HAZKEM
DANGEROUS GOODS CONSULTING

SEPP 33

RISK SCREENING DOCUMENTATION

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c/o
OTR Service Station
1 Renshaw Street
CRANEBROOK NSW

Hazkem Pty Ltd
November 2021

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TABLE OF CONTENTS

RISK SCREENING
OTR SERVICE STATION
1 Renshaw Street
CRANEBROOK NSW

PURPOSE AND SCOPE OF THIS DOCUMENT

For dangerous goods installation designs where there are proposed storages above minor quantities, an investigation process must be followed in order to assess whether or not a proposal is suitable for a particular site or not. Such sites should be deemed "potentially hazardous" until a detailed risk assessment determines otherwise. The process flow chart is detailed in appendix 1.

NSW State Environmental Planning Policy 33[1], (SEPP 33) is a document published by the NSW Department of Planning which provides guidelines for local government and developers for ensuring that the safety and pollution impacts of an industrial proposal are addressed at an early stage of the development application process. Through this document an assessment procedure is followed which links the permissibility of a proposal to its safety performance. SEPP 33 ensures that only those industrial proposals which are suitably located, and able to demonstrate that they can be built and operated with an adequate level of safety, can proceed[2].

As detailed in SEPP 33 a "*hazardous industry*" is one which poses a significant risk when all locational, technical, operational and organizational safeguards are included.

A "*potentially hazardous industry*" is one which, when all safeguards are operating, imposes a risk level which is significantly lower.

SEPP 33 also incorporates a screening process which will determine whether or not a site is potentially hazardous. If deemed potentially hazardous, a preliminary hazard analysis is required.

Certain activities may involve handling, storing or processing a range of substances which in the absence of locational, technical or operational controls may create an off-site risk or offence to people, property or the environment. Such activities would be defined as potentially hazardous or potentially offensive. SEPP 33 also provides guidelines to assist councils and proponents to establish whether a development proposal would fit into such definitions and hence, come under the provisions of the policy.

The purpose of a PHA is to gain a better understanding of the risks and hazards associated with the site and to provide a reasonable basis for an informed judgment to be made on the acceptability of the site for the proposed development[3]. The PHA will outline in detail possible risks and hazards associated with this site. This will assist the council in reaching an informed decision for the proposal.

It is important to note also that this investigation has been carried out by a suitably qualified person who understands the properties of the dangerous goods stored on site and the possible impact they may have on equipment and structures located on and off site. Under state legislation a system must be designed by a suitably qualified person who is experienced in this type of work[4].

State legislation requires a site such as this to incorporate stage 1 vapour recovery, such that during discharge by a road tanker, all vapours from the storage tank that would normally be discharged to the atmosphere are collected by the tanker (VR1)[5]. In addition to VR1, stage 2 vapour recovery is also required such that when a vehicle is refueled, vapours that would normally be discharged to the atmosphere are collected at the nozzle and returned to the underground tank (VR2)[5].

REFERENCE AND ASSISTANCE DOCUMENTS

This document has been compiled with guidance from:

- Hazardous Industry Planning Advisory Paper No 4 'Risk Criteria for Land Use Safety Planning'
- Hazardous Industry Planning Advisory Paper No 6. 'Guidelines for Hazard Analysis"
- Hazardous and Offensive Development Application Guideline 'Applying SEPP 33'
- NSW Dept of Planning assessment guidelines "Multi Level Risk Assessment".

SITE DESCRIPTION

LOCATION

The site is a proposed OTR Service Station to be located at 1 Renshaw Street, Cranebrook NSW as a part of a larger development. The site is located at the intersection of Renshaw Street and Andrew Road in Cranebrook. The overall development of the property whilst incorporating a service station also proposes for the development of an attached food and drink premises with the service station, a multi bay car wash facility, three stand alone food and drink premises and a child care centre. Outside of this larger development the surrounding properties are vacant yet to be developed land to the north and a lake to the west. The street frontage of Andrews road is located along the southern boundary and Renshaw Street runs the length of the eastern boundary.

PROPOSAL

This site is a proposed service station with the intent to supply Motor Spirit and Combustible Liquids for automotive use to the general public. The site is approx. 17,298m^2 in size with the service station tenancy allocated an area of 2,345m^2 incorporating a proposed 268m^2 sales building. It is proposed to install double wall fuel tanks as per the list detailed below.

HAZARDOUS MATERIALS

This proposal incorporates a total of approximately 115kl of flammable liquid and 25kl of combustible liquid in underground tanks. The flammable and combustible liquid storages covered by this assessment are the only bulk hazardous materials stored on site and are fully covered under the SEPP 33 screening process.

