# Environmental Assessment

# MP 06_0095 Mod3

## Modification to existing development consent for additional treatment technologies

## at

## 40 Christie Street, St Marys

## (Lot 431, DP 854814)

Prepared for

**Tox Free Australia Pty Ltd**

9th June 2018

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# REVISION

**PROJECT: MP 06_0095 Mod3, 40 Christie St, St Marys**
**Modification to existing development consent for additional treatment technologies**

| Revision | Issue | Date |
|---|---|---|
| Final Draft | Lodge with DP&E | 12.8.15 |
| Rev 1 | Update lodged with DP&E | 21.12.15 |
| Rev 2 | Updated PHA | 1.5.16 |
| Rev 3 | Updated Environmental Assessment ***(updated by Toxfree)*** | 9.6.18 |

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Authorised for use by:

Signed: Date: 1/5/16

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# 1. Introduction

## 1.1 Background

The Toxfree Chemical Waste Storage and Treatment Facility was approved by the then Minister for Planning on 22 December 2006 (06_0095) under Section 75J of the *Environmental (Planning and Assessment Act 1979 (EP&A Act)*. The facility was approved to receive, store, treat and transfer a range of dangerous and hazardous goods from a variety of industry, domestic and commercial sources. The facility was considered a Major Project in accordance with Schedule 1, Group 9, Section 27(5) of the then *State Environmental Planning Policy (Major Projects) 2005*, and was determined by the Department of Planning (DoP) on behalf of the Minister under Part 3A of the *EP&A Act*.

An Environment Protection Licence (no:12628) under the *Protection of the Environment Operations Act 1997* was issued for the facility by the Environment Protection Authority (EPA) for 'waste activities' and 'waste processing (non thermal treatment)'.

Two subsequent modifications have been approved to the project under Section 75W of the EP&A Act. Modification 1 (dated 6 July 2007) approved changes to site layout, gas detection systems and types of dangerous goods stored onsite. Modification 2 (dated 3 March 2010) approved the use of additional treatment technologies including chemical immobilization and solidification (CIS), oil filter crushing, aerosol crushing, container cleaning fluorescent tube crushing and secure product destruction.

## 1.2 Purpose of this report

The purpose of this Environmental Assessment (EA) is to document the assessment of the environmental impacts of the proposed modification to the Toxfree Resource Recovery Facility Project.

Only the impacts on the environment likely to occur by reason of the proposed changes to the project are described and assessed in this report. The remaining project specifications, impacts and mitigation measures remain consistent with the Environmental Assessments for the original application and subsequent modifications.

This report responds to advice received from the Department of Planning and Environment dated 8th January 2015 and 2nd September 2015 (refer Appendix A) for modification of the existing Part 3A project application 06_0095 (file no: 9042384) pursuant to Section 75W of the EP&A Act.

This report also supports an application to the Environment Protection Authority (EPA) for variation to licence number 12628 for modification to the approved scheduled activities "Waste storage" and "Waste processing (non thermal treatment)".

## 1.3 Site Description

The existing facility is located within the established St Mary's industrial estate on Christie Street (refer Figure 1.1). The site is approximately 7km east of the Nepean Hospital, 650m

east of the Wianamatta Creek, approximately 650m to the nearest residence and surrounded by other industrial facilities.

