Review of Planning Proposal Report

407-511 King Georges Road, Beverly Hills, NSW

For Georges River Council

16 February 2023

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Abbreviation	Description
Arriscar	Arriscar Pty Limited
BHOA	Beverley Hills Owner's Association
CBD	Central Business District
DPE	Department of Planning and Environment
F-N	Cumulative Frequency vs. Number of Fatalities Exceeded
FSR	Floor Space Ratio
HIPAP	Hazardous Industry Planning Advisory Paper
km	kilometres
LEP	Local Environmental Plan
m	metres
MSE	Moomba-Sydney Ethane Pipeline
PS	Planning Circular
SEPP	State Environmental Planning Policy

1 INTRODUCTION

1.1 Background

Beverly Hills – Land Owners Association Incorporated (BHOA) is planning to implement planning controls that enable feasible redevelopment of the western side of King Georges Road. The planning proposal focuses on redevelopment of 52 lots on the western side of King Georges Road.

A planning application was lodged with Georges River Council ('the Council') by BHOA accompanied by a Planning Assessment Report [1].

A portion of the Moomba Sydney Ethane Pipeline (MSE) carrying liquefied ethane gas, owned by APA Group Pty Ltd, runs adjacent to the T8 Airport and South Railway line, in proximity to the subject site (within 600m). The pipeline is identified under Clause 66C of the State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP).

The Council engaged Arriscar Pty Ltd (Arriscar) to undertake an independent review of the BHOA Planning Assessment Report. The review is to identify if the risk assessment and planning proposal: covers the impacts of the pipeline and identifies the requirements for the Planning Proposal.

This report provides a summary of Arriscar's review and findings.

1.2 Documents Reviewed

The following documents were provided by Georges River Council for the independent review by Arriscar.

1. Mecone NSW Pty Ltd, "Planning Proposal Report 407-511 King Georges Road, Beverly Hills on behalf og Beverley Hills Owners Association Incorporated," December 2022 [1].
2. Northrop Consulting Engineers Pty Ltd, "Beverly hills Town Centre – APA Gas Report: Hydraulic report," 14 December 2022 [2].

