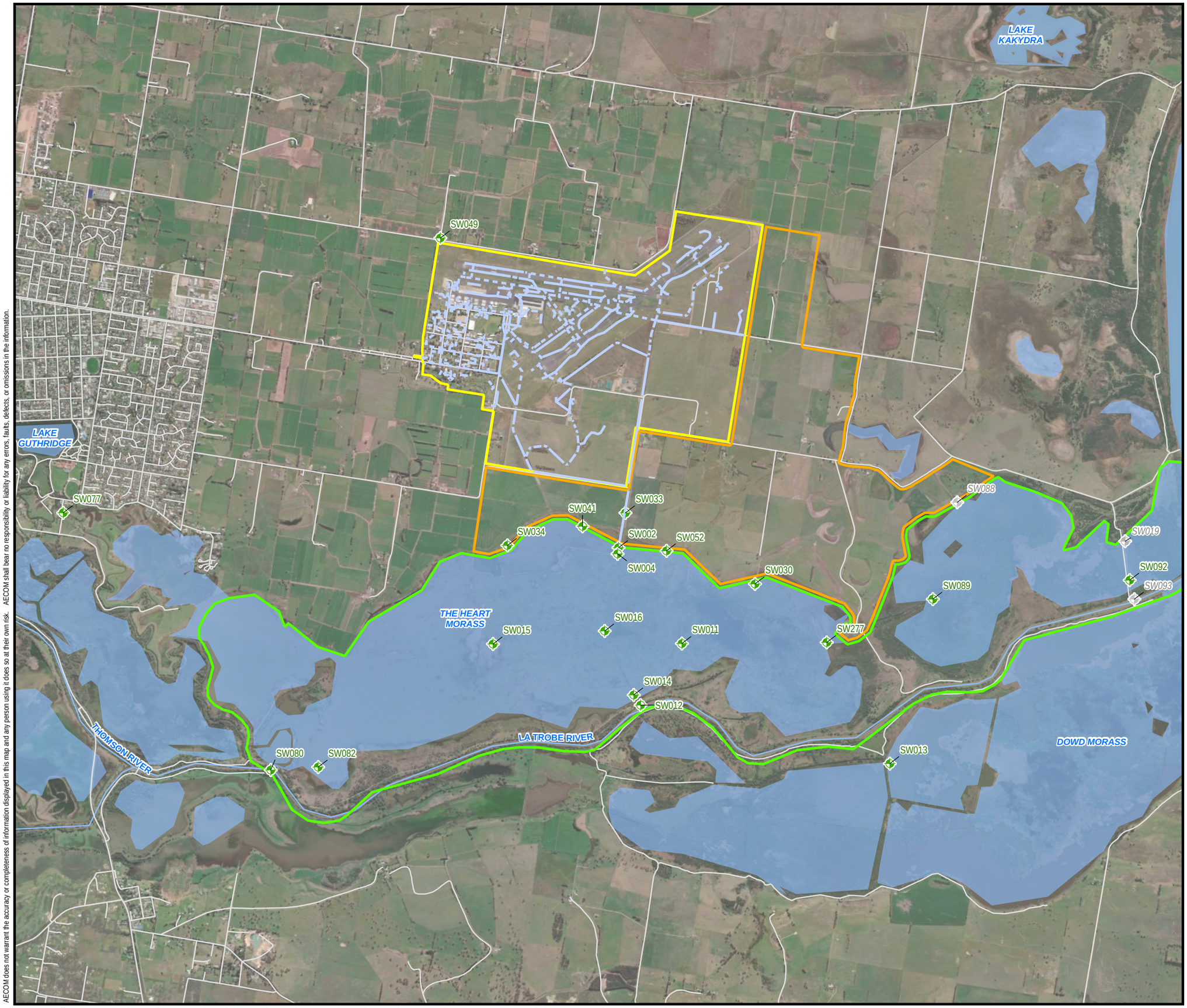
A3 size



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DATUM GDA 1994, PROJECTION MGA ZONE 54

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kilometres
1:40,000 (when printed at A3)

LEGEND

- Base Management Area
- Off-site Monitoring Area: Heart Morass
- Off-site Monitoring Area
- Drainage
- Rivers and Streams
- Waterbodies
- Open Drain
- Closed Drain
- Former Surface Water Sampling Location
- Off-base Surface Water Sampling

Note: SW031 and SW032 not shown on figure due to privacy reasons.

Data sources:
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OFF-BASE SURFACE WATER MONITORING NETWORK

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure
7

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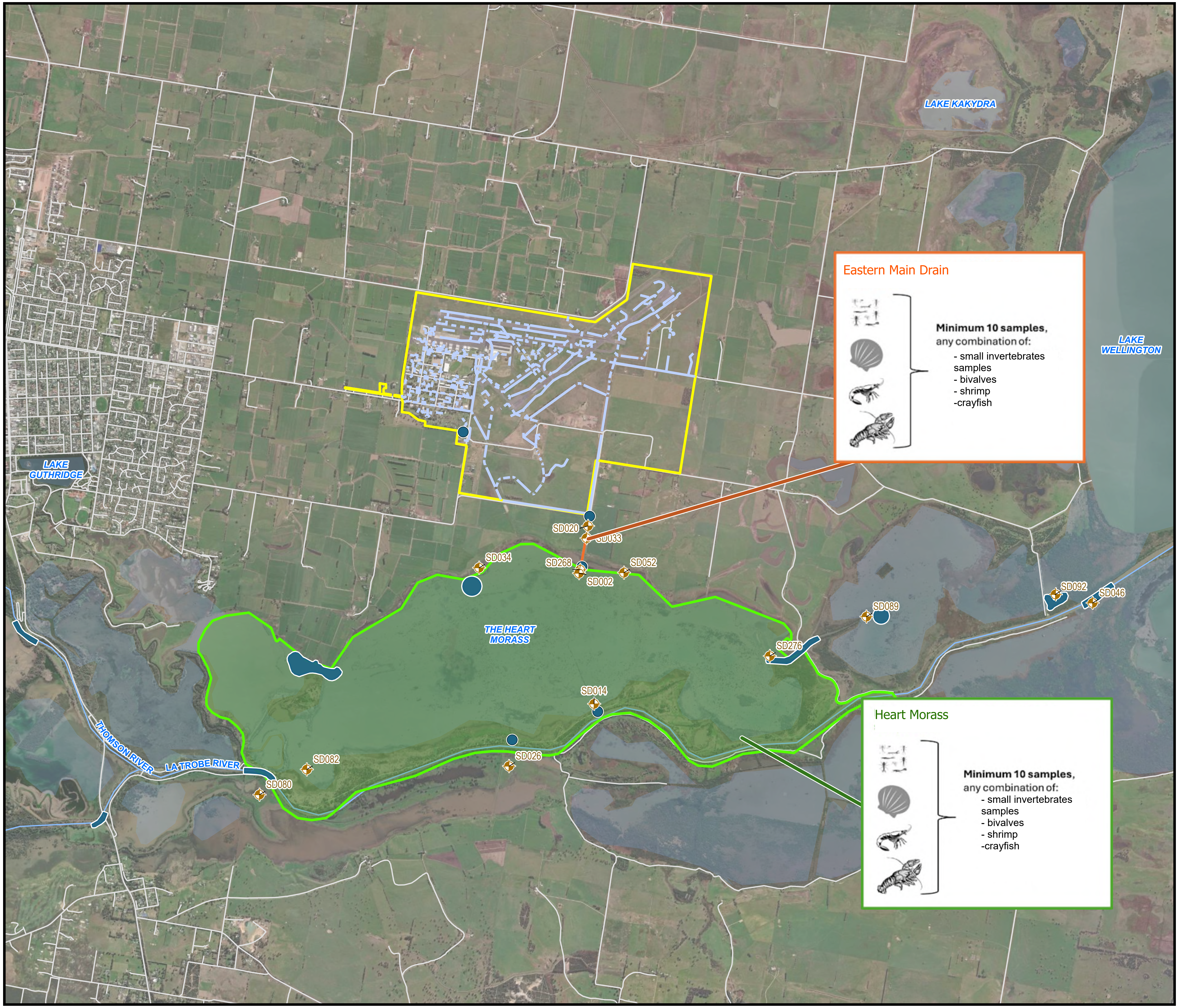
A3 size



