Fulton Hogan
LAND DEVELOPMENT LTD.

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B&A
Urban & Environmental

Volume 4: Milldale Wastewater Treatment Plant

Milldale, Wainui

Fast Track Approvals Act 2024 Substantive Application

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Prepared by:

Hannah O'Kane

Associate, Wood & Partners Consultants Limited

Emma Howie

General Manager Planning & Urban Design, Wood & Partners Consultants Limited

Reviewed by:

Euan Williams

Principal Planner, Wood & Partners Consultants Limited

Rachel Morgan

Director, Barker and Associates Limited

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Volume 4 Appendices

1.0 Introduction

This report, also referred to as **Volume 4**, has been prepared in support of the Substantive Application by Fulton Hogan Land Development Limited (**FHLD**) to the Environmental Protection Authority (**EPA**) under the Fast-Track Approvals Act 2024 (**FTAA**) for the construction and operation of a temporary Wastewater Treatment Plan (**WWTP**).

The WWTP has been included in the Fast Track application in the event that there are short-term capacity constraints at the Army Bay wastewater treatment plant. This may or may not eventuate, and this aspect of the proposal is therefore included as a precaution.

The information provided in this application is sufficiently detailed to correspond to the scale and significance of the matters that will be assessed in considering whether to grant the approvals sought, including any adverse effects of the activities to which the approvals relate. This takes into account any proposal by the applicant to manage the adverse effects of an activity through conditions. The Overview Report, submitted as **Volume 1** of this application, is to be read in conjunction with this document. The Overview Report provides a summary of the background to the Milldale development, a summary of the consenting history, consultation, a summary of the reasons for consent, and the proposed conditions of consent. It also addresses the specific information requirements to be included with a Fast Track application as set out under the FTAA.

As set out in the Overview Report, the WWTP is considered to be within the scope of the Milldale Stages 4C and 10 - 13 "Project" under the FTAA. The proposed WWTP is required to support, and is subsidiary to, the proposed Milldale Stage 4C and Stages 10 – 13. Additionally, the WWTP location is on Lysnar Road, which is within the approximate geographical location listed in Schedule 2.

2.0 Site Context

This section of the application is provided in accordance with clause 1(b) of Schedule 5 of the FTAA.

The site subject to this application is located just outside of the Milldale development area and is referred to in this report as the Milldale Wastewater Treatment Plant site (**the Site**). It is located on the northern side of Lysnar Road, Wainui, on Future Urban zoned land adjacent to the Wainui Precinct.

Copies of Records of Title (**ROT**) for the site are attached at **Appendix 1A** to the Overview Report. A broad summary of the site and locality details is provided below.

2.1 Site Description

The Site is located within Lot 4 DP 353309, which has a total area of 10.45ha. The parent site in which the WWTP is located is characterised by undeveloped rural land that has historically been used for farming. The topography of the parent site generally slopes from northwest to southeast and has two stands of poplar trees. There is an unnamed tributary of the Waterloo stream that bisects the southern portion of the site.

The Site, which encompasses the WWTP, covers a total land area of approximately 1.21ha and has been positioned in the southern corner of the parent site, and is directly adjacent to Lysnar Road as illustrated in **Figure 1** below. The site is generally flat and a portion of it was previously utilised as a construction compound supporting the ongoing delivery of the Milldale development. Further site features are identified in the following sections.

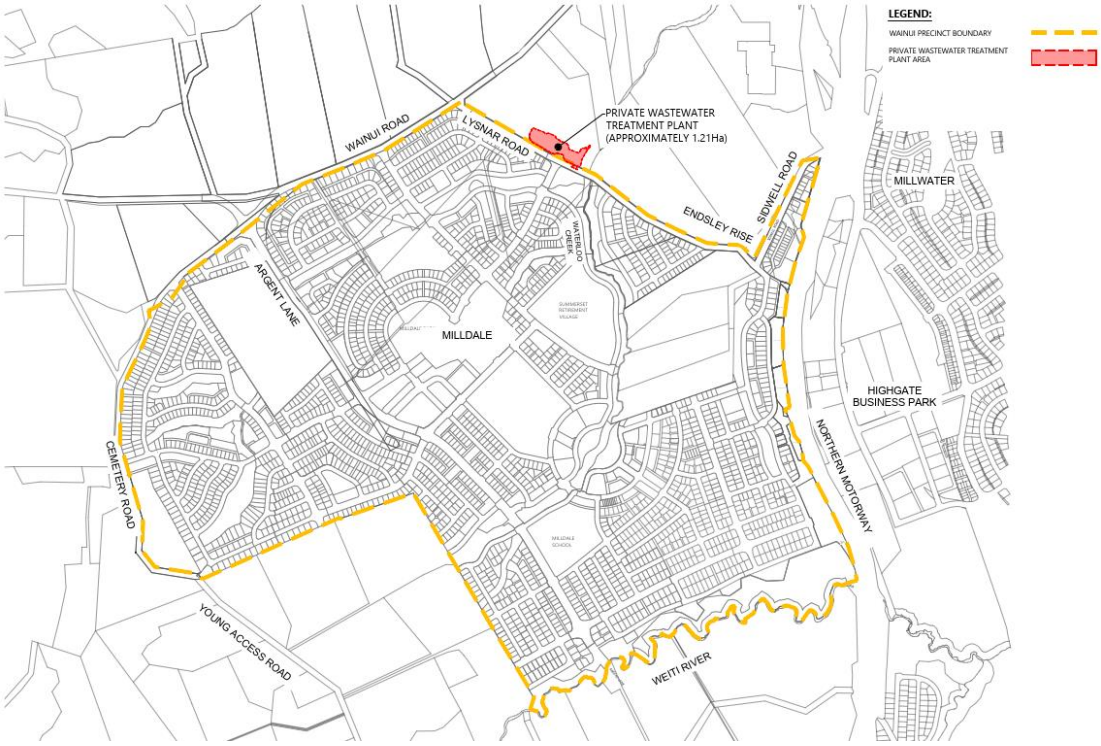

Figure 1: Site Location

2.1.1 Records of Title and Land Ownership

The WWTP is located within Lot 4 DP 353309, which is owned by FHLD. The ROT of the Site and associated interests registered are provided in **Appendix 1A** to the Overview Report.

There are no limitations on the ROT that restrict the proposed construction and operation of a WWTP.

2.1.2 Roading & Site Access

The site is accessed via Lysnar Road, which is currently an unsealed local road. Lysnar Road is being upgraded as part of Milldale Stage 8 development and will ultimately be a two-lane road. A roundabout is being constructed on Lysnar Road as part of the Milldale Stage 8 works and is located adjacent to the Site. To accommodate the future WWTP, a fourth leg has been included within the Stage 8 roundabout to provide a vehicle access connection to the Site. This fourth leg is being approved through an Engineering Approval (**EA**) process as part of the Lysnar Road works.

2.1.3 Stormwater & Flooding

The Infrastructure Report (**Appendix 4A**) provides an overview of the existing stormwater infrastructure and stormwater management requirements under the Wainui East Stormwater Management Plan.

An existing culvert runs along the northern boundary of the Waterloo Tributary. It is located outside the proposed construction area and will be retained.

The site is located within Stormwater Management Zone C of the Wainui East Stormwater Management Plan, and the proposed development must provide for the retention and detention of stormwater flows.

As the site is located outside of urban zoned land, it is outside of the Auckland Council Network Discharge Consent (**NDC**) extent, which covers the wider Milldale development. Consequently, the stormwater discharge associated with the WWTP and compound will be managed through this application.

2.1.4 Existing Infrastructure

The Site is currently undeveloped and was previously used as a temporary construction compound as part of the current Milldale Stages.

There is an existing wastewater transmission main running parallel to the Waterloo Stream. This pipe conveys the majority of the Milldale wastewater flows to the Army Bay Wastewater Treatment Plant.

With respect to other infrastructure in proximity to the site, the following is noted:

- There is no potable water supply to the site. Milldale Stage 8 will provide a connection to Lysnar Road, which can be extended to service the site;
- There is no power reticulation to the site. Milldale Stage 8 will provide a connection to Lysnar Road, which can be extended to service the site; and
- There are no telecommunication lines to the site. Milldale Stage 8 will provide a connection to Lysnar Road, which can be extended to service the site.

2.1.5 Geology

CMW Geosciences (**CMW**) has prepared a Geotechnical Investigation Report (**GIR**) of the Site, which is provided in **Appendix 4B**. The GIR notes the regional geology as comprising the Mangakahia Complex of the Northland Allochthon. The low-lying areas around Waterloo Creek, its tributaries, and the broad valley in the northern portion of Argent Lane are mapped as Tauranga Group Alluvium/ Colluvium. These are Pleistocene-aged clays and silts and include swamp and colluvium deposits.

The site conditions identified in the GIR have influenced the requirements for site preparation, fill placement, subsoil drainage, compaction requirements, quality assurance observations and testing, and as-built requirements. Intrusive site investigations were carried out by CMW, including machine boreholes, hand augers, and cone penetrometer tests. Based on the findings of this site testing, the key site risks identified in the GIR that need to be considered through the project include:

- Subgrade preparation: Topsoil needs to be stripped from the entire site, and uncontrolled fill areas must be certified prior to filling; and
- Uncontrolled fills: Uncontrolled fills (including stockpile) are to be excavated and replaced.

2.1.6 Groundwater

A Groundwater Assessment of the Site has been prepared by Williamson Water & Land Advisory (**WWLA**) and is provided in **Appendix 4C**. The groundwater assessment confirms that groundwater levels within the site range from approximately 7m AMSL to 17m AMSL, with groundwater generally flowing from north-west to south-east.

2.1.7 Vegetation

Arbolab has prepared an arboricultural report for the Site, which is provided in **Appendix 4D**. The arboricultural assessment has undertaken a Visual Tree Assessment (**VTA**) consistent with modern arboricultural practices.

The survey identified 315 trees within the site, including the riparian margins of Waterloo Stream. Of the trees identified, there were:

- 129 native trees, consisting primarily of *Cordyline australis* and *Kunzea ericoides;*
- 107 non-pest plant exotic trees, consisting primarily of *Populus nigra;* and
- 79 pest plant trees, consisting primarily of *Ligustrum sinense.*

A group of poplar trees is located approximately 5m—15m southwest of the centreline of Waterloo Creek. This stand of trees is outside the earthworks extent and will not be impacted by the proposed site works.

