APPENDIX A

SEARS

Environmental Assessment Requirements

Application Number	DA35/98-Mod-6
Project	Ixom Chlorine Liquefaction Plant
Location	16-20 Beauchamp Road, Banksmeadow within the Bayside local government area
Proponent	IXOM Operations Pty Ltd
Key Issues	**Hazards and Risks** – the environmental assessment must: • include a Quantitative Risk Analysis (QRA) in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis'* demonstrating that the existing chloralkali plant (CAP) with the proposed chlorine liquefaction plant (CLP) ('the modified facility' up to DA 35/98-Mod-6) complies with both the qualitative criteria, in particular the consideration of site location and technology, and the quantitative criteria in the Department's *Hazardous Industry Planning Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning'*. The QRA must also include: ○ a site layout diagram showing the location of all buildings enclosing the CLP and dangerous goods (DG) storage, and the location of all DG piping to and from these buildings. ○ a description of all buildings enclosing the CLP and DG storage including: ▪ structural design specifications to enable full containment of major DG release incidents; ▪ building capacities and ventilation rates; ▪ scrubber design specifications including inlet and outlet conditions (flow rates, concentrations, etc.); and ▪ building layout diagrams showing the location of the CLP, DG piping to and from these buildings, DG storage, and staging and parking areas for vehicles associated with DG transport for all operating modes of the modified facility. ○ a detailed process description of the CLP including: ▪ process flow diagrams; ▪ operating conditions (flow rates, temperature, pressure, state of matter, etc.); ▪ maximum DG quantities for all operating modes of the modified facility; and ▪ overview of mass balance between the CAP and the CLP for all operating modes. ○ a description of all necessary modifications at the CAP to accommodate the design and operation of the CLP. ○ major incident hazard identification and details of all safeguards to address these hazards with reference to all relevant engineering standards, codes of practice and best practice especially for chlorine and ammonia. ○ a QRA assumptions register with justification on the appropriateness of all assumptions. ○ a list of all potential major incident hazards which may affect both on-site or off-site and the associated consequence distances with corresponding release conditions including and not limited to the total isolatable quantity, flow rate, temperature, pressure and state of matter.

	○ a description of the major incidents control philosophy of the CLP including identification of all preventive and mitigative safety critical engineering safeguards against all major incidents with required reliability for these safeguards where appropriate. ○ justification for all safeguards to minimise the risk from major incidents 'so far as is reasonably practicable' consistent with the intent under the Work Health Safety Regulation 2017 (WHS Regulation). ○ all population assumptions with justification adopted in the QRA. ○ risk analysis for both on-site and off-site consequences from the modified facility for all major incident hazards. ○ the individual and societal risk results for the CLP and the modified facility for the following cases, and compare these results against the most recent Botany Industrial Park (BIP) QRA submitted under DA 30/98 and the most recent CAP QRA submitted under DA 35/98 up to MOD 5: ▪ Case 1: Currently approved operations in the vicinity of the modified facility including the Qenos and Indorama facilities operating at its consent limits and the CLP operating at its expected utilisation intent across both normal operating mode or contingent operating mode; ▪ Case 2: Currently approved operations in the vicinity of the modified facility including the Qenos and Indorama facilities operating at its consent limits and the CLP is only operating at the normal operating mode at all times; ▪ Case 3: Currently approved operations in the vicinity of the modified facility including the Qenos and Indorama facilities operating at its consent limits and the CLP is only operating at the contingent operating mode at all times; ▪ Sensitivity Case 1: Potential future operations replacing the Qenos and Indorama facilities following permanent shut-down of these facilities and the CLP is operating at its expected utilization intent across both normal operating mode or contingent operating mode; and ▪ Sensitivity Case 2: Potential future operations replacing the Qenos and Indorama facilities following permanent shut-down of these facilities and the worst-case scenario (higher risk profile) between the normal operating mode or the contingent operating mode. ○ demonstration that risks from the modified facility will not have an effect on future developments in the vicinity of the modified facility; • address all recommendations from the 2001 Botany/Randwick Industrial Area Land Use Safety Study Overview Report which are relevant to the modified facility; • include a Transport Risk Assessment (TRA) to evaluate the potential impacts from DG transport to and from the modified facility with comparison to the TRA findings from Major Project approval MP 06_0089 MOD 2 (Vopak Bulk Liquids Storage Facility); and • report on the consultation outcomes with: ○ SafeWork NSW in regards to compliance with the requirements for major hazard facilities under the WHS Regulation; ○ the Local Emergency Management Committees as per the *State and Emergency Rescue Management Act 1989* (SERM Act) for the Bayside LGA and Randwick LGA in regards to emergency planning in the vicinity of BIP; ○ the Regional Emergency Management Officer as per the SERM Act for the Central Metropolitan Region in regards to emergency planning for the credible worst-case scenarios and identify any issues in addressing such scenarios; ○ BIP in relation to the potential future land uses within BIP; and

