

ALGA 2019 Annual Industry Excellence Awards

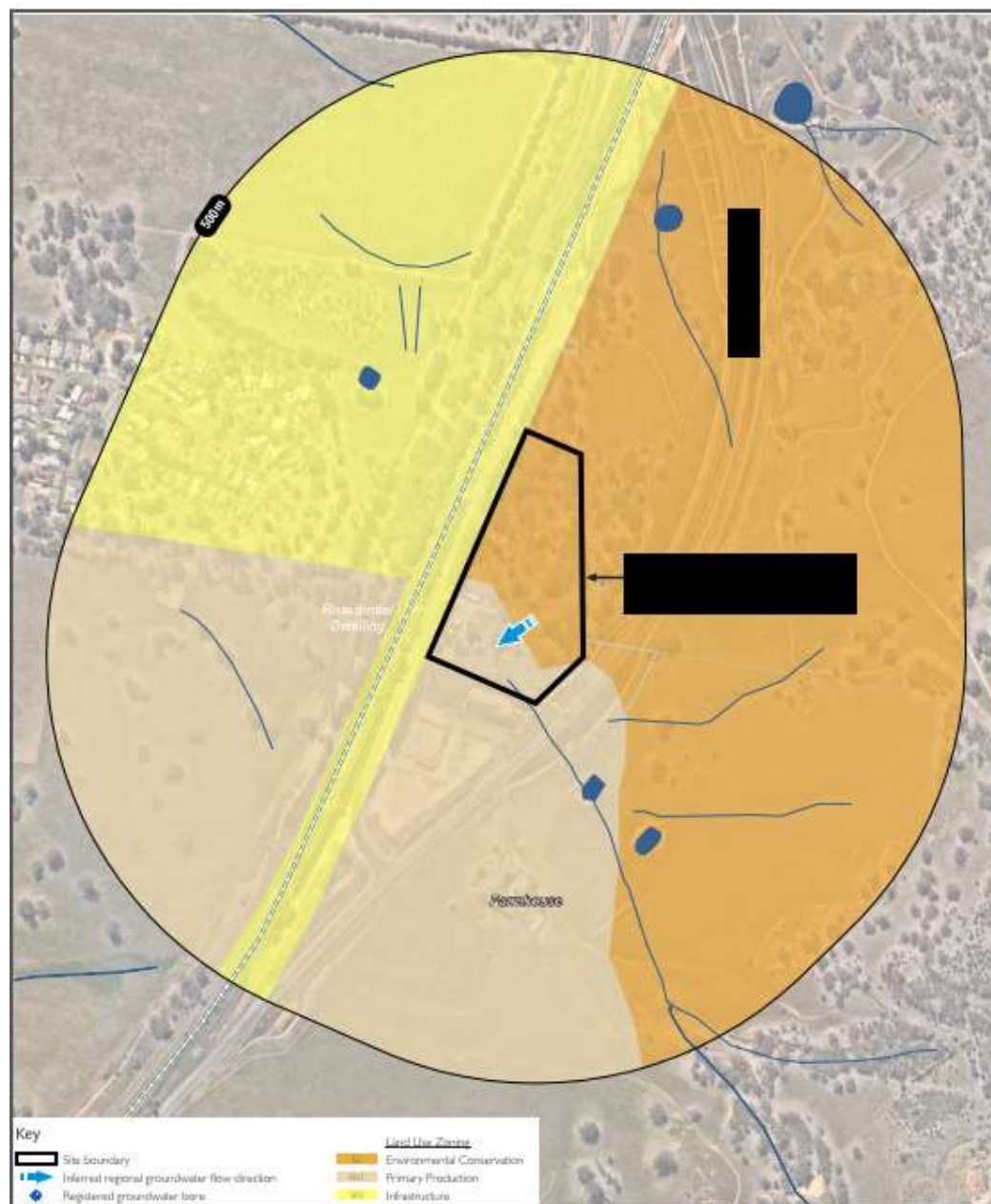
Former Fuel Depot Demolition



1.0 Project Background

The site was a former fuel depot, approximately 5 hectares in size, located in NSW which was not been operational since 1995. The northern two thirds of the site is zoned as E2: Environmental Conservation, the southern third of the site is zoned as RU1: Primary Production (Figure 1). The site is predominately surrounded by agricultural lands. A number of site investigation works have previously been completed across the site from 1998 to 2017 and groundwater was identified as impacted with petroleum hydrocarbons within both a localised shallow water bearing zone and a deeper regional aquifer. The EPA (2017) assessed the site and determined that regulation of the petroleum hydrocarbon contamination under the CLM Act was not required. The EPA recommended further investigation to assess secondary sources of contamination and the removal of both above and below ground fuel infrastructure to ensure all primary sources onsite had been removed.