2.1.8 Ecology

An Ecological Assessment of the Site has been prepared by Viridis and is provided in **Appendix 4E**. The ecological assessment address both the freshwater and terrestrial ecological features across the site which are summarised below.

2.1.8.1 Terrestrial Ecology

Terrestrial Vegetation

The majority of the site is either in unmaintained exotic pasture for agricultural purposes, existing gravelled hard stand, a mixture of native-exotic vegetation (along the riparian margin of the Waterloo Creek) or a grouping of exotic poplar trees running adjacent to the intermittent stream on site.

Birds, Bat and Lizards

The ecological value of the site for birds was considered to be low due to the limited bird habitat and limited suitable roosting and foraging sites within the site.

[redacted]

The ecological values of the site for bats were considered to be moderate due to the presence of potential habitat for bats, and despite reasonable efforts for survey efforts in recent years, bat presence cannot be ruled out.

2.1.8.2 Freshwater Ecology

Watercourses

The site contains one intermittent and one permanent stream within the project area.

Waterloo Creek is a tributary to the Ōrewa River, a high order permanent stream that drains to the Ōrewa Estuary in the east. This watercourse formed a natural boundary of the site in the east.

Waterloo Creek is highly degraded due to historical and ongoing agricultural land use. The riparian vegetation is of generally low ecological quality, with a high abundance of pest and exotic species. In some areas, dense vegetation and steep banks restrict access to the stream from the site. Due to the agricultural land use within the wider catchment, it is assumed to be soft-bottomed, with a tolerant benthic macroinvertebrate community that reflects high sediment and nutrient loading. However, due to the potential presence of 'at-risk' fish species (being the banded kokopu), the Waterloo Creek has conservatively been assessed as having moderate ecological value.

An intermittent tributary of Waterloo Creek was identified within the project area. This watercourse runs parallel to the proposed works and discharges into Waterloo Creek to the east.

The stream has been significantly modified through artificial deepening, straightening, realignment, and channel clearance for farm drainage. An existing culvert was located just upstream of the confluence with Waterloo Creek, and this culvert is to be retained.

The riparian margin was predominantly vegetated with a canopy of tall exotic poplar trees. Downstream of the culvert, riparian vegetation was sparse. Overall, the intermittent stream was considered to have low ecological value due to its highly modified state, poor water quality, and lack of suitable aquatic habitat.

Wetlands

Three natural inland wetlands were identified on the site as a part of an assessment previously undertaken within the site (**Figure 2** below). These wetlands have not been assessed further as they are outside of the affected catchment of the proposed works.

Each of the three wetlands was located outside of the catchment where the works are proposed, as identified in **Figure 2** below. All wetlands were fed by seepage and dominated by exotic species.

Viridis previously assessed the wetlands within the site as being of low ecological value due to their small sizes, dominance of exotic species, stock damage and general lack of suitable aquatic habitat for indigenous fauna.

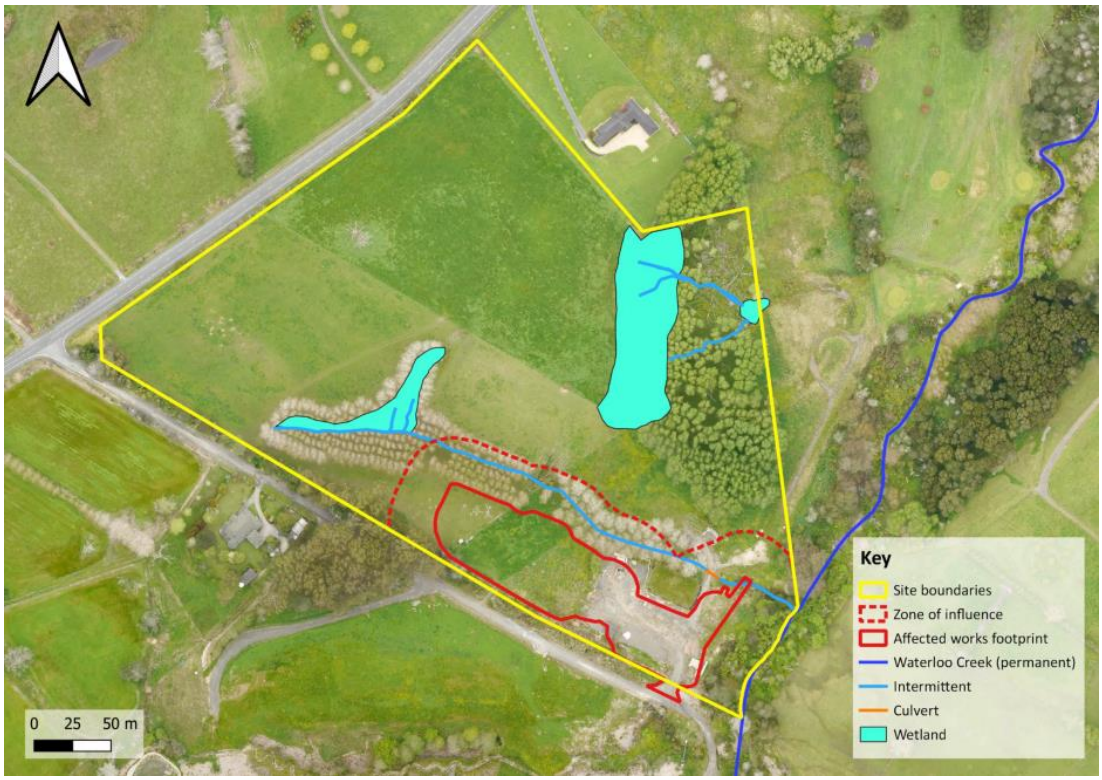

Figure 2: Wetlands Identified within Site Extent

2.1.9 Water Quality of Receiving Environment

The Site is located adjacent to Waterloo Creek, which runs along its eastern edge. The Waterloo Creek discharges into the Orewa River to the north of the Site, which discharges to Orewa Beach and Puawai Bay. As Waterloo Creek is a permanent watercourse, it would be expected to constantly discharge into the Orewa River and maintain a flow through the year.

A water quality assessment has been carried out by Babbage Consultants Limited (Babbage) and is provided in Appendix 4F. The water quality assessment took water quality samples from three locations upstream and downstream of the point where the treated wastewater will ultimately be discharged. Two of the locations were located in Waterloo Creek in a freshwater environment, and the downstream testing location was within a tidally influenced section of the Orewa River, approximately 1.3km downstream of the Waterloo testing locations. These locations are illustrated in Figure 3 below.

Figure 3: Water quality testing locations (source: Babbage, Appendix 4L)

The baseline assessment methodology involved field assessments associated with biological components, hydrology and water quality during three sampling rounds undertaken in October and November 2024 and January 2025.

The findings of the baseline assessment are that the existing freshwater environment is degraded, which is likely due to the historical pastoral land uses on the associated catchment and surrounding areas. Both of the freshwater sites in Waterloo Creek were classified as "poor" and reflect a waterbody in poor ecological health. The Orewa River testing site concluded a moderate level of degradation with a generally low diversity of species, which is likely associated with upstream freshwater discharges (such as Waterloo Creek).

2.1.10 Air Quality

Air Matters has carried out a baseline assessment of the existing air quality conditions around the WWTP site, which is provided in Appendix 4G. They have confirmed that there are no known consented air discharges within a 1km radius of the proposed WWTP site.

Based on the assessment of meteorological conditions and background air quality, Air Matters has concluded that the area surrounding the subject site is expected to have good air quality, characterised by rural odours and possibly occasional dust from the construction of the Milldale development at the time. Given the proposed duration of the WWTP and the expansion of Milldale, it is likely that the odour associated with rural activities will decrease as more residential development occurs.

2.1.11 Contamination

A Preliminary Site Investigation (**PSI**) of the Site has been prepared by Groundwater and Environmental Services (**GES**) and is provided in **Appendix 4H**. The contamination assessment has confirmed the following:

- A walkover inspection of the area in November 2024 did not identify anything on the site or in the surrounding area that would be likely to have resulted in significant contamination of the ground;
- Based on the results of the limited reconnaissance sampling, the potential for significant contamination at the site appears low;
- No HAIL activities were identified within the investigation area; and
- Future activities within the investigation area are likely to be permitted activities under the NES: Contamination.

2.1.12 Archaeology

An Archaeological Assessment of the Site has been prepared by Clough & Associates (**Appendix 4I**) for the site and has not identified any archaeological sites within the earthworks' extent. Based on the previous use of the land for general agricultural purposes, there is limited to no potential for archaeological sites to be uncovered during works. The Authority to Modify under the Heritage New Zealand Pouhere Taonga Act 2014 (**HNZPT Act**), which has been sought to cover the Milldale Stages 10 – 13 earthworks, has been expanded to include the WWTP site and is addressed in **Volume 5** of the application.

2.2 Surrounding Locality

The Milldale development area is located to the south of the Site, with previously approved Stage 8 located to the southeast, and Stage 10 (part of the wider application) located to the southwest. Further south are the completed stages of Milldale, which include residential lots, the Local Centre, the Summerset Retirement Village and the recently completed primary school. This area is undergoing a transitional phase from pastureland into a growing urban community.

The wider environment to the north is located outside the Rural Urban Boundary (**RUB**) and is characterised by a range of rural land uses.

Silverdale and the Highgate Business Park are located further to the east of the Site on the eastern side of State Highway 1. The Millwater residential development is also located on the eastern side of State Highway 1 and consists of low—to medium-density residential housing. Orewa is located 5km to the north, Helensville is 20km to the West, and Auckland CBD is located approximately 40km to the South.

3.0 Background

3.1 Network Capacity Constraints

Milldale is a masterplanned community delivering approximately 4500 new homes with a mix of densities from standalone through to terraced and apartment buildings. It includes a new school, a retirement village, a town centre with a supermarket and medical centre as well as a range of recreational spaces. The development is approximately 50% complete, with around 2,000 lots remaining to be developed.

Currently, wastewater from the Milldale development is treated at Watercare's Army Bay treatment plant in Whangaparaoa, which accommodates wastewater from the Silverdale catchment.

At the commencement of the development, it was recognised that the Army Bay facility would require an upgrade, initially planned for completion in 2024. Unfortunately, this upgrade has been deferred by Watercare to 2032, leading to concerns that the facility's capacity could be reached as early as 2027[1]. If development in the Army Bay catchment occurs as currently planned, the development will not be able to connect to the wastewater network, effectively halting the construction programme for Milldale.