PROJECT ID 60736283
CREATED BY StuttA
LAST MODIFIED 13 NOV 2025

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DATUM GDA 1994, PROJECTION MGA ZONE 54

0 1 2
kilometres
1:44,000 (when printed at A3)

LEGEND

- Base Management Area
- Off-site Monitoring Area: Heart Morass
- Waterbodies
- Rivers and Streams
- Drainage
- Open Drain
- Closed Drain
- Eastern Main Drain Biota sampling area
- Heart Morass Biota sampling area
- 2017 – 2018 Senversa sampling location
- Off-base Sediment Sampling

Note: SD032 not on figure for privacy reasons.

Data sources: *Disclaimer:* StreetPro © 2011 Pitney Bowes Software Pty Ltd. All rights reservedBase Data: © Nearmap

OFF-BASE SEDIMENT AND BIOTA SAMPLING LOCATIONS

PFAS Ongoing Monitoring Plan

0937 RAAF Base East Sale

Figure
8

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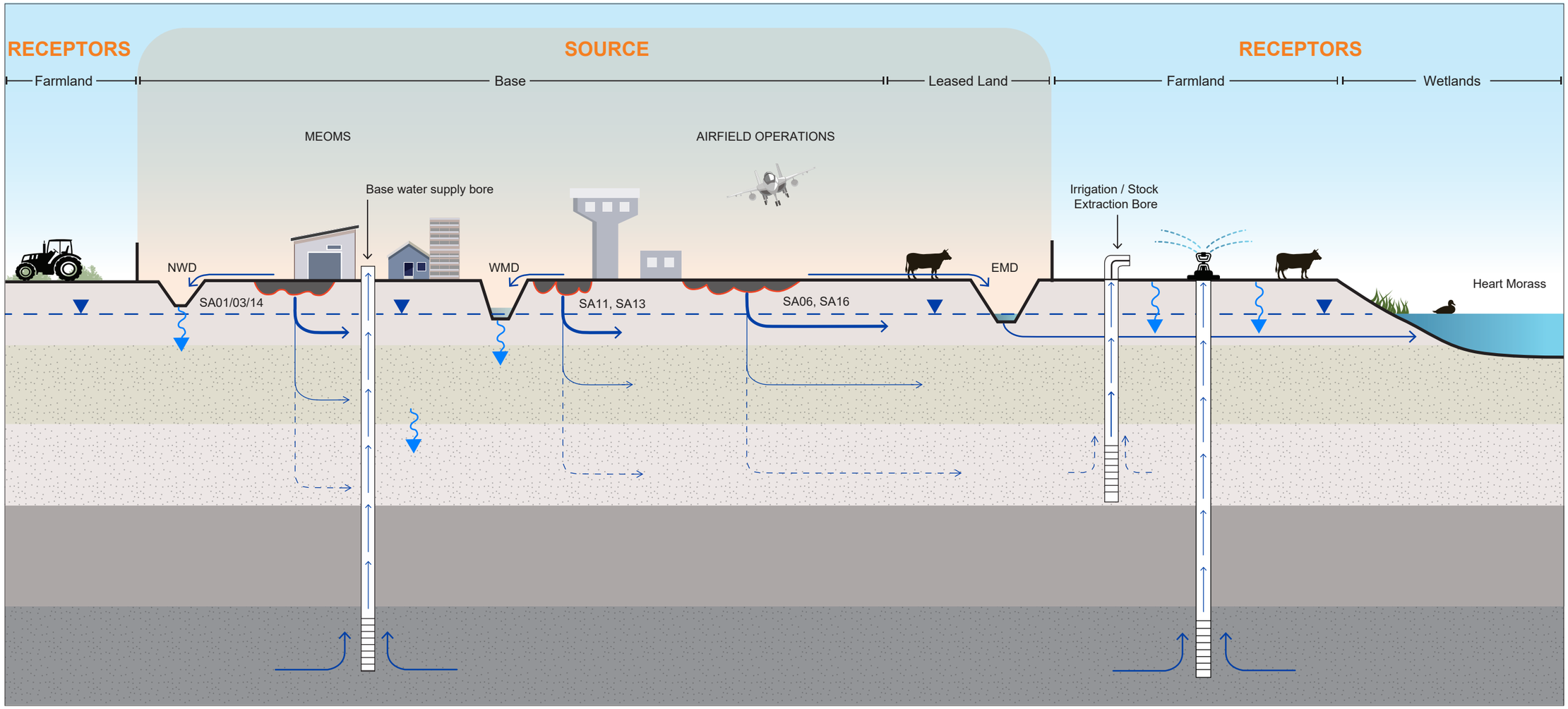
A3 size

APPENDIX C CONCEPTUAL SITE MODEL (CSM)



