MEL2 – 95 Sharps Rd, Tullamarine VIC, 3043

Preliminary Hazard Assessment

EMKC Cubed Pty Ltd

Level 11, 37 York Street, Sydney NSW 2000

Prepared by:

SLR Consulting Australia

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Basis of Report

This report has been prepared by SLR Consulting Australia (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with EMKC Cubed Pty Ltd (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1.0 Introduction

SLR Consulting Australia Pty Ltd (SLR) has been engaged by EMKC Cubed Management (EMKC) Pty Ltd to undertake a Preliminary Risk Screening and Hazard Assessment for the proposed data centre development on the site comprising 95 Sharps Rd, Tullamarine, VIC, 3043. The proposal involves the construction of three, six level Data Centre Buildings.

This assessment has been prepared to accompany the DA for the proposal.

1.1 Preliminary Risk Screening

The Preliminary Risk Screening is undertaken using the manifest quantities of dangerous goods to be used / stored on site. The basis of this screening is the legislative and regulatory requirements in relation to the storage and handling of dangerous goods. Including the *Dangerous Goods Act 1985, Part IV Information on dangerous goods at licensed premises* and the *Dangerous Goods (Storage and Handling) Regulations 2022, Schedule 2 Quantities of Dangerous Goods*. Dangerous goods to be used on site are identified and quantified. This information is then compared against the Placard Quantity, Manifest Quantity and Fire Protection Requirements set out in *Schedule 2 Quantities of Dangerous Goods* of the *Dangerous Goods (Storage and Handling) Regulations 2022.* If the screening assessment finds that dangerous goods storage triggers one of the regulatory requirements then further assessment is required in the form of a Preliminary Hazard Assessment.

1.2 Preliminary Hazard Assessments

A Preliminary Hazard Assessment (PHA), including Preliminary Risk Screening (PRS) assessment, typically forms part of the supporting documentation for an industrial development in accordance with planning requirements.

A PHA consists of a Hazard Analysis (HA) and Multi-Level Risk Assessment (MLRA).

The objective of hazard analysis is to develop a comprehensive understanding of the hazards and risks associated with an operation or facility and of the adequacy of safeguards. The hazard analysis process may include qualitative and quantitative methods. Consideration should include:

- the nature and quantities of hazardous materials stored and processed on the site;
- the type of plant and equipment in use;
- the adequacy of proposed technical, operational and organisational safeguards;
- the surrounding land uses or likely future land uses; and
- the interactions of these factors.

The MLRA provides guidance on the criteria for using the results of the screening, classification and prioritisation steps to determine which of three levels of further analysis is appropriate.

- Level 1 is an essentially qualitative approach based on comprehensive hazard identification to demonstrate that the activity does not pose a significant off-site risk.
- Level 2 supplements the qualitative analysis by sufficiently quantifying the main risk contributors to show that risk criteria will not be exceeded.
- Level 3 is a full quantitative analysis.

The following three stages are used in the assessment process:

- • preliminary screening
- • risk classification and prioritisation
- • risk analysis and assessment.

The PHA should estimate the cumulative risks from the existing and proposed development. to determine the level of risk to people, property and the environment surrounding the proposed location and in the presence of controls.

If the risk levels exceed the criteria of acceptability and/or if the controls are assessed as inadequate, or unable to be readily controlled, then the development is classified as hazardous industry. Where it is unable to prevent offensive impacts on the surrounding land users, the development is classified as offensive industry.

A development may also be considered potentially hazardous with respect to the transport of dangerous goods.