Milldale is currently delivering approximately 200 sections a year and is seeking approval to develop capacity for approximately 1,155 detached and terraced dwellings as part of the Substantive Application. Any pause in the progress of the development would have significant flow-on effects, including to the established community, the building community and associated build partners, along with impacts on the wider Auckland economy.

To underpin the significant investment and provide certainty to the existing and future Milldale community, the Applicant has opted to consent and construct a temporary wastewater treatment facility to allow the development to continue at its current construction pace. The WWTP has been designed with the capacity to serve 1,250 dwellings and would operate over the period where Army Bay is at capacity, and will be decommissioned when the facility has the capacity to accommodate the Milldale development. However, the WWTP may not be required if development in the wider Army Bay wastewater catchment occurs at lower densities and/or at a slower rate than Watercare currently anticipates. Refer to Section 4.1 below for details relating to how the Application has addressed this uncertainty.

The applicant has consulted with Watercare in relation to this proposed solution, and details of the consultation are included in the Overview Report in Volume 1.

3.2 Assessment of Alternatives

Several alternatives were considered during the planning and design phases of the WWTP. The alternatives considered included:

- Option One: Do nothing;
- Option Two: Construction of a pipeline south to a system that has capacity;

[1] https://www.watercare.co.nz/builders-and-developers/consultation/growth-constraints-in-hibiscus-coast

- Option Three: Wastewater holding tank and trucking to an offsite plant;
- Option Four: Sealed wastewater system to service Stages 10 and 11 only;
- Option Five: Treatment Plant to service Stages 12 and 13 only; and
- Option Six: Wastewater Treatment Plant at Lysnar Road (Preferred option).

The costs and benefits of each option were evaluated to determine whether any should be advanced for further assessment. A copy of the alternatives assessment is included in **Appendix 4J**.

4.0 Proposal

This application is seeking approval to authorise the construction and operation of a temporary WWTP on Lysnar Road, Wainui. The key elements of the proposal include:

- Site Establishment Earthworks;
- Site Compound;
- WWTP Design;
- WWTP Ownership & Operation;
- WWTP Duration; and
- WWTP Disestablishment.

The WWTP has been designed by Apex Water (**Apex**) with capacity to service 1,250 dwellings.

Apex specialises in the design and construction of water and wastewater treatment facilities, having completed several projects that have provided wastewater treatment solutions to residential developments within Tāmaki Makaurau and Aotearoa. Examples of WWTPs designed and completed by Apex include those servicing Karaka North (private) and Meremere (Watercare)[2].

In support of the application Apex has prepared a WWTP Design Report, which is included in **Appendix 4K**. Woods has carried out engineering design to support the WWTP, and details of the proposal are included in the Engineering Drawings (**Appendix 4L**) and Infrastructure Report (**Appendix 4A**). Renders of the proposed WWTP, along with the site plan and elevations of the proposed building and structures, are included in **Appendix 4M**. Additional specialist reports and Application Drawings accompanying the application are included in **Appendices 4A-4R**.

4.1 Wastewater Network Capacity and Milldale Stage 4C and Stages 10 – 13

To underpin the significant investment and provide certainty to the existing and future Milldale community, the Applicant has opted to consent and construct a temporary wastewater treatment facility to allow the development to continue at its current construction pace. The WWTP would operate over the period when Army Bay is at capacity and be decommissioned when the Army Bay has the capacity to accommodate the Milldale development. However, the WWTP may not be required if development in the wider Army Bay wastewater catchment occurs at lower densities and/or at a slower rate than Watercare currently anticipates.

Given the current uncertainty around the need and/or timing for the temporary WWTP, a condition of consent has been included within the Milldale Stages 10 – 13 and Stage 4C conditions which requires each stage of the development to provide confirmation that adequate wastewater capacity is available within the network for the relevant number of lot connections. If capacity is

[2] https://www.apexwater.co.nz/projects

not available at the respective stage, the 224(c) must not be approved until the temporary WWTP is constructed, commissioned and fully operational[3].

4.2 Site Establishment Earthworks

Site establishment earthworks will be carried out to prepare the site to accommodate the WWTP and compound.

The application drawings in **Appendix 4L** detail the proposed earthworks, including the extent of the earthworks areas, proposed contour plans, and erosion and sediment control plans. This is supported by an Earthworks Methodology report included in the Infrastructure Report in **Appendix 4A**. The GIR's recommendations have been considered as part of the earthwork's design and methodology.

4.2.1 Enabling Works

Enabling works will be carried out prior to the commencement of the bulk earthworks. These works will include removing any vegetation within the earthworks extent and stripping of topsoil.

4.2.2 Area and Volume of Earthworks

The proposed earthworks will be carried out over a total area of 7,500m^2. The earthworks will include 2,430m^3 of cut and 2,350m^3 of fill.

The earthworks also include works within 20m of a tributary of the Waterloo Stream that runs along the site's northern boundary. The works within proximity to the stream will be over an area of 175m^3 and include 40m^3 of cut and 30m^3 of fill. Additionally, works within 50m of the stream and within the Sediment Control Protection Area, include 1,500m³ of cut and 1,500m³ of fill over an area of 5,040m². These works are necessary to achieve a suitable building platform and associated vehicle access through the site and have been set back as far as practicable to avoid carrying out works within the 20m setback and the erosion control protection area. A specific earthworks methodology has been developed for the earthworks within proximity to the stream.

4.2.3 Erosion & Sediment Controls

Erosion and sediment control measures will be installed prior to any works occurring on the site to minimise adverse effects associated with the discharge of sediment into the receiving environment[4]. The receiving environment in this instance is the Waterloo Creek and an unnamed stream, both of which drain into the Orewa River.

Erosion and sediment control measures will be established at the start of the earthworks season in preparation for the works. A draft of the Erosion and Sediment Control Plan for Stages 10 – 13 has been included with this application, and the provision of a final plan prior to the commencement of earthworks has also been included as a condition of consent[5]. Earthworks will involve the installation of best-practice erosion and sediment control measures consistent with the standards set out under Auckland Council Guidance Document 2016/005 (**GD05**). Details of the measures are identified on the application drawings and outlined in the Earthworks

[3] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 2.5, Wastewater and Water Reticulation and Section 3.5, Wastewater and Water Reticulation
[4] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Conditions
[5] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Conditions

Methodology Report appended to the Infrastructure Report (**Appendix 4A**). Overall, the erosion and sediment control measures will include:

- The primary sediment controls for the site will be decanting earth bunds (**DEB**) along with silt fences (**SF**). There will also be a strong focus on erosion prevention prior to rain events;
- Suitable protection for the stream from the earthworks within the riparian yard will be implemented during works. A diversion channel & bund will isolate the earthworks area from the stream catchment, and direct run off to the decanting earth bund for sediment retention prior to discharge. A sediment fence will also be installed between the bund and the stream as a last line of defence;
- Other devices that may be installed during the works due to operational decisions, including clean water diversion drains; sediment laden diversions; super silt fences located along all watercourse margins; silt fences; catchpit/raingarden inlet protection; stabilised construction entrance; stabilisation at the completion of works; and
- The 'last line of defence' approach will be implemented as a backup to the primary controls. It is proposed that a SF be erected immediately beyond the extent of earthworks as a 'last line of defence' along both sides of all retained watercourses around the extent of the site.

Prior to the commencement of works, the contractor will prepare pre-construction documentation and submit it to Auckland Council. This documentation will include[6]:

- Construction Management Plan (**CMP**);
- Chemical Treatment Management Plan (**CTMP**);
- Updated Sediment and Erosion Control Plan (**SECP**); and
- Dust Management Plan (**DMP**).

4.2.1 Cultural Monitoring

To address the feedback received during consultation with mana whenua in the preparation of this Application, the opportunity for cultural monitoring by representatives of Ngāti Manuhiri and Te Kawerau ā Maki will be made available. This will include site monitoring inspections at the commencement of works, during works, and at the conclusion of works[7].

4.2.2 Construction Controls and Noise/Vibration Levels

A Construction Noise and Vibration Report has been prepared by Styles Group (**Appendix 4N**). The report concludes that there are no high noise and vibration generating activities associated with the proposed earthworks. Accordingly, the proposed earthworks will comply with the AUP(OP) permitted construction noise and vibration standards at all times. The applicant proposes to adopt the recommendations of the Styles Group report to ensure compliance.

Generally, noise-generating tools, motorised equipment, and vehicles associated with earthworks will operate within the following hours:

- Monday to Saturday: 7:30am - 6:00pm; and

[6] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Conditions
[7] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks During Construction Conditions

- Sundays or Public Holidays: no works.

Typically, contractors will arrive at the work site before 7:30am and spend time readying machinery and vehicles and undertaking health and safety checks before commencing work at 7:30 am. Instances of machinery being returned, serviced, or maintained after 6:00 pm will also comply with permitted noise levels outlined in rule E25.6.27 of the AUP(OP). Any activity on the site before 7:30 am or after 6:00 pm will comply with the permitted noise levels detailed in rule E25.6.27 of the AUP (OP).

As is typical with a development of this scale, the provision of a Construction Management Plan (**CMP**) is proposed as a consent condition to ensure construction activities, and any traffic effects are appropriately managed. A Draft CMP has been appended to the Infrastructure Report in **Appendix 4A.**

4.2.3 Groundwater Management

The Groundwater Assessment by WWLA (**Appendix 4C**) has confirmed that:

- The proposed earthworks excavation depths do not extend below the water table, and no groundwater drawdown is predicted as a result of the excavation;
- Model results show that after construction, the minimum groundwater depth will be 0.4m, meaning the water table may be slightly shallower in some areas compared to pre-construction levels. This is primarily observed in locations where excavation rather than fill is proposed; and
- No impact on stream baseflow (the portion of stream flow generated by groundwater discharge into streams) is anticipated due to cut and fill earthworks as these works will not penetrate the groundwater table.

Overall, it has been confirmed that the proposed earthworks do not trigger any reasons for consent relating to groundwater and are a **permitted** activity under Rules E7.6.1.6 and standard E7.6.1.10 of the AUP(OP).

4.2.4 Geotechnical Management

The earthworks and proposed earthworks methodology have been designed in accordance with the findings and recommendations of the GIR.