Not to scale

LEGEND

- Upper Alluvial Aquifer
- Lower Alluvial Aquifer
- Haunted Hills Aquifer
- Nutin Clay Aquitard (Boisdale Formation)
- Wurruk Sand Aquifer (Boisdale Formation)
- Surface water
- Water table
- Groundwater flow
- Key source areas
- Water infiltration

NWD	Northwestern Drain
EMD	Eastern Main Drain
WMD	Western Main Drain
MEOMS	Mechanical Equipment Operations Maintenance Section

PFAS Conceptual Site Model

RAAF Base East Sale

AECOM

APPENDIX D SAMPLE LOCATION INFORMATION

Table D-1 RAAF East Sale Groundwater Monitoring Locations

Frequency	Aquifer	Location Code	Historical Location Code	On/off base	Location	Easting	Northing	Top of well screen (mbgl)	Bottom of well screen (mbgl)	Alternative location if not accessible?	Description
Annual	Upper Alluvial Aquifer	MW016	OMW016	Off-base	East of the off site monitoring area	515852.2	5782566.0	*ND*	*ND*	NSR	Off-site Lower Alluvium Aquifer monitoring
Annual	Upper Alluvial Aquifer	MW201	MW201S	On-base	Onsite Monitoring Area and Management Area. Fire training	512779.6	5781903.3	2	5	MW202, MW617	Targeting the Former Fire Training Area
Annual	Upper Alluvial Aquifer	MW202	MW202S	On-base	Former Fire Training Area	512770.2	5781868.3	2	5	MW201, MW617	Targeting the Former Fire Training Area
Annual	Upper Alluvial Aquifer	MW304	OMW001	Off-base	Former Waste Burial Area (South).	513211.0	5781757.7	*ND*	*ND*	MW628	Downgradient of key PFAS source area
Annual	Upper Alluvial Aquifer	MW306	FF-MW1	On-base	Fuel Farm	510956.5	5783308.3	*ND*	*ND*	MW734, MW609, MW315	Targeting the Fuel farm a potential source of PFAS
Annual	Upper Alluvial Aquifer	MW315	FF-MW3	On-base	Fuel Farm	510938.9	5783188.5	*ND*	*ND*	MW734, MW609, MW306	Targeting the Fuel farm a potential source of PFAS
Annual	Upper Alluvial Aquifer	MW316	OMW004	Off-base	Onsite Monitoring Area and Management Area. Sth boundary	513124.9	5781070.0	*ND*	*ND*	MW735	Downgradient of key PFAS source area
Annual	Upper Alluvial Aquifer	MW325	MW706A	On-base	Current Fire Training area	511562.2	5782027.1	1.7	4.2	MW636	In a potential PFAS source area near the current fire training area
Annual	Upper Alluvial Aquifer	MW603	-	On-base	Onsite Monitoring Area and Management Area, Sth West border	511024.2	5782242.4	3.2	6.2	MW325	Provides data for the general site in the Upper Alluvium Aquifer towards the south west
Annual	Upper Alluvial Aquifer	MW607	-	On-base	Fuel Farm	511109.6	5783399.8	3	6	MW609	Targeting the Fuel farm a potential source of PFAS
Annual	Upper Alluvial Aquifer	MW612	-	On-base	Onsite Monitoring Area and Management Area	511303.6	5783135.9	1.5	6.5	MW326, MW726	Migration of PFAS from the potential source areas to off-site
Annual	Upper Alluvial Aquifer	MW616	-	On-base	Former Fire Training Area	512527.2	5782002.1	2.7	5.7	MW201, MW617	Targeting the Former Fire Training Area
Annual	Upper Alluvial Aquifer	MW626	-	On-base	Former Waste Burial Area (South)	513189.9	5781883.4	2.5	5.5	MW711	Potential PFAS source area the Former Waste Burial Area (South)
Annual	Upper Alluvial Aquifer	MW627	-	On-base	Former Waste Burial Area (South)	513028.7	5781816.3	2	5	MW623	Potential PFAS source area the Former Waste Burial Area (South)
Annual	Upper Alluvial Aquifer	MW628	-	On-base	Former Waste Burial Area (South)	513149.5	5781738.4	2	5	MW304	Potential PFAS source area the Former Waste Burial Area (South)
Annual	Upper Alluvial Aquifer	MW636	MW636(PC9)	On-base	Southwest boundary	511566.4	5781821.5	*ND*	*ND*	MW325	Monitoring of PFAS before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW702	-	On-base	Former Waste Burial Area (South)	513167.8	5781688.4	2	5.1	MW629	Potential PFAS source area the Former Waste Burial Area (South)
Annual	Upper Alluvial Aquifer	MW707	-	On-base	South boundary	512837.6	5781171.3	3	6	MW735	Monitoring of PFAS before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW708	-	On-base	South boundary	513109.7	5781434.2	3	6	MW740	Monitoring of PFAS before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW709	-	On-base	Former Fire Training Area	512808.4	5781757.3	2	5.1	MW617	Targeting the Former Fire Training Area
Annual	Upper Alluvial Aquifer	MW711	-	On-base	Former Waste Burial Area (South)	513267.7	5781774.0	2	5.1	MW626	Potential PFAS source area the Former Waste Burial Area (South)
Annual	Upper Alluvial Aquifer	MW712	-	On-base	South boundary	512409.4	5781234.5	2	5	MW707 MW714	Monitoring of PFAS before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW714	-	On-base	South boundary	512000.5	5781280.4	4	7	MW712	Monitoring of PFAS before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW715	-	On-base	Leased Grazing Land	514206.3	5781628.1	3	6	MW716	Monitoring of PFAS in leased land before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW716	-	On-base	Leased Grazing Land	514291.9	5782261.5	1	4	MW715	Monitoring of PFAS in leased land before the groundwater migrates off-site
Annual	Upper Alluvial Aquifer	MW719	-	On-base	Fire station	512459.2	5783093.5	2	5	MW720	Potential PFAS source area of the fire station
Annual	Upper Alluvial Aquifer	MW720	-	On-base	Grassed Area near Runways	512232.9	5782946.0	2	5.1	MW719, MW738	Potential PFAS source area of the Grassed Area near Runways.
Annual	Upper Alluvial Aquifer	MW724	-	On-base	Chemical Storage Area	510914.2	5782984.9	2	5	MW725 MW726 MW728	Potential PFAS source area of the chemical storage area.
Annual	Upper Alluvial Aquifer	MW725	-	On-base	Former Fire Station	511106.9	5782987.7	3	6	MW726 MW724	Potential PFAS source area of the former fire station.
Annual	Upper Alluvial Aquifer	MW726	-	On-base	MEOMS - Operational Areas	511157.7	5783232.4	1.5	4.5	MW724 MW725	Potential PFAS source area of the MEOMS - Operational Areas
Annual	Upper Alluvial Aquifer	MW728	-	On-base	Grassed Area near Fire Station	511164.1	5782955.1	3	6	MW725	Potential PFAS source area of the Grassed Area near Fire Station
Annual	Upper Alluvial Aquifer	MW730	-	On-base	North boundary	513354.1	5783548.3	2	5	NSR	Upgradient from most sources of PFAS on-site.
Annual	Upper Alluvial Aquifer	MW733	-	On-base	Grassed Area near MEOMS	510924.9	5783445.0	0.8	3.8	MW609, MW607	Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Grassed Area near MEOMS.
Annual	Upper Alluvial Aquifer	MW734	-	On-base	Grassed Area near MEOMS	510888.8	5783295.2	1	4	MW406, MW609	Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Grassed Area near MEOMS.
Annual	Upper Alluvial Aquifer	MW735	-	On-base	South boundary	513058.0	5781149.9	2	5.1	MW316, MW707	To monitor any PFAS concentrations in the Upper Alluvium Aquifer, before the groundwater migrates off-site.
Annual	Upper Alluvial Aquifer	MW738	-	On-base	AFFF Testing Area	511824.2	5782662.4	2	5	MW720	Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Grassed Area nearAFFF Testing Area