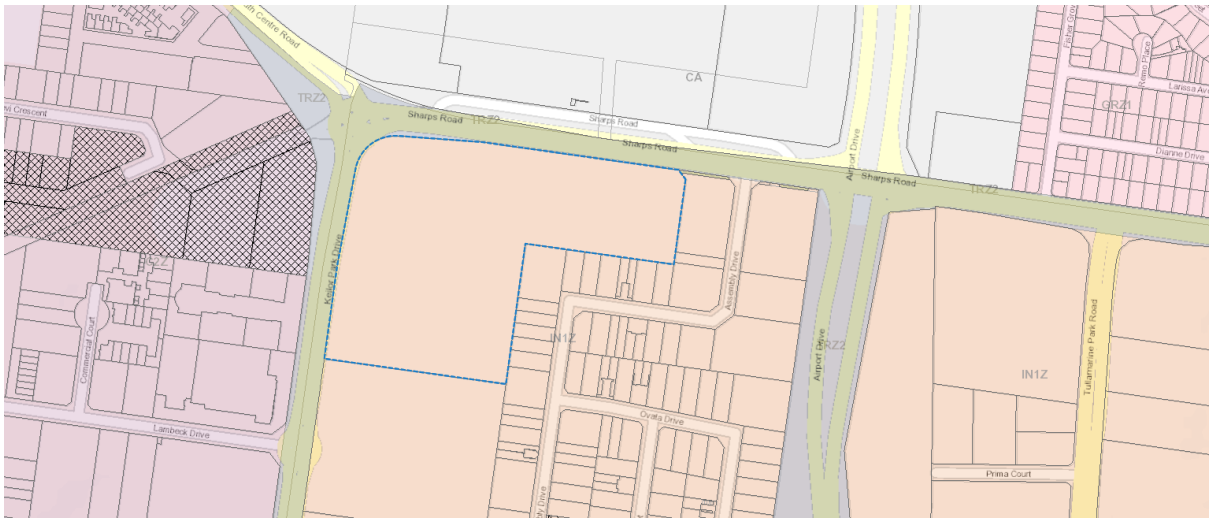
2.0 PROPOSAL DESCRIPTION

The proposed Data Centre will cater for the storage of data, essentially large halls with server racks. There will be no processing related to this facility, other than electronic storage of data. Hours of operation being on a 24 hours per day, 7 days per week basis

The existing buildings and associated car park on site are to be demolished for construction of three, six (6) storey data centre buildings. The first four storeys will be comprised of four levels of data halls. The top two storeys will be for plant and equipment.

The site location is shown in **Figure 1**.

Figure 1 Site location (outlined in blue)



The site is zoned Industrial 2 Zones (IN2Z) as are properties to the east and south, and south west. Land to the north across Sharps Road is zoned as Commonwealth Land Not Controlled By Planning Scheme (CA) Public Use Zone 1 (PUZ1). Land to the west is zoned as Commercial 2 Zone (C2Z).

2.1 Diesel Storage

The site will have diesel fuel storage areas which consist of fire rated above ground fuel storage areas with tanks and pump rooms.

Diesel fuel storage will comprise belly tanks plus day tanks plus bulk fuel tanks. The diesel storage will consist of the following:

- 4 bulk storage tanks x 110kL nominal capacity per shell[1]
- 6 generator belly tanks x circa 14.5kL nominal capacity per shell
- Up to 28 generator day tanks x 1kL nominal capacity per shell
- The three buildings are functionally comprised of 8 shells

The total storage requirement is set out in **Table 1**

Table 1 Diesel Storage Requirements

Tanks	Quantity	Fuel Storage Requirements
Bulk tanks 110 kL	4 bulk storage tanks x 110kL nominal capacity per shell 8 shells across expansion	3,520 kL
Generators with Belly Tanks 14.5 kL	48 generators with belly tanks (6 per shell)	696 kL
Generators with Day Tank 1 kL	224 generators (28 per shell)	224 kL
Site Total Fuel Tank Storage		**4,440 kL**

2.2 Lithium Ion Batteries

Lithium ion batteries will be present in cabinets installed in SBU enclosures. Each data hall level of a shell will have six SBU units each comprised of twelve battery cabinets per SBU. (The development consists of three shells.) For a total of 2,304 battery cabinets in the development.