2 SITE LOCATION AND SURROUNDS

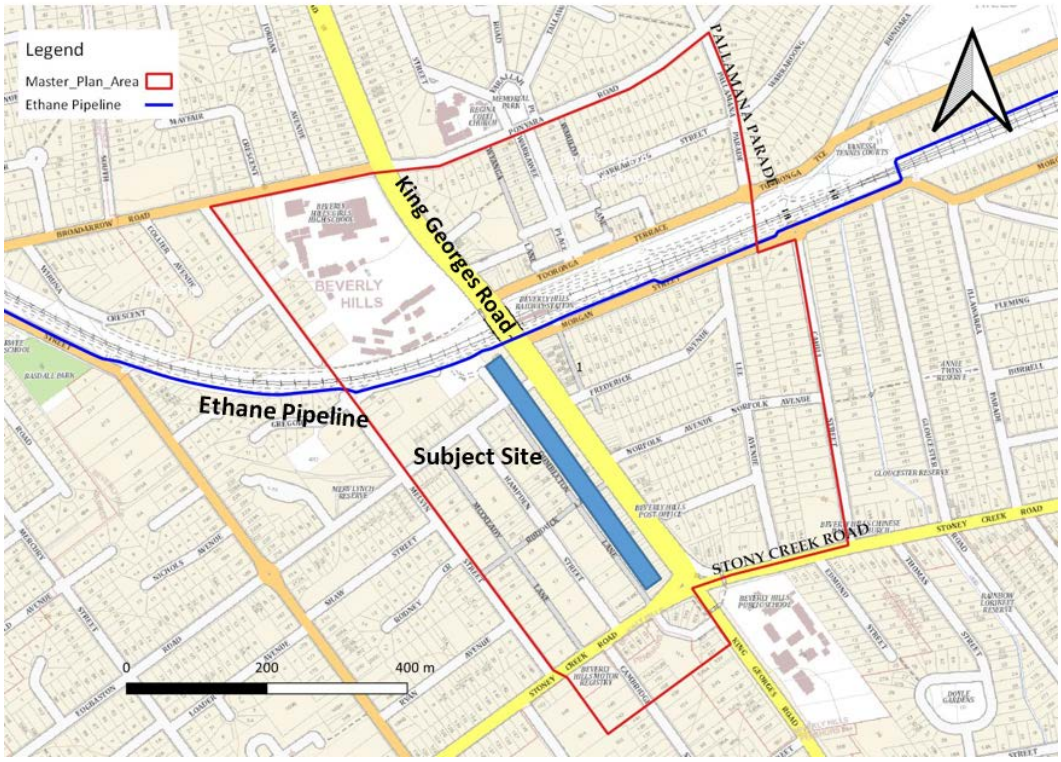
2.1 Site Location

The proposed site is located on 407-511, King Georges Road, Beverley Hills, NSW. The site is located approximately 16km south of the Sydney Central Business District (CBD) and 8km from Kingsford Smith international airport. The subject site is shown in Figure 1.

Figure 1: Subject Site on King Georges Road, Beverley Hills

The underground ethane pipeline is located to the north of the subject site, as shown in Figure 2 [3].

Figure 2: Subject Site with Ethane Pipeline



3 PLANNING CONSIDERATIONS

3.1 Planning Proposal

This planning proposal by BHOA seeks to amend the Georges River Council Local Environment Plan (LEP) to increase the Floor Space Ratio (FSR) and Building Height standards on the western side of King Georges Road.

The key elements are summarised in Table 1.

Table 1: Key Elements of Planning Proposal

Parameter	Current LEP	Planning proposal (west of King Georges Road)
Floor Space Ratio	2.1	4.1-5.5
Building Height Limit	15m	45m (12-14 storeys)

The main impact of the proposal is to increase the population density to the west of King Georges Road in the Beverley Hills draft Master Plan by three times the current population.

From potential risk from the APA ethane pipeline, the amendment to the LEP sought in the Planning Proposal could affect not only the properties 407-511 in King Georges Road, but also potential future developments under the LEP. A decision making on this issue will require the results of a pipeline risk assessment under land use safety considerations.

3.2 Planning Instruments

The planning instrument relevant to the proposed development and adjacent APA pipeline is the State Environmental Planning Policy (Infrastructure) (SEPPI) [4], Subdivision 2 – Development adjacent to pipeline corridors.

Clause 66C of SEPPI [4] and Planning Circular PS 21-029 [5] requires a risk assessment be carried out on the development from an adjacent pipeline, and demonstrate compliance with the risk criteria in the Hazardous Industry Planning Advisory Papers No.4 [6] and No.10 [7]. A risk assessment has not been submitted by the Applicant.

Clause 66C (2) of SEPPI [4] also states that:

Land is in a pipeline corridor for the purposes of this clause if the land is located—

(a) within the licence area of a pipeline for gas, or for petroleum or other liquid fuels, licensed under the Pipelines Act 1967, or

(b) within 20m of the centreline (measured radially) of a relevant pipeline, or

(c) within 20m of land the subject of an easement for a relevant pipeline.

The Northern end of the proposed development falls within 20m of the MSE. Therefore, a section of the proposed development site is within the pipeline corridor.

4 CONSIDERATIONS IN A RISK ASSESSMENT

PS 21-09 states:

> *"Certain types of developments, such as high density residential, commercial or sensitive uses such as hospitals, schools, childcare and aged care facilities should be considered more carefully by the consent authority as they may introduce a higher or more vulnerable population near the pipelines listed under clause 66C.*
>
> *Such development should consider preparing a risk assessment as part of the development application to demonstrate that the development will comply with the risk criteria for land use safety planning published in Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning. It is important to have a comprehensive understanding of the hazards and risks associated with the operation of the pipeline and of the adequacy of safeguards.*
>
> *In assessing the tolerability of risk from high pressure pipelines, both qualitative and quantitative aspects need to be considered.*
>
> *Any quantitative (numeric) risk assessment should be consistent with the principles published in Hazardous Industry Planning Advisory Paper No. 6 – Hazard Analysis. The risk assessment is to be performed by a suitably qualified professional. This assessment is the responsibility of the applicant and must be undertaken in consultation with the pipeline operator. The risk assessment should be submitted with the development application."*