Annual	Upper Alluvial Aquifer	MW744	Bore 11528	Off-base	Southeast Boundary	513173.4	5781444.0	*ND*	*ND*	NSR	To monitor any PFAS concentrations in the Upper Alluvium Aquifer, before the groundwater migrates off-site
Annual	Lower Alluvial Aquifer	MW008	OMW008	Off-base	Off-site monitoring Area, south	511446.2	5780968.7	*ND*	*ND*	NSR	Targeting the Lower Alluvium Aquifer off base and downgradient of hydrological gradient
Annual	Lower Alluvial Aquifer	MW010	OMW010	Off-base	Off-site monitoring Area, north	511002.0	5783849.0	*ND*	*ND*	NSR	Targeting the Lower Alluvium Aquifer off base and upgradient of hydrological gradient
Annual	Lower Alluvial Aquifer	MW015	OMW015	Off-base	East of the off site monitoring area	515845.8	5782565.4	*ND*	*ND*	NSR	Off-site Upper Alluvium Aquifer monitoring
Annual	Lower Alluvial Aquifer	MW310	OMW002	Off-base	Former Waste Burial Area (South).	513211.6	5781759.7	*ND*	*ND*	MW739	Targeting east of the Fuel farm a potential source of PFAS, screening in the Lower Alluvium Aquifer
Annual	Lower Alluvial Aquifer	MW323	MW201A, MW201d	On-base	Former Fire Training Area	512779.6	5781904.8	7	8	MW324	Targeting the Lower Alluvium Aquifer, in a potential PFAS source area the former fire training area
Annual	Lower Alluvial Aquifer	MW324	MW202A, MW202d	On-base	Former Fire Training Area	512769.5	5781869.3	7	8	MW323	Targeting the Lower Alluvium Aquifer, in a potential PFAS source area the former fire training area
Annual	Lower Alluvial Aquifer	MW701	-	On-base	South boundary	513061.4	5781149.5	7.5	10.5	MW318	To monitor any PFAS concentrations in the Lower Alluvium Aquifer, before the groundwater migrates off-site
Annual	Lower Alluvial Aquifer	MW704	-	On-base	Former Fire Training Area	512833.2	5781892.9	7.5	10.5	MW323	Targeting the Lower Alluvium Aquifer, in a potential PFAS source area the former fire training area
Annual	Lower Alluvial Aquifer	MW739	-	On-base	Former Waste Burial Area (South)	513167.5	5781682.7	5.7	8.7	NSR	Targeting the Lower Alluvium Aquifer, in a potential PFAS source area the Former Waste Burial Area (South)
Annual	Lower Alluvial Aquifer	MW740	-	On-base	Southeast Boundary	513105.8	5781435.3	7	10	MW708	To monitor any PFAS concentrations in the Lower Alluvium Aquifer, before the groundwater migrates off-site
Annual	Lower Alluvial Aquifer	MW741	-	On-base	South Boundary	512409.9	5781237.1	7	10	MW701	To monitor any PFAS concentrations in the Lower Alluvium Aquifer, before the groundwater migrates off-site
Annual	Haunted Hills Formation Aquifer	MW009	OMW009	Off-base	Off-site monitoring Area, south	511446.8	5780970.1	*ND*	*ND*	NSR	Targeting the Haunted Hills Aquifer off base and downgradient of hydrological gradient
Annual	Haunted Hills Formation Aquifer	MW312	OMW003	Off-base	Former Waste Burial Area (South).	513212.4	5781761.7	*ND*	*ND*	NSR	Targeting east of the Fuel farm a potential source of PFAS, screening in the Haunted Hills Aquifer
Annual	Haunted Hills Formation Aquifer	MW321	OMW006	Off-base	Offsite south east boundary	513128.9	5781069.5	*ND*	*ND*	NSR	Downgradient from PFAS sources, screening in the Haunted Hills Aquifer
Annual	Haunted Hills Formation Aquifer	MW705	-	On-base	Former Fire Training Area	512830.2	5781894.7	12.5	15	NSR	Targeting the Haunted Hills Aquifer, in a potential PFAS source area the former fire training area
Annual	Haunted Hills Formation Aquifer	MW729	-	On-base	AFFF Testing Area	511823.5	5782660.9	12	15	NSR	Targeting the Haunted Hills Aquifer, in a potential PFAS source area the Grassed Area nearAFFF Testing Area
Annual	Haunted Hills Formation Aquifer	MW737	-	On-base	MEOMS - Waste Disposal	511152.1	5783442.4	15	18	NSR	Targeting the Haunted Hills Aquifer, in a potential PFAS source area the MEOMS - Waste Disposal
Annual	Boisdale Formation (Wurruk Sands)	MW014	OMW014	Off-base	Off-site monitoring Area, south	513147.5	5781319.0	*ND*	*ND*	NSR	State Observation bore, inferred monitoring of the Boisdale Formation, ~120 m deep
Annual	Extraction well - unknown aquifer	MW302	P011-OEW001	Off-base	Off-site East Boundary	514173.3	5781409.3	*ND*	*ND*	NSR	Point of Use - bore construction details unknown
Annual	Extraction well - unknown aquifer	MW319	P003_OEW005	Off-base	Off-site South Boundary	511977.4	5781197.6	*ND*	*ND*	NSR	Point of Use - bore construction details unknown
Annual	Extraction well - unknown aquifer	POT027	P001-OEW001	Off-base	Off-site East Boundary	514450.5	5782308.5	*ND*	*ND*	POT50	Point of Use - bore construction details unknown
Annual	Extraction well - unknown aquifer	POT034	P028-OEW001	Off-base	Off-site East Boundary	-	-	*ND*	*ND*	NSR	Point of Use - bore construction details unknown, restricted location information
Annual	Extraction well - unknown aquifer	POT042	P003-OEW002	Off-base	Off-site South Boundary	513129.6	5780958.1	*ND*	*ND*	POT051	Point of Use - bore construction details unknown
Annual	Extraction well - unknown aquifer	POT050	P004-OEW003	Off-base	Off-site East Boundary	514776.0	5783267.0	*ND*	*ND*	POT027	Point of Use - bore construction details unknown
Annual	Extraction well - unknown aquifer	POT051	P003-OEW004	Off-base	Off-site South Boundary	513152.3	5780964.3	*ND*	*ND*	POT042	Point of Use - bore construction details unknown
Previous sampling locations (removed from OMP)											
Annual	*Upper Alluvial Aquifer*	*MW326*	*MW727A*	*On-base*	*MEOMS - Operational Areas*	*511181.1*	*5783132.9*	*1.5*	*3.5*	*MW612*	*Targeting the Upper Alluvium Aquifer, near a potential PFAS source, MEOMS - Operational Areas*
Annual	*Upper Alluvial Aquifer*	*MW609*	-	*On-base*	*Grassed Area near MEOMS*	*511057.2*	*5783321.9*	*1.5*	*5.5*	*MW607*	*Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Grassed Area near MEOMS*
Annual	*Upper Alluvial Aquifer*	*MW610*	-	*On-base*	*Grassed Area near MEOMS*	*511171.3*	*5783170.7*	*1.5*	*5.5*	*MW326*	*Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Grassed Area near MEOMS*
Annual	*Upper Alluvial Aquifer*	*MW617*	-	*On-base*	*Former Fire Training Area*	*512754.1*	*5781809.3*	*2.5*	*5.5*	*MW201, MW616*	*Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the former fire training area*
Annual	*Upper Alluvial Aquifer*	*MW622*	-	*On-base*	*Former Waste Burial Area (South)*	*512963.0*	*5781904.8*	*2.8*	*5.8*	*MW620, MW624 MW623*	*Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Former Waste Burial Area (South)*
Annual	*Upper Alluvial Aquifer*	*MW623*	-	*On-base*	*Former Waste Burial Area (South)*	*513066.4*	*5781875.5*	*2.2*	*5.5*	*MW620, MW624, MW625*	*Targeting the Upper Alluvium Aquifer, in a potential PFAS source area the Former Waste Burial Area (South)*