	○ the public in the vicinity of BIP in regards to the perception of risks from the modified facility. **Contamination** – including: • a preliminary site investigation to identify potential contaminants on site • details of the depth of excavations and any cut and fill requirements • an assessment of the potential to encounter contaminated materials, intercept contaminated groundwater and acid sulfate soils • details of any required remediation works or proposed mitigation measures to manage potential impacts • an assessment of potential contamination risk via vapour intrusion into the proposed building • demonstration the modification would not impact on the requirements of existing contamination notices on the site • a statement from a consultant certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme, that the site is suitable for the intended use. **Traffic and Transport** – including: • daily and peak traffic movements generated by the modification including the impact on nearby intersections and the need for any road upgrades to support the modification. Key intersections to be modelled include: ○ Beauchamp Road / Denison Street ○ Botany Road / Beauchamp Road ○ Wentworth Avenue / Denison Street ○ Beauchamp Road / Perry Street ○ Gate 1 Access / Beauchamp Road and Gate 3 Access / Denison Street (if proposed to be used for access) • a base case and base case + development scenario to demonstrate the impacts on the road network in terms of safety and efficiency for both vehicles and pedestrians • details of proposed accesses and parking including compliance with relevant Australian Standards • details of service vehicle movements and routes, including vehicle types, arrival and departure times, swept paths of the largest vehicles entering, manoeuvring and exiting the site and the key access gates • details of demolition and construction activities including vehicular routes, number of trucks, hours of construction, access arrangements and traffic control measures • details of measures to ensure drivers adhere to designated dangerous goods routes and do not use local roads. **Noise and Vibration** – including: • a quantitative noise and vibration impact assessment including background noise levels, identification of impacts from construction, operation and traffic associated with the modification and details of proposed mitigation measures to minimise impacts. **Air Quality** – including: • an assessment of potential air quality, dust and odour impacts from construction and operation on surrounding landowners, businesses and sensitive receptors, in accordance with relevant Environment Protection Authority guidelines, including details of proposed mitigation, management and monitoring measures. **Flooding -** including: • an assessment of the potential impacts of the modification on the existing floodplain, and details of measures to ensure buildings and dangerous goods storage areas would be protected from flooding. **Stormwater** – including:

	• details of stormwater flows and quality, comparison with relevant water quality objectives and details of the measures to be implemented to ensure compliance with relevant discharge criteria. **Strategic and Statutory Plans** – including: • demonstration that the modification is consistent with relevant strategic and statutory plans. **Aviation Safety** – including: • details of the proposed building height and compliance with airport safeguarding requirements. **Heritage** – including: • measures to ensure the modification does not impact on listed heritage items. **Waste** – including: • details of the type and quantity of all wastes generated by the modification and procedures for storing, handling and disposing of all waste streams.
Engagement	During the preparation of the Modification Report, you are required to consult with: • Department of Planning, Housing and Infrastructure (Hazards team) • SafeWork NSW • Local Emergency Management Committees • Regional Emergency Management Officer • Bayside Council • Randwick City Council • Environment Protection Authority • Transport for NSW • Sydney Airport Corporation Limited • Civil Aviation Safety Authority • Local community groups and affected landowners

ATTACHMENT 1
Government Authority Advice

24 June 2024

Our Ref: SSD-2024/4
Our Contact: Harseerat Thind (02) 9562 1852

Deana Burn
Department of Planning and Environment
Locked Bag 5022
PARRAMATTA NSW 2124

Dear Ms Burn,

Re Request for Advice - SEARs – MOD 6 Chlorine Liquefaction Plant (DA35/98-Mod-6) at 16-20 Beauchamp Road, Banksmeadow NSW 2019 [DA35/98-Mod-6].

Thank you for the opportunity to provide comments on the Request for Planning Secretary's Environmental Assessment Requirements (SEARs) for the proposed Modification 6 'Chlorine Liquefaction Plant' to the Part 4 Application 'Orica Chlor-Alkali Plant' in the Botany Industrial Park (BIP) at 16-20A Beauchamp Road, Banksmeadow.

The Proposal

Council was notified on 5 June 2024 of the Request for SEARs for the State Significant Development (SSD) Modification Application which seeks to modify the original development consent (issued 6 November 1998 – Reference: DA35/98). Council staff have reviewed the accompanying Scoping Report that has been prepared by Element Environment on behalf of IXOM Operations Pty Ltd (the Applicant) to support this application.

Outlined within the Scoping Report lodged to the Department of Planning, Housing and Infrastructure (DPHI), Council understands the proposed modification consists of the following:

Construct and operate a new chlorine liquefaction and packaging plant at the site which will be integrated into existing site operations with all chlorine material being sourced from existing chlorine liquefaction plant processes. The chlorine liquefaction plant will have a maximum production capacity of 50 tonnes per day.

The proposed Chlorine Liquefaction Plant is to be located in the Block L, which is legally described as Lot 1101 DP 1227173. Block L contains an existing Hypochlorite loading bay which will be re-located to Block Q, requiring construction of a new driveway and hardstand.

Council notes all key components of the Scoping Report including plant capacity and operating modes; plant location; containment building; plant details; inherent safety

measures; hours of operation, employment and vehicles; site services; and construction stage.

Bayside Council General Comments

Council requests that the following matters are addressed in any Modification Report and Environmental Impact Statement (EIS) for this proposal:

- **Strategic and Statutory Planning Framework**

  Port Botany Industrial area is a critical component of the international trade gateway and key employment land within the Eastern City District. The employment opportunities associated with the proposed development are consistent with the Greater Sydney Region Plan, Eastern City District Plan, and Future Transport 2056.

  The EIS or any Modification Report must demonstrate that the development proposal is generally consistent with all relevant planning strategies, plans and Environmental Planning Instruments, including:

  - Greater Sydney Region Plan – A Metropolis of Three Cities;
  - Eastern City District Plan;
  - Future Transport 2056;
  - Chapter 2 Infrastructure: SEPP (Transport and Infrastructure) 2021;
  - Chapter 3 Hazardous and offensive development: SEPP (Resilience and Hazards) 2021; and
  - Chapter 4 Remediation of land: SEPP (Resilience and Hazards) 2021.

- **SEPP (Transport and Infrastructure) 2021**

  The subject site is located within Port Botany area under Chapter 5 of the State Environmental Planning Policy (Transport and Infrastructure) 2021, which is the prevailing EPI. This area is characterised by uses dependent on the Port, such as logistics and heavy manufacturing uses. The site is located in the BIP, and surrounding land use is mainly industrial. The residential properties are located to the east of Denison Street, which is located approximately 200 metres from the subject site.

  The site is identified within the IN1 General Industrial zone and the objectives of the IN1 zone are as follows:

  - *To provide a wide range of industrial and warehouse land uses.*
  - *To encourage employment opportunities.*
  - *To minimise any adverse effect of industry on other land uses.*
  - *To facilitate and encourage port related industries that will contribute to the growth and diversification of trade through the port.*
  - *To enable development for the purposes of business premises or office premises associated with, and ancillary to, port facilities or industries.*
  - *To encourage ecologically sustainable development.*

  The proposal is consistent with the objectives of the zone. Specifically, it retains general industrial activities in the industrial area of Banksmeadow by continuing to utilise land for industrial uses.