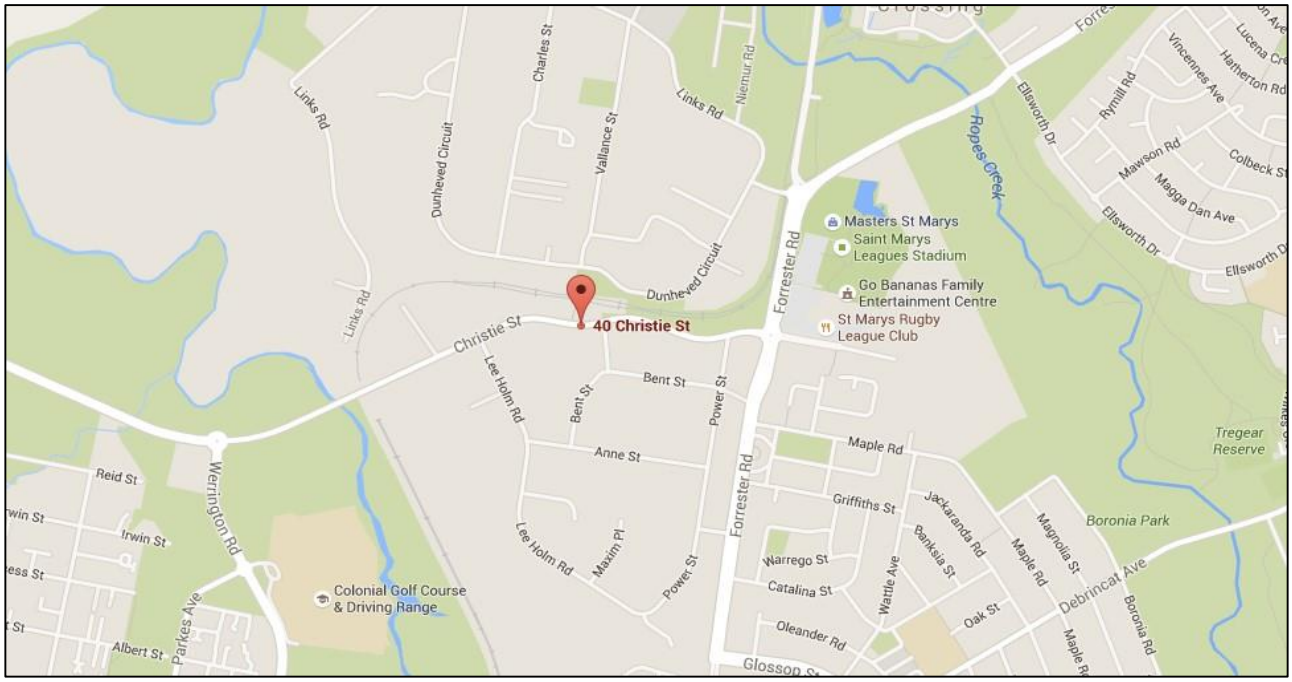



**Figure 1.1 Site Location**


**Figure1.2 Site Locality**

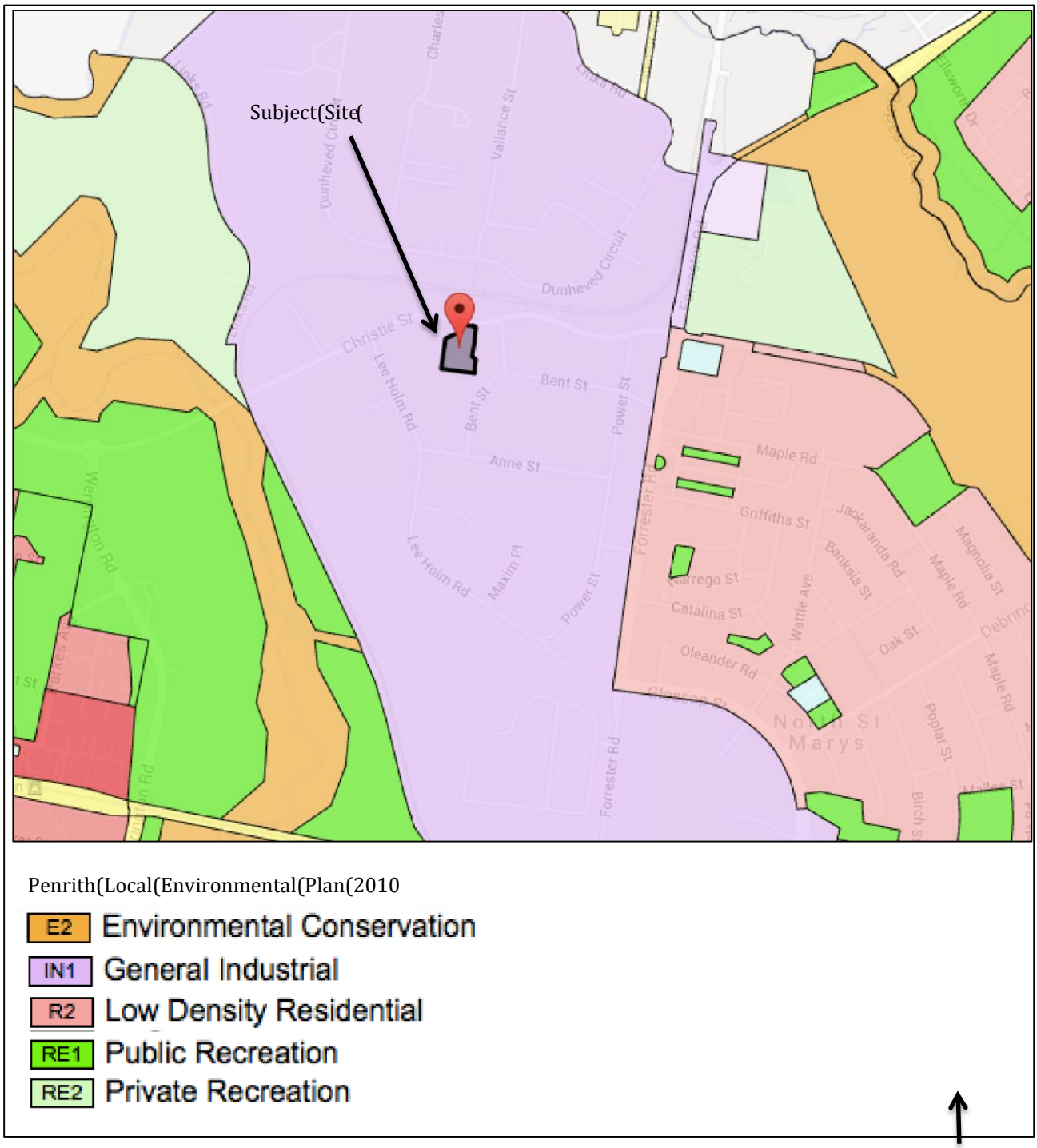



**Figure 1.3 Land Use Zoning**

# 2. Proposed Modifications

The modification proposed with this Modification 3 application are:

- establishment of an Acid/Alkaline Neutralisation treatment system
- expand the scope of treatment capability of the existing CIS process to handle a variety of waste streams already approved to process (subject to immobilisation permits).
- extension of operating hours
- increase in storage limits of existing approved wastes
- notification of non-dangerous goods wastes

Detail on each of these modifications is provided below.

The site layout showing the work areas and dangerous goods storage is shown in Figure 2.1 overleaf.

Schedule 3 Condition 13a) of the current Project Approval 06_0095 as modified, is requested to be removed. The requirement for biennial emergency drills to be undertaken in liaison with the NSW Fire Brigade was an added measure when the Dunheved Fire Station was located adjacent to the site. The Fire Station is no longer located adjacent the site and therefore the Fire Brigades involvement in emergency drills is no longer necessary.

## 2.1 Treatment processes

### 2.1.1 Acid Alkaline neutralisation

The Acid Alkali Neutralisation (AAN) treatment system aims to consolidate packaged wastes currently received at the site.

Containers of acid or alkalis are received from schools, laboratories, universities and households via EPA/Council collections. Acids received typically include sulphuric acid, hydrochloric acid and acidic based cleaners. Alkalis include lime, caustic soda and sodium hydroxide. Currently, containers are received, packed onto pallets and transported to off-site for processing and disposal.

The AAN combines corrosive liquids to create a neutral solution. The process flow diagram is shown in Figure 2.2 below.

**AAN Process**

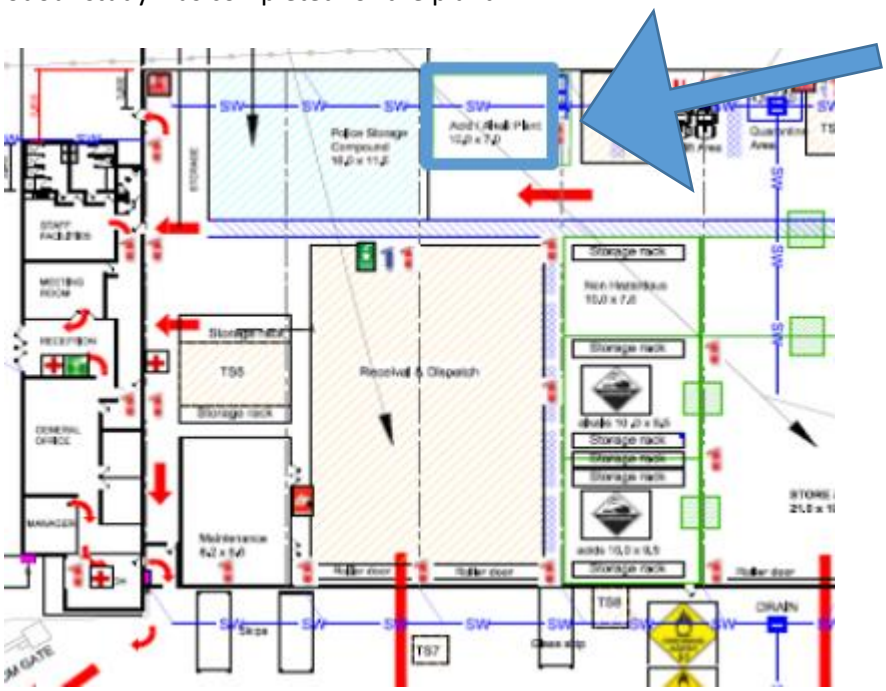
Small containers (<25L) of liquid acid or alkali are decanted into IBCs and transported by forklift from the storage area to the AAN. The AAN Mixing Tank is prefilled with 500L of consolidated alkali waste. Acid is then slowly added to the caustic solution. From the reaction vessel, the acid/alkali mix is pumped into a 1,500L AAN Mixing Tank in batches of 1,000L. Tank includes a mechanical mixer and is covered. Heat from neutralisation reactions is removed through refrigerated cooling system. pH is monitored by a probe with alarms. pH and temperature will be continuously monitored on the AAN Mixing Tank and gas scrubber. The tank will auto dose with caustic if the pH drops below 7. More acid or alkali will be added as

required to achieve the desired pH of between 7 and 9.5. Once the pH stabilises within the acceptable range, the contents is pumped to a standby IBC to settle for 1 day. Following settlement, the liquid is pumped off by vacuum tanker and transported offsite to an appropriately licenced facility. Settled solids are drained from the IBC and tested for contaminants and an appropriate CIS treatment formulated.