Legend

Location removed from current OMP

mbgl - metres below ground level

ND - No data available

NSR - No suitable replacement

Table D-2 RAAF East Sale Surface Water Monitoring Locations

Frequency	Location Code	Historical Location Code	On/off base	Location	Easting	Northing	Description
Annual	SW002	OSW002	Off-base	Off-site Monitoring Area: Heart Morass	512992.27	5780415.61	Monitor PFAS concentrations from base into the Heart Morass
Annual	SW004	OSW004	Off-base	Off-site Monitoring Area: Heart Morass	512981.90	5780346.38	Monitor PFAS concentrations from base into the Heart Morass
Annual	SW011	OSW011	Off-base	Off-site Monitoring Area: Heart Morass	513700.56	5779345.11	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW012	OSW012	Off-base	Off-site Monitoring Area: Heart Morass	513239.66	5778657.56	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW013	OSW013	Off-base	Off-site Monitoring Area: Heart Morass	516023.06	5778005.06	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW014	OSW014	Off-base	Off-site Monitoring Area: Heart Morass	513162.07	5778770.91	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW015	OSW015	Off-base	Off-site Monitoring Area: Heart Morass	511590.29	5779339.83	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW016	OSW016	Off-base	Off-site Monitoring Area: Heart Morass	512837.64	5779485.31	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW030	OSW030	Off-base	Off-site Monitoring Area: Heart Morass	514516.63	5780010.56	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW031	OSW031	Off-base	Off-site Monitoring Area: Heart Morass	-	-	Monitor PFAS concentrations in the Heart Morass and La Trobe River. Coordinates not shown for privacy reasons.
Annual	SW032	OSW032	Off-base	Off-site Monitoring Area: Heart Morass	-	-	Monitor PFAS concentrations in the Heart Morass and La Trobe River. Coordinates not shown for privacy reasons.
Annual	SW033	OSW033	Off-base	Off-site Monitoring Area: Heart Morass	513069.86	5780804.13	Monitor PFAS concentrations from base into the Heart Morass
Annual	SW034	OSW034	Off-base	Off-site Monitoring Area: Heart Morass	511751.29	5780440.49	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW041	OSW041	Off-base	Off-site Monitoring Area: Heart Morass	512590.57	5780654.11	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW049	OSW049	Off-base	Off-site Northwest Area	511002.45	5783872.55	Monitor PFAS upgradient on site.
Annual	SW052	OSW052	Off-base	Off-site Monitoring Area: Heart Morass	513528.35	5780380.31	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW077	OSW077	Off-base	Off-site Monitoring Area: East Sale	506789.51	5780804.99	Monitoring PFAS levels near the town of Sale
Annual	SW080	OSW080	Off-base	Off-site Monitoring Area: Heart Morass	509107.89	5777933.01	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW082	OSW082	Off-base	Off-site Monitoring Area: Heart Morass	509637.63	5777965.97	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW089	OSW089	Off-base	Off-site Monitoring Area: Heart Morass	516503.46	5779840.98	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW092	OSW092	Off-base	Off-site Monitoring Area: Heart Morass	518702.45	5780052.64	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW276	OSW010	Off-base	Off-site Monitoring Area: Heart Morass	515317.83	5779357.56	Monitor PFAS concentrations in the Heart Morass and La Trobe River
Annual	SW201	-	On-base	Onsite Monitoring Area and Management Area	510966.97	5783793.22	Monitor PFAS concentrations on base, in the drainage channels.
Annual	SW250	-	On-base	Onsite Monitoring Area and Management Area.	512910.49	5781144.67	Monitor PFAS concentrations on base, collected within the WMD.
Annual	SW251	-	On-base	Onsite Monitoring Area and Management Area.	513094.48	5781119.21	Monitor PFAS concentrations on base, combined from EMD and WMD towards Heart Morass.
Annual	SW260	-	On-base	Onsite Monitoring Area and Management Area.	513123.95	5781274.68	Monitor PFAS concentrations on base, collected within the EMD.
Previous sampling locations (removed)							
Annual	*SW001*	*OSW001*	*Off-base*	*Off-site Monitoring Area: Heart Morass*	*512248.33*	*5780710.45*	*Monitor PFAS concentrations in the Off-Site Monitoring Area*
Annual	*SW019*	*OSW019*	*Off-base*	*Off-site Monitoring Area: Heart Morass*	*518651.55*	*5780487.87*	*Monitor PFAS concentrations in the Heart Morass and La Trobe River*
Annual	*SW088*	*OSW088*	*Off-base*	*Off-site Monitoring Area: Heart Morass*	*516776.05*	*5780921.84*	*Monitor PFAS concentrations in the Heart Morass and La Trobe River*
Annual	*SW093*	*OSW093*	*Off-base*	*Off-site Monitoring Area: Heart Morass*	*518754.32*	*5779840.39*	*Monitor PFAS concentrations in the Heart Morass and La Trobe River*
Annual	*SW203*	*-*	*On-base*	*Onsite Monitoring Area and Management Area. MEOMS - Fire Truck Hose testing*	*511068.89*	*5783296.33*	*Monitor PFAS concentrations on base, in the drainage channels*
Annual	*SW206*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511192.64*	*5783184.22*	*Monitor PFAS concentrations on base, in the drainage channels. In 2023 access was blocked.*
Annual	*SW208*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511723.11*	*5783002.23*	*Monitor PFAS concentrations on base, in the drainage channels. In 2023 this location was dry*
Annual	*SW209*	*-*	*On-base*	*Onsite Monitoring Area and Management Area. Current Fire station*	*512448.20*	*5783072.04*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW216*	*-*	*On-base*	*Onsite Monitoring Area and Management Area. Runway*	*512026.00*	*5782645.43*	*Monitor PFAs concentrations on base, in the drainage channels. In 2023 location was dry.*
Annual	*SW217*	*-*	*On-base*	*Onsite Monitoring Area and Management Area. Runway*	*511877.09*	*5782558.63*	*Monitor PFAs concentrations on base, in the drainage channels. In 2023 location was dry.*
Annual	*SW222*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511684.30*	*5782543.22*	*location was dry.*
Annual	*SW223*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511655.58*	*5782363.80*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW224*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511024.96*	*5782271.78*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW226*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511860.00*	*5782088.75*	*Monitor PFAs concentrations on base, in the drainage channels. In 2023 location was dry.*
Annual	*SW227*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511553.78*	*5782168.42*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW228*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*511836.86*	*5781940.81*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW230*	*-*	*On-base*	*Off-site Monitoring Area: Heart Morass*	*511900.23*	*5781561.62*	*Monitor PFAS concentrations in the Off-Site Monitoring Area*
Annual	*SW231*	*-*	*On-base*	*Off-site Monitoring Area: Heart Morass*	*513984.49*	*5783450.58*	*Monitor PFAS concentrations in the Off-Site Monitoring Area*

