



Fulton Hogan Land Development Limited
c/- Barker & Associates

Attention: Charlotte MacDonald
[REDACTED]

24 July 2026

WWLA1603

Milldale Stages 14-17: Hazardous Substances and ITA Assessment

1. Statement of Qualifications and Experience

My full name is Shane Robert Moore.

I am a Principal Environmental Advisor at Williamson Water & Land Advisory Ltd (WWLA). I hold the qualifications of Bachelor and Master of Science in Geology from the University of Auckland. I have been employed at WWLA since October 2022 but have 30 years of professional experience in the environmental management in New Zealand, including similar roles with multi-disciplinary consultancies including URS (now AECOM), Coffey Environments (now Tetra Tech Coffey) and Tonkin & Taylor. While my primary specialty is in the assessment, management and remediation of contaminated land and groundwater, I support clients across a range of environmental challenges related to managing discharges of hazardous substances.

I have been engaged by Fulton Hogan Land Development Limited (FHLD) (the Applicant) to undertake an assessment of hazardous substances and ITA matters associated with the Project and to prepare this report in support of the substantive application under the FTAA.

While this is not an Environment Court proceeding, I confirm that I have prepared this assessment in accordance with the applicable professional and ethical obligations of my profession and that the opinions expressed are within my area of expertise.

2. Introduction

This report has been prepared in support of the substantive application for the Milldale Stages 14-17 Project under the Fast-track Approvals Act 2024 (FTAA).

The Project relates to approximately 231ha of land centred around Wainui Road in Wainui, Auckland (refer to **Figure 1**). The proposal provides for a comprehensively planned urban development including residential neighbourhoods, a supporting commercial node, transport and servicing infrastructure, open space, wetland and ecological restoration and associated enabling works.

The application seeks approvals necessary to facilitate the staged development of the Project, including a suite of resource consents required under the FTAA framework.

The substantive application is supported by a comprehensive set of technical assessments and plans addressing the environmental, servicing and infrastructure matters associated with the proposal. This report should be read alongside the Planning Report and the appended technical reports and drawings lodged in support of the substantive application.

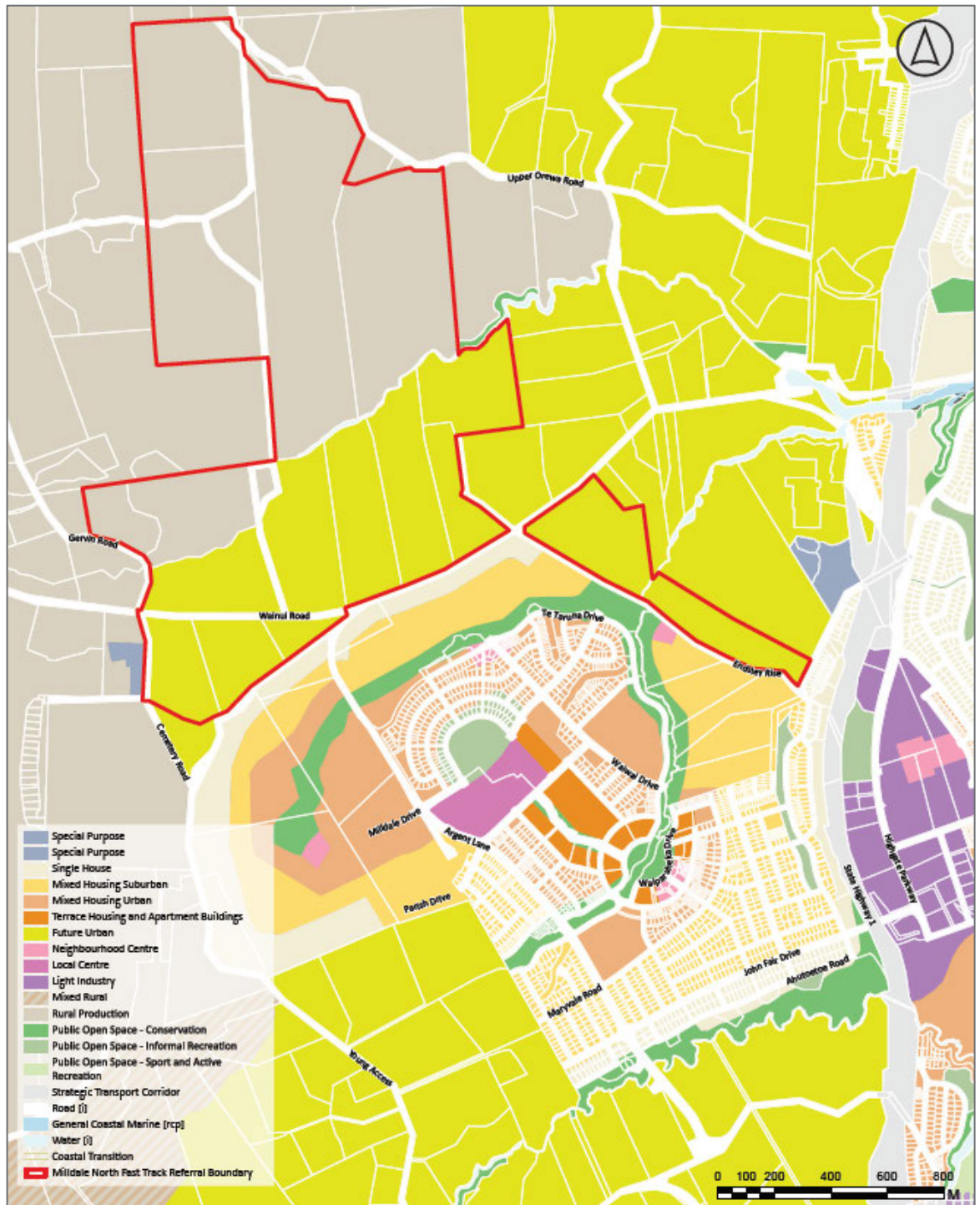


Figure 1. Site area and zoning

3. Purpose and Scope of this Report

While there is existing water, stormwater and wastewater infrastructure surrounding the Project site as a result of the extensive development within previous Milldale Stages, the Project site itself is not currently serviced in terms of supply and infrastructure. Water and Wastewater Treatment Plants (WTP and WWTP) are therefore required to service the Project. This report addresses matters relating to hazardous substances and industrial or trade activity (ITA), associated with the WTP and WWTP, in accordance with Sections E31 and E33 of the Auckland Unitary Plan.

4. Site Description

The Project site comprises approximately 231ha of land held across various records of title at Milldale, Wainui ('the site', refer to **Figure 1**). The Project site is located to the north of the existing and consented Milldale development, extending further north towards Upper Orewa Road.

The Milldale Stages 14-17 project seeks approvals for an urban development on the Project site. The proposal provides for up to 1,425 dwellings across a range of housing typologies and densities. In addition, the proposal includes provision for a small commercial area, transport infrastructure, servicing and stormwater infrastructure, subdivision, earthworks, stream works, and neighbourhood parks. To the north of the Ōrewa Awa, the project includes a large-scale ecological restoration area, including walking and cycling trails to enhance recreation and amenity. This area will also be utilised for private water and wastewater infrastructure, of which the proposed WTP and WWTP (collectively "treatment plants") are relevant to this assessment. The location of the treatment plants (annotated as 'wastewater treatment' in the Figure below) is shown in **Figure 2**. Selected design drawings related to the treatment plants are included in **Appendix A**.

The water storage area (to the west of the treatment plants) does not include any storage or handling of hazardous substances so is not considered further by this assessment.

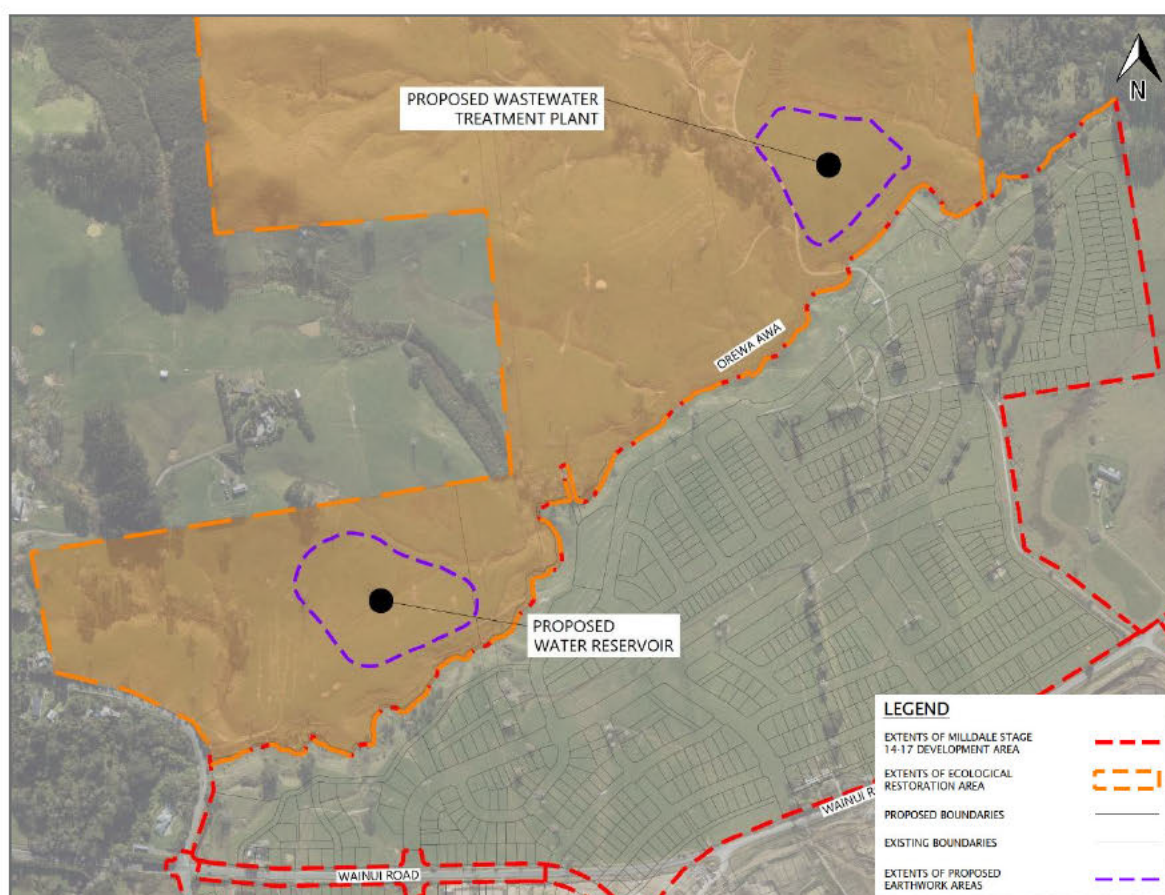


Figure 2. Proposed location of Water Infrastructure (modified from Woods drawing no. P25-609-02-0001-EW, not reproduced to scale)

The land surrounding the treatment plants and extending north of the Ōrewa Awa is existing farmland which is zoned Rural Production under the AUP. This area of the Project site contains undulating slopes with several streams and natural wetlands and is predominantly covered in managed pasture. Outside of the pasture, several pine plantations, exotic vegetation and gorse

scrub are present. Relatively large areas of native vegetation are also present on the site, including within a Significant Ecological Area – Terrestrial Overlay in the north-west portion.