Figure 1 Zoning



A Dangerous Good Report details a petrol spill in 1981 of 11,000 litres of fuel where fire fighting foam was used, the exact location of the spill was not detailed however based on the location of refuelling and where the highest petroleum concentrations have been detected the centre of site is suspected to be most likely area for the spill to have occurred.

The scope of work completed involved:

2017 – Baseline Assessment

- A site walkover to confirm existing infrastructure and a baseline groundwater monitoring event with analysis of petroleum hydrocarbons and PFAS and,

2018 – Development Application Consent

- Development Application which contained a Statement of Environmental Effects, Remedial Action Plan, a Construction Environmental Management Plan and a Waste Management Plan.

2019 – Demolition and further Environmental Investigation

- the removal of above ground fuel infrastructure,
- the removal of semi buried tanks,
- the removal and appropriate disposal of HAZMAT such as asbestos within gaskets of above ground fuel lines, asbestos cement, and lead paint in the sheds onsite
- the removal of disused sheds onsite,
- Collection of 500 soil validation/characterisation samples beneath removed fuel infrastructure and sheds,
- the installation of shallow replacement groundwater wells which had been previously lost / destroyed in order to delineate shallow groundwater impacts and close out existing data gaps,
- the installation of additional deep groundwater wells to further assess the groundwater and soil conditions onsite,

Figure 2 Site Layout



2.0 Judging Criteria

- a) evidence of significant environmental, economic & social obstacles & benefits
 - a. Benefit to the environment by removing the risk of potential contamination to surrounding environmental receptors and removing the potential migration of contamination offsite,
 - b. Benefit to the community (social) by removing the risk of potential contamination migrating towards residential receptors.
 - c. Benefit to local economy during demolition works with increased workforce to the area (short-term),
 - d. Benefit to local economy from engagement of local contractors and generation of business – waste transport contractors, waste disposal facilities, concrete recycling facility, scrap metal facility (short term)
 - e. Benefit to the local economy when remediation works are complete and the southern area of the site can be redeveloped and used for residential or commercial uses (longer term),
 - f. Benefit to the local environment when remediation works are complete and the northern portion of the site can be used as an environmental conservation area,
 - g. Obstacles to local environment & community from increased noise, dust, vibration & traffic during demolition works which were overcome by working designated hours only, using dust control measures, co-ordinating traffic to prevent backlog, and proactive communication with stakeholders (short term),
 - h. Obstacles to the local environment from soil disturbance and loss of surface vegetation due to machinery movement during demolition works which will be overcome by vegetation planting and regrowth (short term),
 - i. Obstacles to the project team was that the site was established in the 1940's and the design structure of the semi buried tanks was not understood prior to uncovering them. This was overcome by carefully uncovering the first semi buried tank to be removed (T3) and once the tank structure was understood a demolition methodology developed. Collaboration between the demolition contractor (RMA Group) and AECOM teams (safety, geotechnical and contamination) to ensure all risks were understood and mitigated. The result was a bespoke solution that minimised the volume of soil required to be moved from around the tanks and eliminated the chance of engulfment of the excavators or operator. Recyclables were separated and stockpiled for offsite disposal. See Photo 11-17 presented in Appendix B.
- b) evidence of practical application of regulatory requirements (Incl WHS)
 - a. Preparation of Remedial Action Plan prior to commencement of works to understand remediation tasks and applicable regulations,
 - b. Project Kick- Off Meeting with Demolition Subcontractor, Client and Project Team to discuss planned works, regulatory requirements and health and safety requirements to highlight anything missed,
 - c. Project Safety Health and Environment Management Plan prepared with task specific risk assessment and controls to be put in place to mitigate risks prior to the commencement of works,
 - d. Daily pre-start meetings to assess tasks to be completed that day and share learnings from the previous day's works. Safe work methods statements updated when required
 - e. All workers had the right to STOP works at any point they feel unsafe conditions exist,
 - f. A minimum of 2 site safety observations (positive or negative) per day from demolition staff was achieved,
 - g. Site Safety Audit completed during demolition work by AECOM SH&E Manager – Southern Region & Demolition Subcontractor SH&E Manager