Table D-2 RAAF East Sale Surface Water Monitoring Locations

Frequency	Location Code	Historical Location Code	On/off base	Location	Easting	Northing	Description
Annual	*SW232*	*-*	*On-base*	*Off-site Monitoring Area: Heart Morass*	*513805.30*	*5783125.57*	*Monitor PFAS concentrations in the Off-Site Monitoring Area*
Annual	*SW233*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*513481.73*	*5783054.00*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW235*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*514357.36*	*5782794.67*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW237*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*513709.70*	*5782898.03*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW238*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*513338.67*	*5782709.14*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW239*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*512981.03*	*5782718.99*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW242*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*512428.43*	*5781951.87*	*Monitor PFAs concentrations on base, in the drainage channels. In 2023 location was dry.*
Annual	*SW246*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*512004.75*	*5781525.60*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW247*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*512041.46*	*5781280.56*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW249*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*512726.50*	*5781170.12*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW252*	*-*	*On-base*	*Onsite Monitoring Area and Management Area*	*512619.53*	*5781536.02*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW258*	*-*	*On-base*	*Onsite Monitoring Area and Management Area. Former Waste burial area (south)*	*513183.58*	*5781670.22*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW259*	*-*	*On-base*	*Onsite Monitoring Area and Management Area. Former Waste burial area (south)*	*513153.77*	*5781472.45*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW274*	*P007-OSW001*	*On-base*	*Onsite Monitoring Area and Management Area, Northwest drain*	*510896.81*	*5783505.19*	*Monitor PFAS concentrations on base, in the drainage channels.*
Annual	*SW310*	*-*	*On-base*	*Onsite Monitoring Area and Management Area, Northwest drain*	*510926.86*	*5783441.46*	*Monitor PFAS concentrations on base, in the drainage channels.*

