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Terminals Australia Pty Ltd

Parkes Intermodal Terminal

Preliminary Risk Screening

January 2006

INFRASTRUCTURE | MINING & INDUSTRY | DEFENCE | PROPERTY & BUILDINGS | ENVIRONMENT

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1. Introduction

Terminals Australia Pty Ltd has proposed to develop an Intermodal Terminal for the large-scale transport, warehousing, manufacturing and storage of freight. The Intermodal Terminal (hereafter referred to as 'the proposal') is to be located in western NSW at Parkes and would be part of the Multi Modal Freight Logistics Hub being perused by Parkes Shire Council.

Parkes is well situated to support a national intermodal hub. It is strategically located at the junction of the national road and rail corridors of the Newell Highway connecting Melbourne and Brisbane; the proposed inland (Melbourne-Brisbane) rail route; and the Main Western (Sydney-Perth) transcontinental railway linking the eastern seaboard to Adelaide and via Broken Hill to Perth. The proposed site would take advantage of the existing and any future upgrades to the national road and rail transport infrastructure.

GHD-Qest has been engaged to conduct a preliminary risk screening as part of the Environmental Assessment Report for the proposal. The preliminary risk screening will indicate weather the proposal is classified as "potentially hazardous" in nature. If the proposal is found to be potentially hazardous under *State Environmental Planning Policy No. 33* (SEPP 33) the proposal will require a Preliminary Hazard Analysis (PHA) if it is to gain development approval. Additionally, the statutory requirements for the proposal to comply with AS 1940 *The Storage and Handling of Flammable and Combustible Liquids*[1] will be presented herein.

This report was prepared with background information, terms of reference and assumptions supplied and agreed with by the customer. The report is not intended for use by any other individual or organisation and as such, GHD can not accept liability for use of the information contained in this report, except for the purpose for which it was intended at the time of writing.

1.1 Objectives and Scope

The objectives of a preliminary risk screening are:

» Indicate the class, quantity and location of all hazardous material present on-site;

» To determine the requirement for a PHA; that is, whether the hazardous material storage situations and quantities exceed the risk screening thresholds presented in the Department of Planning's (DoP's) *Applying SEPP 33 – Hazardous and Offensive Development Application Guide* (Applying SEPP 33)[2]; and

» To outline the statutory requirements for the proposal to comply with AS 1940[1] specifically in relation to separation distances, bunding requirements and fire fighting hardware for all hazardous material storage locations.

2. Statutory Requirements

The EP&A Act 1979, together with the *Environmental Planning and Assessment Regulation 2000* (the Regulation) forms the statutory framework for planning and environmental assessment in NSW. The Minister Planning, statutory authorities and local councils are responsible for implementation of the EP&A Act 1979.

The development application for the proposal shall be considered under the new Part 3A (in accordance with the Amendment Act). The potential implications for the environmental assessment process will need to be considered as the project progresses.

The proposal is considered to be a 'major project' and 'designated development' under the EP&A Act. These factors influence the decision making process as follows:

» Major project – the Minister for Planning is the consent authority for the proposal; and

» Designated development – an Environmental Assessment Report shall be submitted with the application for development consent.

The Environmental Assessment Report must include a preliminary risk screening completed in accordance with the DoP's *Applying SEPP 33*[2]. Should the preliminary risk screening indicate the proposal is "potentially hazardous" then a PHA must be prepared in accordance with *Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis* (HIPAP 6)[3] and *Multi-Level Risk Assessment*[4].