A full description of the proposal is provided in the Planning Report and technical reports and drawings appended to the substantive application, and should be read in conjunction with this report.

5. Proposed Water Infrastructure

The indicative layout of the treatment plants is provided in **Figure 3**. The WWTP occupies the northern portion of the treatment plant site while the WTP occupies the southern portion. The treatment plants are located on a north-westerly oriented ridge, at approximately 20 m elevation with the Orewa Awa and its tributaries in steeply incised gullies to the east, west and south. On completion of the project the nearest residential dwellings will be located some 150 m to the south, beyond the Orewa Awa.

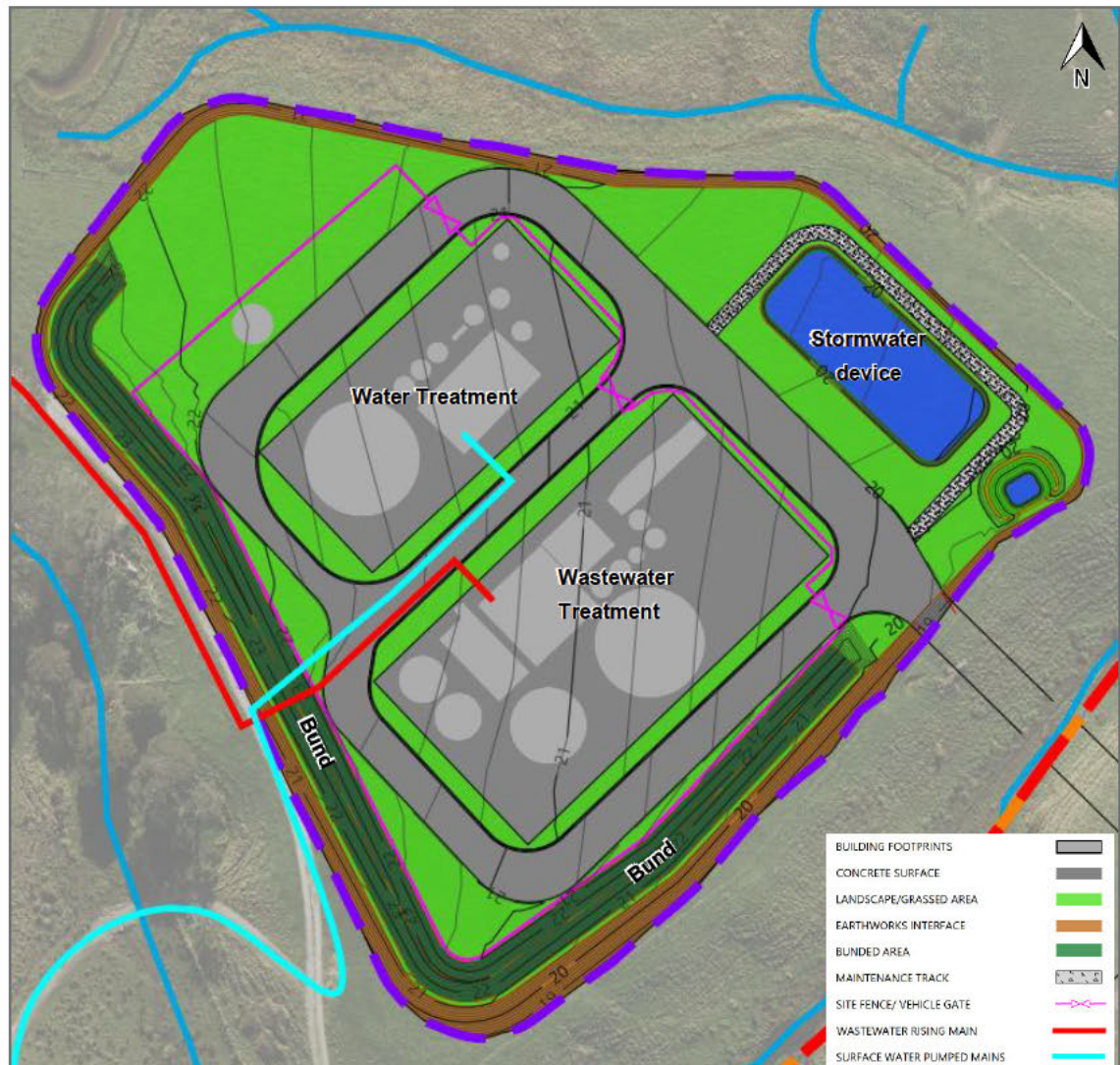


Figure 3. Indicative layout of Water Infrastructure (modified from Woods drawing no. P25-609-02-2001-RD, not reproduced to scale)

Based on our correspondence with Apex Water (lead treatment plant designer)¹, we understand that key elements of the treatment plants as they relate to hazardous substances comprise:

- Bulk tanks of acetic acid (10,000 litre), sodium hydroxide (7,500 litre), sodium bisulfite (300 litre). The tanks will be connected to the treatment process via an automated dosing systems.
- Transportable containers (1,000 L intermediate bulk containers or IBCs) of aluminium sulphate (2 x IBCs), citric acid (2 x IBCs), polyaluminium chloride (2 x IBCs), sodium hydroxide (2 x IBCs), sodium hypochlorite (4 x IBCs, 2 each at the WTP and WWTP) and sulphuric acid (2 x IBCs). One IBC of each of the substances will be connected to the treatment system, with another IBC of each in storage.
- Diesel as generator fuel, note this is not separate storage but is contained in the internal fuel tank of the generator. The generator will be common to both water and wastewater plants.
- Secondary containment will be provided for all bulk hazardous substances, as follows:
 - Bulk tanks will either be self-bunded (double skinned) or within bunded areas.
 - Bunds will be constructed of concrete and will be lined with chemically resistant coating where necessary.
 - Bunds will be covered to prevent the ingress of rainwater.
 - IBCs, if stored outside will be stored in covered bunded areas and if inside will either be bunded or on drip trays that drain to an area where spills can be recovered.
 - A containment system will also be provided for the bulk chemical delivery area. This will be sized to contain 110% of the volume in the largest road-tanker compartment (5,500L).
- Incompatible substances will be correctly segregated.
- Stormwater generated in areas where hazardous substances are stored or used will be collected and diverted for treatment through the WWTP process.
- No methane capture/ flaring will occur, and no boilers will operate on the site.

6. Hazardous Substances Assessment

In summary, the controls and measures that will be put in place at the WWTP mean that the proposed facility will largely comply with the permitted standards for hazardous facilities as specified under Section E31. However, overall the quantity of toxic and corrosive substances proposed to be stored onsite triggers a Discretionary Activity status.

As described in **Section 5**, a range of hazardous substances will be stored, handled and used the proposed treatment plants, these are summarised in **Table 1** and detailed in **Appendix B**. The hazardous characteristics of the majority of the substances are toxicity, corrosivity and ecotoxicity. There are lesser quantities of flammable substances (diesel).

For the purposes of this assessment we have made the following assumptions:

- The treatment plants will continue to be zoned Rural – Rural Production Zone.
- Hazardous substances located on the site will be placed greater than:
 - 30 metres of the nearest watercourse; and
 - 50 metres of a more sensitive zone.
- The WWTP will treat water to a standard suitable for discharge to the receiving environment.

¹ Memo from Nuobelle Fong (Apex Water) to Shane Moore (WWLA), dated 19 June 2026.

- Smaller quantities of chemicals used at the WWTP, such as cleaning products or maintenance oils etc., are expected to be stored indoors at levels well below the thresholds specified in the AUP. On this basis these substances have not been assessed further.

Assessment against the relevant hazardous substance requirements of Section E31 of the AUP is provided in **Table 1** to **Table 3**.

The following colour coding is used throughout this report:

- **Green shading** indicates permitted activity thresholds or standards are met.
- **Orange shading** indicates permitted activity thresholds or standards are NOT met and either additional controls are required and/or that activity will have a discretionary activity status.
- **Red shading** indicates the activity has a discretionary activity status.