Legend

Location removed from current OMP

Table D-3 RAAF East Sale Sediment Sampling Locations

Frequency	Location Code	Historical Location Code	On/off base	Location	Easting	Northing	Description
Annual	SD014	OSD014	Off-base	Off-site Monitoring Area: Heart Morass	513162.07	5778770.91	To be taken with biota sampling location
Annual	SD020	-	Off-base	Off-site Monitoring Area: EMD outlet	-	-	New location, to be collocated with biota sample
Annual	SD026	-	Off-base	Off-site Monitoring Area: Heart Morass	-	-	New location, to be collocated with biota sample
Annual	SD032	OSD032	Off-base	Off-site Monitoring Area: Heart Morass	-	-	To be taken with biota sampling location. Coordinates not shown for privacy reasons.
Annual	SD033	OSD033	Off-base	Off-site Monitoring Area: EMD outlet	513069.86	5780804.13	To be taken with biota sampling location
Annual	SD034	OSD034	Off-base	Off-site Monitoring Area: Heart Morass	511751.29	5780440.49	To be taken with biota sampling location
Annual	SD046	-	Off-base	Off-site Monitoring Area: Heart Morass	-	-	New location, to be collocated with biota sample
Annual	SD080	-	Off-base	Off-site Monitoring Area: Heart Morass & La Trobe River	-	-	New location, to be collocated with biota sample
Annual	SD089	OSD089	Off-base	Off-site Monitoring Area: Heart Morass	516503.46	5779840.98	To be taken with biota sampling location
Annual	SD092	-	Off-base	Off-site Monitoring Area: Heart Morass	-	-	New location, to be collocated with biota sample
Annual	SD268	OSD002	Off-base	Off-site Monitoring Area: EMD outlet	512992.27	5780415.61	To be taken with biota sampling location
Annual	SD276	OSD010	Off-base	Off-site Monitoring Area: Heart Morass	515317.83	5779357.56	To be taken with biota sampling location
Previous sampling locations (removed from OMP)							
Annual	SD001	OSD001	Off-base	Off-site Monitoring Area: Heart Morass	512248.33	5780710.45	Sediment samples are located near the SW sample locations
Annual	SD052	OSD052	Off-base	Off-site Monitoring Area: Heart Morass	513528.35	5780380.31	Sediment samples are located near the SW sample locations
Annual	SD011	OSD011	Off-base	Off-site Monitoring Area: Heart Morass	513700.56	5779345.11	Sediment samples are located near the SW sample locations
Annual	SD015	OSD015	Off-base	Off-site Monitoring Area: Heart Morass	511590.29	5779339.83	Sediment samples are located near the SW sample locations
Annual	SD016	OSD016	Off-base	Off-site Monitoring Area: Heart Morass	512837.64	5779485.31	Sediment samples are located near the SW sample locations
Annual	SD019	OSD019	Off-base	Off-site Monitoring Area: Heart Morass	518651.55	5780487.87	Sediment samples are located near the SW sample locations
Annual	SD030	OSD030	Off-base	Off-site Monitoring Area: Heart Morass	514516.63	5780010.56	Sediment samples are located near the SW sample locations
Annual	SD031	OSD031	Off-base	Off-site Monitoring Area: Heart Morass	-	-	Sediment samples are located near the SW sample locations. Coordinates not shown for privacy reasons.
Annual	SD042	OSD042	Off-base	North of Onsite Monitoring Area	510883.15	5783414.19	Sediment samples are located near the SW sample locations
Annual	SD082	OSD082	Off-base	Off-site Monitoring Area: Heart Morass	509637.63	5777965.97	Sediment samples are located near the SW sample locations
Annual	SD088	OSD088	Off-base	Off-site Monitoring Area: Heart Morass	516776.05	5780921.84	Sediment samples are located near the SW sample locations
Annual	SD201	-	On-base	Onsite Monitoring Area and Management Area	510966.97	5783793.22	Sediment samples are located near the SW sample locations
Annual	SD206	-	On-base	Onsite Monitoring Area and Management Area. MEOMS operational area	511192.64	5783184.22	Sediment samples are located near the SW sample locations. Wasn't sample in 2023 due to access issues.
Annual	SD208	SD010	On-base	Onsite Monitoring Area and Management Area	511723.11	5783002.23	Sediment samples are located near the SW sample locations. In 2023 had insufficient material for sampling.
Annual	SD209	-	On-base	Onsite Monitoring Area and Management Area, Fire station	512448.20	5783072.04	Sediment samples are located near the SW sample locations
Annual	SD216	-	On-base	Onsite Monitoring Area and Management Area	512026.00	5782645.43	Sediment samples are located near the SW sample locations. Was last sampled in 2021
Annual	SD217	-	On-base	Onsite Monitoring Area and Management Area	511877.09	5782558.63	Sediment samples are located near the SW sample locations
Annual	SD223	-	On-base	Onsite Monitoring Area and Management Area	511655.58	5782363.80	Sediment samples are located near the SW sample locations
Annual	SD226	-	On-base	Onsite Monitoring Area and Management Area	511860.00	5782088.75	Sediment samples are located near the SW sample locations
Annual	SD227	-	On-base	Onsite Monitoring Area and Management Area	511553.78	5782168.42	Sediment samples are located near the SW sample locations
Annual	SD231	-	On-base	Onsite Monitoring Area and Management Area	513984.49	5783450.58	Sediment samples are located near the SW sample locations

Table D-3 RAAF East Sale Sediment Sampling Locations

Frequency	Location Code	Historical Location Code	On/off base	Location	Easting	Northing	Description
Annual	SD233	-	On-base	Onsite Monitoring Area and Management Area	513481.73	5783054.00	Sediment samples are located near the SW sample locations
Annual	SD239	-	On-base	Onsite Monitoring Area and Management Area	512981.03	5782718.99	Sediment samples are located near the SW sample locations
Annual	SD246	-	On-base	Onsite Monitoring Area and Management Area	512004.75	5781525.60	Sediment samples are located near the SW sample locations
Annual	SD247	-	On-base	Onsite Monitoring Area and Management Area, south border	512041.46	5781280.56	Sediment samples are located near the SW sample locations
Annual	SD249	-	On-base	Onsite Monitoring Area and Management Area, south border	512406.23	5781217.52	Sediment samples are located near the SW sample locations
Annual	SD251	-	On-base	Onsite Monitoring Area and Management Area, southeast border	513094.48	5781119.21	Sediment samples are located near the SW sample locations
Annual	SD256	-	On-base	Onsite Monitoring Area and Management Area	513308.87	5782511.39	Sediment samples are located near the SW sample locations
Annual	SD257	-	On-base	Onsite Monitoring Area and Management Area, Former waste burial	513246.64	5782099.48	Sediment samples are located near the SW sample locations
Annual	SD258	-	On-base	Onsite Monitoring Area and Management Area, Former waste burial	513183.58	5781670.22	Sediment samples are located near the SW sample locations
Annual	SD259	-	On-base	Onsite Monitoring Area and Management Area, Former waste burial	513153.77	5781472.45	Sediment samples are located near the SW sample locations
Annual	SD260	-	On-base	Onsite Monitoring Area and Management Area, east boundary	513123.95	5781274.68	Sediment samples are located near the SW sample locations
Annual	SD270	OSD004	Off-base	Off-site Monitoring Area: Heart Morass	512981.9	5780346.38	Sediment samples are located near the SW sample locations

Legend

Location removed from current OMP

APPENDIX E OMP REVIEW

Media	Location	Does the location inform the nature of PFAS at the site	Does the location inform the extent of PFAS at the site	Does the location inform the risk profile at the site	Does the sampling frequency inform the risk profile	OMP Review Outcome	Reason
Groundwater	*MW326*	Yes	Yes	No	No	Removed from OMP	Close proximity of MW726 and other MEOMS wells, not providing additional data to inform risk profile; removed.
	MW603	Yes	Yes	No	No	Removed from OMP	Low risk location; low concentrations and unlikely downgradient of key source areas; removed.
	MW609	Yes	Yes	No	No	Removed from OMP	Close proximity of other key monitoring wells, not providing additional data to inform risk profile; removed.
	MW610	Yes	Yes	No	No	Removed from OMP	Close proximity of MW726 and other MEOMS wells, not providing additional data to inform risk profile; removed.
	MW617	Yes	No	No	No	Removed from OMP	Close proximity of other key monitoring wells, not providing additional data to inform risk profile; removed.
	MW622	Yes	No	No	No	Removed from OMP	Close proximity of other key monitoring wells, not providing additional data to inform risk profile; removed.
	MW623	Yes	No	No	No	Removed from OMP	Close proximity of other key monitoring wells, not providing additional data to inform risk profile; removed.
	MW744	Yes	Yes	Yes	Yes	Added to OMP	State Observation Bore Network well screened within the Upper Alluvial Aquifer, monitoring nature and extent of PFAS contamination in shallow groundwater immediately downgradient of base boundary.
	POT046	No	Yes	No	No	Removed from OMP	Close proximity of POT042 and POT051, not providing additional data; removed.