The requirements for the risk assessment for the MSE on the proposed development contained in the NSW Department of Planning and Environment (DPE) guideline, "Hazardous Industry Planning Advisory paper (HIPAP) No. 6 – Hazard Analysis Guidelines" [8] are:

- Hazard identification
- Hazard consequence analysis
- Incident likelihood (frequency) assessment
- Risk calculation
- Comparison with applicable risk criteria
- Development of mitigation options to reduce risk.

1. Hazard identification:

   (a) Have the hazards associated with a loss of containment of ethane from the high-pressure pipeline been fully identified for the risk assessment?

   The answer to the above question is no. The Assessment Plan [1] states that a risk assessment may be required, but does not elaborate.

   Finding 1: A risk assessment in accordance with HIPAP No.6 as required by PS 21-029 should have been conducted in support of the planning proposal, but has not been carried out.

   (b) Have the existing risk management measures by APA been considered in assessing the loss of containment scenarios?

   In the APA Gas report for Beverley Hills Towns Centre prepared by Northrup [2], details of safety requirements for the construction phase of the development specified by APA have been provided, but not the safety management measures undertaken APA for the operation and maintenance of the pipeline.

Finding 2: The Assessment Plan [1] *does not address the safety measures existing for the ethane pipeline and managed by APA.*

2. Estimate Consequences:

   (a) Have all potential consequences of a loss of containment from the pipeline been identified?

   The answer to the above question is no, as a risk assessment, using an approved software has not been carried out.

3. Estimate Likelihood:

   (a) What failure rate (frequency) data has been used in the risk assessment? Is the data from an accepted database and applicable to the present context?

   (b) What ignition probability has been used in the assessment. Does the value selected take into account local conditions and potential ignition sources?

   The answer to the above question is no, as a risk assessment has not been carried out.

4. Risk Assessment

   (a) Does the proposed development meet the risk criteria of HIPAP No.4 [6] and HIPAP No.10 [7]?

   (b) Have the criteria for fatality as well as injury been addressed in the risk assessment?

   (c) Have any risk mitigation options been addressed?

   The answer to the above questions is no, as a risk assessment has not been carried out.

   Finding 3: The Planning Assessment Report [1] *does not meet the requirements of PS 21-029 requiring a risk assessment to be carried out on the impact of potential gas releases from the pipeline to the proposed development, including sensitive developments (schools, child-care centres, aged care facilities)*

5. Compliance with Risk Criteria

   The main issues here are:

   (a) The extent of risk contours that affect the LEP area for which amendment is sought by the Planning Proposal. The $0.5x10^{-6}$ per year contour determines the exclusion areas for sensitive developments. These need to be pre-determined prior to any amendment coming into force.

   (b) If the population within the amended LEP were to treble in the future, what would the risk profile societal risk in terms of the F-N curve. This aspect is discussed in the next section.

   Finding 4: It is not known whether the Planning Proposal would satisfy the risk criteria in HIPAP No.4 [6] *and HIPAP No.10* [7] *in the absence of a risk assessment.*

5 RISK RELATED ISSUES

The risk criteria set by NSW Department of Planning [7] are outlined in this section.

5.1 Qualitative Risk Criteria

Irrespective of the numerical value of any risk criteria level for risk assessment purposes, HIPAP No.4 [6] requires that the following qualitative criteria be adopted concerning the land use safety acceptability of development.

(a) All 'avoidable' risks should be avoided. This necessitates the investigation of alternative locations and alternative technologies, wherever applicable.

(b) The risk from a major hazard should be reduced wherever practicable, irrespective of the numerical value of the cumulative risk level from the whole installation.