Bayside Council Technical Comments

- **Contaminated Land**
  1. Council agrees with Scoping Report findings, and specifies the following recommendations:

     i. Provide details on all cut and fill required, including depth of earthworks for structural footings and services as specified, should be included in the architectural plans. Confirm that works will not intercept or impact the Botany Sands aquifer;

     ii. Given the site is classified as Class 3 Acid Sulfate Soils (ASS), if excavations exceed 1m depth below ground level, then an ASS assessment will be required, may be included in a Preliminary Site Investigation (PSI);

     iii. Complete a geotechnical investigation as specified, including identification of groundwater table depth;

     iv. The Applicant should consult with the landowner on the site history to decide whether a PSI is required. Provide full details of historical land contamination records within the site, including for Blocks L and Q. Council recommends completion of a PSI, including site inspection, subsurface investigation, and soil sampling to depth of proposed excavation to identify any potential contaminants;

     v. Assess any potential contamination risk via vapour intrusion to the proposed building from known contamination at the site; and

     vi. Council requests that mitigation measures or remediation to manage residual contamination is required depending on outcome of site investigations.

- **Traffic, Parking and Access**
  2. A Traffic Report shall be provided for the development in accordance with the RTA guide to traffic generating developments and Bayside Development Control Plan 2022 (BDCP 2022) Section 3.5.2. The traffic generation from the development and any impacts it has on the surrounding road network and intersections is to be assessed.

  3. The largest service vehicle (truck) proposed to access the development shall be clearly detailed as per AS2890.2:2018. Swept path analysis prepared by a suitably qualified engineer (in accordance with AS2890.2:2018) shall be submitted demonstrating sufficient area for vehicular manoeuvring, loading and satisfactory ingress/egress at the driveway access to the site. The routes service vehicles will use to access this site through the LGA shall be detailed.

- **Stormwater Management**
  4. The drainage system shall comply with Bayside Technical Specification Stormwater Management and AS3500.3. The development shall be designed to ensure contaminated run-off/spills are not directed into the public stormwater system (e.g. Springvale Drain).

- **Floodplain Management**
  5. Council records indicate that the site is flood affected. A flood advice letter needs to be obtained from Council https://www.bayside.nsw.gov.au/area/environment/flood-advice-certificate-application. The development is to be designed to comply with the BDCP 2022

Section 3.10 and Section 9.5 flood related controls. The habitable and non-habitable areas (including hazardous material storage) of the development will need to be physically protected from inundation during the flooding event.

6. A suitably qualified Civil Engineer is to be engaged to demonstrate no adverse flood impacts of this development on the existing floodplain in this area and, shall demonstrate compliance with relevant guidelines and requirements including BDCP 2022 Section 3.10 and Section 9.5, NSW Government's Flood Prone Land Policy, Flood Risk Management Manual as well as any other relevant policy or guideline.

- **Environmental Impacts**

7. *Section 6.2.5 Flooding and stormwater* of the Scoping Report states, "*Excess flows are discharged to Springvale Drain which flows to Botany Bay."* In response:

   i. Excess flows will have to comply with *Fisheries Management Act 1994* and not cause any harm to the conservation of *Key Fish Habitat* in Kamay (Botany Bay) located 1km south of the site.

   ii. Additional information is required on excess flows (event frequency, volume, contents chemical/physical/biological).

8. *Section 5.3.3 Other approvals and licences* of the Scoping Report states, *"According to Clause 48 of the Protection of the Environment Operations Act 1997 (POEO Act), an EPL is required from the EPA for the premises-based activities in Schedule 1 of the Act"*. Accordingly, EPL 20547 has been issued for the site and IXOM will consult EPA on the need to amend this licence in accordance with the proposal. In response:

   i. Excess flows (event frequency, volume, contents chemical/physical/biological) into Kamay (Botany Bay) will have to comply with the POEO Act.

- **Building Height Control Regulation**

9. The proposal must demonstrate it will not interfere with the operations of Sydney Airport. Potential interferences include building height, wildlife strike regions, and lighting and reflectivity.

   The proposed building exceeds 15.24m above existing ground level and therefore, the structure will require referral and approval by Sydney Airport Corporation Limited (SACL) and Civil Aviation Safety Authority (CASA) for concurrence with the building height control regulation. The Applicant is encouraged to engage with SACL and CASA at an early stage.

- **Heritage Impact**

10. Section 5.31 Heritage Conservation of the State Environmental Planning Policy (Transport and Infrastructure) 2021 lists the Item: *Main Administration Building "Orica" and Mature Ficus*, which is located at the corner of Denison Street and Beauchamp Street in Banksmeadow. The heritage item is adjacent to the lot where Block L and Q are located (Lot 1101 DP 1227173) and is considered to be in vicinity.

    In this regard, any Modification Report and EIS must demonstrate the proposed development would not adversely affect the heritage significance of the heritage item.

- **Amenity Impacts**

11. The proposed development has the potential to create adverse amenity impacts with regard to noise and vibration, light, and air quality. Council acknowledges the following measures being undertaken to assess potentially generated amenity impacts to nearby received as detailed in the Scoping Report:

    i. *Section 6.2.3 Amenity – noise and vibration* to conduct noise assessment in accordance with the EPA requirements; and

    ii. *Section 6.2.4 Air – particulate matter and gases* to conduct air quality impact assessment for potential pollutants and emissions as per the EPA requirements.

12. The subject site is located within the BIP Risk Referral zone. As such, any future development requires a referral to the DPHI's Hazards branch and may require the preparation of a Hazards and Risk Assessment Report.