Table 1. Assessment of Activity Status under Rural – Rural Production Zone (Table E31.4.3)

HSNO classification	Sub-class (combined quantities)	Proposed volume of substance ¹ (tonnes)	Table E31.4.3 Activity	Table E31.4.3 Permitted Activity threshold volume (tonnes)	Table E31.4.3 Discretionary Activity threshold volume (tonnes)	Activity Status
Flammable liquids Class 3*	3.1D	Assumed 2 (likely < 1)	A60	< 20	≥ 40	P
Toxic Class 6	6.1D, 6.1E	30.2	A5	No limit	No limit	P
	6.1C and 6.3-6.9	24.6	A73	< 6	≥ 12	D
Corrosive Class 8	8.1, 8.2A and 8.3	35.5	A75	< 2	≥ 4	D
	8.2B and 8.2C	25.8	A76	< 10	≥ 20	D
Eco-toxic Class 9 [^]	9.1B, 9.2B, 9.3B and 9.4B	9.2	A79	< 10	≥ 20	P
	9.1C, 9.2C, 9.3C and 9.4C	12.7	A81	< 30	≥ 60	P
	High BOD5 (>10,000 mg/l)	21.9	A83	< 40	≥ 80	P

¹ – refer to detail provided in **Appendix B**

* Greater than 50 m of a more sensitive zone where relevant

[^] Greater than 30 m of a waterway where relevant

Table 2. Assessment of Activity Status under all zones (Table E31.4.1)

Activity	Conditions / Standard	Comment on assessment
A1	Storage or use radioactive materials	<u>Not applicable</u> - radioactive materials will not be stored on the site.
A2	Storage or use of petrol associated with retail sale	<u>Not applicable</u> - these substances will not be stored for the purposes of retail sale.
A3	Storage or use of diesel associated with retail sale	
A4	Storage or use of LPG associated with retail sale	

Activity	Conditions / Standard	Comment on assessment
A5	Use, storage and disposal of hazardous substance sub-classes 1.4, 1.5, 1.6, 6.1D, 6.1E, 9.1D and 9.2D	<u>Permitted Activity A5 applies</u> – as detailed in Table 1 , hazardous substance in sub-classes 6.1D and 6.1E are proposed to be stored and used the site. This activity is permitted.
A6	The storage, use and disposal of compressed air at fire stations or fire-fighting training facilities	<u>Not applicable</u> – the site will not be a fire station or a fire-fighting training facility.
A7	Use, storage and disposal of hazardous substances above the specified thresholds for controlled activity and restricted discretionary activity status in the activity tables or are not otherwise provided for.	<u>Discretionary Activity A7 applies</u> – to the use and storage of hazardous substances above the specified thresholds (refer Table 1 above).

As shown in **Table 1**, the aggregate quantities for the toxic and corrosive classes exceed the permitted activity thresholds. Therefore, as set out in **Table 2**, the proposal is assessed as having a Discretionary Activity status.

While the proposal has been assessed as a discretionary activity overall, the permitted activity standards set out in Section E31 of the AUP provide guidance on good practice within the Auckland Region, **Table 3** provides an assessment of the proposal against these standards. Proposed conditions of consent are included as **Appendix C** to this assessment.

Table 3. Assessment of the proposal against Permitted Activity standards in Section E31 of the AUP

Standard	Requirements	Comment on assessment
E31.6.1 Hazardous facilities site design	Standards that apply to the design of hazardous facilities: (1) Hazardous substance locations must be designed, constructed and operated to ensure that: (a) setbacks from the more sensitive zones and watercourses achieve the distances specified for the relevant subclass; and	<u>Will Comply</u> – as shown in Appendix A , the setbacks from the more sensitive zones and watercourses will be achieved.
	(b) hazardous substances are stored to: (i) ensure containment in the event of a spill; and (ii) prevent the accumulation of any solid, liquid, gas or vapour outside of the site.	<u>Will Comply</u> – hazardous substances will be stored within tanks that are self-bunded (i.e. double skinned) or within secondary containment (bund) that achieves at least 110% of the volume of the largest tank within the bund. The treatment plants will have a comprehensive Environmental Management Plan (EMP), including spill response plan, and spill kits will be available at the site. The WWTP will treat water to a standard suitable for discharge to the receiving environment such that there will be no accumulation of any solid, liquid, gas or vapour outside of the site. The facility will also be designed and operated to ensure that offsite effects from the use of hazardous substances are no more than minor.
E31.6.2 Site drainage systems	Standards that apply site drainage systems: (1) The site drainage system must prevent the entry or discharge of hazardous substances into:	<u>Will Comply</u> – areas where hazardous substances are stored or used will be serviced separate drainage systems with no connections to the stormwater system. This

Standard	Requirements	Comment on assessment
	(a) the stormwater or sewerage systems (unless authorised by the network operator); and (b) air, land or water (including groundwater and potable water supplies), unless authorised by a resource consent or another rule in the AUP.	system will divert discharges to the wastewater treatment plant for treatment. The facility will also be designed and operated to ensure that the effects of discharges of hazardous substances to air, land or water are no more than minor.
E31.6.3 Spill containment system	Standards that apply to spill containment on the site: (1) Areas where a hazardous substance spill may occur must include spill containment that is: (a) constructed from impervious materials; and (b) for liquid hazardous substances: (i) contain the maximum volume of the largest tank plus an allowance for stormwater or fire water; (ii) for drums or other smaller containers, be able to contain half of the maximum volume of substances stored, plus an allowance for stormwater or fire water; (iii) prevent any spill and any contaminated stormwater and/or fire water from entering the stormwater drainage system (unless authorised by the network operator). (iv) prevent any spill and any contaminated stormwater and/or fire water from discharging into air, land or water (including groundwater and potable water supplies), unless authorised by a resource consent or another Standard in the AUP.	<u>Will Comply</u> – bunds where hazardous substances are to be stored/ used will be constructed of concrete and lined with an appropriate chemical resistant coating. Bund capacity will be sized at 110% of the volume of the largest container within the bund. Bulk chemical deliveries will be carried out on a chemical delivery apron(s) which will be sized to contain 110% of the volume in the largest chemical delivery tanker compartment. It is proposed that an EMP will be prepared as a condition of consent. This will include detailed response actions to take in the event of hazardous substance spills. Spill kits will be located near areas where hazardous substances are stored and used.
E31.6.4 Hazardous facilities waste management	Hazardous wastes must be disposed of at lawfully operated waste facilities or be serviced by a Council approved waste disposal contractor.	<u>Will Comply</u> – any hazardous waste produced at the site will be stored inside until removal for appropriate disposal to a lawfully operated waste facility.

7. ITA Assessment

In summary, an assessment against the Industrial and Trade Activity requirements of Section E33 of the AUP has determined that (subject to appropriate design) the proposed WWTP will be a permitted activity. The preparation of an Environmental Management Plan (EMP), including a spill response plan and inspection schedule, in accordance with Standard E33.9, will ensure that the proposed WWTP meets the Permitted Activity standards.

The rules applying to ITAs are determined based on Table E33.4.3, which includes a list of ITAs and classifies the risk of an ITA based on the activity area. The proposed WWTP is captured by the two 'sewage treatment and handling' activities, as set out in Table 4. The proposed WTP activity is not captured by the ITA requirements.

Table 4. Industrial or trade activity risk criteria

Description of industrial or trade activity		Low risk	Moderate risk	High risk
Sewage treatment and handling	Environmentally hazardous substances storage or use (excluding sewage)	Activity is never low risk	No activity area	Any activity area
	Sewage solids storage	Less than 1000 m ²	1000 m ² to 5000 m ²	More than 5000 m ²

The ITA activity area is defined (in Section J of the AUP) as the total of:

- All areas used for outdoor storage, handling or processing of materials or products that may contribute to the quality or quantity of environmentally hazardous substance discharges. This includes areas that contribute runoff (including roofs) to the ITA area; and
- The area at risk from failure of the largest unbunded container.

The calculation of ITA activity area excludes all:

- Indoor or covered areas that do not contribute discharge to land or water;
- Areas that are not used for or affected by the ITA; and
- Any areas that discharge lawfully to an authorised trade waste system.

As described in **Section 5**, areas where hazardous substances are stored or used across the treatment plants will be drained back to the WWTP for treatment, thereby discharging to “to an authorised trade waste system”. All other areas of the treatment plants, such as building roofs, carparking / yards, landscaping etc., will be designed and operated such that they are not at risk from a spill from an environmentally hazardous substances or used for storage of non-inert materials. These areas are therefore not classified as ITA areas. On this basis the treatment plants have no ITA activity area and is classified as moderate risk. **Table 5** provides assessment of the activity status of the proposal against the requirements of Section E33 of the AUP.

Table 5. Assessment of the Activity Status under Section E33 of the AUP

Standard	Activity	Description	Activity status
Table E33.4.1 Land use activity status: industrial or trade activity	A5	Use of land for an existing or new industrial or trade activity listed as moderate risk in Table E33.4.3	P
Table E33.4.2 Discharge of contaminants from an industrial or trade activity area	A17	Discharge of contaminants from an existing or new industrial or trade activity area listed as moderate risk in Table E33.4.3	P

As shown in **Table 5**, the activity is assessed as being permitted, **Table 6** provides assessment of the proposal against the permitted activity standards.

Table 6. Assessment of the proposal against Permitted Activity standards of Section E33 of the AUP

Standard	Conditions / Standard	Comment on assessment
E33.6.1.1 (1) Permitted activity land use standards: Wastewater and washwater disposal	Wastewater and washwater must be disposed of on-site via the sanitary sewer, (with approval from Watercare), or collected, for recycling or disposal, to a system or facility with all the appropriate authorisations to accept wastewater of that type. Wastewater or washwater also includes: (a) boiler blow down and condensate;	<u>Will comply</u> – all wastewater from the treatment plants, including washrooms and toilets, will be collected for treatment through the WWTP process. There will be no boilers or cooling towers installed as part of the proposed treatment plants.