3.0 Preliminary Risk Screening

As previously stated, the screening assessment is based on the regulatory requirements set out in *Schedule 2 Quantities of Dangerous Goods of the Dangerous Goods (Storage and Handling) Regulations 2022*. If the screening finds that dangerous goods storage triggers one of the regulatory requirements then further assessment is required in the form of a Preliminary Hazard Assessment:

[1] The term “shell” is used to describe a repeating functional unit on the building consisting of four levels of data halls and associated infrastructure.

3.1 Dangerous Goods Storage

Where Placard Quantities are exceeded "*the occupier of those premises must ensure that a "HAZCHEM" outer warning placard as specified in Schedule 4 is displayed—*".

Where Manifest Quantities are exceeded a manifest must be maintained that complies with regulations. To comply with section 30(1) of the Act, "*a manifest is in the prescribed form if it contains the information specified in Schedule 3*".

Where Fire Protection Quantities are exceeded the occupier must "*(a) request the written advice of the emergency services authority, in relation to the design of the fire protection system for the premises;*

and

(b) in establishing the fire protection system for the premises, have regard to that written advice."

Diesel fuel to be stored on site, is not classed as a Dangerous Goods, but is classed as a C1 Combustible Liquid, provided no flammable liquids are stored with the diesel.

SLR has been advised by the client that no flammable liquids will be stored with the diesel. Therefore, in the proposed development diesel will be classed as a C1 Combustible Liquid.

Note that C1 combustible liquids are not a dangerous good under UN (United Nations) classification. However, they are defined as dangerous goods under VIC legislation. Schedule 2 Quantities of Dangerous Goods of the Dangerous Goods (Storage and Handling) Regulations 2022, sets out Placard Quantities, Manifest Quantities and Fire Protection Quantities.

Lithium ion batteries are Class 9 Miscellaneous dangerous substances and articles. Schedule 2 sets out Placard Quantities, Manifest Quantities and Fire Protection Quantities for Dangerous Goods Class 9.

Both the proposed diesel storage volume on site and proposed the amount of lithium ion batteries will exceed the schedule 2 Placard Quantities, Manifest Quantities and Fire Protection Quantities. Therefore regulatory requirements are triggered for placards, a dangerous good manifest and requiring written advice of the emergency services authority, in relation to the design of the fire protection system for the premises.

The dangerous goods storage with regards to diesel and lithium ion batteries is set out below in **Table 2**.

Table 2 Dangerous Goods in Storage

Substance	Hazardous Class	Total Storage on Site	Placard Quantity	Manifest Quantity	Fire Protection Quantity
Diesel	C 1	1,665,000 L[1]	10,000 L	100,000 L	100,000 L
Lithium Batteries	DG 9 Packing Group II	Dependent on battery type. Expected to exceed 20,00kg	1,000 kg	10,000 kg	20,000 kg

3.2 Dangerous Goods Transport

Once the site is operational there will be minimal transportation of diesel for the operation of the site. The requirements will be periodic refiling of bulk diesel tanks when required.

Generators are periodically fired up for maintenance. The specific maintenance schedule is yet to be determined.

Diesel fuel top up would occur infrequently to ensure stocks remain at the required level. Replenishment of stock in significant quantities would only occur in the event of a major power failure to the site.

The proposed Data Centre will have established procedures for the safe delivery and handling of fuel.

4.0 Preliminary Risk Screening Conclusions

The dangerous goods storage triggers the regulatory requirements under Schedule 2 Quantities of Dangerous Goods of the Dangerous Goods (Storage and Handling) Regulations 2022. Therefore further assessment is required in the form of a Preliminary Hazard Assessment with regards to diesel storage and lithium ion batteries.

5.0 PRELIMARY HAZARD ANALYSIS

The purpose of the Preliminary Hazard Analysis is to assess whether the proposed development impacts the current surrounding land uses and/or if the development is offensive or hazardous, thereby posing an unacceptable risk to the surrounding community or if the proposed development may be potentially subject to hazards or risks from existing development in the surrounding area.