- **Other Considerations**

13. Lot Descriptions at 16-20A Beauchamp Road, Banksmeadow
    Council notes the Lot/DP numbers identified in the Scoping Proposal are inconsistent with the Deposited Plan and shall be amended to the following:

    Lot 1105 DP 1227173
    Lot 1101 DP 1227173
    Lot 1102 DP 1227173
    Lot 1103 DP 1227173
    Lot 1104 DP 1227173
    Lot 1115 DP 1227173

14. Section 4.55 (2) Modification Assessment
    The Scoping Report contends that a Section 4.55(2) application under the Environmental Planning and Assessment Act 1979 is appropriate as the modification is substantially the same development. Council requests the Department to be satisfied that the modification is largely the same development for which consent was originally approved, with minimal environmental impact.

We trust that the Department will carefully consider Council's input in preparing the final SEARs for this project.

If you require any further information, please do not hesitate to contact Harseerat Thind, Urban Planner on (02) 9562 1852 or via email: Harseerat.Thind@bayside.nsw.gov.au.

Yours sincerely

Josh Ford
Coordinator Planning Policy

Randwick City Council
a sense of community

Ms Deana Burn,
Major Projects
Department of Planning Housing and Infrastructure
Email: deana.burn@planning.nsw.gov.au

28 June 2024

Ref No: F2006/00118

Dear Ms Burn,

Input into draft SEARs –MOD 6 IXOM Chlorine Liquefaction Plant (DA35/98-Mod-6)

I refer to the notification received via the Major Projects Portal requesting Council's input into the draft SEARs for MOD 6 IXOM Chlorine Liquefaction Plant (DA35/98-Mod-6).

Council notes that, while the Modification seeks approval for the construction of a chlorine liquefaction plant at the Botany Industrial Park (BIP) in Bayside Local Government area, it is close to the border with Randwick City Council. Many Randwick City residents closely are directly impacted by the activities of businesses situated in industrial areas adjacent to the City's borders. Specifically, they are concerned about the noise and traffic effects generated by these businesses on the Randwick area.

Council officers have reviewed the Scoping Report prepared by Element Environment for IXOM Operations, including relevant commitments made in the Report, and the following comments are provided:

Key Issues

Operational Noise implications

Please provide an acoustic report that identifies the probable noise sources and associated activities related to the proposal. Additionally, include any necessary acoustic measures to ensure acceptable residential amenity in accordance with relevant guidelines. The modelling assessment should specifically address:

- nighttime noise impacts
- prevailing wind direction and temperature inversion effects on noise during winter months, particularly when south westerly winds amplify noise in nearby residential areas

Traffic impacts assessment

Please provide a Traffic Impact Assessment for the proposal that includes:

- Estimate of vehicle movements/day
- Details of days/times of these traffic movements
- Details of onsite capacity for trucks to park while waiting to access the loading point
- Mechanism and measures to ensure drivers adhere to designated dangerous goods routes and do not use local roads
- an assessment of the development's traffic impacts on local traffic, especially at key nearby intersections i.e., Perry Street and Beauchamp Road and Denison and Beauchamp Roads.

Hazard risk assessment for the proposal

Please provide a Hazard Risk Analysis for the proposal that includes:

- details of any early leak detection systems/sensor to be utilised on site to mitigate leak risks
- cumulative hazard risks for the Botany Industrial Park (BIP)
- Evaluation of impacts on associated risk contours that extends beyond the BIP onto adjoining roads and lands

Community Consultation/Engagement activities

The Community Consultation/Engagement for the proposal should be extended to nearby business and residential areas in the Randwick LGA. In this regard, Council can provide details of the Matraville Precinct Committee which can be helpful in disseminating information on the proposal to affected areas.

Thank you for the opportunity to provide input into the SEARS for this Mod 6 proposal. If you have any questions regarding Council's comments please do not hesitate to contact Bronwyn Englaro Senior Sustainability officer on 9093 6796 or Bronwyn.englaro@randwick,nsw.gov.au

Yours sincerely,

Stella Agagiotis

Manager Strategic Planning

Stella.agagiotis@randwick.nsw.gov.au

Our Ref: DOC24/440737-4

Deana Burn
Specialist Planner
Department of Planning

Via Major Projects Portal

18 June 2024

Dear Deana

Advice on Secretary's Environmental Assessment Requirements –
MOD 6 Chlorine Liquefaction Plant (DA35/98-Mod-6)

Thank you for the request for advice received via electronic mail on the 6 June (2024) to the NSW Environment Protection Authority (EPA) seeking the requirements for the preparation of an Environmental Impact Statement (EIS) for the Chlorine Liquefaction Plant (DA35/98-Mod-6) located at 16-20 Beauchamp Road, Banksmeadow (the site).

The Proposal is to construct and operate a new chlorine liquefaction and packaging plant to be integrated into existing site operations.

The Proposal was referred for SEARs advice because the site is subject to multiple notices issued under the *Contaminated Land Management Act 1997* (e.g., notices No. 21074, 20201704, No. 0204441, etc.,) and the Proposal is an SSD Modification under the *Environmental Planning and Assessment Act 1979*.

The details of the Proposal have been considered and the information required for the Environmental Impact Statement (EIS) is in **Attachment A**.

In carrying out the assessment, the Proponent should also refer to the relevant guidelines, industry codes of practice and best practice management guidelines as listed in **Attachment B**.

The EPA also notes that the site is identified as a Major Hazard Facility (MHF) as defined under Schedule 15 of the *Work Health and Safety Regulation 2017*. We strongly recommend that the applicant consult closely with Safework NSW to ensure that risks and mitigations under the MHF framework are taken into consideration and adequately addressed.

Please contact Jenny Gustafson on 9585 6471 or email environmentprotection.planning@epa.nsw.gov.au if you wish to discuss this matter.

Yours sincerely

Phone 131 555
Phone +61 2 9995 5555
(from outside NSW)

TTY 133 677
ABN 43 692 285 758

Locked Bag 5022
Parramatta
NSW 2124 Australia

4 Parramatta Square
12 Darcy St, Parramatta
NSW 2150 Australia

info@epa.nsw.gov.au
www.epa.nsw.gov.au

Christie Jackson
Unit Head – Environment Protection Planning
NSW Environment Protection Authority

ATTACHMENT A: EIS REQUIREMENTS FOR CHLORINE LIQUEFACTION PLANT (DA35/98-MOD-6)

How to use these requirements

The EPA requirements have been structured as follows.