SEPP 33 RISK SCREENING

FUEL STORAGE

Proposal

Product	Quantity	Tank/Compartment No.	Class and PG
ULP	30,000 litres	1	3 PG II
98 Petrol	40,000 litres	2	3 PG II
E10 Petrol	25,000 litres	3	3 PG II
95 Petrol	20,000 litres	4	3 PG II
Diesel	25,000 litres	5	C1*

Notes: * As the diesel (combustible C1) is stored on site together with the petrol (flammable liquid class 3), it will be considered as a flammable for the purposes of this report[6].

Calculations

The screening method set out in Applying SEPP 33 (Department of Planning, 2011) provides the first step in the analysis. The screening method is based on broad estimates of the possible off-site effects or consequences from hazardous materials present on site, taking into account locational characteristics.

If the quantity/distance is less than the screening threshold, then no further analysis is necessary. The safety management regime in this case relies on observance of the requirements of engineering codes and standards.

If the quantities/distances exceed the screening threshold, further analysis is necessary.

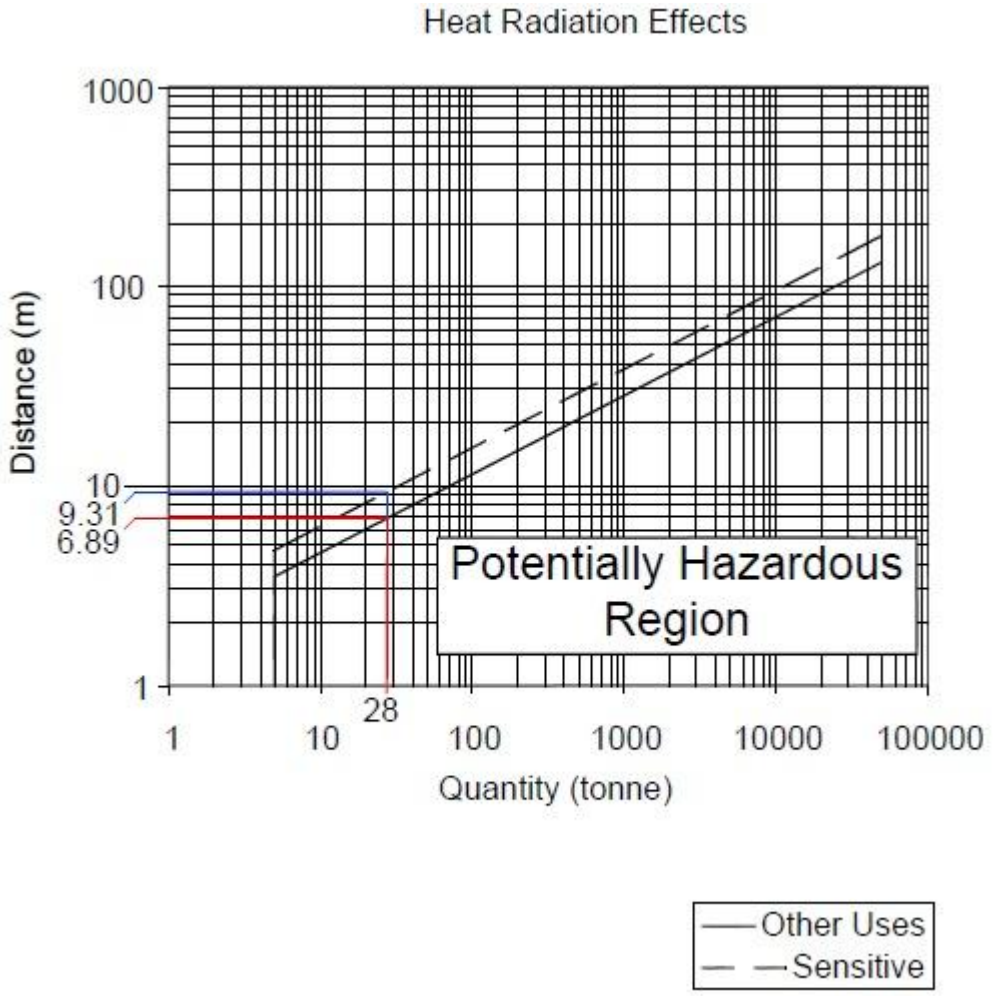
By utilising Figure 9 of SEPP 33 and measuring separation distances, it can be determined whether further analysis is required. The separation distances are measured from both the underground tank fill points and the fuel dispensers to the site boundaries.