- c) evidence of productive engagement with all project stakeholders.
 - a. EPA:
 - i. Comms with NSW EPA in regard to regulation of the site under the CLM Act 1997,
 - ii. AECOM (2017) Comprehensive Groundwater Monitoring Report submitted to the EPA for review.
 - iii. NSW EPA determination that the site did not need to be regulated under CLM Act 1997
 - iv. NSW EPA Request for Preliminary PFAS Assessment onsite
 - v. AECOM (2018) Preliminary PFAS Assessment Letter submitted to the EPA for review.
 - vi. AECOM (2019) Site Demolition and Validation Report to be submitted to the EPA.
 - vii. AECOM (2019) PFAS Further Investigation Letter to be submitted to the EPA.
 - b. Council
 - i. Development Application submitted with
 - 1. Statement of Environmental Effects
 - 2. Remedial Action Plan
 - 3. Construction Environmental Management Plan
 - 4. Asbestos Management Plan
 - c. Community Engagement with Surrounding Residents
 - i. Two properties bordering the site were doorknocked prior to commencement of works to inform them of demolition works and project information number provided if concerns /queries during works.
 - ii. Bore Survey also complete at the same properties
 - iii. Offsite sampling completed to assess potential risks to offsite residents & stock
- d) evidence of effective communication of new knowledge to the industry
 - a. Demolition methodology of semi buried tanks has been presented internally at AECOM
 - b. Demolition contractors have developed an understanding for the design and demolition of these semi-buried tanks, this experience can be used on other jobs they complete in the future.
 - c. Planned future presentation at ACLA

3.0 Conclusion

The demolition project was completed safely without any injury or incidents to the project team, complaints from the community and/ or incidents to the environment. All project objectives were met.