A. Executive summary

B. The proposal

C. The location

D. Identification and prioritisation of issues

E. The environmental issues

F. List of approvals and licences

G. Compilation of mitigation measures

H. Justification for the proposal

A Executive summary

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B The proposal

1. Objectives of the proposal

- The objectives of the proposal should be clearly stated and refer to:
  a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
  b) a life cycle approach to the production, use or disposal of products
  c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
  d) the staging and timing of the proposal and any plans for future expansion
  e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
  a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
  b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
  a) measures to minimise waste (typically through addressing source reduction)
  b) proposals for use or recycling of by-products
  c) proposed disposal methods for solid and liquid waste
  d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
  e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge.
  f) soil contamination treatment and prevention systems.
- Outline construction works including:
  a) actions to address any existing soil contamination
  b) any earthworks or site clearing; re-use and disposal of cleared material (including use of spoil on-site)
  c) construction timetable and staging; hours of construction; proposed construction methods
  d) environment protection measures, including noise mitigation measures, dust control measures and erosion and sediment control measures.

- Include a site diagram showing the site layout and location of environmental controls.

Air

- Identify all sources or potential sources of air emissions from the development.

Note: emissions can be classed as either:

- point (e.g. emissions from stack or vent) or

- fugitive (from wind erosion, leakages or spillages, associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements (dust from road, exhausts, loss from load), land clearing and construction works).

- Provide details of the project that are essential for predicting and assessing air impacts including:
  a) the quantities and physio-chemical parameters (e.g. concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored
  b) an outline of procedures for handling, transport, production and storage
  c) the management of solid, liquid and gaseous waste streams with potential to generate emissions to air.

Noise and vibration

- Identify all noise sources or potential sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters including:
  a) the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (see https://www.environment.nsw.gov.au/ieo/) using technical criteria derived from *the Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, ANZECC 2000)
  b) the management of discharges with potential for water impacts
  c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts e.g. effluent ponds) and showing potential areas of modification of contours, drainage etc.
- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm

and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

- Details of the site drainage and any natural or artificial waters within or adjacent to the development must be identified and where applicable measures proposed to mitigate potential impacts of the development on these waters.

- The EIS should provide details of any water management systems for the site to ensure surface and ground waters are protected from contaminants.

Waste and chemicals

Provide details of the quantity and type of both liquid waste and non-liquid waste generated, handled, processed or disposed of at the premises. Waste must be classified according to the EPA's *Waste Classification Guidelines 2014 (as amended from time to time)*

- Provide details of liquid waste and non-liquid waste management at the facility, including:
  a) the transportation, assessment and handling of waste arriving at or generated at the site
  b) any stockpiling of wastes or recovered materials at the site
  c) any waste processing related to the facility, including reuse, recycling, reprocessing (including composting) or treatment both on- and off-site
  d) the method for disposing of all wastes or recovered materials at the facility
  e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
  f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
  a) the quantity of spoil material likely to be generated
  b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
  c) the need to maximise reuse of spoil material in the construction industry
  d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material
  e) designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- Reference should be made to the guidelines: EPA's *Waste Classification Guidelines 2014* (as amended from time to time)
- Spill management measures, including items such as bunding, and emergency procedures should be clearly outlined.

Environmental Sustainable Development (ESD)

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:
  a) an assessment of a range of options available for use of the resource, including the benefits of each option to future generations
  b) proper valuation and pricing of environmental resources

c) identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

4. Consideration of alternatives and justification for the proposal

- Consider the environmental consequences of adopting alternatives, including alternative:
  a) sites and site layouts
  b) access modes and routes
  c) materials handling and production processes
  d) waste and water management
  e) impact mitigation measures
  f) energy sources
- Selection of the preferred option should be justified in terms of:
  a) ability to satisfy the objectives of the proposal
  b) relative environmental and other costs of each alternative
  c) acceptability of environmental impacts and contribution to identified environmental objectives
  d) acceptability of any environmental risks or uncertainties
  e) reliability of proposed environmental impact mitigation measures
  f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C The location

1. General

- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
  a) meteorological data (e.g. rainfall, temperature and evaporation, wind speed and direction)
  b) topography (landform element, slope type, gradient and length)
  c) surrounding land uses (potential synergies and conflicts)
  d) geomorphology (rates of landform change and current erosion and deposition processes)
  e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
  f) ecological information (water system habitat, vegetation, fauna)
  g) availability of services and the accessibility of the site for passenger and freight transport.

2. Air

- Describe the topography and surrounding land uses. Provide details of the exact locations of dwellings, schools and hospitals. Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may affect plume dispersion.
- Provide and analyse site representative data on following meteorological parameters:
  a) temperature and humidity
  b) rainfall, evaporation and cloud cover
  c) wind speed and direction
  d) atmospheric stability class
  e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
  f) katabatic air drainage
  g) air re-circulation.

3. Noise and vibration

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, and hospitals. Typically, the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. Water

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The Water Quality and River Flow Objectives on the website: https://www.environment.nsw.gov.au/ieo/ should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. Soil Contamination Issues

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination, for example if the site was previously a landfill site or if irrigation of effluent has occurred.

D Identification and prioritisation of issues / scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
  a) relevant NSW government guidelines
  b) industry guidelines
  c) EISs for similar projects
  d) relevant research and reference material
  e) relevant preliminary studies or reports for the proposal
  f) consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
  a) all issues identified including local, regional and global impacts (e.g. increased/ decreased greenhouse emissions)
  b) key issues which will require a full analysis (including comprehensive baseline assessment)
  c) issues not needing full analysis though they may be addressed in the mitigation strategy
  d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E The environmental issues

General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts e.g. assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a ‘reasonable level of performance’ to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A ‘reasonable level of performance’ involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.

- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EIS will be implemented. Areas that should be described include:
  a) operational procedures to manage environmental impacts
  b) monitoring procedures
  c) training programs
  d) community consultation
  e) complaint mechanisms including site contacts
  f) strategies to use monitoring information to improve performance
  g) strategies to achieve acceptable environmental impacts and to respond in event of exceedances.

1. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (e.g. potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the EPA.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.
- For potentially odorous emissions provide the emission rates in terms of odour units (determined by techniques compatible with EPA procedures). Use sampling and analysis techniques for individual or complex odours and for point or diffuse sources, as appropriate.

Note: With dust and odour, it may be possible to use data from existing similar activities to generate emission rates.

- Reference should be made to
  - *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2022)
  - *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (EPA 2022)
  - *Assessment and Management of Odour from Stationary Sources in NSW* (DEC 2006)
  - *Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW* (DEC 2006);
  - *Load Calculation Protocol for use by holders of NSW Environment Protection Licences when calculating Assessable Pollutant Loads* (DECC, 2009).

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.
- EPA note that Section 2.4 of the Scoping Report states that the new building will be under "slight negative pressure". The air impact assessment must consider applying negative pressure under all operating conditions, including when roller doors are open for truck movements or other operations. The assessment must also include what measures will be put in place to ensure adequate negative pressure during all operating conditions.

2. Human Health Risk Assessment

- A human health risk assessment must be undertaken in conjunction with the air quality and odour impact assessment.
- The human health risk assessment must be undertaken in accordance with *Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards* (enHealth) and must include:
    - the inhalation of criteria pollutants and exposure from all pathways i.e., inhalation, ingestion and dermal to specific air toxics.

3. Noise and vibration

Describe baseline conditions

- Determine the existing background (LA90) and ambient (LAeq) noise levels, as relevant, in accordance with the *NSW Noise Policy for Industry (EPA 2017)*.
- Determine the existing road traffic noise levels in accordance with the *NSW Road Noise Policy (EPA 2011)*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
    a) details of equipment used for the measurements
    b) a brief description of where the equipment was positioned
    c) a statement justifying the choice of monitoring site(s), including the procedure used to choose the site(s), having regards to Fact Sheets A and B of the *NSW Noise Policy for Industry.*
    d) details of the exact location of the monitoring site and a description of land uses in surrounding areas
    e) a description of the dominant and background noise sources at the site
    f) day, evening and night assessment background levels for each day of the monitoring period
    g) the final Rating Background Level (RBL) value
    h) graphs of the measured noise levels for each day should be provided

i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring.

Assess impacts

- Determine the project noise trigger levels for the site. For each identified potentially affected receiver, this should include:
  a) determination of the project intrusive noise level for each identified potentially affected receiver
  b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
  c) determination of the project amenity noise level for each receiver
  d) determination of the appropriate maximum noise level event assessment (sleep disturbance) trigger level.
- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Determine expected noise level and noise character likely to be generated from noise sources during:
  a) site establishment
  b) construction
  c) operational phases
  d) transport including traffic noise generated by the proposal
  e) other services.

Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).

- Determine the noise levels likely to be received at the reasonably most affected location(s) (these may vary for different activities at each phase of the development).
- The noise impact assessment report should include:
  a) a plan showing the assumed location of each noise source for each prediction scenario
  b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
  c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc
  d) methods used to predict noise impacts including identification of any noise models used.
  e) the weather conditions considered for the noise predictions
  f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario
  g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
  h) an assessment of the need to include modification factors as detailed in Fact Sheet C of the *NSW Noise Policy for Industry*.
- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional feasible and reasonable mitigation measures.

- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
  a) Where relevant noise/vibration levels cannot be met after application of all feasible and reasonable mitigation measures the residual level of noise impact needs to be quantified
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EIS.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
  a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
  b) control of traffic (eg: limiting times of access or speed limitations)
  c) resurfacing of the road using a quiet surface
  d) use of (additional) noise barriers or bunds
  e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
  f) more stringent limits for noise emission from vehicles (i.e. using specially designed ‘quite’ trucks and/or trucks to use air bag suspension
  g) driver education
  h) appropriate truck routes
  i) limit usage of exhaust brakes
  j) use of premium muffles on trucks
  k) reducing speed limits for trucks
  l) ongoing community liaison and monitoring of complaints
  m) phasing in the increased road use.

5. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).

Note: Methods of sampling and analysis need to conform with an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA 2022) *or be approved and analyses undertaken by accredited laboratories).*

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: https://www.environment.nsw.gov.au/ieo/. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the EIS should identify appropriate groundwater environmental values and justify the choice.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (http://www.environment.gov.au/water/publications/quality/nwqms-guidelines-4-vol1.html) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government Policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANCECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.
- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the EPA on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:
  a) lake or estuary flushing characteristics
  b) specific human uses (e.g. exact location of drinking water offtake)
  c) sensitive ecosystems or species conservation values
  d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc
  e) an outline of baseline groundwater information, including, but not restricted to, depth to water table, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
  f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.
- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphological activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, instream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.
- Containment of spills and leaks shall be in accordance with EPA's guidelines section '*Storing and Handling Liquids*' at https://www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/compliance-audit-program/chemical-storage-handling-and-spill-management

and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.

- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:
  a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and
  b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.
- Consult with the EPA as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The EPA will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to
  - *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004),
  - *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000),
  - *Environmental Guidelines: Use of effluent by Irrigation* (DEC, 2004).

Describe management and mitigation measures

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (e.g. preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
  a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
  b) minimising runoff
  c) minimising reductions or modifications to flow regimes
  d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
  a) site selection
  b) retention of native vegetation and revegetation
  c) artificial recharge
  d) providing surface storages with impervious linings
  e) monitoring program.
- Describe geomorphological impact mitigation measures including:
  a) site selection
  b) erosion and sediment controls
  c) minimising instream works
  d) treating existing accelerated erosion and deposition
  e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (EPA 2022).

6. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.
- EPA note that section 3.9 the Scoping report identifies EPA regulatory notice *Voluntary Management Proposal Number 20201704* as being pertinent to the site. Please note that the requirements of *Ongoing Maintenance Order Number 20172802* issued to Orica Australia for mercury contamination at the ChlorAlkali plant also needs to be considered when developing the EIS. The EIS needs to demonstrate that that the proposed facility considers and will not impact on the requirements of the above regulatory notices.
- Section 6.3.1 of the Scoping report indicates that the proponent is yet to determine if further contamination investigation is required. The proponent is proposing to review available historical contamination information from the site owner to determine the need for further investigation. The EPA requires that the outcome of this review and the decision to undertake further investigation is reviewed by a Site Auditor accredited under the CLM Act as part of the preparation of the EIS. This will help ensure independent oversight of the contamination matters.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
  a) disturbing any existing contaminated soil
  b) contamination of soil by operation of the activity
  c) subsidence or instability
  d) soil erosion
  e) disturbing acid sulfate or potential acid sulfate soils.
- Identify any likely impact of the Proposal in consideration of the existing notices issued under the *Contaminated Land Management Act 1997.*
- Reference should be made to:
  - *Consultants reporting on Contaminated Land (EPA* 2020);
  - *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (EPA, 2015)
  - Any other relevant guidelines made or approved under s105 of the *Contaminated Land Management Act 1997*

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
  a) erosion and sediment control measures
  b) proposals for site remediation – see *State Environmental Planning Policy (Resilience and Hazards) 2021* and other supporting guidelines including the *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)

c) proposals for the management of these soils – see *Acid Sulfate Soil Manual* (Acid Sulfate Soil Advisory Committee 1998) and *Acid Sulfate Soils Assessment Guidelines* (Acid Sulfate Soil Advisory Committee 1998).

- Ensure the Proposal will not damage existing monitoring and remediation infrastructure.
- Where contamination is found and requires either a detailed site investigation, remediation or further human health or ecological risk assessments, a NSW EPA accredited Site Auditor must be engaged to carry out an independent audit of the work.

7. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to: the EPA's *Waste Classification Guidelines 2014 (as in force from time to time)*
- If the proposal is an energy from waste facility it must:
  - demonstrate that the proposed operation will comply with *the NSW EPA's Energy from Waste Policy Statement*;
  - describe of the classes and quantities of waste that would be thermally treated at the facility;
  - demonstrate that waste used as a feedstock in the waste to energy plant would be the residual from a resource recovery process that maximises the recovery of material;
  - detail procedures that would be implemented to control the inputs to the waste to energy plant, including contingency measures that would be implemented if inappropriate materials are identified;
  - detail the location and size of stockpiles of unprocessed and processed recycled waste at the site;
  - demonstrate any waste material (e.g. biochar, ash) produced from the waste to energy facility for land application is fit-for-purpose and poses minimal risk of harm to the environment in order to meet the requirements for consideration of a resource recovery order and /or exemption by the EPA;
  - detail procedures for the management of other solid, liquid and gaseous waste streams;
  - describe how waste would be treated, stored, used, disposed and handled on site, and transported to and from the site, and the potential impacts associated with these issues, including current and future offsite waste disposal methods; and
  - identify the measures that would be implemented to ensure that the development is consistent with the aims, objectives and guidance in the *NSW Waste and Sustainable Materials Strategy 2041*.

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.

- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

8. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.
- Identify infrastructure requirements flowing from the proposal (e.g. water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (e.g. travel demand management strategies).

F. List of approvals and licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).
- Ixom currently holds Environment Protection Licence (EPL) No. 20547 to perform activities listed under Schedule 1 of the POEO Act at the premises. The proponent will need to identify any increases to production or storage volumes which may trigger changes to the activities or conditions listed on the EPL. If changes are required, the proponent will need to make a separate licence variation application to the EPA before the new plant is commissioned.

G. Compilation of mitigation measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under EPA licences or approvals (e.g. outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

H. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHMENT C: GUIDANCE MATERIAL

Title	Web address
Relevant Legislation	
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/#/view/act/1997/140
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/#/view/act/1985/14
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/#/view/act/1979/203
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/#/view/act/1997/156
Water Management Act 2000	http://www.legislation.nsw.gov.au/#/view/act/2000/92
Licensing	
Guide to Licensing	www.epa.nsw.gov.au/licensing/licenceguide.htm
Air Issues	
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2022)	https://www.epa.nsw.gov.au/your-environment/air/industrial-emissions/approved-methods-for-the-modelling-and-assessment-of-air-pollutants https://www.epa.nsw.gov.au/resources/epa/approved-methods-for-modelling-and-assessment-of-air-pollutants-in-NSW-160666.pdf
POEO (Clean Air) Regulation 2021	https://legislation.nsw.gov.au/view/html/inforce/current/sl-2021-0485
Noise and Vibration	
NSW Noise Policy for Industry (2017)	http://www.epa.nsw.gov.au/your-environment/noise/industrial-noise/noise-policy-for-industry-(2017)
Interim Construction Noise Guideline (DECC, 2009)	http://www.epa.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.epa.nsw.gov.au/noise/vibrationguide.htm
NSW Road Noise Policy (DECCW, 2011)	https://www.epa.nsw.gov.au/resources/noise/2011236nswroadnoisepolicy.pdf
Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration (ANZEC 1990)	https://www.epa.nsw.gov.au/~/media/EPA/Corporate%20Site/resources/noise/ANZECBlasting.ashx
NSW Rail Infrastructure Noise Guideline (EPA, 2013)	https://www.epa.nsw.gov.au/resources/noise/20130018eparing.pdf