Boundary	Min Distance – Fill Points	Min Distance - Dispensers
North West	27.2	34.6
South East	44.4	32.3
North East	8.9	22.6
South West	142.5	122.1

Total storage capacity is 140,000 litres.

So for this quantity, as it is stored underground, we can divide by a factor of five, as it is considered less invasive. So allowance is for 28,000 litre storage.

FIGURE 9, SEPP 33



From Figure 9 we can see that for 28,000 litres, the minimum setback distance from the remote fill and dispensing points is 6.89 metres to site property boundaries for other uses or 9.31 metres for sensitive uses (residential uses).

Since the set back distances are in excess of both 6.89m from normal use and 9.31m from sensitive use boundaries to the fill points and dispensers, the site is deemed to be non hazardous and there is no requirement to do a PHA for further analysis under this section.

TRANSPORT SCREENING THRESHOLD

SEPP 33 screening also requires a study of the transporting/delivery frequencies, for the site as outlined in table 2 (below). It is envisaged that deliveries to site for fuels will be about 3 times a week, or 156 times per year. According to the "Transportation Screening Thresholds", up to 45 movements per week or 750 movements per year for fuel are acceptable prior to becoming potentially hazardous[7].

In this case, as the numbers of expected deliveries for the fuel is well below the thresholds, there are no requirement to do further analysis in the form of a PHA based on the transport screening thresholds.

Table 2: Transportation Screen Threshold "Applying SEPP 33" (page 18)

Table 2: Transportation Screening Thresholds

	Vehicle Movements		Minimum quantity* per load (tonne)	
	Cumulative	Peak		
Class	Annual *or*	Weekly	Bulk	Packages
1	see note	see note	see note	
2.1	>500	>30	2	5
2.3	>100	>6	1	2
3PGI	>500	>30	1	1
3PGII	>750	>45	3	10
3PGIII	>1000	>60	10	no limit
4.1	>200	>12	1	2
4.2	>100	>3	2	5
4.3	>200	>12	5	10
5	>500	>30	2	5
6.1	all	all	1	3
6.2	see note	see note	see note	
7	see note	see note	see note	
8	>500	>30	2	5
9	>1000	>60	no limit	

Note: *Where proposals include materials of class 1, 6.2 or 7, the Department of Planning should be contacted for advice. Classes used are those referred to in the Dangerous Goods Code and are explained in Appendix 7.*

** If quantities are below this level, the potential risk is unlikely to be significant unless the number of traffic movements is high.*

CONCLUSION

It has been determined via assessment of this proposal under the NSW State Environmental Planning Policy 33 (SEPP 33) that the site is deemed "not potentially hazardous". The proposed design sees all setback distances as required under SEPP 33 achieved and therefore the site and its current design are deemed to not impose a significant level of risk to the community. As a result of this finding there is no requirement for a Preliminary Hazard Analysis to be undertaken based on the site being assessed as not potentially hazardous.

DOCUMENT REFERENCES

[1] State Environmental Planning Policy 33, Hazardous & Offensive Development Application Guidelines. – Department of Planning NSW, January 2011.
[2] State Environmental Planning Policy 33, Hazardous & Offensive Development Application Guidelines. – Department of Planning NSW. Page 1, 1.2 the policy, last para
[3] State Environmental Planning Policy 33, Hazardous & Offensive Development Application Guidelines. – Department of Planning NSW. Page 9, 4.2
[4] Protection of the Environment Operations (Underground Petroleum Storage Systems) regulation 2014 division 1, clause 5 and 6
[5] Protection of the Environment Operations (Clean Air) regulation 2010
[6] State Environmental Planning Policy 33, Hazardous & Offensive Development Application Guidelines. – Department of Planning NSW. Page 16
[7] State Environmental Planning Policy 33, Hazardous & Offensive Development Application Guidelines. – Department of Planning NSW. Page 18, table 2

OTHER REFERENCES

Australian Standards:

AS 1940-2017	"The Storage & Handling of Flammable & Combustible Liquids"
AS 4897-2008	"The Design, Installation and Operation of Underground Petroleum Storage Tanks"
AS 3000-2007	"Electrical Wiring Rules".
AS/NZS 60079.10.1-2009	"Classification of Areas. Explosive gas atmospheres". Annex ZA "Examples of Hazardous Area Classification".
AS 2832.2-2003	"Cathodic Protection of Metals – Compact buried structures".
AS 2239-2003	"Galvanic (sacrificial) Anodes for Cathodic Protection".
AS/NZS 3788-2006	"Pressure Equipment – In-service inspection".
AS 4037-1999	"Pressure Equipment – Examination & testing".
AS/NZS 1841.5-2007	"Portable Fire Extinguishers".
AS 2444-2001	"Portable Fire Extinguishers and Fire Blankets". Select. & location.
AS 1692-2006	"Tanks for Flammable and Combustible liquids".