3. Methodology

The methodology for the preliminary risk screening is as presented in the DoP's *Applying SEPP 33*[2]. The preliminary risk screening concentrates on the transportation and storage of specific dangerous goods classes that have the potential for significant off-site effects. The steps involved in a preliminary risk screening are as follows:

» Collate Information: The proponent should provide a full list of hazardous materials stored on-site, the method of storage, storage location, maximum inventory and shortest separation distance to site boundary. Additionally, the average number of weekly and annual road movements of hazardous material to and from the site, as well as the typical quantities in each load should be provided;

» Identify the Types of Hazard Presented by a Hazardous Material: This involves the identification of the hazardous material *class* (and subsidiary classes) for each hazardous material stored on-site. Classes and subsidiary classes are obtained from the Dangerous Goods Code (DGC) or material data safety sheets (MSDS) and illustrate the types of hazard to be considered;

» Group and Total by Class, Activity and Location: When several hazardous materials of the same class are stored in the same general site location but in differing storage forms, total the bulk quantity and then separately total the quantity stored in each form;

» Compare with Screening Threshold: Provided in the DoP's *Applying SEPP 33*[2] are various tables and figures indicating the screening threshold pertaining to each class of hazardous material. If a screening threshold is not exceeded it is assumed that the hazardous material is unlikely to pose a significant off-site risk; and,

» Transportation Issue Consideration: If a proposed development generates traffic movements (entering and leaving the site) of significant quantities of hazardous material, the development may be considered potentially hazardous. Provided in the DoP's *Applying SEPP 33*[2] are transportation screening thresholds relating to the various classes of hazardous materials. The thresholds are based on a minimum quantity per load (below which the vehicle movement should be ignored) and a vehicle movement frequency.

If any one screening threshold is exceeded then the proposed development is considered "potentially hazardous" under SEPP 33 and a preliminary hazard analysis (PHA) is required to be submitted with the development application. If any transport screening thresholds are exceeded then the proposal is considered potentially hazardous with respect to transport and a route evaluation study is required.

4. Facility Description

4.1 Location and Surrounding Land Users

Parkes is situated 365 km west of Sydney, 995 km from Brisbane, 1067 km from Adelaide and 306 km from Canberra on the western edge of the Great Dividing Range in central western NSW. The town centre of Parkes is the major urban centre in the Parkes Shire Local Government Area (LGA).

The site for the proposal is approximately 5 kilometres west of the urban centre of Parkes (Figure 1). The site is located south of the Main Road 61, north of the Brolgan Road and west of the Parkes - Naromine Railway. The primary vehicular access to the site is via Brolgan Road, however at the ultimate stage a northern access road is proposed from Main Road 61.

The site (Figure 2) is approximately 365 hectares in size - approximately 50% of which would be required for the proposal. Terminals Australia owns the majority of the site. The site comprises Lot 6 DP 857631, Lot 98 DP 750179, Lot 99 DP 750179, Lot 360 DP 750179 and Lot 1 DP 1082995. The proposal also incorporates part of Lot 200 DP 627302 – this lot is not owned by Terminals Australia but an agreement for use of the land has been reached with the owner by provision of an easement.