All earthworks and geotechnical remediation works will be supervised by a suitably qualified geotechnical engineer[8]. Additionally, a Settlement Monitoring Plan (**SMP**) for consolidation settlement due to the placement of fill must be submitted prior to the commencement of earthworks on site[9].

At the completion of the proposed earthworks, a Geotechnical Completion Report (**GCR**) will be prepared, and a copy provided to Auckland Council[10].

[8] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Conditions, and Siteworks During Construction Conditions
[9] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Conditions
[10] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks During Construction Conditions

4.2.5 Draft Management Plans

A high-level Draft CMP has been included in the Infrastructure Report (**Appendix 4A**) to provide an overview of the typical measures contractors implement to manage potential adverse effects associated with bulk earthworks and construction activities. This plan outlines strategies to mitigate environmental impacts and ensure compliance with relevant regulations.

The CMP incorporates the following key management plans:

- **Construction Traffic Management Plan (CTMP):** Addresses the safe and efficient movement of construction-related traffic, including site access, haul routes, parking, and measures to minimize disruptions to the surrounding road network;
- **Dust Management Plan (DMP):** Outlines strategies to control and mitigate dust emissions generated during earthworks and construction, including the use of water suppression, staging of works, and monitoring to minimize off-site impacts; and
- **Chemical Treatment Management Plan (ChTMP):** Details the use of chemical treatments for erosion and sediment control, specifying application methods, monitoring requirements, and environmental safeguards to prevent contamination of water bodies and surrounding areas.

Together, these plans ensure that the potential impacts of earthworks and construction are effectively managed throughout the project.

4.2.6 Vegetation Removal

Exotic and pest species vegetation will be removed from the site as part of the site preparation works. As set out in the Arboricultural Report (**Appendix 4D**), 94 trees will be removed from the site, 15 of which require resource consent under the AUP(OP).

Prior to the commencement of vegetation removal and stream riparian restoration works, and Indigenous Fauna Management Plan (**FMP**) will be submitted to Council[11]. A Draft FMP has been appended to the Ecological Report (**Appendix 4E**) which includes the following details:

- Bird Management;
- Lizard management; and
- Bat management.

A reputable, approved arboricultural contractor will remove trees to minimise damage to retained trees and underlying vegetation. Additionally, all works will be undertaken in accordance with the Tree Removal Methodology and Monitoring methods outlined in the Arboricultural Report (**Appendix 4D**)[12]. Additionally, in accordance with the recommendations of the Arboricultural Report, conditions of consent have been included that address the biosecurity measures required for works on or near elm trees[13]. During the works, an auditing report will be prepared that will

[11] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Conditions
[12] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Vegetation Removal
[13] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Vegetation Removal

detail the works monitored, the frequency of monitoring, any effects on vegetation, and any remedial actions required. This has been included as a condition of consent[14].

Replacement planting has been recommended at a ratio of 3:1 basis which is consistent with replacement ratios proposed in other parts of the Milldale development. The replacement planting has been proposed in accordance with this recommendation (refer to section 4.2.9 below for proposed site enhancement planting).

4.3 Site Compound Overview

The WWTP has been carefully located to provide easy access for operation and maintenance while minimising its visual and other environmental impacts.

The site compound, with an area of 1.21 ha, encompasses all aspects of the WWTP. It includes the hardstand area, treatment plant building, tank storage area, biological treatment area, stormwater dry basin, ground discharge device, vehicle access, and site enhancement planting.

The below provides an overview of the site compound, associated structures and landscaping. This is to be read in conjunction with the Apex Report, Infrastructure Report, and Engineering Plans and Architectural Concept Plans. Following this, Section 4.4 addresses the facility's operation.

4.3.1 Hardstand Area

The site compound will be defined by a hardstand area covering 3,670m^2. The hardstand will contain the building platforms for the treatment plant building, tanks and biological treatment area. Additionally, a paved area will be constructed around the building platform, providing vehicle access to the facility.

4.3.2 Treatment Plant Building

The treatment plant building will be in the centre of the compound as illustrated in the Concept Development Drawings in **Appendix 4M**. The proposed WWTP building will be developed in general accordance with the Concept Development Drawings with final detailed design confirmed at Building Consent stage, if there are any significant changes to the building design from what has been shown on the Concept drawings, a set of updated drawings will be provided to Council[15].

The WWTP building will feature a pitched roof that ranges in height from 3.7m to 7.0m. The building will accommodate key process equipment along with general site facilities such as the control room, toilets, and other amenities.

The treatment plant building will be constructed from precast concrete, a material chosen for its ability to provide high noise attenuation and odour containment. By locating key equipment indoors, odour emissions can be reduced. Ventilated air will enter the building through specially designed louvres that maximise fresh air ingress while minimising noise output. The building will include an odour extraction and aeration system to limit odours leaving the building. Additionally, the entire treatment plant hall, which houses much of the equipment, will be linked to the odour-scrubbing system.

[14] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Siteworks Pre-Construction Vegetation Removal

[15] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Building and Landscaping Conditions

Any lighting associated with the WWTP building will comply with the AUP(OP) standards for lighting under section E24.

4.3.3 Tank Storage Area & Biological Treatment Area

The tank storage area and a biological treatment area will be located adjacent to the treatment plant building as illustrated in the Concept Development Drawings in **Appendix 4M**. The tanks are strategically placed within the compound to optimise the treatment train process and comply with the WWTP size and separation requirements.

The tank storage area will include:

- Odour scrubber tank, which will effectively capture and treat odours from the treatment process and raw sewage handling equipment. The tank will include a 7.0 m high chimney stack for air discharge;
- Waste-activated sludge tanks that will be used for settling waste-activated sludge, a byproduct of the treatment process;
- Chemical storage tanks that will contain sodium hydroxide solutions needed for the treatment process; and
- Bulk storage bunds that will hold bulk-packaged chemicals, including aluminium sulphate, sodium hypochlorite, and citric acid.

The biological treatment area will include:

- Biological treatment tanks, which consist of modular semi-relocatable tanks that house critical process equipment, including the membrane-aerated biofilm reactor modules and mixers. The tanks will be 4.0 m in height and surrounded by a gantry for maintenance access. The tanks' design enables them to be expanded over time up to the full design capacity in response to the rate of growth in the Milldale development; and
- An aeration tank and a post-anoxic tank which will be located next to the biological treatment tanks. Each tank will be 7.0m in height and sized to accommodate the full capacity of the plant. Their design allows for easy construction and maintenance, along with the capability to dismantle them during the plant's decommissioning phase.

4.3.4 Ground Discharge Device - Land Contact Infiltration Device

A ground discharge device, also referred to as a land contact infiltration device (**LCID**), will be built within the site compound. Treated effluent, which will be of high quality as discussed in Section 4.4.3 below, will be pumped to the LCID, where it will pass through a concrete level spreader to ensure the wastewater is evenly distributed across the device. Once discharged into the device, the treated wastewater will soak into the ground. Following ground soakage, it will eventually flow into the Waterloo Stream.

The LCID includes multiple infiltration layers, including topsoil, clean gravel, engineered bioretention media and planting. These layers will facilitate nutrient uptake, sediment retention, and further treatment of the discharged effluent before it reaches the freshwater environment. The engineered design of the LCID reduces the risk of surface runoff, ensuring the treated wastewater will soak into the ground from the device.

The Engineering Drawings (**Appendix 4L**) include details of the ground discharge device.

Following the completion of the LCID, a Producer Statement/Certificate of Compliance will be provided to Council confirming that the LCID has been constructed in accordance with the approved Engineering Drawings[16].

4.3.5 Stormwater Dry Basin

A stormwater dry basin will be constructed within the site compound to provide hydrology mitigation for the hardstand and building areas. The dry basin will be able to accommodate 110m^3 of detention volume, with the WWTP requiring 85m^3. The additional volume capacity provided within the dry basin will enable any future upstream development to also discharge into it. The stormwater dry basin will remain in private ownership by FHLD.

The Engineering Drawings (**Appendix 4L**) include details of the dry basin.

4.3.6 Infrastructure & Site Servicing

4.3.6.3 Wastewater Network Diversion Infrastructure

To divert wastewater from the Milldale Development to the WWTP, a diversion will be required from the existing Watercare transmission main, which is located along the eastern boundary of the compound and parallel to the Waterloo Stream. The Watercare transmission main conveys wastewater to the Army Bay Treatment Plant and has been sized to accommodate the Milldale development including all flows from proposed future development in the catchment.

Diversion of the wastewater flows will be achieved through the installation of a take-off manhole onto the transmission main. The take-off manhole will be a pump chamber enabling offtake flows to be pumped to the WWTP at rates agreed with Watercare.

While operational, flows for the proposed Milldale WWTP will be drawn from this existing transmission main, removing the required flow volume from the Army Bay treatment catchment. When the WWTP is decommissioned flows that had been captured and treated by the Milldale WWTP will continue within the transmission main to the Army Bay Treatment Plant.

Details of the take-off manhole are included in the Engineering Drawings in (**Appendix 4L**).

A condition of consent has been included that the take-off manhole and weir must be designed and constructed in general accordance with the requirements of Watercare, and in accordance with the Engineering Drawings submitted with this Application. Engineering Approval must also be obtained prior to commencement of construction[17].

4.3.6.4 Stormwater Diversion & Discharge

Stormwater management will meet the requirements set out in the approved Wainui East Stormwater Management Plan (**SMP**), which was approved as part of the Wainui East NDC (Council reference REG-68809) and is now amalgamated into the Auckland-wide Network Discharge Consent (**NDC**). The site is located within Stormwater Management Zone A of the SMP. The general approach for discharge from Zone A is to meet hydrology mitigation requirements (retention,

[16] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.3, WWTP Performance Monitoring Conditions

[17] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Operational Conditions

detention) at source. The recommendation, as per the Wainui East SMP, is to allow flows from larger storm events to be passed forward (no attenuation). A copy of the Wainui East SMP has been included in the Stages 10 – 13 Stormwater Report in Volume 2.

As the site is located outside the urban area within the Future Urban zone, the NDC does not apply to the site. However, under E8.4.1(A7) of the AUP(OP), stormwater discharge from an impervious area up to 5,000m² is permitted. With the WWTP's proposed impervious area of 3,500m², the development complies with this requirement and is a Permitted Activity.