In the context of the current report, as stated previously, the proposed development is the construction and operation of two six level Data Centre Buildings. The hazards identified in the screening process that required further assessment were the following:

- Diesel storage and use on site
- Lithium ion batteries

5.1 Hazard Identification

The hazard analysis and quantified risk assessment approach relies on a systematic and analytical approach to the identification and analysis of hazards and the quantification of off-site risks to assess risk tolerability and land use safety implications. The level and extent of analysis must be appropriate to the hazards present and therefore, need only progress to the extent necessary for the particular case.

5.2 Methodology

The procedures adopted by this study for assessing hazardous impacts involve the following steps:

Step 1: Hazard identification.

Step 2: Hazard analysis (consequence and probability estimations); and

Step 3: Risk evaluation and assessment against specific criteria.

The following sections of the report discuss the hazard identification and analysis process.

5.3 Hazard Identification

This is the first step in the risk assessment. It involves the identification of all theoretically possible hazardous events as the basis for further quantification and analysis. This does not in any way imply that the hazard identified or the theoretically possible impact will occur in practice. Essentially, it identifies the particular characteristics and nature of hazards to be further evaluated in order to quantify potential risks.

To identify hazards, a survey of operations was carried out to isolate the events which are outside normal operating conditions and which have the potential to impact outside the boundaries of the site. These events do not include occurrences that are a normal part of the operation cycles of the site but rather the atypical and abnormal.

5.3.1 Hazard Analysis

After a review of the events identified in the hazard identification stage and the prevention/protection measures incorporated into the design of the site, any events which are considered to have the potential to result in impacts off-site or which have the potential to escalate to larger incidents are carried to the next stage of analysis.

5.3.2 Consequence Estimation

This aspect involves the analysis and modelling of the credible events carried forward from the hazard identification process in order to quantify their impacts outside the boundaries of the site. These events typically include explosion, fire fume, dispersion/propagation and stormwater contamination and their potential effects on people and/or damage to property.

5.3.3 Probability Likelihood Estimation

Where necessary, the likelihood of incidents quantified are determined by adopting probability and likelihood factors derived from published data.

5.3.4 Risk Evaluation and Assessment

The risk analysis includes the consequences of each hazardous event and the frequencies of each initiating failure. The results of consequence calculations (radiation and overpressure contours, and toxic exposure levels) together with the probabilities and likelihood's estimated are then compared against the accepted criteria, as specified by the HIPAP series applicable for the site. Whether it is considered necessary to conduct the predictions would depend on the probabilities and likelihood estimated and if the risk criteria are exceeded.

5.3.5 Risk Criteria

As part of the MLRA, hazards are identified and the risk from the hazards estimated. Risk criteria take into consideration surrounding land uses, and the category of risk. They encompass such elements as injury/ irritation, individual and societal risk of fatality, property damage and harm to the biophysical environment. Criteria may be expressed in qualitative or quantitative terms. A key concept in the risk criteria is that societal risks should be "as low as reasonably practical", known as the ALARP principle.