Figure 1: Site Location

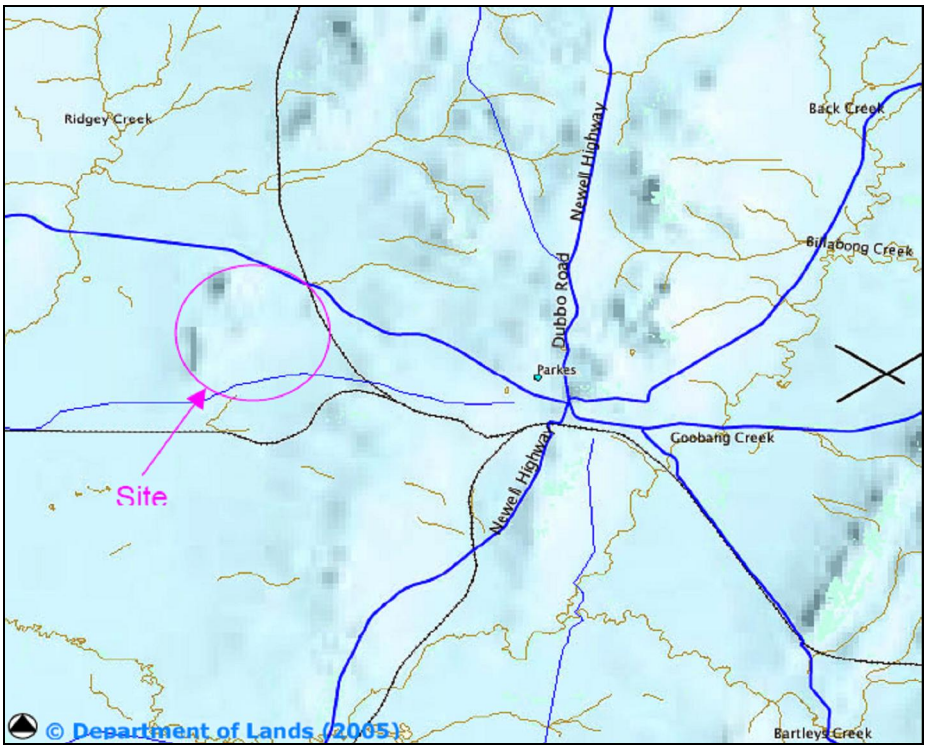
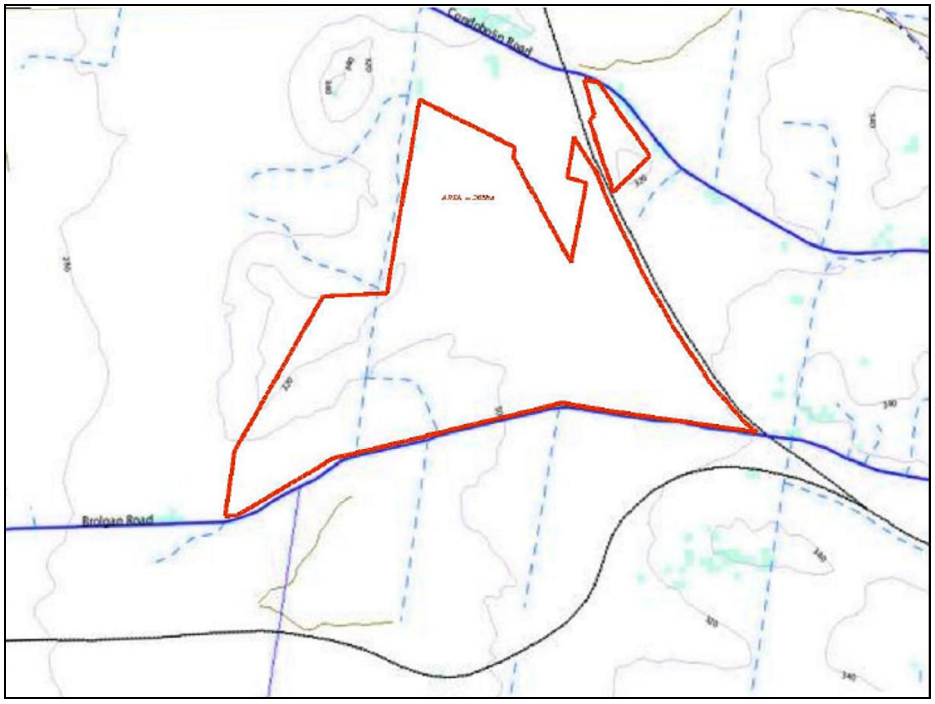


Figure 2: Site Boundary



The site is typical agricultural land of the area, and is currently being agisted to local farmers (Figure 3). Dominant features on the landscape are the Parkes-Narromine rail line, derelict dwellings, agricultural fields and associated dwellings/fences, Brolgan Road, the Sydney-Adelaide-Perth rail line, and a predominant ridge on the western side of the site. The Containerised Fuel Storage Facility is within the northern section of the site and is over 1.5 kilometres from the nearest existing dwelling. However,

Figure 3: Site Photos Showing Site Boundary, Parkes Narromine Railway and Surrounding Land Uses

council approval has been granted for a dwelling approximately 400m from the Containerised Fuel Storage Facility.

4.2 Site Layout and Operations Description

The proposal involves the construction of a national intermodal facility for the large-scale transport, warehousing and storage of freight. The intermodal terminal will be a 24-hour operation.

One of the purposes of the proposal is to provide a strategic location between the freight service user and the operator, such as a port, whereby the freight operators can take advantage of road/rail transport modes. Additionally, the freight operator can utilise terminal facilities such as cold storage, refuelling facilities and both short-term and long-term storage.