It is expected that the plant will process a maximum of 4 x 1,400 kg batches per day.

The AAN plant will be fitted with a fume extraction system discharging approximately 2m$^3$/minute of air. A caustic scrubbing system will be utilised to scrub the air extracted from around the decanting station and above the neutralisation tank. The caustic scrubber spray tower will use 18 to 22 sodium hydroxide solution. The counter current flow assumes a toxic stripping efficiency of 50. Exothermic reactions (if encountered) removed through refrigerated cooling system. The caustic scrubber exhaust will discharge at least three metres above the roof height to limit building downwash effects. Ducting transition will be fitted on to the exhaust to increase efflux velocity to 10m/s in accordance with best practice.

The AAN process will be setup as per Figure 2.3 – AAN Process below. The location of the plant is shown on the image below with a blue box. This is also the same location where the odour study was completed for the plant.




### 2.1.2 Chemical Immobilisation and Stabilisation (CIS)

The Christie Street facility is approved for CIS as described in the approved Part 3A Modification 2. This modification proposes CIS treatment of additional waste codes, as well as the existing waste codes approved. The new waste codes are currently approved for storage, the modification will allow for storage and waste processing (non thermal treatment).

Below is a summary of the current approved waste codes and the proposed additional waste codes:

| Waste Code | Waste Description | Maximum Waste Volume* | Approval Status |
|---|---|---|---|
| D110 | Inorganic fluoride compounds | 5 tonnes | Approved (Mod 2) |
| D210 | Nickel compounds | 5 tonnes | Approved (Mod 2) |
| D240 | Selenium and selenium compounds | 5 tonnes | Approved (Mod 2) |
| D290 | Barium compounds | 5 tonnes | Approved (Mod 2) |
| D300 | Non-toxic salts | 5 tonnes | Approved (Mod 2) |
| N190 | Filter cake | 5 tonnes | Approved (Mod 2) |
| Z130 | Inert sludges and slurries | 5 tonnes | Approved (Mod 2) |
| T100 | Waste arising from R&D activities | 50 tonnes | Not approved for waste processing (non thermal) |
| M250 | Surface active agents (surfactants), containing principally organic constituents | 15 tonnes | Not approved for waste processing (non thermal) |
| T120 | Photographic waste | 10 tonnes | Not approved for waste processing (non thermal) |
| N205 | Industrial waste treatment/disposal residues | 10 tonnes | Not approved for waste processing (non thermal) |
| Z140 | Non controlled liquid waste | 5 tonnes | Not approved for waste processing (non thermal) |
| N120 | Contaminated soils | 5 tonnes | Not approved for waste processing (non thermal) |
| N140 | Fire wash waters | 10 tonnes | Not approved for waste processing (non thermal) |
| K120 | Food waste | 5 tonnes | Not approved. Storage only. |
| K130 | Sewerage waste | 5 tonnes | Not approved. Storage only. |
| F100 | Waste ink, dye, pigment, paint, lacquer & varnish | 80 tonnes | Not approved for waste processing (non thermal) |
| F110 | Waste resin, latex, plasticiser, glue & adhesive | 20 tonnes | Not approved for waste processing (non thermal) |

**Table 2.1 – Waste Proposed for Storage and/or Processing**

** Volume on-site at any one time.*

Incoming waste for the CIS plant is currently being received on-site. This is being stored and then sent off-site for treatment and processing, once we have sufficient volume for transport. The waste is currently weighed in and stored in the Toxic store (D110, D210, D240, D290, T100, N120), flammable store (F100, F110) and non-hazardous area (D300, N190, Z130, M250, T120, N205, Z140, N140, K120, K130). It is believed that the toxic store can store up to 70 tonnes, flammable store 92 tonnes and non-hazardous area 200 tonnes at any one time.
The waste will be stored in the areas noted above, prior to processing. Once a batch is arranged for processing, this will be moved to the Sorting Area (Figure 2.2 – Site Layout), where the CIS process will occur. This is the same area that the cyanide and chlorine gas detectors are installed.

The Chemical Immobilisation and Stabilisation (CIS) process will be a small batch process and involve the addition of chemical reagents to the waste stream in order to immobilise the contaminant in a non-leachable form and to solidify the material into a rigid mass. The treatment would involve decanting the material into a small reaction vessel (approximately 250L in size). The reaction vessel would stir (mix) the waste and reagent(s) in order to blend the waste and reagent(s) together, waiting for the mixture to be curried. In general, the majority of wastes to be treated would be sourced from existing waste streams received at the facility. Some of these waste streams are already approved for CIS processing and some currently for storage only. The storage only wastes we seeking to be approved for waste processing (non thermal) through the CIS plant These are outlined in Table 2.1.

The process approved in Mod 2 is a larger batch process then what this CIS process will be. This process will be done within a sealed vessel and small batch processes, but more batches can be completed throughout the da. This is due to the different wastes requiring different reagents for immobilisation.

The CIS process is expected to treat and disposed of between 1000 to 1500 tonnes of waste per annum. Treated wastes would be stored onsite (in the loads out area) until confirmation of treatment success and waste classification is completed. Consistent with the current CIS approval, samples would be taken of the treated material and sent to a NATA accredited laboratory for Quality Control (QC) testing in accordance with NSW EPA (2008) *Waste Classification Guidelines and specific and generic Immobilisation Approvals.* Any batch failing these QA tests would be reprocessed by crushing, and then re-immobilised. If the treated waste meets QC criteria upon curing and testing it is proposed that the immobilised waste be disposed of as General Solid or Restricted Solid waste to a suitably licensed landfill. This will involve the waste being tipped into a hook-lift bin on-site and sent off-site to landfill in a hook-lift bin.

Treatment of the additional waste codes within the CIS process is expected to generate only a minor increase in solid waste to landfill.