Stormwater management across the site will be through the conveyance of stormwater from impervious areas to the proposed stormwater dry basin (refer to sec 4.1.5 above) which is designed to detain the 95th percentile of rain event and discharge to the nearby watercourse over a period of 24hours (equivalent to SMAF1). Flows during larger rainfall events (up to the 10 year) will be conveyed by the network and bypass the basin and discharge into Waterloo Creek via a wingwall outlet.

The secondary drainage is designed to convey the 100-year (inclusive of climate change) event in accordance with methods described in Chapter 4 of the Auckland Council Code of Practice for Land Development and Subdivision. The accessway is to be used as an overland flow path to convey the 100yr flow to Waterloo Stream.

Prior to the construction of the stormwater dry basin, detailed design plans of the outlet structure to Waterloo Stream will be submitted to Council. The outlet structure will be designed and constructed to prevent scouring and erosion of the Waterloo Stream in accordance with the requirements of the Auckland Council Code of Practice[18].

4.3.6.5 Other Infrastructure & Servicing

Additional infrastructure and servicing will be provided to the WWTP as detailed in the Infrastructure Report (Appendix 4A) and will include:

- Water reticulation through extending the connection on Lysnar Road, currently being constructed through the Milldale Stage 8 development; and
- Power and telecommunication reticulation through extending the connection on Lysnar Road, currently being constructed through the Milldale Stage 8 development.

4.3.7 Vehicle Access

Vehicle access to the compound will be via Lysnar Road. A fourth leg of the Lysnar Road Roundabout, being constructed as part of the Milldale Stage 8 development, will provide access to the compound. The roundabout access leg will be constructed to Auckland Transport standards and will be vested as part of the Lysnar Road roundabout. It is intended that this leg will ultimately provide a continuation of the public roading network as future urban land to the north of Milldale is developed in the future (refer to Overview Report, Volume 1, with respect to Milldale North Plan Change).

A 3.5 m wide, privately owned Accessway will provide access to the treatment plant building, tank storage areas, and biological treatment tanks. Additionally, vehicle access will be provided to the

[18] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Pre-Construction Conditions

ground discharge device and stormwater dry basin. The compound has been designed as a one-way system to accommodate a 17.9m AT semi-trailer.

Vehicle movements to the Site will be infrequent and limited to picking up waste material, delivering required chemicals, and the arrival of maintenance personnel. On average, one truck will access the Site per week for chemical delivery and three truck movements per week for sludge removal, with the remainder of the vehicle movements limited to operational staff in vans or cars.

Personnel visiting the WWTP will only arrive at the site in a vehicle with no staff arriving via alternative means such as walking or cycling. Therefore, the design of the site access and connection to Lysnar Road does not provide any additional footpaths or cycleways.

To manage noise associated with vehicles arriving to the WWTP, unless required for emergency works, service trucks must not access the WWTP outside of the hours of 7.00am to 10.00pm Monday to Friday or at any time on Saturday and Sunday[19].

4.3.8 Site Enhancement Planting

Site enhancement planting will be carried out as part of the site establishment works as illustrated in the Landscaping Plans included in **Appendix 4O**. The site enhancement planting can be separated into three areas:

- Landscape Bund: The 2.0 m high landscape bund will be formed from topsoil and located around the site compound to provide visual screening of the WWTP. Planting of the landscape bund will cover an area of approximately 1,055m^2;
- Enrichment Planting: This planting covers an area of 941m^2 and is in areas of well-established planting that contains a mixture of natives, exotics, and weed species. The enrichment planting will remove all non-native and weed species and replant them with natives; and
- Stream planting: This will enhance the existing vegetation along Waterloo Stream. It will cover an area of 1,166m^2, remove all non-native and weed species, and replant with natives.

Landscaping will be implemented no later than the first planting season after the final commissioning and operation of the WWTP, and will be retained and maintained until the WWTP is decommissioned[20].

4.4 Wastewater Treatment Plant Design

The WWTP, designed by Apex, will consist of a modular hybrid biological nutrient removal system. The system combines a 4-stage Bardenpho activated sludge process, a Membrane Aerated Biofilm Reactor, and Hollow Fibre Ultra Filtration membranes. This advanced wastewater treatment process produces exceptionally high-quality treated water, which will be discharged to the ground via land as discussed in Section 4.3.4 above.

The WWTP has been designed to serve a capacity of 1,250 dwellings.

[19] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Operational Conditions
[20] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Building and Landscaping Conditions

The following provides an overview of the WWTP design and how it will capture, treat, and discharge the wastewater. This is to be read in conjunction with the Apex Design Report (**Appendix 4K**), Engineering Plans (**Appendix 4L**), and Infrastructure Report (**Appendix 4A**).

4.4.1 Wastewater Flows & Loading

Flows to the WWTP will be redirected from the existing Watercare transmission main. The wastewater will be diverted through a take-off manhole from the transmission main to pump flows out of the transmission line to the proposed treatment plant. Watercare and FHLD have agreed on the anticipated flows to the WWTP.

The take-off manhole will be a pump chamber with a take-off pipe from the main transmission main. It is proposed to locate the take-off manhole adjacent to the upstream transmission main manhole within the Milldale WWTP site. The wastewater in the transmission main will flow to the chamber until it is full and then bypass back along the existing transmission main to flow to the Army Bay Treatment Plant. Offtake flow volumes to the proposed Milldale treatment plant can then be controlled via a pump system drawing down the pump chamber as required.

As the WWTP adopts a sewer harvesting approach from the Watercare transmission main, it will receive a stable, consistent feed by establishing a dry-weather flow rate (**DWF**) based on average daily flows and a wet-weather flow rate (**WWF**) based on typical peak event flows. This approach enhances process stability, with disruptions only occurring during transitions between DWF and WWF.

The Milldale development is primarily residential, with some commercial areas, a school site, and a retirement village. In staged developments, early sewage flows are often more concentrated due to fewer connections, gradually stabilising as the development grows. However, since the wider catchment includes an established residential area, sewage strength is expected to be at normal levels from the start of operations. This mitigates many challenges of commissioning new plants that initially operate below their design capacity due to low connections.

The annual daily average volume of treated wastewater discharged to the LCID must not exceed an average of 830m^3/day (as a 12-month rolling mean). To ensure flows are monitored during the operation of the WWTP, a flow meter will be installed to record the daily volume of wastewater discharged to the LCID, and a record of the volume of water discharged to the device shall be kept[21].

4.4.2 Treatment Train

The WWTP will adopt a treatment train approach ensuring the wastewater is appropriately treated to a high quality. As set out in the Apex Report, an assessment of alternative treatment options for the Milldale WWTP has been carried out to ensure the best practicable treatment train option has been proposed for the facility. The alternatives have been assessed through a Multi-Criteria Assessment (**MCA**) against the following metrics:

- Performance;
- Future proofing;

[21] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.3, Monitoring and Access

- Operability;
- Constructability;
- Social & environmental impact; and
- Process resilience.

Based on the MCA, the best option for the Milldale WWTP is a Hybrid Membrane Aerated Biofilm Reactor with Tertiary Membrane Treatment (MABR-MBR-RO).

The MABR-MBR-RO treatment train includes the following processes as illustrated in the Apex Report (Appendix 4K):

Primary Treatment Process Steps:

1. Raw Sewage Pump Station – Raw sewage is fed into the treatment plant.
2. Headwork Screening System – Removes large solids to protect downstream processes.
3. Flow Balancing – A tank which receives the screen sewage buffering peak flows.
4. Pre-Anoxic Tank – The first stage of biological treatment, where MABR modules support pollutant breakdown.
5. Aeration Tank – Introduces dissolved oxygen to enhance biological treatment.
6. Post-Anoxic Tank – Provides additional biological treatment and further refines wastewater quality.
7. Membrane Tank – Filters out solids, bacteria, and viruses to produce clean water.
8. UV Disinfection – Uses ultraviolet light to deactivate any remaining bacteria or viruses.
9. Reverse Osmosis Filtration – Permeate from the MBR is pumped across the surface of the RO membranes producing two liquid streams, the permeate for discharge locally and the reject for beneficial re-use or discharge.
10. Permeate Storage – Holds the fully treated wastewater before discharge.
11. Discharge System – Releases treated water into the LCID for land contact prior to entering Waterloo Creek.

Additional Processes and Waste Management:

1. Waste Activated Sludge (WAS) Storage – Activated sludge is periodically removed and stored in WAS tanks to maintain levels of biological activity.
2. Sludge Dewatering – This process uses a centrifuge to remove water, creating a dry cake for disposal. A polymer is added to improve efficiency.
3. Aeration Blowers – Supply high-volume, medium-pressure air to the MABR membranes and aeration tank.
4. Acetic Acid Dosing – Adds a carbon source to support biological treatment.
5. pH Control – Sodium hydroxide is added to maintain a stable pH and ensure optimal biological performance.

6. Phosphorus Removal – Aluminium sulphate is dosed to extract phosphorus from the wastewater.
7. Membrane Cleaning (CIP Process):
    - Citric Acid – Removes mineral buildup from membranes.
    - Sodium Hypochlorite – Cleans organic fouling from membranes.
8. Solid Waste Disposal:
    - Screened debris from the headworks is collected and sent to landfill.
    - Dewatered sludge is also disposed of in landfill.

Apex has carried out biological modelling of the preferred treatment process using Biowin software, which ties together the biological, chemical, and physical process models. This modelling confirms that the proposed treatment train is appropriate for the expected wastewater volumetric and nutrient loading.

4.4.3 Discharge of Treated Wastewater

As set out in the Apex Report (**Appendix 4K**), the treated wastewater from the WWTP, utilising an MABR-MBR-RO Hybrid treatment train, will achieve such a high-quality water standard that it meets World Health Organisation guidelines for bathing water. Although New Zealand has limited standards for recycled water systems, the proposed system complies with Queensland Class A+ Recycled Water standards, meaning it would be suitable for dual reticulation and unrestricted municipal reuse.

Following consultation with Watercare and Mana Whenua and considering the site's current and future land uses, it is proposed that the treated wastewater be discharged into a constructed LCID. The LCID has been specifically designed to receive only treated wastewater, allowing for land passage before entering Waterloo Creek. Agreement has been made with Watercare for a portion of the treated wastewater to be discharged back into the wastewater transmission main.