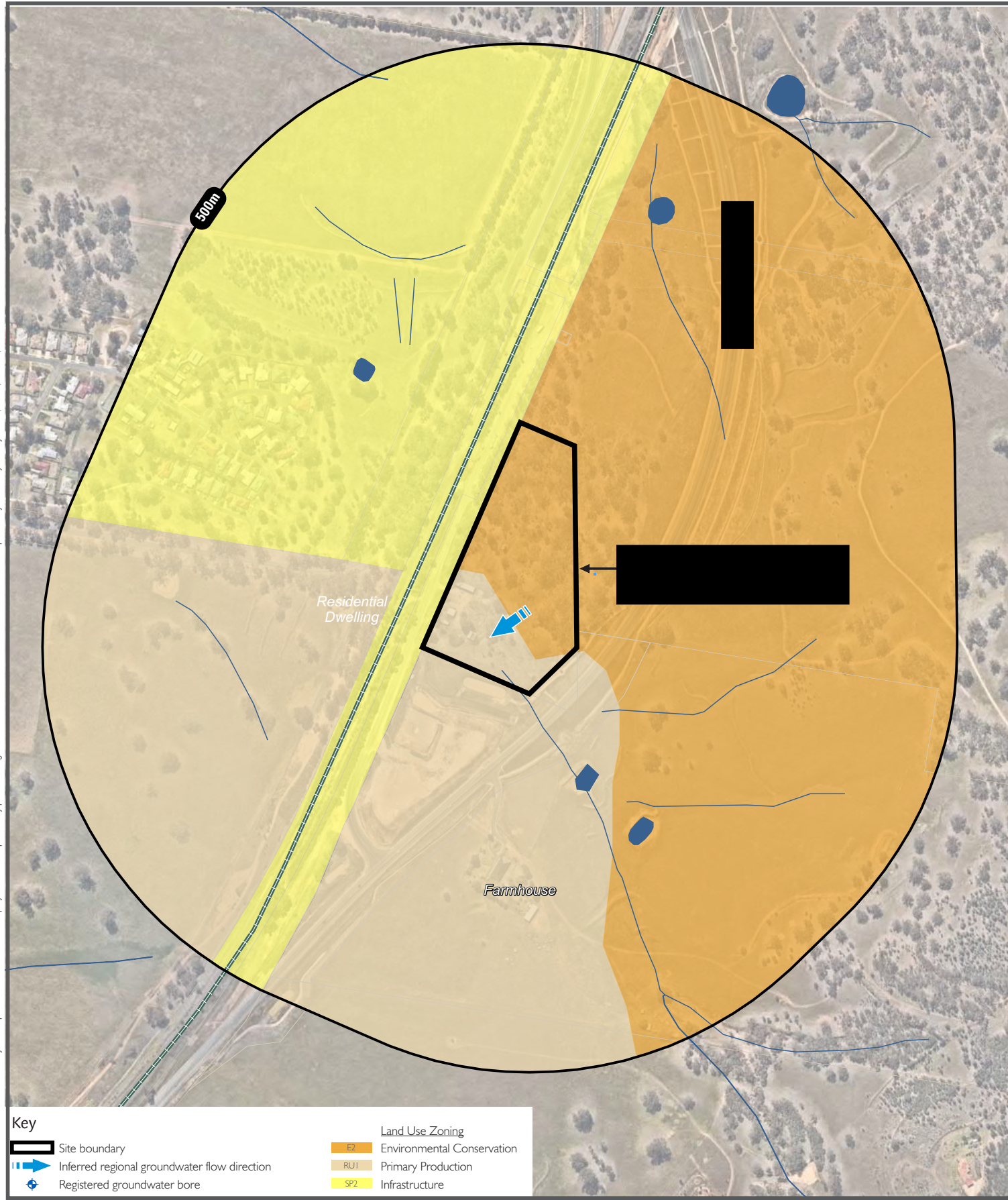
4.0 Special Thanks to the Project Team

Demolition Contractors: RMA Group – Stewart Dearden, Ben Bowerman & Jeremy Quinn.

Principal Contractors: AECOM Australia Pty Ltd – Sebastien McCulloch, Patrick Virtue, Scott Robinson, Alex Latham and Elaine Gibson.

Appendix A Figures

AECOM does not warrant the accuracy or completeness of information displayed in this map and any person using it does so at their own risk. AECOM shall bear no responsibility or liability for any errors, faults, defects, or omissions in the information