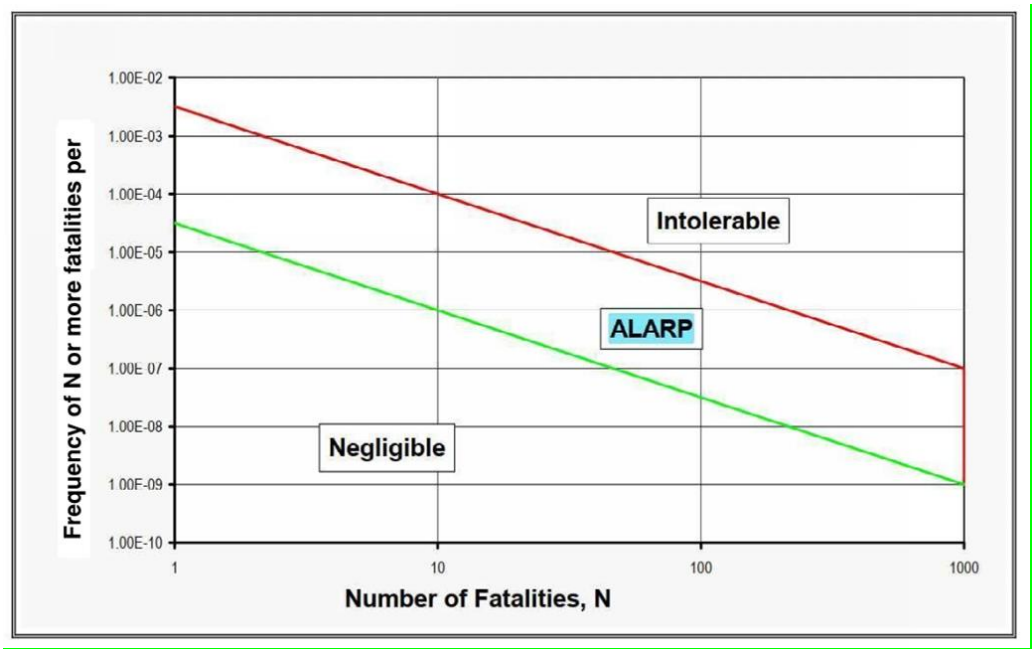
ALARP is a principle that may be applied in relation to the degree of risk reduction that may be sought from a particular activity. It has been described by the UK Health and Safety Executive (HSE) in the following terms: "In weighing the costs of extra safety measures the principle of reasonable practicability (ALARP) applies in such a way that the higher or more

unacceptable a risk is, the more, proportionately, an employer is expected to spend to reduce it".

The indicative societal risk criteria reflect these regions as three societal risk bands: negligible, ALARP and intolerable, as shown in the example below in **Figure 2**.

- Negligible: provided other individual criteria are met, societal risk is not considered significant.
- Intolerable: the activity is considered undesirable, even if individual risk criteria are met.
- ALARP: the emphasis is on reducing risks as far as possible towards the negligible boundary. Provided other quantitative and qualitative criteria are met, the risks from the activity would be considered tolerable in the ALARP region.

Figure 2 Indicative Societal Risk Criteria



The risk assessment in the current study was based on hazard identification, consequence assessment and likelihood assessment, to create an overall risk assessment. Descriptors for the qualitative risk assessment at the various levels of consequence of a particular event, and the likelihood (or probability) of such an event occurring are presented in **Table 3** and **Table 4**.

Table 3 Qualitative Likelihood Rating

Level	Descriptor	Description
A	Almost certain	Is expected to occur in most circumstances
B	Likely	Will probably occur in most circumstances
C	Possible	Could occur
D	Unlikely	Could occur but not expected
E	Rare	Conceivable, but only in exceptional circumstances

Table 4 Qualitative Consequence Rating

Level	Descriptor	People	Environment	Asset / Production
5	Catastrophic	Multiple fatality	Extreme environmental harm, eg widespread catastrophic impact	More than $5M loss or production delay
4	Major	Permanent total disabilities, single fatality	Major environmental harm, eg widespread substantial impact	$1M to $5M loss or production delay
3	Moderate	Major injury or health effects, eg. major lost workday case/permanent disability	Serious environmental harm, eg widespread and significant impact	$500k to $1M loss or production delay
2	Minor	Minor injury or health effects, eg. restricted work or minor lost workday case	Material environmental harm, eg localised and significant impact	$50k to $500k loss or production delay
1	Insignificant	Slight injury or health effects, eg. first aid/minor medical treatment level	Minimal environmental harm, eg interference or likely interference to an environmental value	Less than $50k loss or production delay

The risk ratings are defined as the following:

- Tolerable – the risk is acceptably low.
- ALARP ("As Low As Reasonably Practical") - the risk has been reduced to as low a level as possible and all feasible controls and mitigation strategies are implemented.
- Intolerable - The risk cannot be reduced to an acceptable level with residual impacts likely to have significant impact on the local environment or stakeholders. Intolerable risk would preclude the development of the Project.