Standard	Conditions / Standard	Comment on assessment
	(b) all waste liquids generated or collected as part of an industrial or trade activity; (c) cooling tower water excluding vapour; and (d) condensate from air compressors.	
E33.6.1.1 (2) Permitted activity land use standards: Spill response plan	Spill response plan (SRP) prepared where any environmentally hazardous substance is handled, used or stored on land at a quantity greater than used for domestic purposes. SRP must meet the requirements of Table E33.9.1, as relevant and be supplied to the Council on request.	<u>Will comply</u> – the EMP, proposed to be prepared as a condition of consent, will include a spill response plan that addresses the requirements of Table E33.9.1.
E33.6.1.1 (3) Permitted activity land use standards: Spill response plan	For environmentally hazardous substances in quantities covered by Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001, a spill response plan prepared in accordance with those regulations will be considered to comply with Standard E33.6.1.1(2) provided the emergency spill response plan also explicitly addresses matters (vi) to (x) in Table E33.9.1.	<u>Will comply</u> – the proposed development will store environmentally hazardous substances in quantities above the thresholds specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001. The spill response plan (part of the EMP) will be prepared in accordance with those regulations and Table E33.9.1.
E33.6.1.1 (4) Permitted activity land use standards: Spill response plan	For environmentally hazardous substances not covered by Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001, a spill response plan prepared in accordance with Council's factsheet 'Being Prepared for a Spill' will be considered to comply with Standard E33.6.1.1 (2).	<u>Standard does not apply</u> – the proposed development is covered by Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001.
E33.6.1.1 (5) Permitted activity land use standards: Secondary containment	When the quantity of environmentally hazardous substances stored above the ground exceeds that used for domestic purposes, it must be stored: (a) in a container and in a manner that prevents the entry of rainwater into the container; and (b) within a secondary containment device or within a containment system that is constructed of impervious materials that are resistant to chemical attack from the substances contained therein.	<u>Will comply</u> – environmentally hazardous substances will be stored within closed containers (bulk tanks or intermediate bulk containers (IBCs)). Secondary containment bunds will be constructed from concrete and lined with an appropriate chemical resistant coating.
E33.6.1.1 (6) Permitted activity land use standards: Secondary containment	For environmentally hazardous substances in quantities covered by Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001, storage requirements in accordance with those regulations will be considered to comply with Standard E33.6.1.1(5).	<u>Will comply</u> – the proposed development will store environmentally hazardous substances in quantities above the thresholds specified in Schedule 4 of the Hazardous Substances (Emergency Management) Regulations 2001 and will meet the secondary containment storage requirements of those regulations.
E33.6.1.1 (7) Permitted activity land use standards: Secondary containment	For environmentally hazardous substances not covered by Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001, storage requirements in accordance with council's factsheet 'Above Ground Storage' noting the following bund	<u>Standard does not apply</u> – the proposed development is covered by Part 4 of the Hazardous Substances (Emergency Management) Regulations 2001.

Standard	Conditions / Standard	Comment on assessment
	sizing criteria for secondary stage storage, will be considered to comply with Standard E33.6.1.1(5) where: (a) for tanks the bund has a storage capacity of at least 110 per cent of the capacity of the largest tank taking into account the volume displaced by any equipment and/or materials stored within the bund; and (b) for drums the bund has an effective storage height of at least 100mm, allowing for any sloping ground, and the bund is set back from the drums by a distance equal to half the height of the stacked or stored drums.	
E33.6.1.1 (8) Permitted activity land use standards: Secondary containment	All secondary containment devices must be designed, constructed and managed so that uncontaminated rainwater and stormwater runoff is prevented from flowing into the contained area.	<u>Will comply</u> – secondary containment on the site will be designed and managed to prevent uncontaminated rainwater and stormwater from flowing into the bunded areas.
E33.6.1.1 (9) Permitted activity land use standards: Regular inspections	Weekly inspections must be undertaken and recorded to check that environmentally hazardous substances are stored and/or contained appropriately.	<u>Will comply</u> – the proposed EMP will include a weekly inspection schedule (with associated record keeping).
E33.6.1.1 (10) Permitted activity land use standards: Underground storage tanks	A regular reconciliation process must be undertaken for any environmentally hazardous substance stored in an underground storage tank that will identify any leakage or unaccounted losses of material from the tank.	<u>Standard does not apply</u> – The proposed development will not include storage of hazardous substance in underground storage tanks.
E33.6.1.1 (11) Permitted activity land use standards: Waste bins	Any waste compactors and bins must be located and operated in such a manner that prevents leachate or waste leaking from them.	<u>Will comply</u> – no waste compactors will be present. The regular inspection schedule will include monitoring any waste bins.
E33.6.1.1 (12) Permitted activity land use standards: On-site vehicle re-fuelling	All on-site vehicle re-fuelling areas must be segregated and housed under cover, and/or surrounded by a drain that drains to an appropriately designed and sized stormwater treatment and spill containment device fitted with a shut-off valve.	<u>Standard does not apply</u> – the proposed development will not include refuelling facilities.
E33.6.1.1 (13) Permitted activity land use standards: EMP	Operations must be undertaken in accordance with an environmental management plan specific to the industrial or trade activity. This plan must be prepared in accordance with Table E33.9.2 and supplied to Council upon request.	<u>Will Comply</u> – the EMP will be prepared in accordance with Table E33.9.2 of the AUP.
E33.6.1.1 (14) Permitted activity land use standards: Sewage treatment facility	Where the industrial or trade activity is located within a sewage treatment facility then the wastewater generated on site by that industrial or trade activity may be disposed of within that facility.	<u>Will Comply</u> – the activity is a sewage treatment facility and wastewater generated on the site will be disposed of within the WWTP.
E33.6.1.2 Permitted activity discharge standards	Activities list in Table E33.4.2 must comply with: The discharges of contaminants must result in less than minor adverse environmental effects	<u>Will Comply</u> – The ITA activity areas will not be discharged to stormwater.

Standard	Conditions / Standard	Comment on assessment
	on the receiving environment without the need for stormwater treatment (with the exception of on-site vehicle refuelling areas requiring stormwater treatment and spill contaminant devices under the permitted activity Standard E33.6.1.1(12)).	

8. Assessment of Risk and Effects

Under Section E31 Council is afforded discretion on several matters relating to assessment of Restricted Discretionary activities, including:

- The location, design and management of hazardous facilities;
- How risks to people, property and the environment are avoided or adequately mitigated; and
- Assessment of cumulative effects of hazardous facilities.

While Council is afforded full discretion with respect to a Discretionary activity, as applies in this instance, the matters of control provided for Restricted Discretionary activities provide a helpful baseline for assessing risks and effects. We provide the following assessment of risk and effects related to the proposal.

8.1 Location, design and management

As described in the preceding sections, the treatment plants will be designed to ensure that the effects of discharges of hazardous substances to air, land or water are no more than minor. Design factors will include:

- Location of hazardous substances centrally within the site, with greatest setback from the site boundaries, where possible (refer to **Figure 3** and **Appendix B**).
- Appropriate segregation and separation of incompatible substances and processes.
- Secondary containment will be provided for all bulk hazardous substances.
- Stormwater generated in areas where hazardous substances are stored or used will be collected and diverted for treatment through the WWTP process.
- Dedicated unloading areas with unloading of bulk liquids using closed systems designed to minimise the risk of material loss.

With respect to management, as described in the preceding sections, the treatment plants will be operated in accordance with a site-specific EMP which will include training and monitoring requirements, unloading and safe handling procedures, spill response plan, etc. It is proposed that as a condition of consent a site-specific EMP will be prepared for submission to the Council prior to commissioning.

In summary, we consider that implementing appropriate conditions of consent will ensure that the design and management of proposed WWTP avoids or adequately mitigates adverse effects, including risks, to people, property and the environment.

8.2 Risk to people, property and the environment

The risk or harm that a particular event presents is a function of the likelihood of the event occurring and the consequence of the event. The hazard identification and risk assessment processes are further detailed in **Appendix D**, we note the following key points:

- With respect to likelihood - hazardous substances will only be released if there is a spill during unloading of chemicals / filling of tanks or a failure of secondary containment. As described

above both engineering (e.g. closed systems, high level alarms etc.) and management (e.g. trained staff, monitoring, spill response procedures etc.) controls will be implemented at the treatment plants. On this basis the likelihood of a release occurring which results in effects beyond the boundary of the site is expected to be only a rare or unlikely, in other words probable only in extraordinary circumstances.

- With respect to consequence - the hazardous substances proposed to be stored and used in bulk at the treatment (refer to **Appendix B**) have low to medium hazard levels² with respect to potential effects on human health or environmental receptors.

The substances present a low health risk other than via direct contact. Other than site workers (whose exposure will be managed via workplace health and safety procedures), it is therefore highly unlikely that future residents will be exposed to discharges of hazardous substances from the treatment plants. As the hazardous substances are all in liquid form, in the event of an uncontrolled release, they will either soak to ground or be captured and diluted in the watercourses before they reach the nearest human receptors. The pathway for exposure to human receptors (other than site workers) is therefore incomplete except via air or vapour discharges. Air or vapour discharges would only be relevant in the context of a fire, but in the unlikely event of a fire the impact is not expected to be materially different from a house fire on any of the surrounding residential lots. In addition, the WWTP will also have fire monitoring and control systems that will further mitigate potential effects.

With respect to potential environmental effects, the substances proposed to be used at the treatment plants are generally acutely toxic to aquatic ecosystems. So, a release of large quantities of the substances would result in significant short-term effects, i.e. die-off of flora and fauna. However, as noted above with appropriate engineering and management controls a release of large quantities of the substances would only be expected to occur in extraordinary circumstances. In addition, the substances typically have a low potential for bioaccumulation and generally attenuate (for example through volatilisation and/or biodegradation) rapidly in the environment so there is limited potential for long-term effects.

In conclusion, as detailed in **Appendix D**, with industry standard controls in place it is very unlikely that hazardous substances will be released from the site, since the consequence of a release is low to moderate, operation of the WWTP presents a low risk overall.

8.3 Cumulative effects

The treatment plants will be located in an ecological restoration area adjacent to a residential development, there are no other facilities anticipated to store and use hazardous substances in the vicinity. As a result, there are not expected to be any cumulative effects from other source of hazardous substances.

As described in the previous sections, small spills will be contained and managed, so there will be no cumulative effects on human health or the environment because of this type of incident.

9. Summary and Conclusions

In summary, this assessment has determined that:

- The quantity of hazardous substances proposed to be stored onsite triggers a Discretionary Activity status under Section E31 of the AUP.
- Subject to appropriate design ensuring that areas where hazardous substances are stored or used will be drained back to the WWTP for treatment, the proposed treatment plants will be a permitted activity under Section E33 of the AUP.

² Ministry for the Environment, 2002. Land Use Planning Guide for Hazardous Facilities. A resource for local authorities and hazardous facility operators. A report prepared by the Hazardous Facilities Screening Procedure Review Group in conjunction with the Ministry for the Environment.

- The controls and measures that will be put in place at the treatment plants mean that the proposed facility will comply with the permitted standards for hazardous facilities as specified under Section E31.

In conclusion, we consider that implementing appropriate conditions of consent will ensure that the design and management of proposed treatment plants avoids or adequately mitigates adverse effects, including risks, to people, property and the environment. Proposed conditions of consent are included as **Appendix C** to this assessment.

10. Closure

Please contact the undersigned if you have any queries in relation to this assessment.