Codes of Practices:

Australian Code for the Transportation of Dangerous Goods by Road and Rail, Seventh edition.
NSW Code of Practice 2005 for Storage & Handling of Dangerous Goods.
NSW Work Health and Safety Act 2011
NSW Work Health and Safety Regulation 2017

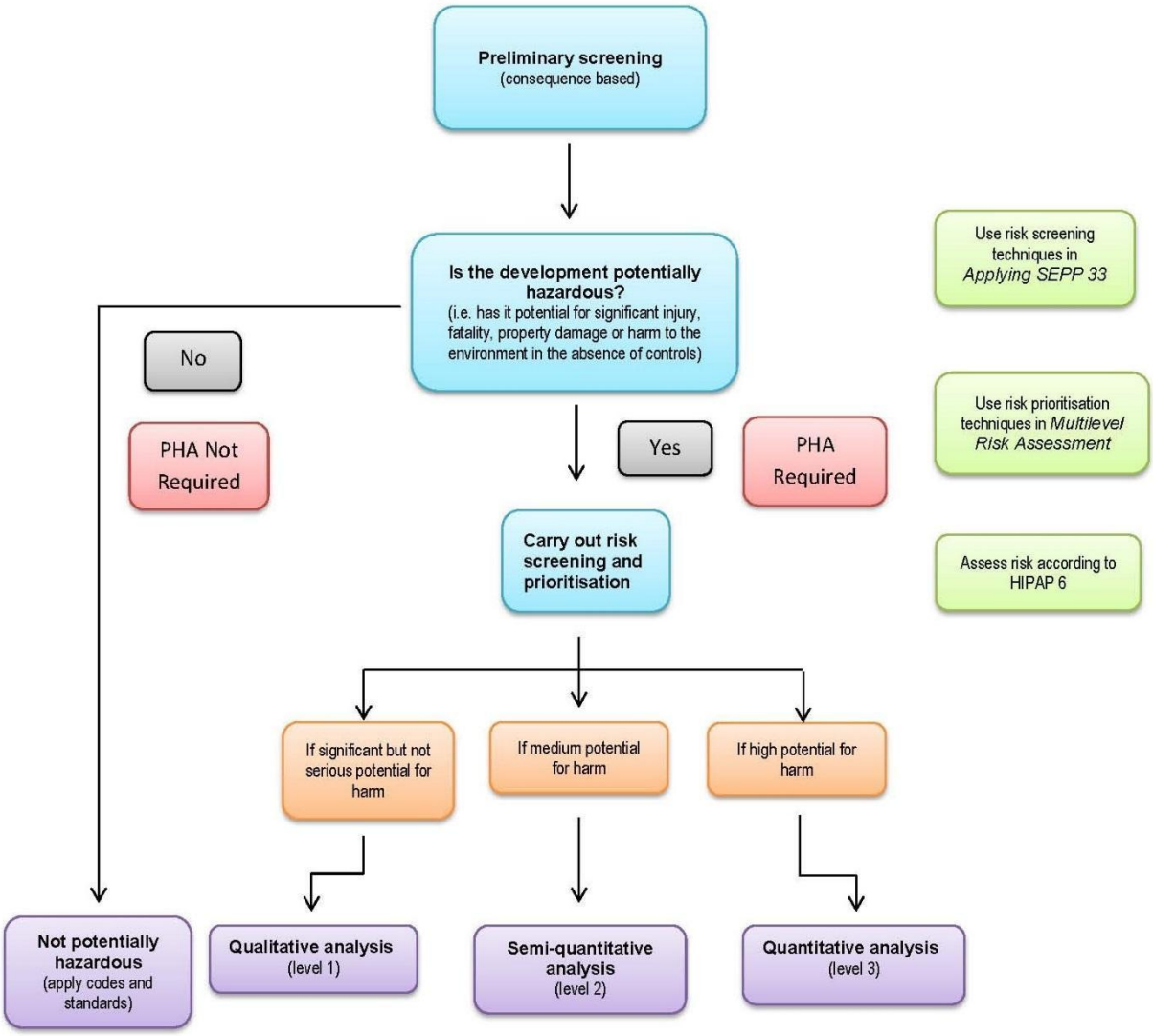
Planning NSW Guidelines:

Hazardous and Offensive Development Application Guidelines - Applying SEPP 33
Hazardous and Offensive Development Application Guidelines - Multi-Level Risk Assessment
Hazardous Industry Planning Advisory Paper No. 4 - Risk Criteria for Land Use Safety Planning
Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis
Hazardous Industry Planning Advisory Paper No. 8 - Hazard and Operability Studies

Other Documentation:

Local Authorities requirements, NSW WorkCover and EPA Acts and Regulations.
Equipment Suppliers Specifications, Requirements and Instructions.
Fuel System Specifications and Drawings.
Site Specific drawings and suppliers specifications.