4.4.3.1 Stream Baseflow Considerations

The additional discharge to Waterloo Creek via the LCID will be approximately 8 L/s (28m^3/hr) during the dry weather flows. WWLA has assessed the implications of the impact of stream baseflow as a consequence of the discharge of treated wastewater into Waterloo Creek via the LCID (refer **Appendix 4C**). The increase in flow is likely to be most evident during the summer and will have a beneficial effect on maintaining flow during dry periods, ultimately increasing the mean annual low flow over the course of the development. The consideration of stream baseflows is also addressed in the Ecological Report (**Appendix 4E**), confirming that the increased flow rates are not expected to significantly alter water levels, as Waterloo Creek has a large catchment and floodplain that are already subject to considerable natural fluctuations.

4.4.3.2 Discharge Quality Considerations

Babbage has carried out water quality testing (**Appendix 4F**) of Waterloo Creek to evaluate the potential impacts of the treated wastewater on the receiving environment following the proposed MABR-MBR-RO Hybrid treatment train and discharge via the LCID and confirm that it is the most appropriate method of discharge. In all of the modelling scenarios that were carried out for the

proposed discharge, the water quality of Waterloo Creek is expected to improve, with concentrations projected to be below or equal to the current Waterloo discharge site levels to remain in the same attribute state as before.

The Babbage assessment of the proposed discharge of treated wastewater has concluded that the proposed discharges associated with the proposed development should have a minor impact on the Site's receiving waters and ecological values.

4.4.3.3 Discharge Quality Targets

The discharge of the treated wastewater will be required to meet discharge quality targets. The discharge quality targets apply where the treated wastewater is discharged from the wastewater treatment system immediately prior to the LCID and are set out in **Table 1** below. These targets have been included as a condition of consent[22] and will be monitored as set out below.

Table 1: Discharge Quality Targets

Parameters	12-monthly median must not exceed
Total Nitrogen [mg/L]	1.0
Ammoniacal Nitrogen (mg/L)	0.3
cBOD5 [mg/L]	0.5
Total Suspended Solids mg/L]	4.0
Total Phosphorus [mg/L]	0.07
Escherichia-coli [CFU/100mL]	<4.0
Enterococci [cfu/100mL]	<4.0

4.4.3.4 Water Temperature Considerations

Based on the proposed treatment and discharge methodology, Babbage has concluded that no temperature fluctuation will occur during the wastewater discharge (**Appendix 4F**). It is expected that the temperature difference between the proposed discharge and Waterloo Creek will be less than 3°.

4.4.3.5 Monitoring of Discharge

Monitoring of the receiving environment will be carried out prior to and once the WWTP is operational. The monitoring requirements have been included as conditions of consent[23].

Prior to the first discharge from the WWTP, on a quarterly basis for a period of at least 12 months, surface water quality samples will be taken upstream and downstream of the proposed discharge location along with one location at Orewa River Estuary. Following the first discharge, samples from the same locations must be taken on a quarterly basis. Once the WWTP has been operational

[22] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.3, Discharge Quality
[23] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.3, Discharge Quality

for two years, the frequency of monitoring may be reduced to once every three years, provided that results indicate no significant change.

In addition to water quality sampling, surface water ecological monitoring will be carried out prior to and following the commencement of operation of the WWTP. The ecological monitoring must include a qualitative assessment of physical habitat characteristics, the collection of macroinvertebrate samples and overnight fish trapping. The purpose of this is to establish a baseline of stream ecology prior to the commencement of discharges, and following operation it will provide information as to whether the water quality has deteriorated because of the WWTP discharge[24].

4.4.4 Air Discharge & Odour

Wastewater entering the treatment process has the potential to generate offensive odours due to the decomposition of organic matter by microorganisms. Raw sewage contains organic materials such as food waste, human waste, and oils. As it travels through the wastewater network, any remaining dissolved oxygen is quickly consumed, leading to breakdown under anaerobic (oxygen-deprived) conditions, which causes odour production. While mitigation of the conditions that lead to the generation of offensive odours is not possible in the network leading to the treatment plant, they can be controlled through the treatment steps.

Potential odour sources have been identified for each step of the treatment process, and appropriate mitigation measures have been designed into the system to minimise odour. The Apex Report (Appendix 4K) and Air Matters Report (Appendix 4G) discuss this in further detail.

An odour control system is proposed within the WWTP to eliminate or neutralise offensive odours and other contaminants extracted from the facility. Air from enclosed spaces within the treatment plant building, where odour-generating equipment or liquids are housed, is directed to the odour control system. These areas are maintained under negative pressure, ensuring that any fugitive odours are effectively captured and treated before being released.

Apex assessed alternative odour control systems. An odour scrubber has been determined as the best option for the Milldale WWTP. The odour scrubber uses an activated carbon pallet bed to absorb and remove odour-causing compounds from the air stream. The carbon pallets can also be doped with sodium hydroxide, enhancing their ability to neutralise acidic gases like hydrogen sulphide, which is commonly produced from sewage and sludge. The odour scrubber offers reliability and well-demonstrated performance without onerous operational requirements.

The Air Matters reporting included in Appendix 4G provides an overview of the potential odour-generating sources from the WWTP, along with a description of the proposed mitigation measures and has concluded that:

- Based on the employed mitigations, the treatment plant is considered to meet the best practical option for eliminating and minimising odour; and,
- Based on the modern plant design and odour mitigation measures employed, the generation of odour from the WWTP beyond the site boundary is not expected to occur.

[24] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.3, Discharge Quality

To ensure the operation of the WWTP appropriately mitigates odour discharge, requirements have been included in the conditions of consent to ensure these are installed and operate effectively on an ongoing basis[25], this includes:

- Enclosure of odour sources;
- Odour unit performance; and
- Anaerobic processes.

An Odour Management Plan and Operations and Maintenance Manual (**OMM**) for Odour Control will be in place prior to the commencement of the WWTP operation. A draft of these plans is appended to the Air Matters report in **Appendix 4G**.

Monitoring will also be required during the operation of the WWTP, this will include monitoring the operational parameters of the WWTP units including[26]:

- Continuous flow metering of all influent flows to the WWTP;
- Continuous monitoring of DO concentration in each aeration tank;
- Continuous monitoring of Oxidation-reduction potential in each anoxic tank; and
- Continuous monitoring of the operation of fans of the mechanical ventilation system.

Additionally, a meteorological monitoring station will be installed at or within 500m of the WWTP to maintain a record of wind speed, wind direction, ambient air temperature and relative humidity. The purpose of this is to have a baseline of the environmental conditions during the operation of the WWTP[27].

4.4.5 Hazardous Substances

Hazardous substances will be held on the Site as required for the operation of the WWTP. These substances are primarily related to the chemicals used in the treatment process and are essential for ensuring that the treated wastewater meets the required quality standards. However, their storage and handling must be carefully managed to prevent any risk to human health or the environment.

The Hazardous Substances Report prepared by WWLA and included in **Appendix 4P** details the substances that will be held on-site and management to prevent any risk to human health or the environment. These substances include:

- Acetic Acid;
- Aluminium Sulphate;
- Citric Acid;
- Diesel Fuel;

[25] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.4, WWTP Air Discharge Conditions of Consent
[26] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.4, WWTP Air Discharge Conditions of Consent
[27] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.4, WWTP Air Discharge Conditions of Consent

- Sodium Hydroxide; and
- Sodium Hypochlorite.

All hazardous substances used at the plant will be stored in secure, purpose-built facilities designed to meet safety regulations and prevent leaks or spills. These storage areas include secondary containment systems and will be monitored regularly to minimise risks, with routine inspections ensuring compliance. Design factors for the storage of the hazardous substances include:

- Location of hazardous substances centrally within the WWTP, with the greatest setback from the site boundaries, where possible;
- 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; and,
- Dedicated unloading areas with unloading of bulk liquids using closed systems designed to minimise the risk of material loss.

The WWTP will have strict protocols for handling and disposing of hazardous substances. Trained staff will follow safe handling procedures, using Personal Protective Equipment (**PPE**) to ensure safety.

In the event of a spill or accidental release, an Emergency Response Plan (**ERP**) will be in place to contain and manage any potential hazards quickly. A draft ERP has been appended to the Apex Design Report in **Appendix 4K**.

All hazardous waste will be disposed of in line with relevant regulations, ensuring it is treated or sent to certified facilities to prevent environmental contamination. By following these safety protocols, the plant will effectively manage hazardous materials while maintaining the highest standards of wastewater treatment.

With respect to the management of hazardous substances throughout the operation of the WWTP, an Environmental Management Plan (**EMP**) will be in place. A draft EMP has been appended to the Apex Design Report in **Appendix 4K** which covers the following matters[28]:

(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 Council's 24-Hour Pollution Hotline (09-377-3107));

[28] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, Hazardous Substances

(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; and

(h) An Operation and Maintenance Plan.

4.4.6 Noise

The WWTP has been designed to operate with minimal noise disturbance. Noise generation primarily comes from mechanical equipment such as pumps and blowers used in the wastewater treatment process. However, these systems are designed to operate quietly and are housed within soundproofed enclosures to reduce the impact of noise on nearby residents.

The site layout has been carefully designed to position noisier components as far from residential areas as possible. Landscaping and the topsoil bund will also help absorb and reduce noise, ensuring sound levels remain within acceptable limits.

By incorporating noise reduction measures into the WWTP design, the WWTP will minimise its impact on the surrounding community. The combination of soundproofing and strategic placement will ensure that the plant operates quietly and unobtrusively.

Styles Group has carried out an Acoustic Assessment of the WWTP which is included in **Appendix 4N**. The Acoustic Report has confirmed that:

- The proposed construction works will consistently comply with the AUP(OP) permitted construction noise and vibration limits. The potential construction noise and vibration effects will be mitigated by working during standard construction hours and communicating with the neighbours before the works begin;
- Operational noise emissions from the site will readily comply with the AUP(OP) noise limits for permitted activities in the Future Urban Zone and the neighbouring Residential – Mixed Housing Suburban Zone. The level and character of the noise during the day will be consistent with the existing environment and the noise emissions at night will not cause sleep disturbance; and
- It is not expected that noise from the construction and operation of the wastewater treatment plant will cause unreasonable disturbance on any neighbouring site.

Conditions of consent have been included that set the limits for operation noise levels when measured and assessed at the notional boundary of any site in the Future Urban zone or Residential zone[29].

[29] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Operational Conditions

4.4.7 Operations and Management Plan

Prior to the commencement of the discharge of treated wastewater from the WWTP, an Operations and Management Plan (**OMP**) will be in place that will provide a framework for the operation and management of the WWTP[30].