Yours sincerely,

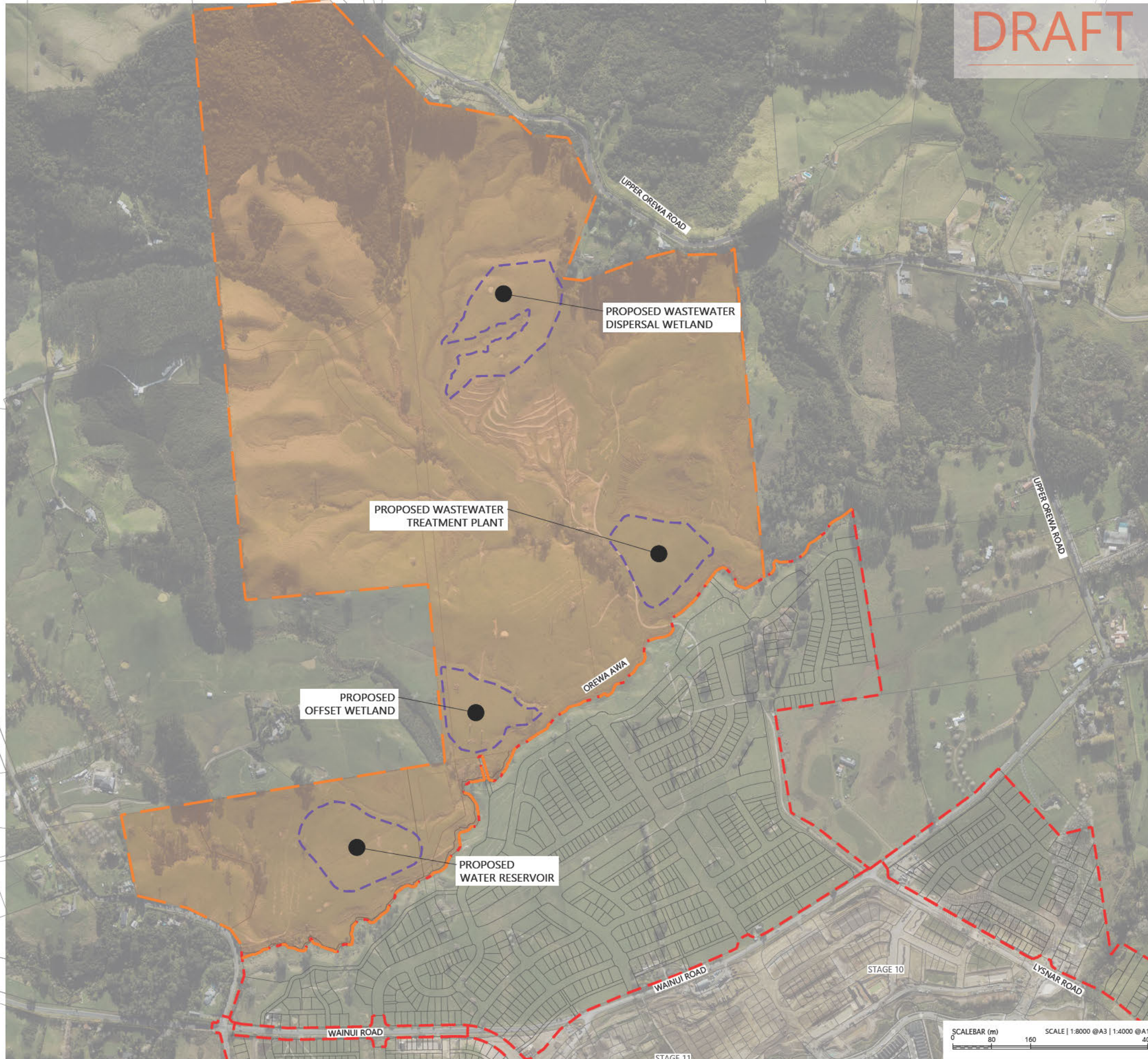


Shane Moore
Principal Environmental Advisor

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Appendix A. Selected drawings

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LEGEND

EXTENTS OF MILLDALE STAGE 14-17 DEVELOPMENT AREA	
EXTENTS OF ECOLOGICAL RESTORATION AREA	
PROPOSED BOUNDARIES	
EXISTING BOUNDARIES	
EXTENTS OF PROPOSED EARTHWORK AREAS	

NOTES

- EXISTING BOUNDARIES SHOWN INCLUDES FUTURE BOUNDARIES CONSENTED UNDER BUN60446761 AND BUN60430899. THESE BOUNDARIES ARE SUBJECT TO FINAL SURVEY APPROVAL.

REVISION DETAILS	BY	DATE
1 ISSUED FOR INFORMATION	SK	JUL 2026

SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ



MILLDALE STAGES 14-17 FAST TRACK - TE KOROWAI O MARAEARIKI

SITE LOCATION PLAN

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:8000 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-02-0001-EW	

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LEGEND:

EXTENTS OF MILLDALE STAGE 14-17 DEVELOPMENT AREA	---
EXTENTS OF TE KOROWAI O MARAEARIKI	---
EXISTING BOUNDARY	---
PROPOSED BOUNDARY	---
EXISTING CONTOUR (1m)	---
EXTENTS OF PROPOSED EARTHWORK AREAS	---
PRE-DEVELOPMENT WATERCOURSE	---

NOTES

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REVISION DETAILS	BY	DATE
1 ISSUED FOR INFORMATION	SK	JUL 2026

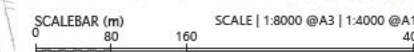
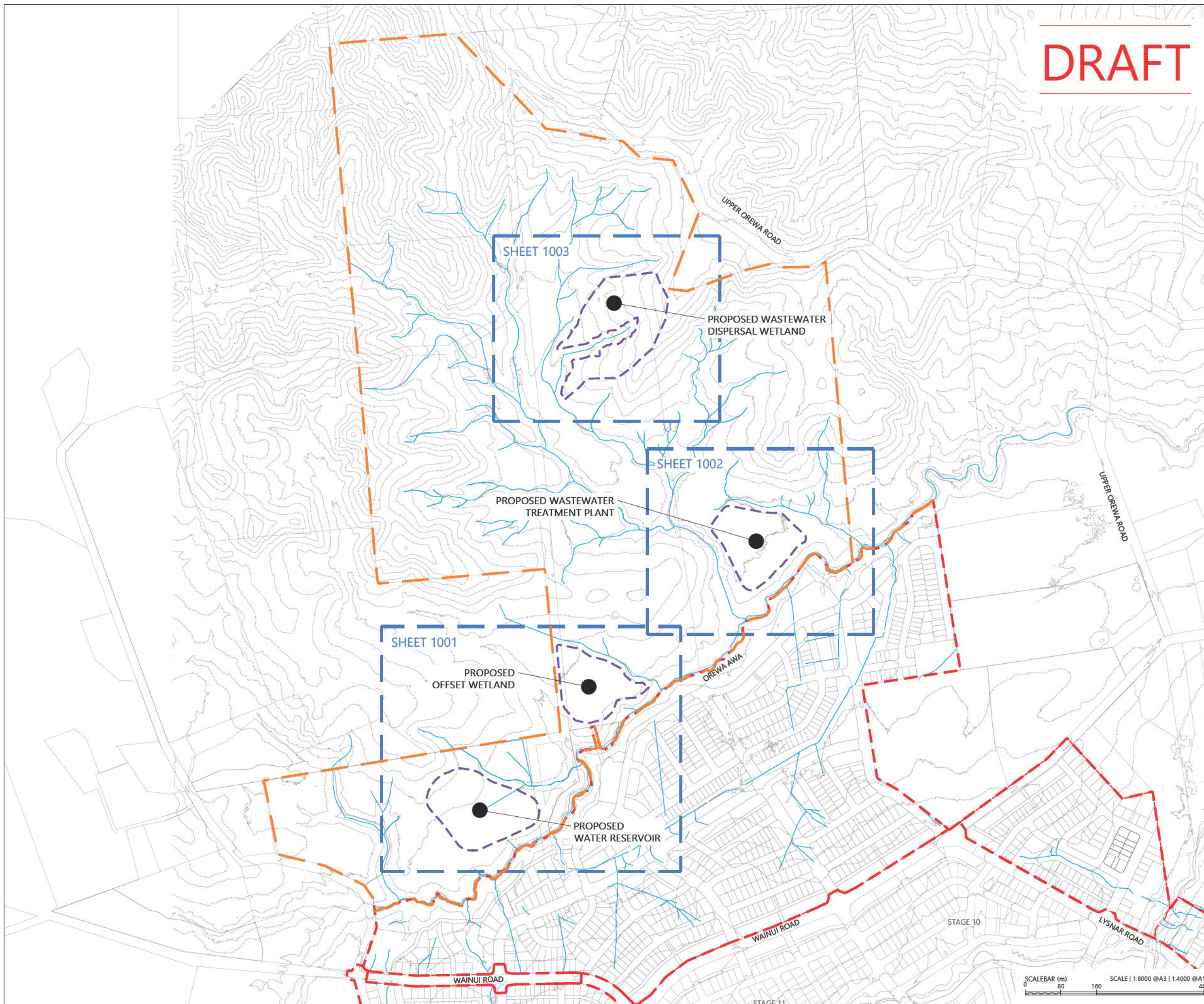
SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ



MILLDALE STAGES 14-17
FAST TRACK - TE KOROWAI
O MARAEARIKI

EXISTING CONTOUR LAYOUT
OVERALL PLAN

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:8000 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-02-1000-EW	



File: C:\1205\DATA\WP-AKL-APP-02\P25-609 - MILLDALE NORTH FAST TRACK APPLICATION_23695\02 DRAWINGS\01 ENG\02 PHASE 1 - WATER INFRASTRUCTURE & TE KOROWAI O MARAEARIKI\P25-609-02-1000-EW-EXISTING CONTOUR LAYOUT PLAN.DWG

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LEGEND:

EXTENTS OF MILLDALE STAGE 14-17 DEVELOPMENT AREA	
EXTENTS OF TE KOROWAI O MARAEARIKI	
EXISTING BOUNDARY	
PROPOSED BOUNDARY	
EXISTING CONTOUR (1m)	
EXTENTS OF PROPOSED EARTHWORK AREAS	
PRE-DEVELOPMENT WATERCOURSE	

NOTES

- EXISTING BOUNDARIES SHOWN INCLUDES FUTURE BOUNDARIES CONSENTED UNDER BUN60446761 AND BUN60430899. THESE BOUNDARIES ARE SUBJECT TO FINAL SURVEY APPROVAL.