APPENDIX 1
MULTI LEVEL RISK ASSESSMENT FLOW CHART



APPENDIX 2
RISK RANK METHOD

RISK RANKING METHOD

Risk is the combination of the likelihood of a specific unwanted event and the potential consequences if it should occur.

Probabilities

A - common or repeating occurrence
B - known to occur, or "it has happened"
C - could occur, or "I've heard of it happening"
D - not likely to occur
E - practically impossible

Consequences

People
1 - fatality or permanent disability
2 - serious lost time injury or illness
3 - moderate lost time injury or illness
4 - minor lost time injury or illness
5 - no lost time

Equipment, assets or environment
1 - more than $500K damage
2 - $100K to $500K damage
3 - $50K to $100K damage
4 - $5K to 50K damage
5 - less than $5K damage

Production
1 - more than $500K production delay
2 - $100K to 500K delay
3 - $50K to $100K delay
4 - $5K to $50K delay
5 - less than $5K delay

Risk Ranking Method (above)
For each event, the appropriate probability (a letter A to E) and consequence (a number 1 to 5) is selected. If an event affects more than one area of consequence (eg. Affects people and production), The highest rank number, i.e.1, is always selected.

Risk Ranking Table (below)
The consequences (loss outcomes) are combined with the probability (of those outcomes) in the risk ranking table to identify the risk rank of each loss event (eg a consequence 3 with a probability B yields a risk rank 9).
The table yields a risk rank from 1 to 25 for each set of probabilities and consequences.
A rank of 1 is the highest magnitude of risk, i.e. a highly likely, very serious event.
A rank of 25 represents the lowest magnitude of risk, an almost impossible, very low consequence event.
Events represented on the risk ranking table by ranks between 16 and 25 inclusive are considered acceptable risks.

RISK RANKING TABLE

PROBABILITY	A	B	C	D	E
CONSEQUENCE					
1	**1**	**2**	**4**	**7**	**11**
2	**3**	**5**	**8**	**12**	16
3	**6**	**9**	**13**	17	20
4	**10**	**14**	18	21	23
5	**15**	19	22	24	25

APPENDIX 3
HAZARD ANALYSIS

Hazard Analysis

Project: Cranebrook Service Station at 1 Renshaw Street Cranebrook NSW **Date:** 09.11.2021

Description/Activity: Design Phase - Dangerous Goods Storage at Service Station

RISK RANKING METHOD SUMMARY (Refer Appendix 2 for full detail)

Probability	**Consequences**		
	People	*Equipment, assets or environment*	*Production*
A - Common or Repeating Occurrence	1 - fatality or permanent disability	1- more than $500K damage	1 - more than $500k production delay
B - Known to occur , or "it has happened"	2 - serious lost time injury or illness	2 - $100k to $500k damage	2 - $100k to $500k delay
C - Could occur, o "I've heard of it happening"	3 - moderate lost time injury or illness	3 - $50k to $100k damage	3 - $50k to $100k delay
D - not likely to occur	4 - minor lost time injury or illness	4 - $5k to $50k damage	4 - $5k to $50k delay
E - practically impossible	5 - no lost time	5 - less than $5k damage	5 - less than $5k delay

	Certification against AS1940 for Flammable and Combustible Liquids Storage		Probability	Consequences	
No.	Hazard		A-E	1-5	Action Required (Y/N)
1	Overfill of tank	The flammable and combustible liquids tanks will be located underground and be remote filled with a remote contents gauge located at the fill points. A spill kit and fire fighting equipment will be within close proximity to the delivery driver whilst filling the tanks.	D	4	N
2	Leak in pipework	All pipework will be located underground and protected from impact. Regular pressure tests will be performed to ensure tightness. Stock reconciliation is to be carried out weekly and would highlight any leaks immediately.	D	4	N
3	Hose trip hazard	The tanker parking area is to be adjacent to the fill points in a nominated tanker parking area. The hose used will be a small diameter pressure hose and generally able to lie flat on the ground. The tanker driver will use warning signage during deliveries.	D	5	N
4	Ruptured fill hose	Extremely unlikely event. The tank hoses will be pressure tested and/or replaced regularly. The tanker will be fitted with an emergency stop system. The tanker standing area will be specifically set up for containment of spills.	E	4	N