The risk rating matrix is set out in **Table 5**.

Table 5 Risk Rating Matrix

Risk Rating					
Likelihood	**Consequence**				
	Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Almost certain	ALARP	ALARP	Intolerable	Intolerable	Intolerable
Likely	Tolerable	ALARP	ALARP	Intolerable	Intolerable
Possible	Tolerable	Tolerable	ALARP	ALARP	Intolerable
Unlikely	Tolerable	Tolerable	Tolerable	ALARP	ALARP
Rare	Tolerable	Tolerable	Tolerable	Tolerable	ALARP

In assessing the tolerability of risk from potentially hazardous development, the relevant general principles are:

- the avoidance of all avoidable risks;
- the risk from a major hazard should be reduced wherever practicable, even where the likelihood of exposure is low;
- the effects of significant events should, wherever possible be contained within the site boundary; and
- where the risk from an existing installation is already high, further development should not pose any incremental risk.

5.3.6 Risk of Property Damage and Accident Propagation

The siting of an installation must account for the potential for propagation of an accident causing a “domino” effect on adjoining premises. This risk would be expected within an industrial estate where siting of hazardous materials on one site may potentially cause hazardous materials on an adjoining premises to further develop the size of the accident.

In the current study, the risk of property damage and accident propagation to adjoining property outside the site it is considered that any potential for offsite consequence is minimised by the onsite control measures as part of fire safety.

The potential for impact of surrounding industry on the proposed development site in respect to the proposed development site is possible but is considered unlikely.

5.3.7 Incident Scenarios and Control Measures

Major incidents possible at the site along with potential outcomes, consequences and control measures and residual risk after the implementation of control measures have been assessed in **Table 6**.

The control measures recommended in **Table 6** are designed to maintain and contain the risks within the boundaries of the site and reduce the risk to areas outside the boundaries. The technical and management safeguards required are self-evident and readily implemented as part of plant safety engineering.

The objective of the recommended safeguards, including references to codes and standards, is to ensure the risk level is ALARP and that the Project design meets the principles of:

- the avoidance of all avoidable risks;
- the risk from a major hazard should be reduced wherever practicable, even where the likelihood of exposure is low;
- the effects of significant events should, wherever possible be contained within the site boundary; and
- where the risk from an existing installation is already high, further development should not pose any incremental risk

Table 6 shows that a residual risk exists for an albeit unlikely scenario involving a potential fire. This was examined via a comprehensive hazard analysis in Section **5.0**

Table 6 Summary of Potential Major Incident Scenarios & Residual Risk after Implementation of Controls

Hazard / Incident	Scenario	Likely Consequences	Controls	Likelihood	Consequence	Residual Risk
Site Fire	Fire starts in lithium battery storage. Failure of lithium ion battery protection systems leading to thermal runaway, fire and spread to other batteries	Potential for fire to spread and for diesel to act as accelerant. Potential for downwind irritation from smoke plume. Localised radiant heat effects.	Lithium battery storage is installed and maintained as per manufacturers requirements and follows relevant regulatory requirements. Facility has appropriate fire control systems in place. Emergency evacuation plans in place.	Unlikely	Major	ALARP
Site Fire	Fire starts in a generator	Potential for fire to spread and for diesel to act as accelerant. Potential for downwind irritation from smoke plume. Localised radiant heat effects.	Generators installed and maintained as per manufacturers requirements and follows relevant regulatory requirements. Facility has appropriate fire control systems in place. Emergency evacuation plans in place.	Unlikely	Major	ALARP
Site Fire	Electrical systems, arching, over heating, short circuiting, etc	Potential for fire to spread and for diesel to act as accelerant. Potential for downwind irritation from smoke plume. Localised radiant heat effects.	Electrical systems installed and maintained as per manufacturers requirements and follows relevant regulatory requirements. Facility has appropriate fire control systems in place. Emergency evacuation plans in place.	Unlikely	Major	ALARP
Site Fire	Fire starts in another section of the site and impinges on diesel storage and lithium batteries.	Potential for fire to spread and for diesel to act as accelerant. Potential for downwind irritation from smoke plume. Localised radiant heat effects.	Facility has appropriate fire control systems in place. Emergency evacuation plans in place.	Unlikely	Major	ALARP