For rail operators, the proposal could also provide a facility to reconfigure, cross-load, maintain and service trains. Depending upon market forces, the site could also potentially provide rolling stock storage as well as maintenance facilities.

As the site selected for the proposal is a greenfield site, there are excellent operational advantages in regards to the flexibility of rail movements and access to either the east-west rail line or the proposed inland rail corridor. The size of the site means that a terminal operation could be established and be progressively developed without operational compromise or hindrance.

The key features of the proposal include:

- Warehousing;
- A heavy engineering facility;
- Rail terminal (incl. cold storage and operational depot);
- Rail wagon storage sidings;
- On-site refuelling facilities;
- A containerised fuel storage and distribution facility; and
- Administration offices, maintenance sheds and facilities for the above on-site functions.

A preliminary site layout plan at the ultimate stage is presented in Figure 4.

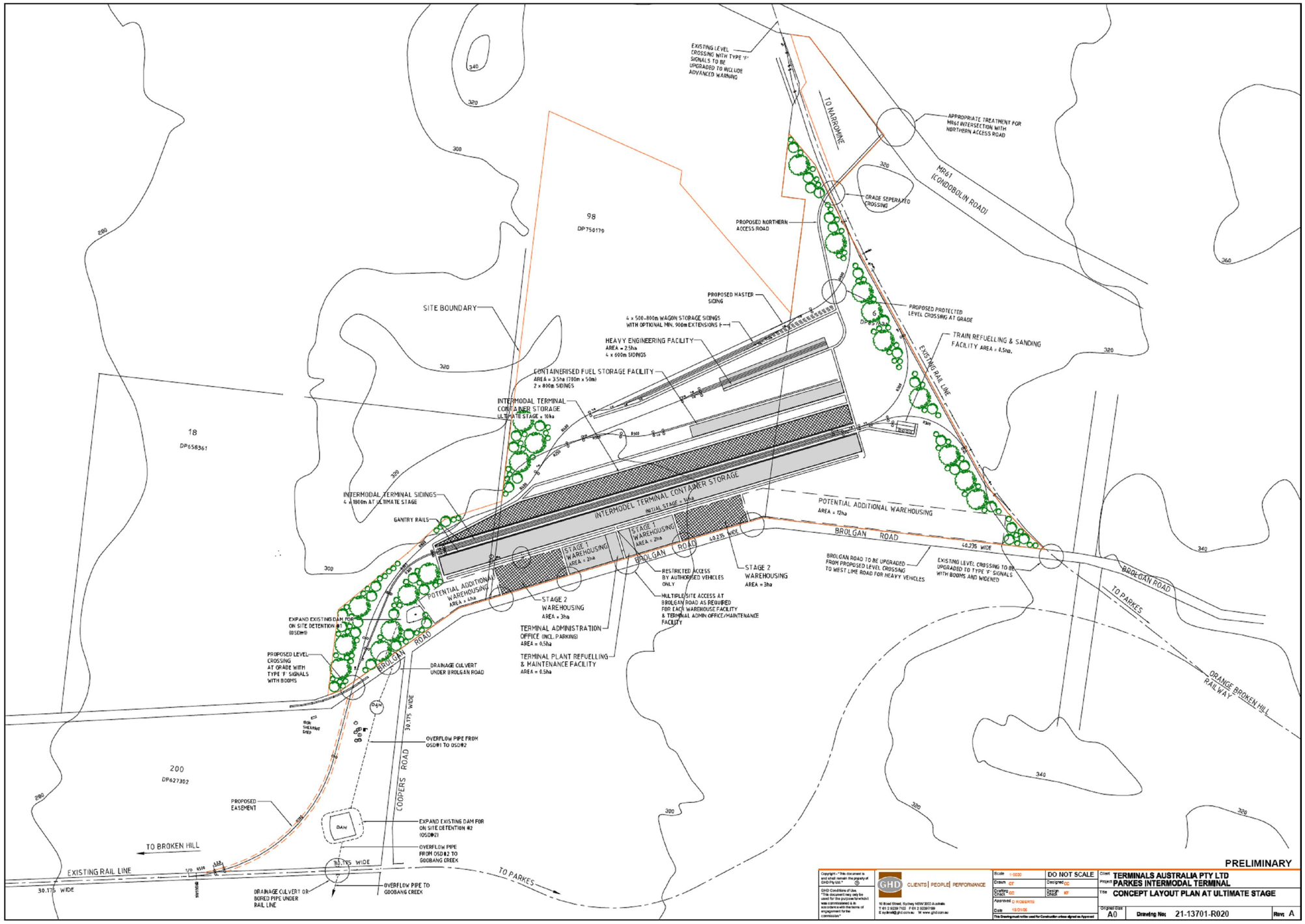
The container storage park on the southern side of the intermodal sidings is indicative in size only, however, highlights the area available for this function. It is adjacent to the rail sidings to minimise the distances for handling containers and it is planned that two lane, one way roadways would be constructed under the gantry crane for direct transhipment to/from road vehicles.