A copy of the Draft OMP has been appended to the Apex Design Report in **Appendix 4K**, which addresses:

(a) Appropriate people to contact in the event of system malfunction;

(b) Provision of manufacturer's specification for the key components of the MBR and UV disinfection systems, including manufacturers performance standards in terms of trans membrane pressure of the MBR units, total suspended solids, and UV transmissivity (UVT) of the treated wastewater;

(c) A full description of the entire WWTP, including a site map showing the location of the treatment system, land contact infiltration basin, pump station and sampling sites;

(d) A description and schedule of the routine inspection, monitoring and maintenance procedures to be undertaken to ensure operation of the WWTP and discharge facilities, complies with this consent;

(e) A description of the sampling location/s;

(f) A description of the practices and procedures associated with the monitoring and reporting conditions of this consent including (as a minimum):

(i) locations and type of monitoring equipment,

(ii) maintenance and calibration of monitoring equipment,

(iii) schedule and log of monitoring requirements;

(g) Contingency plans to remedy any possible variations from normal plant operation that could potentially affect discharge quality;

(h) Details of procedures to address a critical power or equipment failure at the WWTP;

(i) Procedures for recording routine maintenance and all major repairs that are undertaken;

(j) The Consent Holder's chain of command, responsibility and notification protocols;

(k) A description of odour mitigation measures at the site; and

(l) Procedures for continuous reviewing and improving of the manual.

4.4.8 WWTP Emergency Procedures

Wastewater flows are directed to the WWTP for treatment through a pumped offtake from the main wastewater transmission line. Consequently, emergency storage tanks and overflows are not required, as any uninitiated plant failure will result in untreated wastewater bypassing the WWTP and remaining in the main transmission line.

[30] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.3, Operations and Management Conditions

4.5 Ownership & Operation

FHLD will construct and own the WWTP, including the take-off manhole from the Watercare main transmission line. Watercare and FHLD have discussed and agreed upon this ownership arrangement (refer to the consultation section of the Overview Report in Volume 1).

Once commissioned, FHLD will contract out the ongoing operation of the WWTP to Apex, ensuring that it operates appropriately and complies with all regulatory standards[31].

4.6 Duration

The WWTP is proposed to address medium-term wastewater network constraints caused by delays in upgrading the Army Bay facility. The WWTP will be decommissioned once the Army Bay upgrades have been completed and there is sufficient capacity within the public wastewater network to support the Milldale Development. This is expected to happen in 2031 however, this will depend on whether Watercare has delivered within this timeframe.

A consent duration of 10 years has been sought to allow for unforeseen delays in the upgrades of the Army Bay facility.

4.7 Disestablishment

Once the WWTP is no longer required, it will be decommissioned[32]. The decommissioning of the WWTP will include:

(a) Removal of all buildings, tanks and structures from the site;

(b) Disestablishment and removal of the LCID;

(c) Undertake an environmental investigation for potential contamination in relation to buildings, tanks, structures and the LCID; and,

(d) Topsoil and grass the LCID.

4.8 Any other Activities

This section is provided in accordance with clause 1(1)(e) of Schedule 5 of the FTAA.

There are no other activities that are part of the proposal to which the consent application relates.

4.9 Other Approvals Required

This section is provided in accordance with clause 5(1)(f) of Schedule 5 of the FTAA.

No other approvals are required for the project to which this consent application relates.

[31] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Operational Conditions
[32] Volume 6: Milldale Stages 10-13, 4C and WWTP Proposed Conditions, Section 4.2, WWTP Decommissioning Conditions

4.10 Proposed Consent Conditions

This section of the application is provided in accordance with clause 5(1)(k), clause 18 of Schedule 5, and clause 5 of Schedule 8 of the FTAA, that an application provides conditions for the consent.

The proposed conditions of consent, which seek to implement the mitigation and monitoring that has been identified in the technical assessments as being necessary, addressed in Section 4.0 above, and are included within section 4.0 – Wastewater Treatment Plant Conditions of Volume 6. The proposed conditions of consent for the WWTP have been set out to manage the effects associated with the construction and operation of the facility.

Of relevance, the operational conditions proposed through this part of the application include:

- Take-off manhole condition: The construction of the take-off manhole from the main Watercare wastewater transmission line, and subsequent removal once the facility is no longer required.
- Operation & Maintenance condition: Engagement of a suitably qualified person to be responsible for the day-to-day operational and maintenance requirements of the plant.
- Operational noise levels condition: Limits on the noise levels from the WWTP site as measured from the notional boundary of any site in the Future Urban zone or Residential zone.
- Hazardous substances conditions: requiring Location and Stationary Container Compliance certificates for holding Hazardous Substances and the preparation and implementation of an Environmental Management Plan to manage hazardous substances.
- Discharge of treated wastewater conditions: requiring any treated wastewater from the wastewater treatment system to meet the required parameters before it is discharged into the LCID .
- Monitoring of wastewater flow condition: Instillation of a flow meter to record the daily volume of wastewater discharged to the LCID .
- Receiving environment monitoring conditions: Requiring water quality monitoring of Waterloo Creek upstream and downstream of the LCID .
- Monitoring surface water ecology conditions: requiring surface water ecology surveys to be carried out prior to any discharge from the WWTP, and thereafter annual surveys once it is operational.
- Operation & Maintenance Plan condition: Preparation and implementation of an Operation & Maintenance Plan that provides a framework for the operation and management of the WWTP and discharge facilities to ensure overall compliance with the conditions of the consent.
- Odour Management conditions: Preparation and implementation of an odour management plan.
- Reporting condition: Submission of an annual report to the Council outlining how the consent has been complied with, any complaints relating to the operation, and other issues associated with the WWTP, such as malfunction or breakdown.

5.0 Reasons for Consent

In accordance with section 42(4)(a) the application is seeking approval for a resource consent that would otherwise be applied for under the RMA. In accordance with Schedule 5, Clause 5(5)(a) there are also permitted activities associated with the application.

Consent is required under the provisions of AUP(OP) as summarised below along with the associated permitted activities. A full rule assessment is included in **Appendix 4Q**.

Consent is required under the AUP(OP) as set out below. Overall, the application requires assessment as a **discretionary activity.**

5.1 Land Use Consent (s9)

5.1.1 E11 Land Disturbance Regional

- The proposal will include earthworks greater than 2,500m^2 in the Future Urban zone where the land is within the Sediment Control Protection Area. This is a restricted discretionary activity under E11.4.1(A9).

5.1.2 E12 Land Disturbance District

- The proposal will involve greater than 2,500m² of earthworks, with a total of 7,500m² proposed. This is a restricted discretionary activity under E12.4.1(A6).
- The proposal will involve greater than 2,500m³ of earthworks, with a total of 4,780³ proposed. This is a restricted discretionary activity under E12.4.1(A10).
- The proposal will not comply with the following general standards and is a restricted discretionary activity under C1.9(2):
    - Standard E12.6.2(1): The proposal will involve greater than 5m² or 5m³ of earthworks within the existing riparian yards, with a total of 175m² and 70m³ proposed.

5.1.3 E15 Vegetation Management and Biodiversity

- The proposal will include vegetation removal and alteration within 20m of a rural stream. This is a restricted discretionary activity under E15.4.1(A16).

5.1.4 E26 Infrastructure

- The proposal will include a wastewater treatment plant in the Future Urban zone. This is a restricted discretionary activity under E26.2.3.1(A54).
- The proposal will include a stormwater detention/retention pond in the Future Urban zone. This is a controlled activity under E26.2.3.1(A55).
- The proposal will include vegetation removal and alteration exceeding 6m in height and/or 600mm in girth. This is a restricted discretionary activity under E26.3.3.1(A77).

5.1.5 E31 Hazardous Substances

- The proposal will include the storage of hazardous substances above the thresholds for controlled and restricted discretionary activities in the activity table or are otherwise not provided for. This is a discretionary activity under E31.4.1(A7).

5.1.6 H18 Future Urban Zone

- Buildings in the future urban zone have the same activity status and standards as apply to the land use activity that the new building is designed to accommodate. In this case, the wastewater treatment plant is a restricted discretionary activity. Therefore, the building associated with the wastewater treatment plant is a restricted discretionary activity under H18.4.1(A2).

5.2 Discharge of Contaminants (s15)

5.2.1 E6 Wastewater Network Management

- The proposed new wastewater treatment plant will create discharges going to land and, in turn, water. This requires consent as a discretionary activity pursuant to Rule E6.4.1(A6).

5.2.2 E14 Air Quality

- The proposal will include the air discharge associated with the treatment of municipal wastewater (municipal wastewater treatment plant) as a discretionary activity under E14.4.1(A163).

5.3 Associated Permitted Activities

The following activities are associated with the proposal and fall within the permitted activity status of the AUP(OP):

E3 Lakes, rivers, streams and wetlands

- Stormwater outfall complying with the standards in E3.6.1.14 as a permitted activity under E3.4.1(A39).

E7 Taking, using, damming and diversion of water and drilling

- Diversion of groundwater caused by an excavation, as permitted under E7.6.1.6, in accordance with standard E7.6.1.10.

E8 Stormwater – Discharge and Diversion

- Diversion and discharge of stormwater runoff from impervious areas up to 5,000m^2 outside an urban area complying with the standards in E8.6.1 and E8.6.2.4 as a permitted activity under E8.4.1(A7).

E15 Vegetation Management and Biodiversity

- Pest plant removal in the Future Urban zone as a permitted activity under E15.4.1(A6).

E25 Noise and Vibration

- Activities that comply with all the relevant permitted activity standards is a permitted activity under E25.4.1(A1).

E26 Infrastructure

- Underground pipelines for the conveyance of water, wastewater, and stormwater are a permitted activity in the Future Urban zone under E26.2.3.1(A49).
- Wastewater storage tanks are a permitted activity in the Future Urban zone under E26.2.3.1(A52).
- Stormwater outfalls are a permitted activity in the Future Urban zone under E26.2.3.1(A56).
- Pest plan removal within riparian areas for the construction of network utilities is a permitted activity under E26.3.3.1(A74).

E33 Industrial and Trade Activities

- Use of land for an Existing or new industrial or trade activity listed as moderate in Table E33.4.3 is a permitted activity under E33.4.1(A5).
- Discharge of contaminants from an existing or new industrial or trade activity area listed as moderate risk in Table E33.4.3 is a permitted activity under E33.4.1(A17).