Hazard / Incident	Scenario	Likely Consequences	Controls	Likelihood	Consequence	Residual Risk
Fire Impact (external)	Fire starts off site, moves on site and impinges on diesel storage and lithium batteries.	Potential for fire to spread within the site and for diesel to act as accelerant. Potential for downwind irritation from smoke plume. Localised radiant heat effects.	Facility has appropriate fire control systems in pace. Emergency evacuation plans in place.	Unlikely	Major	ALARP
Dangerous Goods Transport	Transportation accident releases diesel en route to or from site	Traffic accident resulting in spillage and possible pollution.	Driver Code of Conduct implemented. UN number and Dangerous Goods Class information clearly displayed on trucks. Material Safety Data Sheet (MSDS) and other relevant information retained by driver and relevant Project Site personnel. Effective communication between driver and site personnel established. Emergency Management Plan implemented. The Plan will include the following. – Advise emergency services of the spill. – Isolate the spill area (if possible).	Rare	Moderate	Tolerable

6.0 Preliminary Hazard Assessment Conclusions

The main hazards identified and assessed in the preliminary hazard assessment related to diesel storage and lithium ion batteries.

Both diesel storage and lithium ion batteries will exceed the schedule 2 Fire Protection Quantities. Therefore regulatory requirements are triggered for placards, a dangerous good manifest and requiring written advice of the emergency services authority in relation to the design of the fire protection system for the premises.

The technical and management safeguards required for both diesel and lithium ion batteries, are self-evident and readily implemented as part of plant safety engineering.

Therefore the proposed development with suitable engineering and design controls in place, would not be considered, to be an offensive or hazardous development on site.

Sincerely,

SLR Consulting Australia

Dr Craig Simpson, ***BAppSc MSc PhD MAIOH***
Certified Occupational Hygienist (COH)®

Principal – Occupational Hygiene & Hazardous Materials

7.0 Addendum 13/12/24

WorkSafe Victoria has requested the plans and reports relating to dangerous goods on Dangerous Goods. Listed below are the three points and the responses.

WorkSafe Victoria

Traffic routes shown on the overall site plan.

Response: For details of traffic routes on the overall plan please refer to the Traffic Report provided for the development.

A dangerous goods (DG) map identifying exactly where the DG locations are onsite.

Response: The final locations of dangerous goods will be subject to finalising design details. The dangerous goods map will be provided once the design is finalised.