5	Equipment wear and tear	Regular maintenance checks will be carried out on the tank and its equipment to maintain that everything is in a safe and working condition. This will occur at least annually. Delivery drivers will report anything that requires rectification.	D	4	N
6	Vandalism of equipment	The tank will be installed underground. All valves and fittings will be located in a underground turret which is to be kept secured from tampering.	D	4	N
7	Customer overfill during dispensing	The dispensers installed at this site will be equipped with a sensing device that's shuts down the flow of product when it reaches the tip of the nozzle. Clean up materials are to be located within close proximity of the dispensing area.	D	4	N
8	Customer drives off with nozzle inserted	Clean up materials are to be located within close proximity to the dispensing area.	D	4	N
9	Collision between vehicle and dispenser	All dispensers on this site are to be protected from vehicular impact by with the assistance of bollards.	D	3	N
10	Use of mobile phone/transmitting devices	The site is to be fitted with warning signs advising customers of the risk of mobile phone and transmitting devices. The console is to be fitted with a public address system should the console operator be required to advise customers of the use of this type of equipment on a service station site.	D	4	N
11	Spill of product onto customer	The console operator will be trained in how to administer first aid should a customer be injured by coming into contact with any dangerous goods on this site.	D	4	N
12	Customer misuse of equipment	The site will be fitted with instructions indicating procedures for safe use of the dispensing equipment. The console operator will be in clear view of all dispensers on site and capable of shutting down any dispenser system that is not being used in a safe manner. The console operator will also has access to a public address system should they need to verbally communicate with customers on the forecourt.	D	4	N
13	Fire at fill point	All delivery tankers will carry at least a single powder type extinguisher which will be available near the fill points during product delivery. As a Service Station site additional fire protection equipment will be available within a close proximity. The fill points will be fitted with back check valves as well as manual valves to stop any outward flow. The tanker is fitted with an emergency stop system in order to cease pumping quickly.	D	4	N
14	Fire on site	As a service station storing and dispensing flammable and combustible liquids fire protection in the form of fire extinguishers will be located on site in strategic places in full compliance with AS 1940. An emergency shut down system will be installed onsite to enable the dispensing system to be shut down in an emergency.	D	3	N
15	Fire on adjoining property	Should a fire on an adjoining property impact the site the dispensing system will be able to be shut down ensuring the all product remains in the underground tanks.	D	3	N

Hazard Analysis Summary

Project/Site: Cranebrook Service Station at 1 Renshaw Street Cranebrook NSW **Date:** 09.11.2021
Description/Activity: Design Phase - Dangerous Goods Storage at Service Station Last Updated:

Note: This section of the hazard analysis is for the design of site only and does not take into account any site issues which must be looked at regarding alternate storage locations

CONTROL MEASURES		IMPLEMENTATION		MONITOR & REVIEW	
Item Ref	**Possible Control Measures**	**Responsibility and Action Required**	**Control Implemented Sign-off & Date**	**Planned Review Date**	**Review Sign-off & Date**
	NA	NA			

CONCLUSION/COMMENTS:

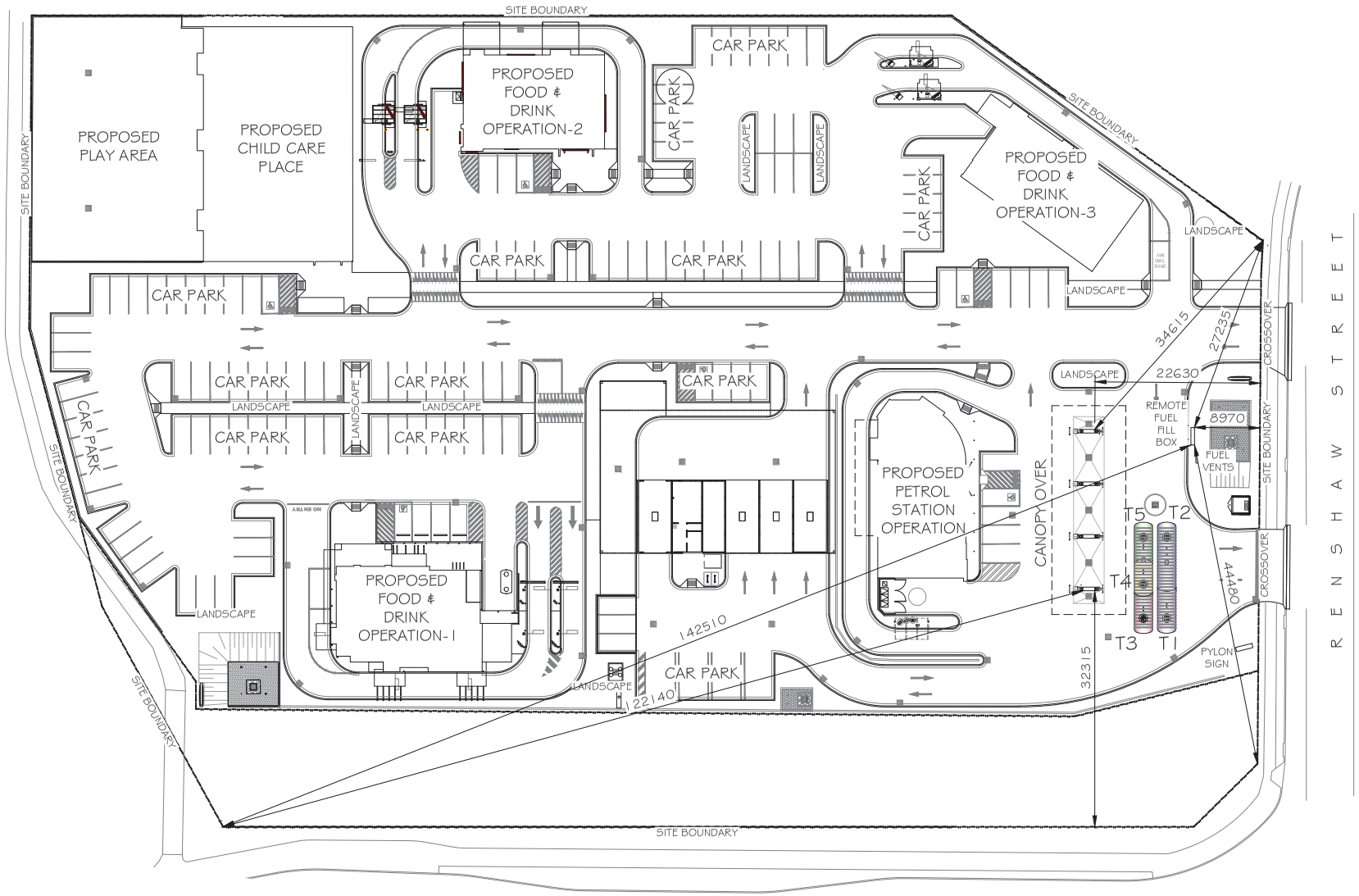
POST IMPLEMENTATION CHECKLIST REVIEW:

APPENDIX 4
PROPOSED SITE PLAN

TOTAL SITE AREA = 17,298 SQ.M.

TOTAL SHOP AREA = 268 SQ.M.

TANK SCHEDULE			
TANK-ID	TANK-SIZE	COMPARTMENT-SIZE	PRODUCT
T1	70, 000LT	30, 000LT	ULP
T2		40, 000LT	P98
T3	70, 000LT	25, 000LT	E10
T4		20, 000LT	P95
T5		25, 000LT	DSL



IsaacProperty

PRELIMINARY ISSUE

ISS/AMT	DESCRIPTION	BY	DATE
-	-	-	-
-	-	-	-
2	SITE PLAN AMENDMENT	JP	08.11.21
1	SITE BASE PLAN AMENDMENT	KM	07.10.21
0	INITIAL HAZKEM ISSUE	KM	07.10.21