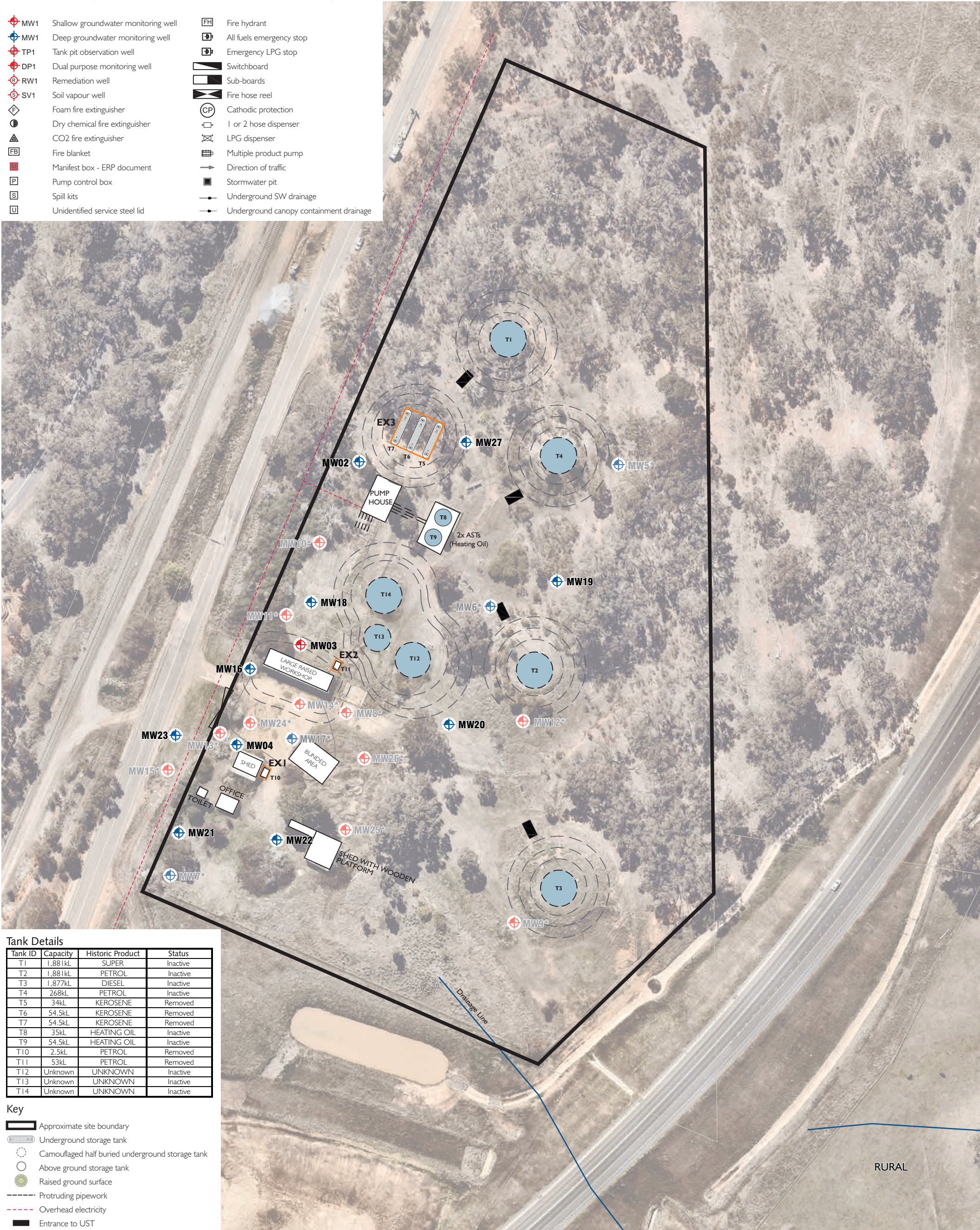
AECOM

Land Use Zoning Source: NSW Department of Planning & Environmen (DPE)
Geology Source: NSW Department of Industry (Resources & Energy)