The warehousing and distribution area shown on the preliminary concept layout plan is indicative of the size of the area available. This gross area would include access roads and provision for other infrastructure for the servicing of the warehousing and distribution facilities.

The concept for the warehousing and distribution facilities on the southern side of the site (fronting Brolgan Road) is to provide 'back door' access to the intermodal sidings/container park and be within approximately 100m of these sidings.

It is envisaged that the heavy engineering/rollingstock maintenance facility, the rollingstock storage sidings, and the fuel storage and distribution facility would all branch off the master siding and not the intermodal terminal sidings. This clearly demarcates the intermodal terminal and minimises unauthorised road vehicles to/from the intermodal terminal and also minimises the rail movements within the intermodal terminal itself.

Figure 4: Preliminary Site Layout Plan at the ultimate stage



5. Preliminary Risk Screening

5.1 Dangerous Goods Storage Screening

The proposed inventories and locations of hazardous materials to be stored and utilised in the proposed development are listed in Table 5.1. The location ID (Loc-ID) relates to the site layout (Figure 5) and serves to illustrate different materials stored in the same general location. It must be noted however, that the inventories presented for hazardous material stored in the Containerised Fuel Storage Facility are indicative of a total hazardous material storage inventory of 1,000m^3 (which equates to approximately 1 million litres).

Table 5.1: Hazardous Material Description, Inventory and Location

Material	Inventory (m3)	Location	Loc-ID
Unleaded Petrol (ULP)	150	Containerised Fuel Storage Facility	A
Leaded Petrol (LP)	150	Containerised Fuel Storage Facility	A
Diesel	700	Containerised Fuel Storage Facility	A
Diesel	100	Train Refuelling Facility	B
Diesel	100	Terminal Plant Refuelling Facility	C