REVISION DETAILS		BY	DATE
1	ISSUED FOR INFORMATION	SK	JUL 2026

SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ



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MILLDALE
Creating Lifespaces

MILLDALE STAGES 14-17 FAST TRACK - TE KOROWAI O MARAEARIKI

EXISTING CONTOUR LAYOUT SHEET 2

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:1500 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-03-1002-EW	

EARTHWORKS AREA	AREA (m ²)	CUT (m ³)	FILL (m ³)	BALANCE (m ³)
WATER RESERVOIR	30,311	-122,002	6,838	-115,164
OFFSET WETLAND	20,857	-	-	-
PLANT PLATFORM	23,927	-645	20,899	20,255
WASTEWATER WETLAND	35,522	-3,439	11,657	8,218
TOTAL:	110,617	-125,986	39,394	-86,592 EXCESS

DRAFT



LEGEND

EXTENTS OF MILLDALE STAGES 14-17 DEVELOPMENT AREA	
EXTENTS OF TE KOROWAI O MARAEARIKI	
CUT / FILL CONTOURS (1m)	
CUT / FILL LINE	
AREAS OF CUT	
AREAS OF FILL	
POST-DEVELOPMENT STREAMS	
WATER INFRASTRUCTURE EARTHWORK EXTENTS	

NOTES

- UNDERFILL DRAINAGE IS TO BE INSTALLED AT THE DIRECTION OF THE ENGINEER. IF THE CONTRACTOR ENCOUNTERS SPRINGS OR OTHER SOURCES OF WATER, HE IS TO NOTIFY THE ENGINEER.
- ALL UNSUITABLE MATERIAL AS DEFINED IN THE SPECIFICATION IS TO BE REMOVED AND THE STRIPPED AREAS INSPECTED BY THE ENGINEER BEFORE COMMENCES.
- EARTHWORKS ARE NOT TO BE EXTENDED INTO ADJOINING SITES UNLESS THE ENGINEER HAS ISSUED SPECIFIC INSTRUCTIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND PROTECTING EXISTING SERVICES AND DRAINAGE ON SITE.
- THE CONTRACTOR SHALL CLARIFY THE AREAS AND EXTENT OF CLEARING WITH THE ENGINEER BEFORE COMMENCEMENT AND CONFIRM THAT ALL NECESSARY CONSENTS ARE IN PLACE.
- EXISTING BOUNDARIES SHOWN INCLUDES FUTURE BOUNDARIES CONSENTED UNDER BUN60446761 AND BUN60430899. THESE BOUNDARIES ARE SUBJECT TO FINAL SURVEY APPROVAL.

REVISION DETAILS	BY	DATE
1 ISSUED FOR INFORMATION	SK	JUL 2026

SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ



MILLDALE STAGES 14-17
FAST TRACK - TE KOROWAI
O MARAEARIKI

PHASE 1: CUT FILL LAYOUT
OVERALL PLAN

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:5000 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-02-1200-EW	

File: C:\1205\DM\TA\WP-AKL-APP-02\P25-609 - MILLDALE NORTH FAST-TRACK APPLICATION_22695\02 DRAWINGS\01 ENG\02 PHASE 1 - WATER INFRASTRUCTURE & TE KOROWAI O MARAEARIKI\P25-609-02-1200-EW-CUT FILL PLAN.DWG

EARTHWORKS AREA	AREA (m ²)	CUT (m ³)	FILL (m ³)	BALANCE (m ³)
WATER RESERVOIR	30,311	-122,002	6,838	-115,164
OFFSET WETLAND	20,857	-	-	-
PLANT PLATFORM	23,927	-645	20,899	20,255
WASTEWATER WETLAND	35,522	-3,439	11,657	8,218
TOTAL:	110,617	-125,986	39,394	-86,592 EXCESS

DRAFT



LEGEND

EXTENTS OF MILLDALE STAGES 14-17 DEVELOPMENT AREA	
EXTENTS OF TE KOROWAI O MARAEARIKI	
CUT / FILL CONTOURS (1m)	
CUT / FILL LINE	
AREAS OF CUT	
AREAS OF FILL	
POST-DEVELOPMENT STREAMS	
WATER INFRASTRUCTURE EARTHWORK EXTENTS	

NOTES

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- EXISTING BOUNDARIES SHOWN INCLUDES FUTURE BOUNDARIES CONSENTED UNDER BUN60446761 AND BUN60430899. THESE BOUNDARIES ARE SUBJECT TO FINAL SURVEY APPROVAL.

REVISION DETAILS	BY	DATE
1 ISSUED FOR INFORMATION	SK	JUL 2026

SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ

MILDALE STAGES 14-17
FAST TRACK - TE KOROWAI
O MARAEARIKI

PHASE 1:
CUT FILL LAYOUT PLAN
SHEET 1

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:1500 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-02-1201-EW	



File: C:\1205\DATA\WP-AKL-APP-02\P25-609 - MILDALE NORTH FAST-TRACK APPLICATION_23695\02 DRAWINGS\01 ENG\02 PHASE 1 - WATER INFRASTRUCTURE & TE KOROWAI O MARAEARIKI\P25-609-02-1200-EW-CUT FILL PLAN.DWG

LEGEND:

EXTENTS OF MILLDALE STAGES 14-17 DEVELOPMENT AREA

EXTENTS OF TE KOROWAI O MARAEARIKI

PROPOSED EARTHWORK EXTENTS

EXISTING WATERCOURSES

PROPOSED CONTOUR MAJOR (5m)

PROPOSED CONTOUR MINOR (1m)

BUILDING FOOTPRINTS

CONCRETE SURFACE

LANDSCAPE/GRASSED AREA

EARTHWORKS INTERFACE

BUNDED AREA

MAINTENANCE TRACK

SITE FENCE/ VEHICLE GATE

WASTEWATER RISING MAIN

SURFACE WATER PUMPED MAINS

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- NOTES:
1. EXISTING BOUNDARIES SHOWN INCLUDES FUTURE BOUNDARIES CONSENTED UNDER BUN60446761 AND BUN60430899. THESE BOUNDARIES ARE SUBJECT TO FINAL SURVEY APPROVAL.

2. FOR DETAILS RELATING TO THE PROPOSED GROUNDWATER BORE AND STREAM INTAKE DEVICE, PLEASE REFER TO (SEPERATEL PROVIDED) REPORTING FROM WWLA

3. FOR DETAILS RELATING TO THE PROPOSED WATER SUPPLY TREATMENT PLANT AND WASTEWATER TREATMENT PLANT, PLEASE REFER TO REPORTING FROM APEX WATER

4. WATER ABSTRACTION FROM THE STREAM INTAKE AND GROUNDWATER BORE SHALL BE METERED AND MONITORED IN ACCORDANCE WITH CONSENT REQUIREMENTS.

5. FINAL TREATED WASTEWATER CONVEYANCE AND LAND-APPLICATION ARRANGEMENTS, INCLUDING THE LEVEL-SPREADER SYSTEM, ARE SUBJECT TO DETAILED DESIGN BY THE RELEVANT SPECIALIST ENGINEERS

REVISION DETAILS		BY	DATE
1	ISSUED FOR INFORMATION	SK	JUL 2026

SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ

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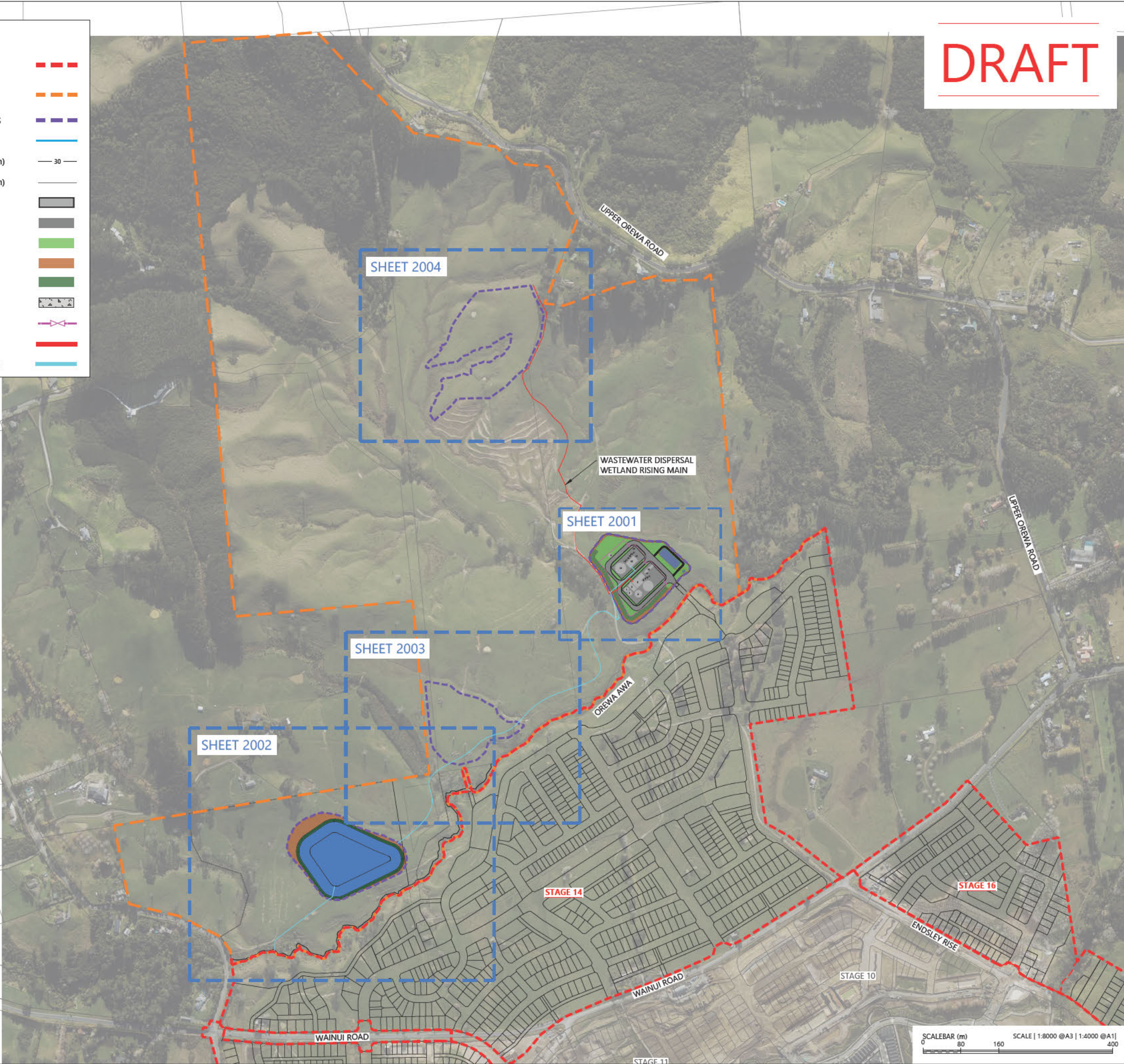
MILLDALE