Regional Zoning and Regional Geology









Figure

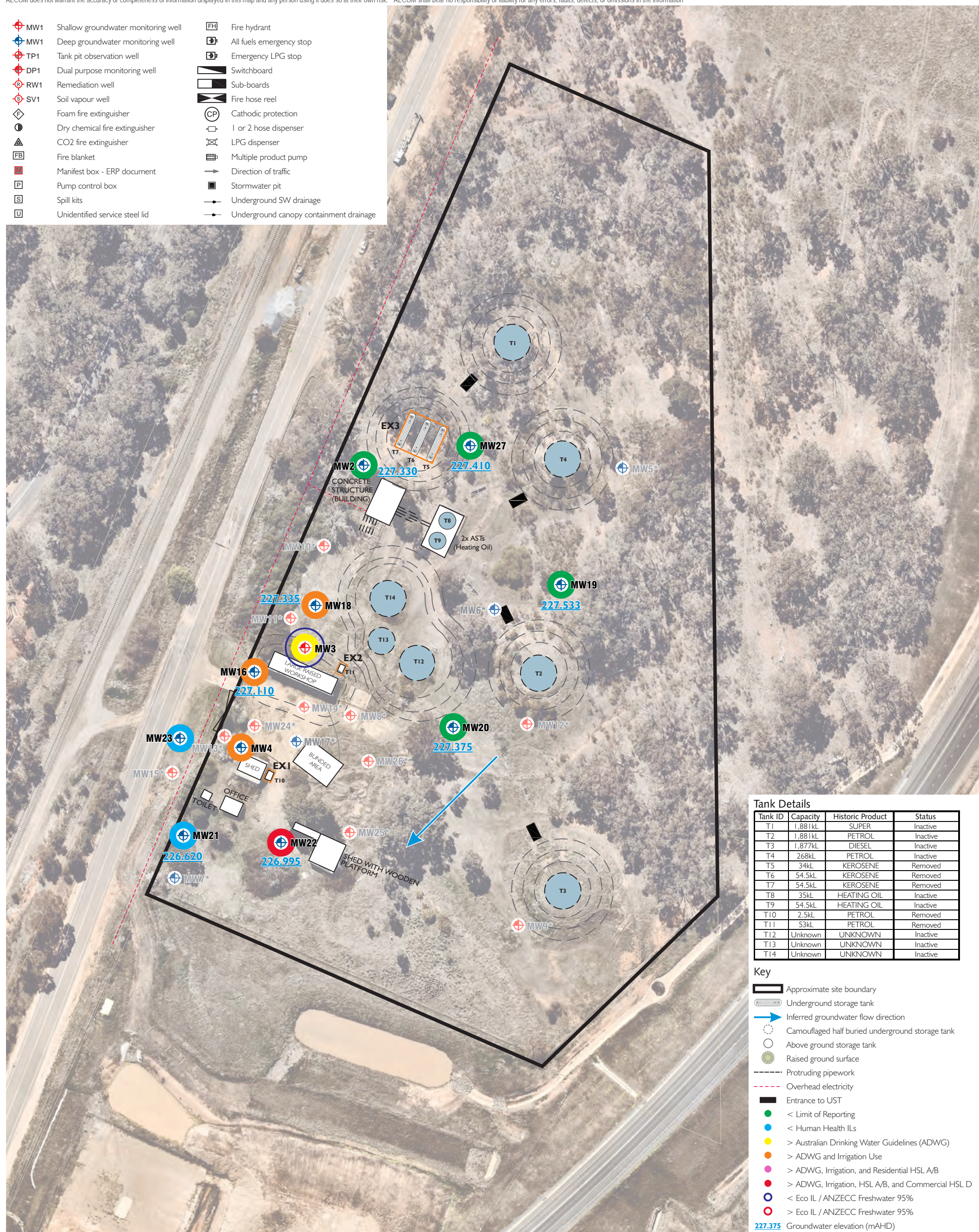
F1



Tank ID	Capacity	Historic Product	Status
T1	1,881kL	SUPER	Inactive
T2	1,881kL	PETROL	Inactive
T3	1.877kL	DIESEL	Inactive
T4	268kL	PETROL	Inactive
T5	34kL	KEROSENE	Removed
T6	54.5kL	KEROSENE	Removed
T7	54.5kL	KEROSENE	Removed
T8	35kL	HEATING OIL	Inactive
T9	54.5kL	HEATING OIL	Inactive
T10	2.5kL	PETROL	Removed
T11	53kL	PETROL	Removed
T12	Unknown	UNKNOWN	Inactive
T13	Unknown	UNKNOWN	Inactive
T14	Unknown	UNKNOWN	Inactive

Key

-  Approximate site boundary
 Underground storage tank
 Camouflaged half buried underground storage tank
 Above ground storage tank
 Raised ground surface
 Protruding pipework
 Overhead electricity
 Entrance to UST



Appendix B Photos

PHOTOGRAPHIC LOG

The Site before Demolition

Plate No.
1


Description:
MW18 and 2 X AST
heating oil tanks, T8 and
T9 (looking North).



Plate No.
2

Description:
Drum platform workshop
(class 3) / large raised
work shop near site
entrance (looking south
east).



<p>Plate No. 3</p>	
<p>Description: Rear view of large raised platform. (looking north west).</p>	

<p>Plate No. 4</p>	
<p>Description: Partially buried Tank 5. (looking north).</p>	

PHOTOGRAPHIC LOG

**Plate No.
5**

Description:

View of site from top of T5
(looking west).



**Plate No.
6**

Description:

Top of T5.



PHOTOGRAPHIC LOG

Plate No.
7

Description:
Entrance to buried
AST.



Plate No.
8

Description:
Pipework present near
concrete pumphouse
with asbestos signage
(looking north).



PHOTOGRAPHIC LOG

**Plate No.
9**

Description:
Inside concrete
pumphouse.



PHOTOGRAPHIC LOG

**Plate No.
10**

Description:
T8 and T9 within bunded
area and entrance to T1
looking south west.



The site during Demolition

<p>Plate No. 11</p>	
<p>Description: Uncovering T3.</p>	

<p>Plate No. 12</p>	
<p>Description: Surface of T3</p>	

Plate No.
13

Description:
Excavating Wall of T3.



Plate No.
14

Description:
T3 Wall exposed.



**Plate No.
15**

Description:
Internal structure of T3.




**Plate No.
16**

Description:
T3 fully removed and void left.



<p>Plate No. 17</p> <p>Description: Overburden material removed from on top and around edges of T3.</p>	
<p>Plate No. 18</p> <p>Description: Demolition of above ground Tanks (T8 & T9).</p>	

<p>Plate No. 19</p> <p>Description:</p> <p>Removal of asbestos gaskets on fuel lines prior to being double wrapped in PVC plastic for disposal.</p>	
<p>Plate No. 20</p> <p>Description:</p> <p>HAZMAT Removal from buildings</p>	

**Plate No.
21**

Description:
Lines observed in bunkers
T12 and T14.



**Plate No.
22**

Description:
T14 during demolition



**Plate No.
23**

Description:
Fuel line removal trench.




**Plate No.
24**

Description:
Hand picking of asbestos
fragments identified in
soils



The site after demolition works completed

<p>Plate No. 25</p> <p>Description: Site finishing.</p>	
<p>Plate No. 26</p> <p>Description: Site finish after demolition works complete.</p>	