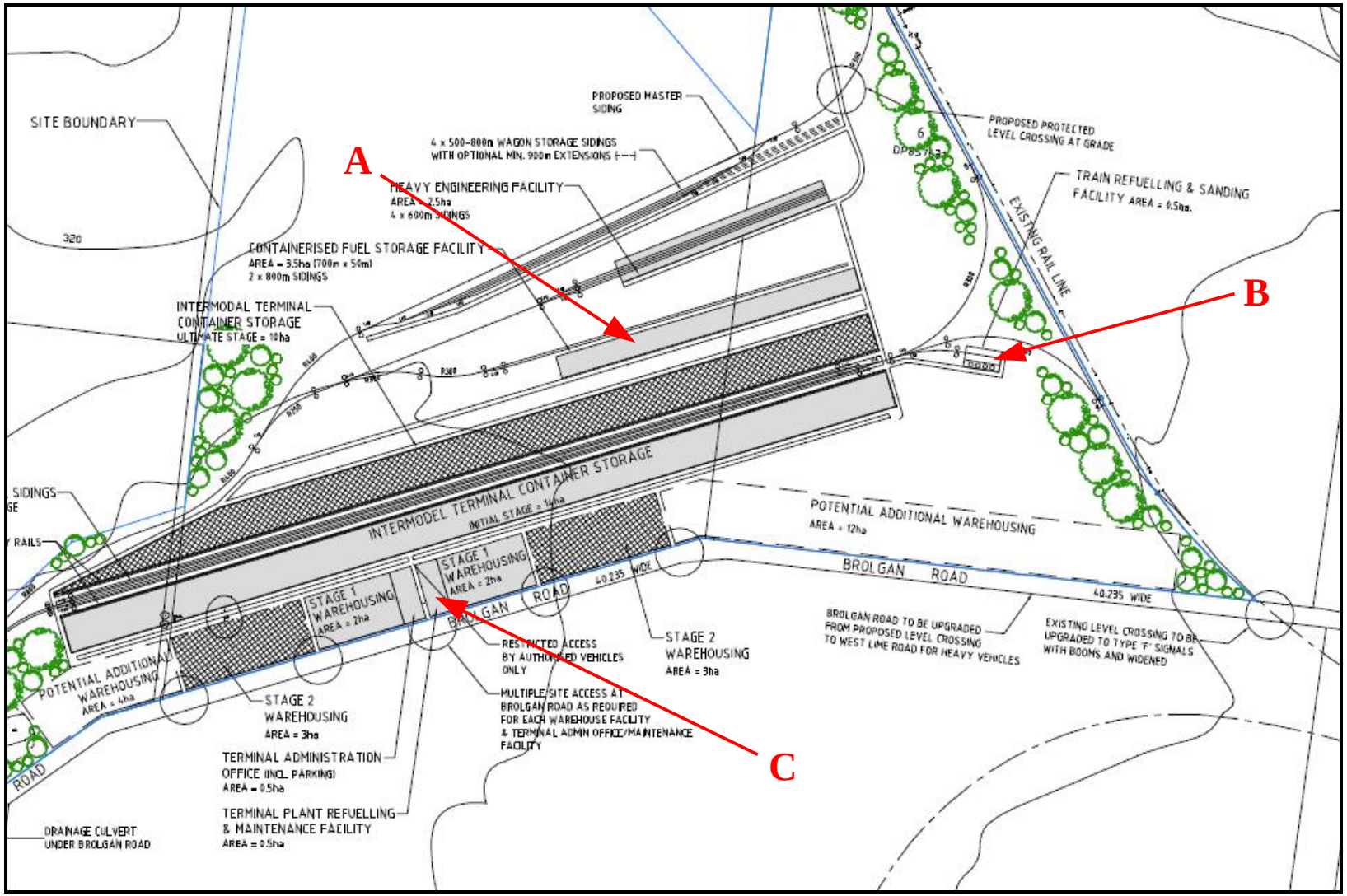
The hazardous material class relating to the materials listed above are presented below. A class 3PGII classification indicates the material is a flammable liquid with a flash point of less than 23^{o}C. A class C1 classification indicates a combustible material with a flash point of 150^{o}C or less.

Table 5.2: Hazardous Material Class (and Sub-Class)[5]

Material	Class/Sub-Class
Diesel	C1
ULP	3PGII
LP	3PGII

The containerised fuel centre (Loc-ID A) will be used to store both class C1 (diesel) and class 3PGII (ULP & LP) hazardous materials. Under SEPP 33 if a class C1 material is stored with other flammable materials then it should be considered a class 3PGIII hazardous material. Additionally, SEPP 33 advises that if more than one

Figure 5: Hazardous Material Storage Location ID



subsidiary class of a given class is stored in the same general area then the total (class) quantity should be considered to be of the more hazardous subsidiary class present.[2] Hence the total inventory of material stored at the containerised fuel centre was considered to be class 3PGII hazardous material. Table 1 of *Applying SEPP 33*[2] indicates that Figure 9 be used to determine if the storage situation at the containerised fuel centre is potentially hazardous in nature. Given the approximate separation distance of approximately 400m from the proposed containerised fuel facility to the site boundary, correlated with the approximate 1,000m^3 storage volume anticipated results in a screening value well below the specified storage screening threshold. Hence this storage facility (Loc-ID A) is considered unlikely to present a significant off-site risk.