**Figure 2.1 Site Aerial**

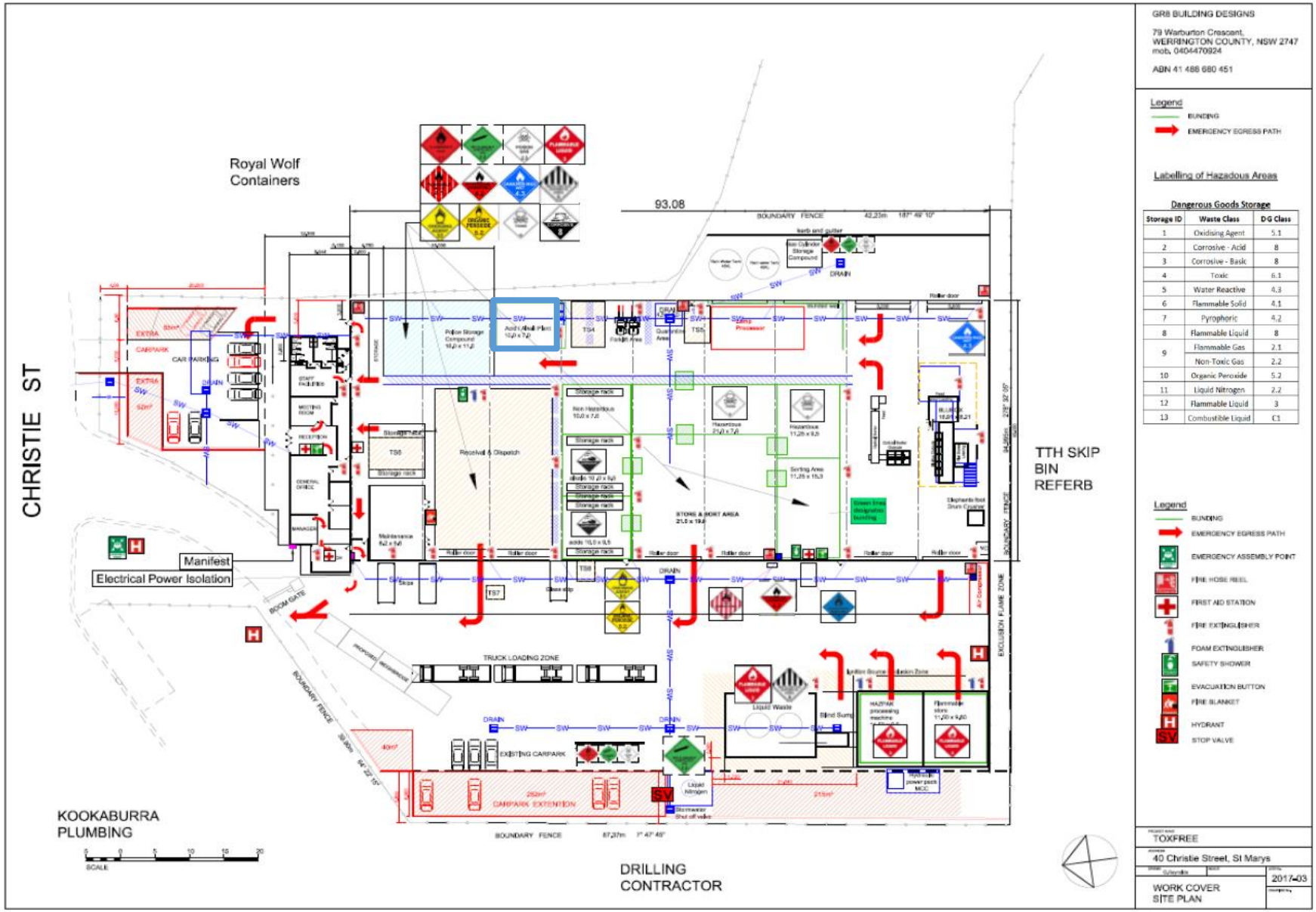



**Figure 2.2 Site Layout**

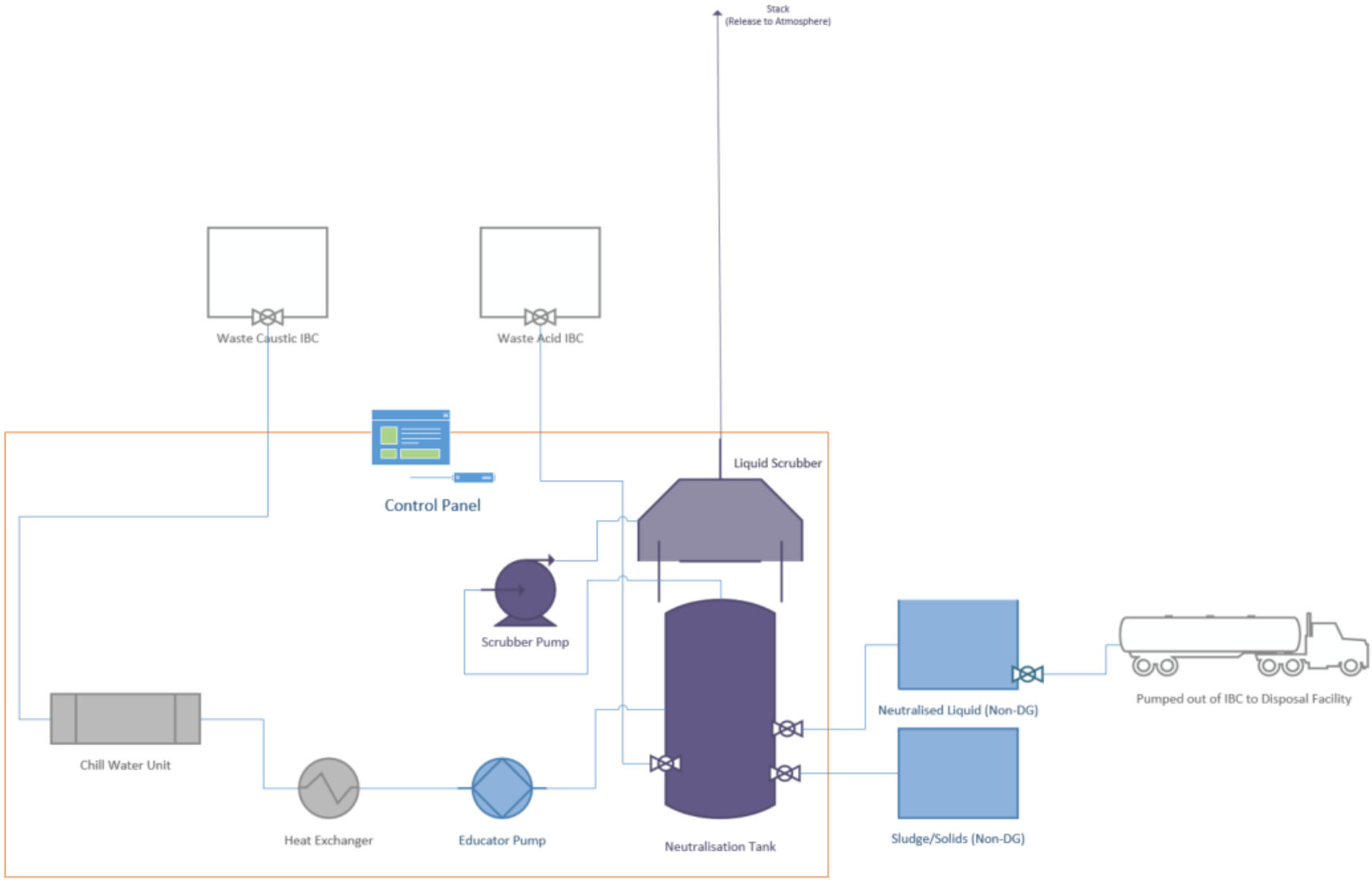



**Figure 2.3 Acid Alkali Neutralisation Process Flow Diagram**

## 2.2 Non-Dangerous Goods

The facility currently accepts a variety of non-dangerous goods waste streams. These are generally stored in their own storage location (non-dangerous goods area), or with some dangerous goods (compatible chemicals). i.e. water and solvent based paints are stored together, even though they are a non-dangerous goods and a dangerous goods class 3 respectively.