Conserving Life for ever

MILLDALE STAGES 14-17
FAST TRACK - TE KOROWAI
O MARAEARIKI

WATER INFRASTRUCTURE
OVERALL LAYOUT PLAN

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:8000 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-02-2000-RD	



File: C:\1205\DATA\WP-AKL-APP-02\P25-609 - MILLDALE NORTH FAST TRACK APPLICATION_23695\02 DRAWINGS\01 ENG\02 PHASE 1 - WATER INFRASTRUCTURE & TE KOROWAI O MARAEARIKI\P25-609-02-2000-RD-LAYOUT PLAN.DWG

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NOTES:

- EXISTING BOUNDARIES SHOWN INCLUDES FUTURE BOUNDARIES CONSENTED UNDER BUN60446761 AND BUN60430899. THESE BOUNDARIES ARE SUBJECT TO FINAL SURVEY APPROVAL.
- FOR DETAILS RELATING TO THE PROPOSED GROUNDWATER BORE AND STREAM INTAKE DEVICE, PLEASE REFER TO (SEPERATEL PROVIDED) REPORTING FROM WWLA
- FOR DETAILS RELATING TO THE PROPOSED WATER SUPPLY TREATMENT PLANT AND WASTEWATER TREATMENT PLANT, PLEASE REFER TO REPORTING FROM APEX WATER
- WATER ABSTRACTION FROM THE STREAM INTAKE AND GROUNDWATER BORE SHALL BE METERED AND MONITORED IN ACCORDANCE WITH CONSENT REQUIREMENTS.
- FINAL TREATED WASTEWATER CONVEYANCE AND LAND-APPLICATION ARRANGEMENTS, INCLUDING THE LEVEL-SPREADER SYSTEM, ARE SUBJECT TO DETAILED DESIGN BY THE RELEVANT SPECIALIST ENGINEERS

REVISION DETAILS		BY	DATE
1	ISSUED FOR INFORMATION	SK	JUL 2026

SURVEYED	WOODS	WAINUI ROAD MILLDALE AUCKLAND
DESIGNED	WOODS	
DRAWN	DH	
CHECKED	SK	
APPROVED	JW	
		WOODS.CO.NZ



MILLDALE STAGES 14-17
FAST TRACK - TE KOROWAI
O MARAEARIKI

WATER AND WASTEWATER
TREATMENT PLANTS OVERALL
LAYOUT PLAN

STATUS	ISSUED FOR INFORMATION	REV
SCALE	1:1500 @ A3	1
COUNCIL	AUCKLAND COUNCIL	
DWG NO	P25-609-02-2001-RD	

LEGEND:

- EXTENTS OF MILLDALE STAGES
14-17 DEVELOPMENT AREA
- EXTENTS OF TE KOROWAI
O MARAEARIKI
- PROPOSED EARTHWORK EXTENTS
- EXISTING WATERCOURSES
- PROPOSED CONTOUR MAJOR (5m)
- PROPOSED CONTOUR MINOR (1m)
- BUILDING FOOTPRINTS
- CONCRETE SURFACE
- LANDSCAPE/GRASSED AREA
- EARTHWORKS INTERFACE
- BUNDED AREA
- MAINTENANCE TRACK
- SITE FENCE/ VEHICLE GATE
- WASTEWATER RISING MAIN
- SURFACE WATER PUMPED MAINS



PROPOSED 2m HIGH TOPSOIL
BUND. REFER TO LANDSCAPING
PLANTING PLANS FOR DETAILS

PROPOSED WATER SUPPLY
TREATMENT PLANT AND
ASSOCIATED FIXTURES

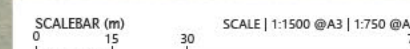
PROPOSED SW DEVICE REFER TO
SHEETS 3300-3301 FOR DETAILS

PROPOSED LAND CONTACT
INFILTRATION DEVICE. REFER TO
SHEETS 3200-3201 FOR DETAILS

SITE ENTRANCE VIA BRIDGE
CROSSING. REFER TO
P25-609-01-2081 FOR DETAILS

PROPOSED WASTEWATER
TREATMENT PLANT AND
ASSOCIATED FIXTURES

PUMPED MAIN
FROM SURFACE
WATER RESERVOIR



Appendix B. Hazardous substances inventory

Hazardous substances inventory

Milldale Stages 14-17 – Water and Wastewater Treatment Plants (Water Infrastructure)



Substance Name	Quantity (tonnes) ¹	Hazard Classifications (HSNO) ²	Flammable liquids Class 3	Toxic Class 6		Corrosive Class 8		Ecotoxic Class 9		
			3.1D	6.1D and 6.1E	6.1C and 6.3-6.9	8.1, 8.2A and 8.3	8.2B and 8.2C	9.1B, 9.2B, 9.3B and 9.4B	9.1C, 9.2C, 9.3C and 9.4C	High BOD5 (>10,000 mg/l) ³
Acetic acid, >30-50% aqueous solution	10.5	6.1D, 6.9B, 8.1A, 8.2C, 8.3A, 9.3C		10.5	10.5	10.5	10.5	-	10.5	10.5
Aluminium sulphate, >25% in a non hazardous diluent	2.7	6.3A, 6.4A, 8.1A, 9.1B			2.7	2.7		2.7		2.7
Citric acid, >10 - 50% in a non hazardous diluent	2.5	6.3B, 8.3A			2.5	2.5		-		
Diesel fuel (automotive gas oil and marine diesel fuel)	2 ⁴	3.1D, 6.1E, 6.7B, 9.1B	24	24	24			24		
Polyaluminium chloride, >30-60%	2.4	6.1D, 6.3A, 6.4A		2.4	2.4					
Sodium bisulphate, >15-40%	0.4	6.1D, 8.2C, 8.3A		0.4		0.4	0.4			
Sodium hydroxide, >5% aqueous solution	12.7	6.1D, 8.1A, 8.2B, 8.3A		12.7	-	12.7	12.7	-		
Sodium hypochlorite, >5 - 25% in a non hazardous diluent	4.5	6.3A, 8.3A, 9.1B			4.5	4.5		4.5		4.5
Sulphuric acid, >5-10% in a non hazardous diluent	2.2	6.1D, 8.2C, 8.3A, 9.3C	-	2.2		2.2	2.2		2.2	2.2
Site Total (tonnes unless otherwise stated)			0.0	28.2	22.6	35.5	25.8	7.2	12.7	19.9
AUP Permitted Activity Criteria (Rural - Rural Production Zone)			< 20	No limit	< 6	< 2	< 10	< 10	< 30	< 40
AUP Discretionary Activity Criteria (Rural - Rural Production Zone)			≥ 40	No Limit	≥ 12	≥ 4	≥ 20	≥ 20	≥ 60	≥ 80
Activity Reference (Table E31.4.3) - AUP. E31 Hazardous Substances			A60	A5	A73	A75	A76	A79	A81	A83
Activity Status (Permitted Activity / Discretionary)			P	P	D	D	D	P	P	P

Notes:

1 - Provided by Apex Water except where indicated. Memo from Nuobelle Fong (Apex Water) to Shane Moore (WWLA), dated 19 June 2026

2 - Conversion where required from GHS Classification to HSNO Classification using "HSNO:GHS 7 Correlation Tables" https://www.epa.govt.nz/assets/Uploads/Documents/Hazardous-Substances/GHS2/HSNO-GHS7_Correlation_Table.pdf

3 - Conservative approach taken and assumed that all Class 9.1A-C sbstances have a high BOD. Wastewater not included as raw domestic waste water typically has a BOD₅ of <300mg/l

4 - Conservative estimate adopted for diesel volume as the backup power generation unit has yet to be specified. Quantity is likely to be < 1,000 litres

Appendix C. Recommended conditions of consent

The following conditions of consent are recommended in relation to hazardous substance and ITA matters:

- 1) The consent holder must provide copies of Location and Stationary Container Compliance certificates, issued by an authorised Compliance Certifier, to the Council prior to the water and wastewater treatment plants becoming operational.
- 2) The consent holder must prepare an Environmental Management Plan which to be provided for Council approval as part of the building consent application process for the water and wastewater treatment plants (or sooner if available).

Advice note:

The purpose of the Environmental Management Plan is to ensure the risks from the site are managed appropriately.

- 3) The Environmental Management Plan must include, but not be limited to:
 - a) identification of the specific activities conducted on the site;
 - b) identification of potential contaminants associated with these activities, including a Hazardous Substance Inventory and associated Material Safety Data Sheets;
 - c) methods used to contain identified contaminants and prevent them contacting stormwater runoff as far as practicable, and methods to manage environmental risks from site activities;
 - d) a Spill Response Plan (which includes the provision that all spills over 20 litres, or any spill of environmentally hazardous substances that has entered the stormwater system, a waterbody or has contacted unsealed ground, must be reported immediately to the Auckland Council's 24-Hour Pollution Hotline (09-377-3107));
 - e) accurate site drainage plan(s) showing the location of all site catchpits, containment systems, treatment devices and the discharge point(s) of the site stormwater system;
 - f) an appropriate auditing programme to ensure site performance with all components of the Environmental Management Plan;
 - g) methods for providing and recording staff training.
 - h) an Operation and Maintenance Plan.
- 4) The site must be operated and managed in accordance with the Environmental Management Plan for the duration of the consented activity.
- 5) The Environmental Management Plan must be reviewed and updated after 12 months from the date of commissioning of the water and wastewater treatment plants, to ensure all components of the Environmental Management Plan are still relevant.
- 6) The Environmental Management Plan must be kept on site and accessible at all times.
- 7) The Hazardous Substance Inventory, associated Material Safety Data Sheets, and Spill Response Plan must be kept up to date and maintained onsite at all times.
- 8) Suitable spill kits must be made available onsite at all times for the duration of the consented activity.