Due to the classification of diesel as a class C1 material in the case of the diesel stored at Loc-ID B and Loc-ID C, as it is the only flammable material within the respective storage areas, as per the DoP's *Applying SEPP 33*[2] it is not considered to be potentially hazardous.

Based on the dangerous goods storage screening process conducted and illustrated above it is believed that none of the proposed hazardous material storage situations at the Parkes Intermodal Terminal exceed the storage screening threshold specified under SEPP 33. Hence, it is assumed that these storage situations are unlikely to pose a significant off-site risk.[2]

5.2 Dangerous Goods Transport Screening

It is proposed that the majority of the fuel stored in the Containerised Fuel Storage Facility will be diesel. With the classification of diesel as a class C1 material it is not subject to transportation screening thresholds under SEPP 33. It is envisaged that truck movements of ULP and LP will not exceed 750 movements per annum or maximum peak weekly movements of 45. ULP and LP are classified as class 3PGII hazardous materials and as such are subject to transport screening thresholds. The DoP's *Applying SEPP 33*[2] specifies the transport screening threshold for class 3PGII materials transported in quantities greater than 3 tonnes (which equates to approximately 3,000L[1]) as greater than 750 cumulative annual movements and not exceeding peak weekly movements of 45.

Therefore, it is concluded that the proposed total annual and peak weekly movements of class 3PGII hazardous materials will not exceed the transport screening thresholds specified under SEPP 33. Hence, the proposal is not considered to be potentially hazardous with respect to transportation.

5.3 Level of Risk Assessment

In accordance with SEPP 33, if any of the screening thresholds are exceeded then the proposed development should be considered potentially hazardous and a preliminary hazard analysis (PHA) is required to be submitted with the development application.

[1] Material with a specific gravity of 0.9.

Based on the above assessment, the proposed development does not exceed the storage threshold or transport threshold for Class 3PGII hazardous materials and hence is not considered as potentially hazardous. Therefore, a PHA is not required for the anticipated substance volumes for the Containerized Fuel Storage Facility or the permanent on-site fuel storage tanks proposed for the intermodal terminal.

6. Requirements for Compliance with AS 1940

The proposed Parkes Intermodal Terminal presents two separate and distinctly different hazardous material storage scenarios. The first is that of permanent on-site storage of combustible liquids in tanks with fuel being provided for site operations and train refuelling operations (Fig 5, Loc-ID B & C). The second scenario is transit storage of flammable and combustible liquids at the Containerised Fuel Storage Facility (Fig 5, Loc-ID A).

For the purposes of this investigation, a protected place is defined as per AS 1940 Clause 1.4.55 as;

» A dwelling, residential building, place of worship, public building, school or college, hospital, theatre, and any building or open area in which persons are accustomed to assemble whether it is within or outside the property boundary of the installation.[1]

6.1 Permanent On-site Storage Tanks

To ascertain whether the permanent on-site storage tanks comply with AS 1940, the permanent on-site storage tanks are defined as follows:

» A permanent on-site tank storing class C1 dangerous goods (diesel);

» Indicative dimensions of 2m height by 8.5m diameter, capable of storing approximately 100,000L; and,

» The tank is contained within a dedicated bund with no other flammable or combustible material stored within this bund.

6.1.1 Separation Distances

Separation distances for above ground tanks storing flammable or combustible material are specified in Section 5.7 of AS 1940. AS 1940 Clause 5.7.2 indicates that separation distances to security fences and on-site protected places are specified in AS 1940 Table 5.3 as.

» Separation distance to on-site protected places > 7.5m

» Separation distance to security fences > 7.5m

AS 1940 Clause 5.7.2 indicates that separation distances to protected places beyond the site boundary are specified in AS 1940 Table 5.4 as.

» Separation distances to protected places beyond the site boundary > 7.5m

6.1.2 Bunding Requirements

The bunding requirements for above ground tanks storing flammable or combustible material are specified in Section 5.8 of AS 1940. AS 1940 Clause 5.8.1 states:

» Provision shall be made to contain any leakage or spillage from the tank storage facility and to prevent it from contamination the surrounding soil or entering any watercourse or water drainage system.