| Waste NEPM Code | Waste Description | Tonnage Limit * | Storage Location |
|---|---|---|---|
| T100 | Waste chemical substances arising from research and development or teaching activities, including those which are not identified and/or are new and whose effects on human health and/or the environment are not known | 40 tonnes | Paint sorting, non-hazardous area, weigh in and/or loads out areas |
| T120 | Photographic chemicals & processing waste | 10 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| Z140 | Non-Controlled Liquid | 5 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| J120 | Waste oil/hydrocarbons mixtures/emulsions in water | 10 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| F100 | Waste ink, dye, pigment, paint, lacquer & varnish | 80 tonnes | Paint sorting, non-hazardous area, weigh in and/or loads out areas |
| F110 | Waste resin, latex, plasticiser, glue & adhesive | 20 tonnes | Paint sorting, non-hazardous area, weigh in and/or loads out areas |
| D120 | Mercury; mercury compounds | 15 tonnes | Lamp processing area, weigh in and/or loads out areas |
| M250 | Surface active agents (surfactants), containing principally organic constituents and which may contain metals and inorganic metals | 15 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| N140 | Fire wash-waters | 10 tonnes | Non-hazardous area, weigh in and/or loads out areas |

| | | | |
|---|---|---|---|
| Z130 | Inert slurries and sludges | 5 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| N205 | Residues from industrial waste treatment/disposal operations | 10 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| N220 | Asbestos | 2 tonnes | Skip bins, weigh in and/or loads out areas |
| N120 | Soils contaminated | 5 tonnes | Skip bins, weigh in and/or loads out areas |
| N/A | Fly ash | 3 tonnes | Skip bins, weigh in and/or loads out areas |
| N190 | Filter cake | 5 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| J100 | Waste mineral oil | 10 tonnes | Non-hazardous area, weigh in and/or loads out areas |
| D300 | Non-toxic salts | 5 tonnes | Skip bins, weigh in and/or loads out areas |

* *Total gross amount on-site at any one time.*

Given that the waste above is non-dangerous goods, it will be stored in the non-dangerous goods area on-site (east of the caustic store), within the load in bays and/or in the load out bays. It is believed that the non-hazardous area can store 200 tonnes, weigh in area 75 tonnes and load out area 75 tonnes.

Depending on the storage location will depend on whether it is stored on the hardstand within the relevant area or on pallet racking. There is only limited pallet racking available on-site and this is used for waste streams that do not move as frequently. Most wastes received on-site are brought within stillages. These are stackable 3-4 high, depending on the stillage type. This allows for a more compact storage solution.

## 2.3 Operating Hours

The facility is currently approved to operate 6am to 6pm all days. It is requested to modify operating hours to 5am to 10pm all days. Access to the site outside these hours may be required on occasion to collect equipment in emergency call outs.

The proposed hours will allow two staffing shifts to be established. No heavy vehicles will access or depart the site between 6pm and 6am (except for in emergency situations), thereby minimising any noise impacts.

These extended hours are not considered likely to have any offsite effects.

## 2.4 Storage Limits

To facilitate operation of the proposed acid alkali neutralisation plant, storage quantities of acid and alkali require increasing. The proposed increased storage limits correspond with the Dangerous Goods Licencing criteria as shown in Table 2.2 below.

| Dangerous good | Maximum storage quantity currently approved[1] | Proposed maximum quantity (incl packaging mass) | Exceed& SEPP33& Threshold[2&] & |
|---|---|---|---|
| Class 2.1 | 500kg | 15 tonnes | X |
| Class 2.2 | Not currently approved | 25 tonnes | X |
| Class 2.3 | Not currently approved | 100kg | X |
| Class 3 | 92,000L | 92,000L | ✓[1] |
| Class 4.1 | 10kg | 3 tonnes | X |
| Class 4.2 | 10kg | 3 tonnes | X |
| Class 4.3 | 10kg | 1 tonne | X |
| Class 5.1 | 200kg | 5 tonnes | X |
| Class 5.2 | 200kg | 1 tonne | X |
| Class 6.1 | 10.5 tonne | 35 tonnes | ✓ |
| Class 6.2 | Not currently approved | 5 tonnes | X |
| Class 8 - Acidic | 5,000 L | 35 tonnes | X |
| Class 8 – Basic | 5,000 L | 25 tonnes | X |
| Class 9 | 500kg | 25 tonnes | N/A |

[1] SEPP 33 screening threshold not exceeded provided good are stored more than 10m from the property boundary.

| | | | |
|---|---|---|---|
| C2 Q Combustible Liquids | 2,000L | 5 tonnes | ✓ |
| Cyanide (Toxic Liquid Organic NOS) | 9,900L | 10 tonnes | ✓ |
| Non Dangerous Goods | Not currently listed | 250 tonnes | N/A |

**Table 2-2 Waste storage limits**

Table 2.2 identifies the maximum storage capacity for certain dangerous good classes exceed the relevant screening threshold. Therefore, based on the SEPP 33 screening criteria, this development is classified as potentially hazardous and therefore a PHA has been prepared to demonstrate that the development will not significantly increase the overall risks associated with the operation of the site. This is addressed in Section 4.1 and Appendix C.

Please see below table 2-3 outlining the estimated dangerous goods storage limits for each dangerous goods storage area on-site.

| Storage Area | Estimated Storage Capacity | DG Classes Stored |
|---|---|---|
| Non-Dangerous Goods Area | 200 tonnes | Non-DG |
| Lamp Processing Area | 70 tonnes | Non-DG / DG 9 |
| Paint Sorting Area | 20 tonnes | Non-DG, DG 3, DG 9 |
| Flammable Store | 92 tonnes | Non-DG, DG 2.1, DG 3 |
| Toxic Store | 70 tonnes | DG 6.1, DG 6.2, DG 9 |
| Acid Store | 40 tonnes | DG 8 |
| Caustic Store | 40 tonnes | DG 8 |
| DG Storage Cabinets | 1 – 5 tonnes | DG 4.1, DG 4.2, DG 4.3, DG 5.1, DG 5.2 |
| Gas Cages | *Multiple cages* 40 tonnes | DG 2.1, DG 2.2 |

**Table 2.3 – Estimated storage limits**

It is believed that the site has a maximum storage capacity of 850-900 tonnes at any one time. The main storage locations of each dangerous goods class is outlined on Figure 2.2 – Site Layout.

Additionally, depending on the storage location will depend on whether it is stored on the hardstand within the relevant area or on pallet racking. There is only limited pallet racking available on-site and this is used for waste streams that do not move as frequently. Most wastes received on-site are brought within stillages. These are stackable 3-4 high, depending on the stillage type. This allows for a more compact storage solution.

# 3. Statutory Context

## 3.1 Compliance with current approvals

### 3.1.1 Part 3A

The Toxfree Chemical Waste Storage and Treatment Facility was approved by the then Minister for Planning on 22 December 2006 (06_0095) under Section 75J of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. The facility was approved to receive, store, treat and transfer a range of dangerous and hazardous goods from a variety of industry, domestic and commercial sources. The facility was considered a Major Project in accordance with Schedule 1, Group 9, Section 27(5) of the then *State Environmental Planning Policy) (Major) Projects)) 2005*, and was determined by the then Department of Planning (DoP) on behalf of the Minister under Part 3A of the *EP&A Act*.