(c) The consequences (effects) of the more likely hazardous events (i.e. those of high probability of occurrence) should, wherever possible, be contained within the boundaries of the installation.

(d) Where there is an existing high risk from a hazardous installation, additional hazardous developments should not be allowed if they add significantly to that existing risk.

5.2 Risk Criteria for Developments in the Vicinity of Existing Hazardous Facility

The quantitative criteria for developments in the vicinity of existing hazardous facilities are similar to those for new hazardous industrial developments. The criteria are outlined in Table 2 [7].

5.2.1 Criteria for Risk of Fatality

The location specific individual fatality risk criteria documented in HIPAP No. 4 [6] is presented in Table 2.

Table 2: Individual Fatality Risk Criteria

Risk Levels (p.a.)	Land Uses
0.5×10^{-6}	Hospitals, child-care facilities and old age housing developments. Above the criteria level, no intensification of sensitive use development should take place.
1×10^{-6}	Residential developments and places of continuous public occupancy such as hotels, motels and tourist resorts. Above the criteria level, no intensification of residential development should take place
5×10^{-6}	Commercial developments, including offices, retail centres, warehouses, showrooms, restaurants and entertainment centres. Where the criterion is initially exceeded, commercial land development may be appropriate where mitigating measures can be implemented to reduce risk exposure to less than the target individual fatality risk level.
10×10^{-6}	Sporting complexes and active open space areas. Where the criterion is initially exceeded, commercial land development may be appropriate where mitigating measures can be implemented to reduce risk exposure to less than the target individual fatality risk level.

Risk Levels (p.a.)	Land Uses
50×10^{-6}	Industrial sites. This risk level to be kept within the site boundary, where applicable. Where this criterion is initially exceeded, industrial land development may be appropriate where mitigating measures can be implemented to reduce risk exposure to less than the target individual fatality risk level.

Of relevance to the current context is the land use for residential and commercial facilities and sensitive land uses.

5.2.2 Criteria for Risk of injury

The risk of injury can arise from exposure to thermal radiation from fires, blast overpressure from explosions or toxic gases, including toxic combustion products from fires. The following criteria apply for injury risk [6].

Table 3: Risk Criteria for Injury for Residential and Sensitive Land Uses

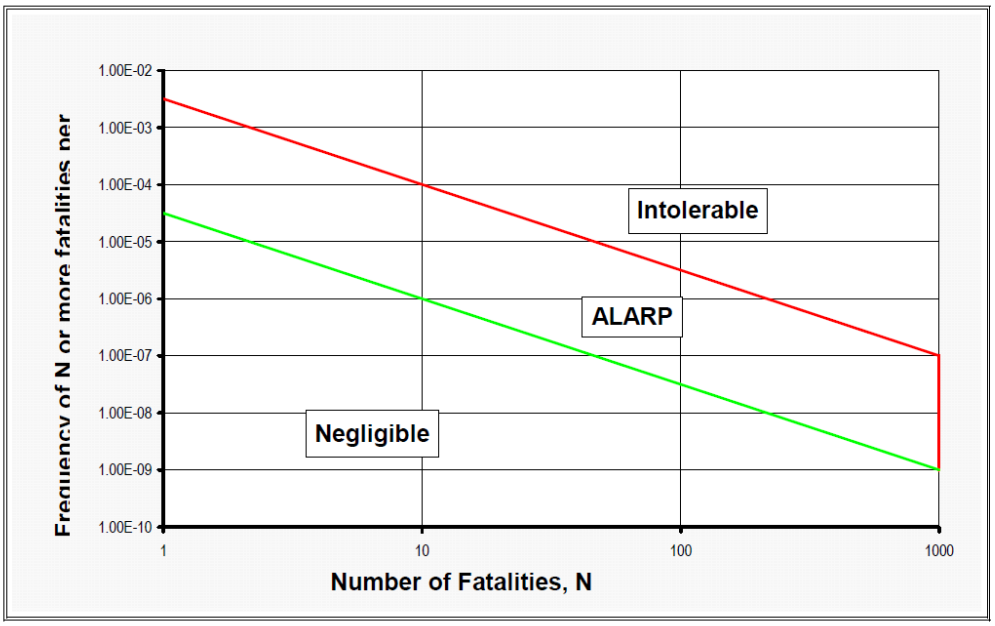
Risk Levels (p.a.)	Exposure Level for Injury
50×10^{-6}	Thermal radiation at levels exceeding 4.7 kW/m^2. This level of heat radiation would cause injury after 30 seconds' exposure.
50×10^{-6}	Explosion overpressure at levels exceeding 7 kPa. This level of overpressure would cause injury either by direct exposure or indirectly through damage to property.
10×10^{-6}	Toxic concentrations should not exceed a level which would be seriously injurious to sensitive members of the community following a relatively short period of exposure.
50×10^{-6}	Toxic concentrations should not exceed a level which would cause irritation to eyes or throat, coughing or other acute physiological responses in sensitive members of the community