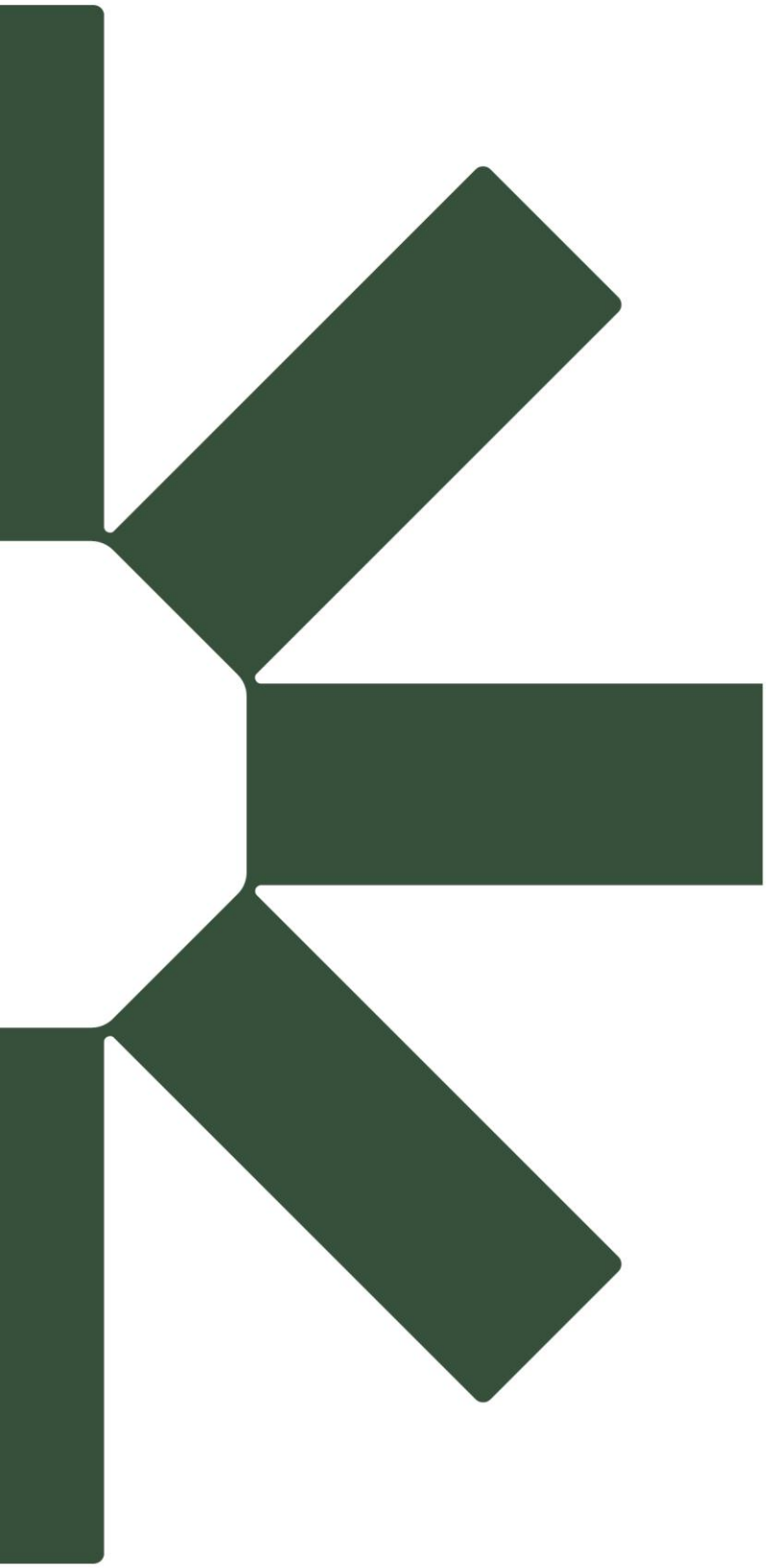
Demonstrate how compliance with risk controls outlined in the preliminary hazard analysis are achieved.

Response: The design compliance with risk controls, such as AS 1940 *The storage and handling of flammable and combustible liquids*, for the diesel storage, is subject to finalising design details. Accordingly, this detailed risk engineering information can only be demonstrated once the design details are finalised.

8.0 Feedback

At SLR, we are committed to delivering professional quality service to our clients. We are constantly looking for ways to improve the quality of our deliverables and our service to our clients. Client feedback is a valuable tool in helping us prioritise services and resources according to our client needs.

To achieve this, your feedback on the team's performance, deliverables and service are valuable and SLR welcome all feedback via https://www.slrconsulting.com/en/feedback. We recognise the value of your time and we will make a $10 donation to our Charity Partner - Lifeline, for every completed form.



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