Two subsequent modifications have been approved to the project under Section 75W of the EP&A Act. Modification 1 (dated 6 July 2007) approved changes to site layout, gas detection systems and types of dangerous goods stored onsite. Modification 2 (dated 3 March 2010) approved the use of additional treatment technologies including chemical immobilization and solidification (CIS), oil filter crushing, aerosol crushing, container cleaning fluorescent tube crushing and secure product destruction.

Whilst this proposed modification will not significantly alter the development from that described in the original EA (Peter J Ramsay & Associates, 2006) and as modified, an application to modify the existing major project approval 06_0095 is required pursuant to Section 75W of the EP&A Act.

A recent Hazard Audit conducted by the DP&E confirmed Condition 5 of Schedule 4 of Project Approval 06_0095 have been addressed (Ref: 13/04286 dated 20th August 2014). A copy of the DP&E confirmation is provided in Appendix B.

Review of the proposal's compliance with the existing approval is described below in Table 3.1.

**Table 3-1: Compliance with Schedule 3 Specific Environmental Conditions of Part 3A Project Approval 06_0095**

| Condition No. | Relevant Condition of Approval | Compliance |
|---|---|---|
| 1Q3 | General environmental management | The proposed modifications will operate under the existing site waste screening, handling and testing procedures in accordance with the EPL 12628. Regular monitoring will continue to be reported to the EPA in accordance with the EPL. |

| | | |
|---|---|---|
| 4 | Type and amount of waste (dangerous goods class, packaging group) | The proposal is consistent with the type of wastes currently approved for storage. The proposal comprises an increase in the storage quantities of acids and alkalis. The proposed increased quantities remain consistent with the overall scale and nature of the approved major project. |
| 5Q6 | Air quality | No additional environmental impacts would result from the proposed modification. Air discharge from the AAN process will be constantly monitored with automatic sensors. It is not anticipated any air discharges will occur. |
| 7Q8 | Noise | Minor increase in noise may result from the proposed extended operating hours. Any operational noise is expected to be minor and not likely to affect the industrial neighbours. There are no sensitive receivers within close proximity to the site that would be affected by the increased operating hours. |
| 9 | Water quality | No additional environmental impacts would result from the proposed modification. |
| 10Q13 | Safety and Risk Management | Additional waste types proposed to be received do not constitute a change to the type of dangerous goods currently received and stored onsite and therefore would not alter the hazard analysis and fire safety assessments previously prepared for the site. The current environmental management measures are considered appropriate for the process.<br><br>The proposed treatment would reduce the risks associated with hazardous waste transport, by converting the waste before leaving the site. This results in an improved human safety and environmental outcome.<br><br>The project as proposed to be modified would still comply with relevant risk criteria and consequently would not pose a risk to surrounding properties. Section 4.1 further details the hazard assessment. |

### 3.1.2 Environment Protection Licence

Toxfree's operations are considered to be a scheduled activity under Schedule 1 Waste Facilities 1(a). An Environment Protection Licence (no:12628) under the *Protection of the Environment Operations Act 1997* was issued for the facility by the Environment Protection Authority (EPA) for 'waste storage' and 'waste processing (non thermal treatment)'.

The proposed modification does not alter or affect the classification of the scheduled activity, environmental impact or compliance with the conditions of the licence. The proposal requires modification of the existing licence under Section 58 of the POEO Act to include additional

wastes and treatment method to condition L3.1. Specific modifications proposed are provided in Table 2.1 above.

Jeevan Jacobs of the NSW EPA, advised on 9th January 2015 (pers comms) that the proposal is considered likely to be of low impact and does not require any specific assessment requirements to accompany the requested modification to the EPL. An application for licence variation has been lodged with EPA concurrent with the submission of this modification.

## 3.2 Other relevant legislation

Implications of the proposed modification on other relevant legislation are shown in Table 3.2 below.

**Table 3.2 – Other Relevant Legislation**

| Legislation | Requirements for the proposal |
|---|---|
| *Environmental Planning and Assessment Act 1979 (EP&A Act) (NSW)* | The existing Toxfree plant was approved as a Major Project under the former Part 3A of the EPA&A Act pursuant to Schedule 1 of the *Major Development SEPP*. The proposed modification will be assessed under Section 75W of the EP&A Act.<br><br>Under Part 3A, environmental planning instruments (other than SEPPs) do not apply to an approved project. |
| *Penrith Local Environmental Plan 2010* | The Penrith LEP 2010 prohibits offensive or hazardous industries from being developed in areas zoned IN1 General Industrial. A PHA prepared in accordance with SEPP 33 demonstrates that the proposed modifications do not qualify the Toxfree facility as hazardous or offensive and is therefore not a prohibited development under this LEP (refer Appendix C).<br><br>Schedule 5 of the PLEP2010 identifies the Dunheved Fire Station as a heritage item. This item is over 80m from the site and would not be affected by the proposed modifications. |
| *Protection of the Environment Operations Act 1997 (PoEO Act) NSW)* | Toxfree's operations are considered to be a scheduled activity under Schedule 1 Waste Facilities 1(a). The proposal requires modification of the existing licence under Section 58 of the POEO Act to include additional wastes and treatment method to condition L5.1 (refer Table 2.1 above).<br><br>Where no general immobilisation approval exists, application would be made to the EPA for a 'specific immobilisation approval' in accordance with Clause 50 of the *Protection of the Environment Operations (Waste) Regulation 2005*. |

| | |
|---|---|
| *Heritage Act 1977 (NSW)* | Schedule 5 of the PLEP2010 identifies the Dunheved Fire Station as a heritage item. This item is over 80m from the site and would not be affected by the proposed modifications.<br><br>Therefore, assessment and approval under this Act is not required. |
| *National Parks and Wildlife Act 1974 (NSW)* | The proposal is unlikely to disturb any Aboriginal objects of listed threatened species.<br><br>Therefore, permit under this Act is not required. |
| *Threatened Species Conservation Act 1995 (NSW)* | The site is not considered likely to contain suitable habitat for any listed threatened species or community.<br><br>Therefore, a permit under this Act is not required. |
| *Contaminated Land Management Act 1997 (NSW)* | It is considered unlikely the site would contain contamination which poses a significant risk of harm to human health or the environment.<br><br>Therefore, there is no requirement to notify the EPA and investigate and remediate land pursuant to this Act. |
| *Roads Act 1993 (NSW)* | The proposal does not involve any works affecting public roads and therefore does not require consent from the road authority. |
| *Water Management Act 2000 (NSW)* | The proposal does not involve any water use, water management works, drainage or flood works, controlled activities or aquifer interference.<br><br>Therefore, a permit under this Act is not required. |
| *Rural Fires Act 1997* | The proposed development is not within 'bushfire prone' land and therefore a permit under Section 100B of the Act is not required. |
| *Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)* | The proposal will not impact on any matters of National Environmental Significance (NES) or on Commonwealth land.<br><br>Therefore, a referral to the Commonwealth Minister for the Environment is not required. |