The required capacity of the bund is specified by AS 1940 Clause 5.8.2 as:

» The net capacity of the bund shall be the volume of the largest tank plus the output of any firewater over a 20 min period (in this case this equates to approximately 100,600L).

6.1.3 Fire Protection Requirements

The required fire protection for this storage scenario is defined in AS 1940 section 11.12. AS 1940 Clause 11.12.4 specifies class C1 liquid stored as defined above require:

» A hose reel and foam making equipment capable of supplying 27L/min of foam solution at a minimum pressure of 220 kPa for 30 min: and,

» Two powder type fire extinguishers compliant with AS/NZS 1841.5.

6.2 Transit Storage Scenario

AS 1940 Clause 1.4.70 defines transit storage as 'the storage of flammable or combustible liquids for at least 12 hours and less than 5 days, where such liquids are intended for further transport to another location.'[1]

AS 1940 Clause 3.9.2 specifies that 'areas used for transit storage of flammable or combustible liquids shall be deemed to be separate areas if apart from each other and from any other storage areas, building or amenities by at least 15m.'[1]

AS 1940 Clause 3.9.3 states;

» The aggregate quantity of flammable and combustible liquids held in each transit storage area shall not exceed 200 tonnes (which equates to approximately 220,000L[2]);

» Freight or tank containers containing flammable or combustible liquids in a transit storage area shall not be stacked more than two containers high and two containers deep; and

» Where stacked two containers deep, be provided with access for inspection to both sides of each stack (minimum inspection width approximately 800mm).

6.2.1 Separation Distances

AS 1940 Clause 3.9.4 specifies transit storage areas shall be separated from protected places, on-site protected places and public streets by the distances given in AS 1940 Table 4.1 and shall be separated from site boundaries by the distances given

[2] Material with a specific gravity of 0.9.

in AS 1940 Table 4.2. Separation distances shall be measured from the edge of the transit storage area and be of the following minimum distances.

» Separation distance to accumulations of combustible material (i.e. timber, plastics etc.) > 5m;

» Separation distance to protected places, on-site protected places and public streets > 17m; and,

» Separation distance to site boundaries > 3m.

6.2.2 Bunding Requirements

AS 1940 Clause 3.9.3 specifies that each transit storage area shall be provided with spillage catchment facilities with a volume at least 100% the capacity of the largest tank or freight container. However, in order to facilitate the management of emergencies it is recommended that the catchment facilities be 10% greater than the capacity specified above. Hence, the catchment facilities should be 110% of the capacity of the largest tank.

6.2.3 Fire Protection Requirements

AS 1940 Clause 11.8.6 states that fire protection requirements for transit storage areas are as per the requirements of AS 1940 Table 11.3. AS 1940 Table 11.3 specifies that for transit storage areas storing between 10m^3 and 100m^3 of flammable liquid (which equates to between 10,000L and 100,000L) are required to have;

» Four powder-type extinguishers compliant with AS/NZS 1841.5;

» Two foam-type extinguishers compliant with AS/NZS 1841.4; and,

» A hose reel and foam making equipment capable of supplying 27L/min of foam solution at a minimum pressure of 220 kPa for 30 min and capable of reaching all parts of the storage areas.

7. References

1. *The Storage and Handling of Flammable and Combustible Liquids*, in *AS 1940*. 2004, Standards Australia.
2. *Applying SEPP 33 - Hazardous and Offensive Development Application Guidelines*, D.o. Planning, Editor. 1997, Crown.
3. *Hazardous Industry Planning Advisory Paper No. 6: Guidelines for Hazard Analysis*, D.o. Planning, Editor. 1997, Crown.
4. *Multi-Level Risk Assessment*, D.o. Planning, Editor. 1997, Crown.
5. Commission, N.R.T., *Australian Code for the Transport of Dangerous Goods by Road and Rail: Volume 2 - Technical Appendices*. 1998, Commonwealth of Australia.

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