Appendix D. Hazard identification and risk assessment



HAZARDOUS SUBSTANCES: HAZARD AND RISK ANALYSIS

Date:	June 2026	Project Director:	Jon Williamson
Project No.	WWLA1603	Project Manager:	Shane Moore
Project Name:	Milldale Stages 14-17 – Water and Wastewater Treatment Plants (Water Infrastructure)		
Client:	Fulton Hogan Land Development Limited		

The document presents a qualitative assessment of the potential risk of offsite effects associated with the storage and handling of hazardous substances at the proposed water and wastewater treatment plants (collectively referred to as the treatment plants). This assessment has been undertaken in general accordance with the approach set out in WorkSafe's Good Practice Guidelines¹. As the final form and layout of the treatment plants are subject to detailed design this analysis should be considered preliminary and be updated once final design information is available.

The key elements of this assessment are:

- It is principally limited to an assessment of offsite effects. It is assumed that onsite effects, e.g. exposure to site workers, will be appropriately controlled in accordance with health and safety regulations and associated legislation².
- Hazard identification – this summarises the properties of the substances and identifies key failure modes or pathways by which hazardous substances could be released and may result in potential effects on offsite human or environmental receptors.
- A qualitative risk assessment - the risk or harm that a particular event presents is a function of the likelihood of the event occurring and the consequence (or severity) of the event. The risk assessment matrix set out below has been applied to qualitatively evaluate the level of risk with and without control measures in place.

In summary, no hazards have been identified that cannot be adequately mitigated through the implementation of industry standard control measures.

The following colour coding is used throughout this assessment:

- Green shading** indicates low level of hazard, risk or effect.
- Orange shading** indicates moderate level of hazard, risk or effect.
- Red shading** indicates high level of hazard, risk or effect.

Risk Assessment Matrix		Consider the likelihood of a hazardous event occurring				
		Very unlikely to happen	Unlikely to happen	Possibly could happen	Likely to happen	Very likely to happen
Consider the severity of injury/illness	Catastrophic (e.g fatal)	Moderate	Moderate	High	Critical	Critical
	Major (e.g Permanent Disability)	Low	Moderate	Moderate	High	Critical
	Moderate (e.g Hospitalisation/Short or Long Term Disability)	Low	Moderate	Moderate	Moderate	High
	Minor (e.g First Aid)	Very Low	Low	Moderate	Moderate	Moderate
	Superficial (e.g No Treatment Required)	Very Low	Very Low	Low	Low	Moderate

¹ WorkSafe New Zealand, 2016. Major Hazard Facilities: Safety Assessment. Good Practice Guidelines. July 2016.

² For example: Health and Safety at Work (Hazardous Substances) Regulations 2017.

HAZARD IDENTIFICATION

Substance	Quantity (tonnes)	Hazard level ³	Potential failure (release) modes	Exposure pathways	Adopted hazard rating (and rationale)
Acetic acid (>30-50%) aqueous solution	10.5	Health	- Spill during filling of tank - Tank leak or rupture during use	Dermal contact, inhalation or ingestion of substance.	Low – as hazard is limited to direct exposure of workers on site
		Environment		Substance entering waterways, soil or groundwater	Low – as naturally occurring and rapidly biodegrades so effects will be short-term only
Aluminium sulphate (>25%) in a non-hazardous diluent	2.7	Health	- Spill during delivery or removal of IBCs - Leak or rupture of IBCs during use	Dermal contact, inhalation or ingestion of substance	Low – as principally limited to direct exposure of workers on site although aluminium does have some long-terms effects
		Environment		Substance entering waterways, soil or groundwater	Moderate – due to persistence in environment
Citric acid (>10 - 50%) in a non-hazardous diluent	2.5	Health	- Spill during delivery or removal of IBCs - Leak or rupture of IBCs	Dermal contact or ingestion of substance	Low – as hazard is limited to direct exposure of workers on site
		Environment		Substance entering waterways	Low – naturally occurring and rapidly biodegrades so effects will be short-term only
Diesel fuel	2	Health	- Spill during filling of tank - Tank leak or rupture during use - Fire	Dermal contact or ingestion of substance. Flammable	Moderate – due to potential offsite deposition by fire
		Environment		Substance entering waterways, soil or groundwater	Moderate - due to persistence in environment
Polyaluminium chloride, >30-60%	2.4	Health	- Spill during delivery or removal of IBCs - Leak or rupture of IBCs	Dermal contact, inhalation or ingestion of substance	Low – as hazard is limited to direct exposure of workers on site
		Environment		Substance entering waterways	Moderate - due to persistence in environment
Sodium bisulphate, >15-40%	0.4	Health	- Spill during filling of tanks - Tank leak or rupture during use	Dermal contact, inhalation or ingestion of substance	Low – as hazard is limited to direct exposure of workers on site
		Environment		Substance entering waterways	Low –rapidly degrades so effects will be short-term only
Sodium hydroxide (>5%) aqueous solution	12.7	Health	Spill during filling of tanks	Dermal contact, inhalation or ingestion of substance	Low – as hazard is limited to direct exposure of workers on site

³ Ministry for the Environment, 2002. Land Use Planning Guide for Hazardous Facilities. A resource for local authorities and hazardous facility operators. A report prepared by the Hazardous Facilities Screening Procedure Review Group in conjunction with the Ministry for the Environment.

Substance	Quantity (tonnes)	Hazard level ³	Potential failure (release) modes	Exposure pathways	Adopted hazard rating (and rationale)
		Environment	- Spill during delivery or removal of IBCs - Leak or rupture of IBC or tank during use	Substance entering waterways	Low – rapidly neutralised so effects will be short-term only
Sodium hypochlorite (>5 - 25%) in a non-hazardous diluent	4.5	Health	- Spill during delivery or removal of IBCs - Leak or rupture of IBCs	Dermal contact, inhalation or ingestion of substance	Low – as hazard is limited to direct exposure of workers on site
		Environment		Substance entering waterways	Moderate - very toxic to aquatic organisms but as the substance is extremely reactive effects are short lived
Sulphuric Acid, >5-10% in a non hazardous diluent	2.2	Health	- Spill during delivery or removal of IBCs - Leak or rupture of IBCs	Dermal contact, inhalation or ingestion of substance	Low – as hazard is limited to direct exposure of workers on site
		Environment		Substance entering waterways	Low – rapidly neutralised so effects will be short-term only

RISK ANALYSIS

Hazard	Potential harm	Risk assessment without controls ⁴			Mitigation measures / hazard controls	Residual risk with controls		
		L	S	R		L	S	R
Spill during delivery of bulk liquids (e.g. hose failed, tank overfilled etc.)	Health effects due to dermal contact with, inhalation or ingestion of substance	P	M	H	- The treatment plants will be operated in accordance with a site-specific Environmental Management Plan (EMP) which will include training, monitoring and maintenance requirements, unloading and safe handling procedures, spill response plan, etc. - A containment system will be provided for the bulk chemical delivery area.	VU	O	L

⁴ L = Likelihood, S = Severity, R = Risk

Likelihood: VU = Very unlikely, U = Unlikely, P = Possible, L = Likely, VL = Very likely

Severity: C = Catastrophic, M = Major, O = Moderate, I = Minor, S = Superficial

Risk ranking: C = Critical, H = High, M = Moderate, L = Low, VL = Very low

Hazard	Potential harm	Risk assessment without controls ⁴			Mitigation measures / hazard controls	Residual risk with controls		
		L	S	R		L	S	R
	Environment effects due to large volumes of substance entering waterways, soil or groundwater	P	C	C	- Where possible unloading of bulk liquids will be undertaken using closed systems designed to minimise the risk of material loss. Tanks will also be fitted with overpressure vents, liquid level indicators and high-level alarms. - Stormwater generated in in areas where hazardous substances are stored or used will be collected and diverted for treatment through the WWTP process. - Hazardous substances will be located centrally within the site, with greatest setback from the site boundaries, where possible.	VU	M	L
Leak from or rupture of bulk tank during use	Health effects due to dermal contact with, inhalation or ingestion of substance	U	M	M	- The EMP, stormwater and location controls set out above will be implemented in relation to operation of the bulk tanks. - Bulk tanks will either be self-bunded (double skinned) or within bunded areas with bunds constructed of concrete and lined with chemically resistant coating where necessary.	VU	O	L
	Environment effects due to large volumes of substance entering waterways, soil or groundwater	U	C	M		VU	M	L
Spill during unloading of packaged liquids (e.g. IBC dropped and punctured or ruptured etc.)	Health effects due to dermal contact with, inhalation or ingestion of substance	P	O	M	- Refer to the controls described in relation to delivery of bulk liquids. - IBCs will only be moved by trained staff, using appropriate equipment, and within designated areas.	VU	I	VL
	Environment effects due to substance entering waterways, soil or groundwater	P	O	M		VU	O	L
Leak from or rupture of IBC during use	Health effects due to dermal contact with, inhalation or ingestion of substance	U	M	M	- IBCs, if stored outside will be stored in covered bunded areas and if inside will either be bunded or on drip trays that drain to an area where spills can be recovered. - Stormwater generated in in areas where hazardous substances are stored or used will be collected and diverted for treatment through the WWTP process. - Where possible the IBCs will be located centrally within the site, with greatest setback from the site boundaries.	VU	O	L
	Environment effects due to large volumes of substance entering waterways, soil or groundwater	U	M	M		VU	O	L
Fire associated with diesel generator	Health effects due to exposure to smoke	P	M	M	- EMP will include procedures for response to fire, including controls such as fire extinguishers. - Substances will be appropriately separated / segregated. - Refilling will be undertaken by trained delivery contractor.	VU	O	L