| | |
|---|---|
| *Occupational Health and Safety Act 2000* (OHS Act) and regulations | Toxfree have developed procedures for the safe handling, storage and transport of the waste chemicals at their facilities in line with their AS/NZS 4801:2001 OHS Management System accreditation. These procedures are implemented at the St Marys facility to ensure that it complies with the OHS Act. |
| *Road and Rail Transport (Dangerous Goods) Act 1997 (*RRT (DG) Act). | Toxfree have written procedures for the segregation, packaging, handling and transportation of hazardous wastes and waste classified under the ADGC to ensure compliance with the RRT (DG) Act at all times.<br><br>The proposed additional onsite treatment would reduce the amount of hazardous materials and dangerous goods being transported. |
| *State Environmental Planning Policy (Major Development) 2005 (Major Development SEPP)* | The waste treatment facility is an approved Major Project in accordance with repealed Schedule 1, Group 9, Section 27(5) of the SEPP.<br><br>An approval under Part 3A of the EP&A Act has been obtained and requires modification under Section 75W of the EP&A Act to accommodate the proposed operational changes. |
| *State Environmental Planning Policy 33 – Hazardous and Offensive Development (SEPP33)* | The proposed development is classified as potentially hazardous with respect to the storage and handling of dangerous goods and requires a preliminary hazardous assessment (PHA) be prepared.<br><br>The PHA concluded the proposal will not significantly increase the risks involved in the operations at the site (refer Section 4.1 and Appendix C). |
| *State Environmental Planning Policy 55 – Remediation of Land (SEPP 55)* | SEPP 55 states that land must not be developed if it is unsuitable for a proposed use due to contamination. The environmental assessments on the site undertaken by DP between 1997 and 2000 show that the site is suitable for an ongoing commercial/industrial land use. |
| *Sydney REP No. 20 – Hawkesbury – Nepean River (No. 2 – 1997) (SREP 20)* | The site falls within the boundaries defined in the SREP 20 map. The SREP 20 controls developments in this area that have the potential to impact on the river environment. Given the closest natural water body to Toxfree's site is South Wianamatta Creek located approximately 1.5 km to the south west of the site, the modified development is not expected to impact on the river environment and therefore SREP 20 is not considered further. |

The proposed modification does not change the existing permissibility or control status of the development.

# 4. Environmental Impact Assessment

Only the impacts on the environment likely to occur by reason of the proposed changes to the project are described and assessed in this report. The remaining project specifications, impacts and mitigation measures remain consistent with the original EA and subsequent EA's prepared for MOD1 and 2.

## 4.1 Hazards

A following section is a summary of the Preliminary Hazard Analysis (PHA) prepared for the proposal and provided in full in Appendix C.

### 4.1.1 Risk Screening

**Table 4-1 Hazardous Storage Risk Screening**

| Dangerous good | Maximum storage quantity currently approved[1] | Proposed maximum quantity (incl packaging mass) | Exceed& SEPP33& Threshold[2&] & |
|---|---|---|---|
| Class 2.1 | 500kg | 15 tonnes | X |
| Class 2.2 | Not currently approved | 25 tonnes | X |
| Class 2.3 | Not currently approved | 100kg | X |
| Class 3 | 92,000L | 92,000L | ✓[1] |
| Class 4.1 | 10kg | 3 tonnes | X |
| Class 4.2 | 10kg | 3 tonnes | X |
| Class 4.3 | 10kg | 1 tonne | X |
| Class 5.1 | 200kg | 5 tonnes | X |
| Class 5.2 | 200kg | 1 tonne | X |
| Class 6.1 | 10.5 tonne | 35 tonnes | ✓ |
| Class 6.2 | Not currently approved | 5 tonnes | X |
| Class 8 - Acidic | 5,000 L | 35 tonnes | X |
| Class 8 – Basic | 5,000 L | 25 tonnes | X |
| Class 9 | 500kg | 25 tonnes | N/A |

[1] SEPP 33 screening threshold not exceeded provided good are stored more than 10m from the property boundary.

| | | | |
|---|---|---|---|
| C2 Q Combustible Liquids | 2,000L | 5 tonnes | ✓ |
| Cyanide (Toxic Liquid Organic NOS) | 9,900L | 10 tonnes | ✓ |
| Non Dangerous Goods | Not currently listed | 250 tonnes | N/A |

Table 4.1 identifies the maximum storage capacity for certain dangerous good classes exceed the relevant screening threshold. Therefore, based on the SEPP 33 screening criteria, this development is classified as potentially hazardous and therefore a PHA is required.

Based on the SEPP 33 screening criteria described above, this development is classified as potentially hazardous and therefore a Level 2 Semi Quantitative Risk Assessment has been prepared to demonstrate that the development will not significantly increase the overall risks associated with the operation of the site (refer Appendix C).

### 4.1.2 Risk Assessment

An updated PHA was prepared by Advitech in November 2009 to support Modification 2, to assess the additional hazards introduced by the CIS process and the increased storage of Class 8 dangerous goods. The assessment demonstrates that the development will not significantly increase the overall risks associated with the operation of the site (refer Appendix C).

A further update PHA was prepared by Advitech in December 2015 to assess the impacts of the AAN process in response to the NSW Department of Planning and Environment letter to Toxfree dated 2nd September 2015 (refer Appendix A). The PHA (provided in Appendix C) addresses the requirements of the DP&E as below:

- Estimate the risks from the proposed modification, the existing site and the overall site;
- Identify the hazards, arising out of the proposed modification and the existing site as well as any external hazards (i.e. natural hazards) to determine the potential for off site impacts (refer to Appendix I of PHA);
- Provide more detailed information on the AAN process and equipment (refer to Section 1.3 of PHA);
- Critically review the chemical reaction and the chemical products (including any intermediates) related to the AAN and establish the probability of formation of toxic gases (refer to Section 6 of PHA);
- Evaluate the probability of a failure of the proposed scrubber and estimate the potential impacts (refer to Section 6.4 Appendix II, and Appendix IV of PHA);

- Details of the gases which would be treated within the proposed scrubbing system and potential air emissions following treatment (refer to Section 6.1.4, and Section 6.4 of PHA); and
- Demonstrate the proposed development complies with the criteria set out in Hazardous Industry Planning Advisory Paper HIPAP No 4 - Risk Criteria for Land Use Safety Planning (refer to Section 6.2.2, Section 6.3.2 and Section 6.4 of PHA).

The PHA concludes that the proposed AAN treatment process will not significantly increase the overall risks involved in the operations at the site.

## 4.2 Waste

### 4.2.1 Incoming Waste

The site currently receives approximately 5,500 tonnes of solid and of liquid waste for storage and transfer per year. The proposed modification to operations would not result in a significant increase in volumes of all wastes received, but rather provide an improved economic return and environmental benefit by treating more wastes on site prior to transfer off site. The proposed increased volume of wastes to be received is shown in Table 4.2 below.

In addition to those currently approved, two additional waste types are proposed to be received at the site to be treated using the proposed solidification treatment processes and two waste types to be stored and transferred (refer Table 4.2).

**Table 4.2 – Additional Incoming Waste Volumes**

| Waste Code | Waste Description | Treatment Process | Volume |
|---|---|---|---|
| K120 | Food Waste | Storage/Transfer | 5 tonnes (at any one time) |
| K130 | Sewerage Waste | Storage/Transfer | 5 tonnes (at any one time) |
| Z130 | Inert sludges or slurries | Storage/Transfer | 5 tonnes (at any one time) |
| Z140 | Non controlled liquid waste | Storage/Transfer | 5 tonnes (at any one time) |

The increase in the above mentioned dangerous goods classes are not an increase in additional volumes, yet the volumes the site is currently receiving.