Human Health Risk Assessment	
Environmental Health Risk Assessment: Guidelines for assessing human health risks from environmental hazards (enHealth, 2012)	http://www.eh.org.au/documents/item/916
Waste, Chemicals and Hazardous Materials and Radiation	
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 2016)	https://www.epa.nsw.gov.au/your-environment/waste/waste-facilities/landfill-sites
Managing industrial waste	https://www.epa.nsw.gov.au/your-environment/waste/industrial-waste
EPA's Waste Classification Guidelines 2014	http://www.epa.nsw.gov.au/wasteregulation/classify-guidelines.htm
Resource recovery orders and exemptions	https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/current-orders-and-exemption
EPA's Energy from Waste Policy Statement	http://www.epa.nsw.gov.au/wastestrategy/energy-from-waste.htm
NSW Waste Avoidance and Resource Recovery Strategy 2014-2021	http://www.epa.nsw.gov.au/wastestrategy/warr.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.epa.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule X Wastes - July 1994	Available in libraries
Water and Soils	
Acid sulphate soils	
Coastal acid sulfate soils guidance material	https://www.environment.nsw.gov.au/research-and-publications/publications-search/acid-sulfate-soils-remediation-guidelines-for-coastal-floodplains-in-nsw and http://www.epa.nsw.gov.au/mao/acidsulfatesoils.htm
Acid Sulfate Soils Planning Maps	https://datasets.seed.nsw.gov.au/dataset/acid-sulfate-soils-risk0196c
Contaminated Land Assessment and Remediation	
State Environmental Planning Policy (Resilience and Hazards) 2021	https://www.epa.nsw.gov.au/your-environment/contaminated-land
Consultants Reporting on Contaminated Land (EPA, 2020)	https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/contaminated-land/20p2233-consultants-reporting-on-contaminated-land-guidelines.pdf

Guidelines for the NSW Site Auditor Scheme – 3rd edition (EPA, 2017)	https://www.epa.nsw.gov.au/your-environment/contaminated-land/site-auditor-scheme
Sampling Design Guidelines (EPA, 2022)	https://yoursay.epa.nsw.gov.au/sampling-design-guidelines
National Environment Protection (Assessment of Site Contamination) Measure 1999 (updated 2013)	https://www.nepc.gov.au/nepms/assessment-site-contamination
Any other relevant guidelines made or approved by the EPA under s105 of the *Contaminated Land Management Act 1997*	(https://www.epa.nsw.gov.au/your-environment/contaminated-land/statutory-guidelines)

Soils – general	
Managing land and soil	https://www.environment.nsw.gov.au/topics/land-and-soil/managing-land-and-soil
Managing Urban Stormwater: Soils and construction	https://www.environment.nsw.gov.au/research-and-publications/publications-search/managing-urban-stormwater-soils-and-construction-volume-1-4th-editon
Landslide risk management guidelines	
Site Investigations for Urban Salinity (DLWC, 2002)	https://www.environment.nsw.gov.au/research-and-publications/publications-search/site-investigations-for-urban-salinity
Local Government Salinity Initiative Booklets	https://www.environment.nsw.gov.au/research-and-publications/publications-search/local-government-salinity-initiative-introduction-to-urban-salinity
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
Australian and New Zealand guidelines for fresh and marine water quality	https://www.waterquality.gov.au/guidelines/anz-fresh-marine
Applying Goals for Ambient Water Quality Guidance for Operations Officers - Mixing Zones	Contact the EPA on 131555
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2022)	https://www.epa.nsw.gov.au/licensing-and-regulation/licensing/environment-protection-licences/licensing-under-poeo-act-1997/licensing-to-regulate-water-pollution/approved-methods-for-sampling-and-analysing-water-pollutants

This concludes the EPA's submission.

Transport

18 June 2024

TfNSW Reference: SYD24/01067
Department Reference: MOD 6 - DA35/98

Ms Kiersten Fishburn
Secretary
Department of Planning, Housing and Infrastructure
Locked Bag 5022
Parramatta NSW 2124

Attention: Deana Burn

SEARs REQUEST FOR MOD 6 – CHLORINE LIQUEFACTION PLANT
16-20 BEAUCHAMP ROAD, BANKSMEADOW

Dear Ms Fishburn,

Reference is made to the Department of Planning, Housing and Infrastructure's referral dated 5 June 2024 regarding the abovementioned SEARs request, which was referred to Transport for NSW (TfNSW) for comment.

TfNSW has reviewed the Scoping Report dated 27 May 2024 and requests the following matters to be included in the transport and traffic impact assessment of the proposed development:

1. Daily and peak traffic movements likely to be generated by the proposed Chlorine Liquefaction Plant including the impact on nearby intersections and the need/associated funding for upgrading or road improvement works (if required). The key intersections to be examined / modelled include:
   - Beauchamp Road/Denison Street
   - Botany Road/Beauchamp Road
   - Wentworth Ave/Denison Street
   - Gate 1 Access/Beauchamp Road and Gate 3 Access/Denison Street (if proposed to be used for access to the development).

   The assessment should include a base case and base + development scenario. Any transport and traffic impact assessment prepared as well as modelling undertaken should demonstrate that the intensification of the development would be of minimal impact to the classified road network in terms of safety and efficiency for both vehicles and pedestrians.

2. Details of the proposed accesses and parking associated with the proposed development including compliance with the requirements of the relevant Australian Standards (i.e. turn paths, sight distance requirements, aisle widths, etc.)

3. Details of service vehicle movements (including vehicle type and likely arrival and departure times), as well as swept paths of the design vehicle entering and exiting the site at the key access Gates to the site.

4. Preliminary details of demolition/construction activities, detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.

5. The transport and traffic impact assessment should assess the implications of the proposed development for non-car travel modes (including public transport, walking and cycling) and the potential for implementing a location-specific sustainable travel plan (e.g. Green Travel Plan) to increase the non-car mode share for travel to and from the site (where practical).

Should you have any further inquiries in relation to this matter, please do not hesitate to contact Hans Pilly Mootanah, Land Use Planner, on telephone 8849 2076 or by email at development.sydney@transport.nsw.gov.au

Yours sincerely,

Rachel Davis
Senior Land Use Planner, Planning and Programs, Greater Sydney Division