Media	Location	Does the location inform the nature of PFAS at the site	Does the location inform the extent of PFAS at the site	Does the location inform the risk profile at the site	Does the sampling frequency inform the risk profile	OMP Review Outcome	Reason
Surface water	*SW001*	No	No	No	No	Removed from OMP	Location no longer required for monitoring, as outflow from Western Main Drain is longer hydraulically connected to the Heart Morass.
	SW019	No	Yes	Yes	Yes	Removed from OMP	Monitoring by SW092 sufficient for monitoring of Heart Morass and La Trobe river to the east.
	SW035	No	No	No	No	Removed from OMP	Location no longer required for monitoring, as outflow from Western Main Drain is longer hydraulically connected to the Heart Morass.
	SW088	No	Yes	Yes	Yes	Removed from OMP	Monitoring by SW089 sufficient for monitoring of Heart Morass and La Trobe river to the east.
	SW093	Yes	Yes	Yes	Yes	Removed from OMP	Monitoring by SW092 sufficient for monitoring of Heart Morass and La Trobe river to the east.
	SW203	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW206	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW208	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW209	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW216	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW217	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW222	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW223	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW226	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW227	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW230	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW231	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW233	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW238	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW239	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW242	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW246	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW247	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW248	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW249	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW250	Yes	Yes	Yes	Yes	Added to OMP	WMD monitoring location for PFAS mass flow towards Heart Morass from base.
	SW252	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW256	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.

Media	Location	Does the location inform the nature of PFAS at the site	Does the location inform the extent of PFAS at the site	Does the location inform the risk profile at the site	Does the sampling frequency inform the risk profile	OMP Review Outcome	Reason
	SW257	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
Surface water	*SW258*	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW259	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW260	Yes	Yes	Yes	Yes	Added to OMP	EMD monitoring location for PFAS mass flow towards Heart Morass from base.
	SW274	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW277	No	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW344	No	No	No	No	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW351	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW353	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.
	SW366	Yes	Yes	Yes	Yes	Removed from OMP	Not located at EMD or WMD outlet to Heart Morass for PFAS monitoring; removed.

Media	Location	Does the location inform the nature of PFAS at the site	Does the location inform the extent of PFAS at the site	Does the location inform the risk profile at the site	Does the sampling frequency inform the risk profile	OMP Review Outcome	Reason
Sediment	*SD001*	No	No	No	No	Removed from OMP	Location no longer required for monitoring of outflow from Western Main Drain to Heart Morass, no longer hydraulically connected.
	SD011	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.
	SD015	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.
	SD016	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.
	SD019	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.
	SD020	No	Yes	Yes	Yes	Added to OMP	Collocated location with biota sampling, within Heart Morass, in areas of previous biota sampling from 2018.
	SD026	No	Yes	Yes	Yes	Added to OMP	Collocated location with biota sampling, within Heart Morass, in areas of previous biota sampling from 2018.
	SD030	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.
	SD031	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.
	SD035	No	Yes	Yes	Yes	Removed from OMP	Location no longer required for monitoring of outflow from Western Main Drain to Heart Morass, no longer hydraulically connected.
	SD046	No	Yes	Yes	Yes	Added to OMP	Collocated location with biota sampling, within Heart Morass, in areas of previous biota sampling from 2018.
	SD080	No	Yes	Yes	Yes	Added to OMP	Collocated location with biota sampling, within Heart Morass, in areas of previous biota sampling from 2018.
	SD092	No	Yes	Yes	Yes	Added to OMP	Collocated location with biota sampling, within Heart Morass, in areas of previous biota sampling from 2018.
	SD201	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD206	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD208	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD209	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD216	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD217	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD223	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD226	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD227	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD230	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD231	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD233	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD239	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.

Media	Location	Does the location inform the nature of PFAS at the site	Does the location inform the extent of PFAS at the site	Does the location inform the risk profile at the site	Does the sampling frequency inform the risk profile	OMP Review Outcome	Reason
Sediment	*SD242*	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD246	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD247	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD249	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD251	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD256	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD257	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD258	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD259	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD260	Yes	Yes	Yes	Yes	Removed from OMP	On-base sampling locations removed, based on historical dataset indicating minimal influence on risk profile for the base.
	SD270	No	Yes	Yes	Yes	Removed from OMP	Not collocated at biota sampling locations, removed.

APPENDIX F PFAS ANALYTICAL SUITE

Target analytes	
Perfluoroalkane sulfonic acids	
PFBS	Perfluorobutane sulfonic acid
PFPeS	Perfluoropentane sulfonic acid
PFHxS	Perfluorohexane sulfonic acid
PFHpS	Perfluoroheptane sulfonic acid
PFOS	Perfluorooctane sulfonic acid
PFDS	Perfluorodecane sulfonic acid
Perfluoroalkyl carboxylic acids	
PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnDA	Perfluoroundecanoic acid
PFDoDA	Perfluorododecanoic acid
PFTrDA	Perfluorotridecanoic acid
PFTeDA	Perfluorotetradecanoic acid
Perfluoroalkyl sulfonamides	
FOSA	Perfluorooctane sulfonamide
MeFOSA	N-Methyl perfluorooctane sulfonamide
EtFOSA	N-Ethyl perfluorooctane sulfonamide
MeFOSE	N-Methyl perfluorooctane sulfonamidoethanol
EtFOSE	N-Ethyl perfluorooctane sulfonamidoethanol
MeFOSAA	N-Methyl perfluorooctane sulfonamidoacetic acid
EtFOSAA	N-Ethyl perfluorooctane sulfonamidoacetic acid
(n:2) Fluorotelomer sulfonic acids	
4:2 FTS	4:2 Fluorotelomer sulfonic acid
6:2 FTS	6:2 Fluorotelomer sulfonic acid
8:2 FTS	8:2 Fluorotelomer sulfonic acid
10:2 FTS	10:2 Fluorotelomer sulfonic acid