### 4.2.2 Outgoing waste

The proposed modified treatment processes would produce the following additional wastes. This is based on the plant producing 90% liquid waste and 10% solid/sludge waste. The AAN process is designed to handle 4 x 1,400 kgs batches per day (5,600 kgs). A maximum annual throughput of 1,456 tonnes.

**Table 4-3 Additional Outgoing Waste Volumes**

| Waste Type | Waste Volumes[1] |
|---|---|
| **Acid Alkaline Plant** | |
| Residues from industrial waste treatment/disposal operations (N205) | 5,040 kgs / day |
| General/Restricted solid waste (Sludge) | 560 kgs / day |
| **CIS Plant** | |
| General/Restricted solid waste | 6 tonnes / day |

[1] In addition to volumes currently generated.

General/restricted solid waste would be transported to a licenced landfill. All CIS treated wastes would undergo the required treatment, curing and validation processes as required by the relevant EPA Immobilisation Approval prior to off site disposal. Treated materials would be stored onsite until confirmation of treatment success and waste classification. Treated waste would then be disposed of at a suitably licenced landfill. Solid wastes from the AAN and CIS process would likely be transported to SUEZ's Kemps Creek Landfill as 'restricted solid waste' in accordance with NSW EPA Waste Classification Guidelines. It is anticipated these new treatment processes will generate approximately 1,706 tonnes per year of 'restricted solid waste'.

After processing the waste through the AAN process, the liquid waste will be transferred into IBCs and stored in the load out area. This will be kept until approximately 15-20 IBCs are generated. Thereafter a vacuum tanker will pump out the IBCs and take the material to a license liquid waste treatment facility.

The solid waste material will be placed into a tippler bin and then tipped into a hook-lift bin on-site, prior to be sent off-site as restricted solid waste to SUEZ Kemps Creek (subject to testing). The site has 5 x hook-lift bins ranging from 15-32m3, which will accommodate this volume of additional solid waste.

All wastes leaving the site would be assessed and tracked to the appropriate disposal facility in accordance with Toxfree's current tracking procedures.

## 4.3 Noise

The additional AAN treatment process involves the use of a forklift and pump within the existing shed. The process will not result in any demonstrable noise impacts.

The solidification process will involve an excavator for loading and mixing.

The proposed modification is only expected to increase truck movements by approximately 10 per week at the site, which is considered a minimal noise impact for an industrial area.

Therefore, considering that the proposed site is located within the St Marys industrial area and the closest residential area is approximately 600m to the east of the site, noise and vibration impacts from the proposed modification is not expected to be significant. As such, no adverse impacts on the community are expected from noise emissions.

## 4.4 Traffic

Toxfree's current operations generate approximately 110 truck movements per week transporting waste chemicals and approximately 80 vehicle movements per week from employees driving to and from the site. The facility is accessed via Christie Street and includes the provision of 40 car parking spaces.

The proposed modification would require approximately 5 additional truck movements each week of incoming wastes and solidification reagents. In addition, the proposal would have 5 truck movements each week of outgoing wastes and chemicals making a total of 10 additional truck movements each week. Minor additional traffic would also result during establishment of the new treatment processes including installation AAN.

No additional staffing is required for the operation of the new processes. However, the extended operating hours will allow for an additional staffing shift. Staffing of the afternoon shift will respond to the required volume of waste to be treated and will remain equal or less than the day shift.

Therefore, traffic movements due to the proposed modification are not expected to significantly impact on local traffic flows.

## 4.5 Air Emissions

Toxfree's current operations have the potential to generate air emissions including odour as a result of the storage of waste chemicals. Volatile chemical species of Class 3, Class 6 and Class 8 Dangerous Goods are currently captured and treated prior to discharge into the atmosphere. The capacity of the existing treatment systems is sufficient to accommodate the additional dangerous goods storage volumes.

The AAN plant will be fitted with an extraction system discharging approximately $2m^3$/minute of air. The gas scrubber system will comprise a sodium hydroxide spray tower chemical scrubbing system to remove toxic gases that are potentially created during AAN neutralisation and pre-consolidation. The scrubbing system will be utilised to scrub the air extracted from around the decanting station and above the neutralisation tank. Detailed process chemistry is discussed in Section 6.1 of the PHA (refer Appendix C).

## 4.6 Water

The AAN process would require the use of approximately 500L per day of water for container rinsing and washout. Approximately 5,000L/day of rinsate would be sampled and sent off site for processing at a licenced facility.

# 5. Statement of Commitments

The proposed modified treatment processes would adopt all environmental management measures associated with the approved project as detailed in the:

- Project Application 06Q0095;
- *Environmental Assessment for a Major Project Proposed Resource Recovery Facility 40 Christie Street, St Marys, New South Wales* (Peter J Ramsay and Associates; 2006)
- Final Statement of Commitments in the Submissions Report;
- Modification application titled *Request) of Modification for Chemsal Pty Ltd's Chemical Waste Storage and Treatment Facility* (Peter J Ramsay and Associates; 2007);
- Conditions of approval 06Q0095 MOD 1 dated 22 December 2006;
- Modification application titled *Environmental Assessment Chemical Immobilisation and Solidification Process Part 3A Modification Request (Project) Application: 06_0095* (Entech Industries; 2009); and
- Conditions of approval 06Q0095 MOD 2 dated 3 March 2010.

The environmental management measures provided in Table 5.1 are proposed in addition to the above.

**Table 5.1 – Proposed Mitigation Measures**

| Proposed Mitigation Measures | EA Section |
|---|---|
| Installation of air scrubber in the Acid Alkali Neutralisation (AAN) treatment system. | 2.1.1 |
| Minimal heavy vehicle access between 6pm and 6am. | 2.2 |
| AAN plant will comprise:<br>a) Refrigerated cooling system<br>b) Caustic scrubber exhaust will discharge at least three metres above the roof height to limit building downwash effects<br>c) Ducting transition will be fitted on to the exhaust to increase efflux velocity to 10m/s in accordance with best practice | 2.1.1 |

# 6. Summary and conclusion

The proposed treatment of selected hazardous wastes at the existing Toxfree facility would not result in any additional environmental or safety impact and is considered consistent with the current planning approval.

The proposal is considered a minor amendment to the existing approvals because of the following:

- Additional waste types to be received would not increase the site hazards or risks.
- No additional environmental impacts would result from the proposed modification.
- Current environmental management measures are considered appropriate for the process.

The approval modifications as proposed would allow for an improved environmental outcome by reducing the amount of hazardous waste transported off the site.

The project, as described in this SEE, is not likely to have a significant effect on the environment.

# 7. Certification

This EA provides a true and fair review of the proposed activity in relation to its likely effects on the environment. It addresses to the fullest extent possible, on the basis of and subject to supplied information and the defined scope of work, all matters affecting or likely to affect the environment as a result of the proposed activity.

| | |
|---|---|
| Name: | Shay Riley Lewis |
| Signed: | |
| Designation: | Director, Principal Environmental Planner |
| Date: | 1st May 2016 |

# Appendix A

Department of Planning and Environment Correspondence

# Appendix B

Department of Planning and Environment Hazard Audit (20 August 2014)

# Appendix C

Preliminary Hazard Analyses
(2009 and 2016)