5.3 Societal Risk

When there is a risk of multiple fatalities occurring in one event, the Department of Panning has provisionally adopted indicative criteria as shown in Figure 3 [6] for addressing societal concerns arising. The risk is represented as F-N curves (obtained by plotting the cumulative frequency at which such events might result in N or more fatalities, against N).

Figure 3 has three zones, the 'Negligible' zone, and 'ALARP' zone and the 'Intolerable' Zone. Above the intolerable zone, the development should not be permitted. If the risk is in the negligible zone, development may proceed, subject to other planning considerations. In the middle zone. The risk must be further reduced to a level considered 'As Low As Reasonably Practicable (ALARP).

Figure 3: Indicative Societal Risk Criteria



If the F-N curve falls within the ALARP zone, then trebling the exposed population within the amended LEP area may result in the following:

- The potential to creep into 'Intolerable' risk area.
- The potential for total number of potential fatalities to exceed 1000.

Both of these must be avoided and demonstrated in a risk assessment.

6 CONCLUSIONS

1 The Planning Proposal seeks to approximately treble the current population, not only in the designated properties west of King Georges Road, but implicitly within the amended LEP area. This is significant.

2 Due to the proposed change in population, the present review found that the impact needs to be considered more carefully by the Council and a risk assessment consistent with HIPAP 6 be included with the planning proposal. Both aspects of this conclusion are supported by Planning Circular PS 21-029 [5], to enable decision making by Council.

3 By increasing the exposed population, there will an increase in societal risk (F-N curve), and it is not known if the risk assessed with a new future population in the amended LEP will comply with the F-N criteria.

4 There are also questions whether the qualitative risk criteria would be met, until a quantitative risk assessment is carried out and the results available for assessment.

7 REFERENCES

[1] Mecone NSW Pty Ltd, “Planning Proposal Report 407-511 King Georges Road, Beverly Hills on behalf og Beverley Hills Owners Association Incorporated,” December 2022.

[2] Northrop Consulting Engineers Pty Ltd, “Beverly hills Town Centre – APA Gas Report: Hydraulic report,” 14 December 2022.

[3] Arriscar Pty Ltd, “Beverly Hills Master Plan: Ethane Pipeline Preliminary Hazard Analysis - for Georges River Council,” Document No.: J-000466-01, Rev 0., 23 September 2021.

[4] NSW Government, “State Environmental Planning Policy (Infrastructure)-2007,” December 2019.

[5] NSW Department of Planning & Infrastructure, “Planning Circular PS 21-029: Development Adjacent to Land in a Pipeline Corridor,” 2 December 2021.

[6] NSW Department of Planning and Environment, *Hazardous Industry Planning Advisory paper No.4 - Risk Criteria for Land Use Safety Planning,* Sydney, 2011.

[7] NSW Department of Planning , “Hazardous Industry Planning Advisory Paper No.10 - Land Use Safety Planning,” State of New South Wales, 2011.

[8] NSW Department of Planning, Hazardous Industry Planning Advisory Paper No. 6 - Hazard Analysis, Sydney, NSW: State of New South Wales, 2011.