HAZKEM

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PROJECT

OTR SERVICE STATION
1 RENSHAW STREET
CRANEBROOK, NSW

CLIENT

ISAAC PROPERTY

TITLE

SITE GENERAL ARRANGEMENT DRAWING

6m 3m 0 6m 12m 18m 24m 30m

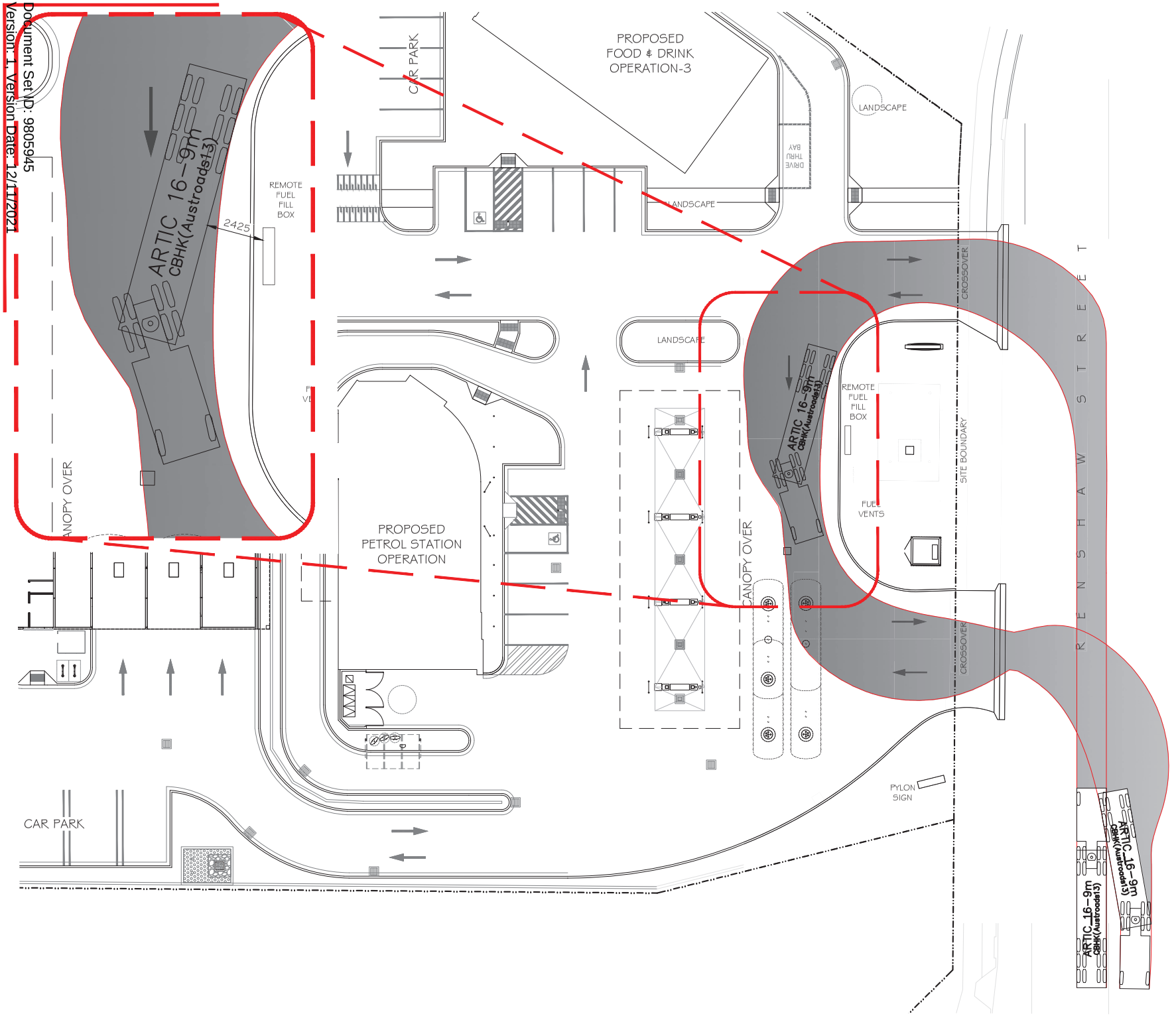
SCALE 1 : 600

PROJECT No	DESIGNED	DRAWN	SCALE
HAZ-2849		KM	1:600 @A3

NORTH

APPROVED

DRAWING No	ISSUE/AMT
HAZ-2849-GA01	2



PRELIMINARY ISSUE

ISS/AMT	DESCRIPTION	BY	DATE
-	-	-	-
-	-	-	-
2	TANKER PATH AMENDMENT	JP	08.11.21
1	SITE BASE PLAN AMENDMENT	KM	07.10.21
0	INITIAL HAZKEM ISSUE	KM	07.10.21

HAZKEM

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PROJECT

OTR SERVICE STATION
1 RENSHAW STREET
CRANEBROOK, NSW

CLIENT

ISAAC PROPERTY

TITLE

TANKER PATH LAYOUT -
16.9M TRI AXLE

2m 0 2m 4m 6m 8m 10m 12m
SCALE 1 : 250

PROJECT No	DESIGNED	DRAWN	SCALE
HAZ-2849		KM	1:250 @A3

NORTH

APPROVED

DRAWING No: HAZ-2849-GA02

ISSUE/AMT: 2