H18 Future Urban Zone

- Buildings in the Future Urban zone have the same activity status and standards as apply to the land use activity that the new building is designed to accommodate. In this case, the storage tanks associated with the wastewater treatment plant are a permitted activity. Therefore, the storage tanks associated with the wastewater treatment plant are a permitted activity under H18.4.1(A2).
- Buildings in the Future Zone comply with the following standards under H18.6 and are a permitted activity:
  - Accessory buildings less than 15m in height
  - Front yard setback of 10m
  - Side yard setback of 12m

5.4 Overall Activity Status

Overall, the wastewater treatment plant and associated activities require assessment as a **discretionary activity**.

6.0 Assessment of Effects

This section of the report is provided in accordance with clauses 6 and 7 of Schedule 5 of the FTAA.

These provisions require an assessment of the actual or potential effects on the environment. Clause 6 sets out the information required in the assessment of environmental effects and this is included throughout this volume of the AEE as well as the Overview Report.

Clause 7 of Schedule 5 of the FTAA outlines the matters to be covered in the assessment of environmental effects. This includes:

- *Any effect on the people in the neighbourhood and, if relevant, the wider community, including any social, economic, or cultural effects;*
- *Any physical effect on the locality, including landscape and visual effects;*
- *Any effect on ecosystems, including effects on plants or animals and physical disturbance of habitats in the vicinity;*
- *Any effect on natural and physical resources that have aesthetic, recreational, scientific, historical, spiritual, or cultural value, or other special value, for present or future generations;*
- *Any discharge of contaminants into the environment and options for the treatment and disposal of contaminants;*
- *Any unreasonable emission of noise; and*
- *Any risk to the neighbourhood, the wider community, or the environment through natural hazards or hazardous installations.*

These matters are addressed in this section of the report below.

The existing environment, in particular the existing land uses and allotment areas of the subject site, as well as sites in the surrounding environment, are a relevant consideration to the proposal and are set out in Section 2.0.

The activities which are permitted on the site under the AUP (OP) are identified in section 5.3 above.

An assessment of all actual and potential effects on people and the environment is set out below, as well as within the supporting specialist reports at Appendices 4A-4R. It is considered that effects in relation to the following matters are relevant:

- Positive Effects;
- Economic Effects;
- Cultural Effects;
- Geotechnical & Land Stability Effects;
- Earthworks & Construction Effects;
- Infrastructure Effects;
- Stormwater Effects;

- Transportation Effects;
- Landscape and Visual Amenity Effects;
- Ecological Effects;
- Arboricultural Effects;
- Discharge of Wastewater Effects;
- Air Discharge & Odour Effects;
- Noise Effects; and
- Hazardous Substance Effects.

These matters are set out and discussed below.

6.1 Positive Effects

The development aligns with the purpose of the FTAA, which aims to facilitate the delivery of infrastructure and development projects with significant regional or national benefits. The establishment and operation of a temporary WWTP will provide critical wastewater treatment capacity for the Milldale network, ensuring the continued growth of the area. By enabling Milldale Stages 10–13 and 4C, the WWTP will support the creation of new housing allotments, with delivery accelerated through the FTAA process compared to a standard consenting pathway. Additionally, the proposal will generate further positive effects, including:

- The WWTP is necessary infrastructure to facilitate urban development on zoned land. As the Army Bay Treatment Plant may not have sufficient capacity to treat the wastewater from the final stages of the Milldale development, progressing of the final stages of Milldale could not occur unless an alternative treatment facility is developed;
- Unlocking land for housing through the delivery of critical infrastructure is considered to significantly contribute towards meeting the demand for housing, in the wider Auckland region in an appropriate location and density;
- The temporary use of the site, which is currently zoned Future Urban, is considered to be a suitable use of the site, ensuring that existing urban-zoned areas within Milldale remain available for their intended development. Once the WWTP is no longer required, the facility will be decommissioned; and
- The proposed planting restoration works along the riparian margins of Waterloo Creek will create positive ecological effects and will enhance an existing low value ecological area with high ecological value, which will benefit the wider catchment and receiving environment.

6.2 Economic Effects

The WWTP unlocks capacity constraints for the later stages of the Milldale development. In doing so, this application enables and facilitates part of one of the largest housing projects in New Zealand. Therefore, the positive effects of facilitating the development of a new suburb and community within Auckland's urban limits are significant, particularly with the current projected shortfall in developed land for house building in New Zealand.

In relation to the temporary WWTP, the Economic Assessment (**Appendix 4R**) of the proposal has concluded that this enables the proposed development to occur sooner than it otherwise would have while diminishing the economic fallout of Army Bay failing to provide sufficient capacity to keep pace with growth. This enables the economic benefits of the Milldale development to be realised.

6.3 Cultural Effects

Consultation has occurred with mana whenua in relation to the wider Milldale FTAA application for Milldale as outlined in the Volume One: Overview Report.

Ngāti Manuhiri and Te Kawerau ā Maki stated that their interest in the project related to the temporary wastewater treatment plant.

Te Kawerau ā Maki has prepared a Cultural Investigation Report[33], which includes a range of recommendations, including:

- Sensitive lighting design;
- Minimising earthworks, with robust sediment controls and no winter or wet season earthworks;
- Avoid or minimise removing native vegetation;
- Water sensitive design that minimises ecological impacts;
- Accidental discovery protocols;
- Cultural monitoring.

Ngāti Manuhiri has prepared a Kaitiaki Report which also includes a range of recommendations, including:

- Sensitive lighting design;
- Dust and noise management during construction;
- Minimising earthworks, with robust sediment controls and no winter or wet season earthworks;
- Avoiding modifications to waterways;
- Riparian planting;
- Avoid or minimise removing native vegetation;
- Water sensitive design that minimises ecological impacts;
- Avoiding direct discharge of wastewater into the waterways;
- Accidental discovery protocols;
- Cultural inductions for construction staff; and
- On-going and regular engagement with local iwi.

[33] Refer to Appendix 8 of the Overview Report.

As described in the proposal, and assessed in the effects assessment below, the proposed design accords with these recommendations. Where relevant, the recommendations are reflected in the proposed conditions of consent.

For these reasons, the potential adverse effects of the proposal on cultural values are considered to be less than minor.

6.4 Geotechnical & Land Stability Effects

The site has been assessed for its suitability by CMW (**Appendix 4B**). The report confirms that the geotechnical nature of the site is suitable for the proposed earthworks and development of a WWTP. All earthworks are to be undertaken in accordance with the recommendations for the GIR any subsequent analysis reporting, or instructions provided by the geotechnical engineer.

Further, a full GCR will be prepared at the completion of the proposed earthworks. This will be submitted to Council confirming the suitability of the site to accommodate a WWTP.

It is considered that any adverse effects associated with the proposed earthworks will be less than minor. Following the completion of works, there will be a net improvement in the safety and stability of the wider area.

6.5 Earthworks & Construction Effects

The earthworks associated with the WWTP are necessary to establish a suitable building platform for the site compound and associated buildings and structures. The earthworks have been designed to minimise extensive modification to the current landform, with minimum cut and fill depths proposed across the 7,500m^2 earthworks area.

The proposed area and volume of earthworks will increase the potential for the generation and discharge of elevated levels of sediment. If not managed, sediment may discharge into adjacent properties and waterbodies, which can ultimately adversely affect local water quality.

To avoid and mitigate these potential adverse effects, a number of erosion and sediment control measures will be implemented prior to earthworks commencing and will be in place for the duration of the earthworks until the site is stabilised. The proposed erosion and sediment control measures are detailed in the Erosion and Sediment Control Plans in **Appendix 4L**, designed in accordance with the Auckland Council Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region (**GD05**).

The proposed earthworks to construct the WWTP will be undertaken in accordance with the methodology detailed in **Appendix 4A**. This will ensure that sediment is contained within the site works area, without discharging into the adjoining waterbodies.

Overall, subject to ensuring that the proposed erosion and sediment control measures are implemented and in place for the duration of the earthworks period, potential discharges of sediments on the immediately surrounding area, to waterbodies and potential effects to water quality will be less than minor.

6.6 Infrastructure Effects

The Site is currently undeveloped and is used as a temporary construction compound as part of the current Milldale Stages. As part of the proposed development of the site, and servicing requirements to operate the WWTP, the site will be appropriately serviced for stormwater, wastewater, water supply and utilities as outlined below and are further detailed in Appendix 4A.

Overall, the proposed development can be adequately serviced without resulting in adverse effects on the capacity of existing reticulation and infrastructure.

6.7 Stormwater Effects

The proposal involves the development of additional impervious surfaces for the WWTP compound. This has the potential to result in adverse stormwater effects in terms of water quality, quantity, natural hazards and flooding, outfalls and operation and maintenance.

Stormwater management for the site has been proposed in accordance with the Wainui East SMP which sets out the general approach for discharge to meet SMAF hydrology mitigation requirements (retention, detention) at source. The recommendation as per the Wainui East SMP is to allow flows from larger storm events to be passed forward (no attenuation).

Stormwater management across the site will be through the conveyance of stormwater from impervious areas to the proposed stormwater dry basin, which will detain the 96th percentile of rain event and discharge to the nearby watercourse over a period of 24 hours. Flows during larger rainfall events (up to the 10 year) will be conveyed by the network and bypass the basin and discharge into Waterloo Creek via a wingwall outlet. The secondary drainage is designed to convey the 100-year (inclusive of climate change) event in accordance with methods described in Chapter 4 of the Auckland Council Code of Practice for Land Development and Subdivision. The accessway is to be used as an overland flow path to convey the 100yr flow to Waterloo Stream.

Overall, it is considered that the effects on water quality from the stormwater runoff will be less than minor. The proposal includes improved stormwater controls, detention, quality treatment and best practicable measures to ensure stormwater quality, quantity and erosion effects are appropriately avoided or mitigated.

6.8 Transportation Effects

6.8.1 Construction Traffic

During the construction phase of the WWTP, there will be a temporary increase in traffic to the site associated with the daily arrival of construction workers and delivery of materials. Aside from this, all traffic movements associated with the construction phase of the development will be contained within the site. Traffic movements to and from the site will be managed to limit any potential adverse effects on the surrounding road network.

6.8.2 WWTP Operational Traffic

The WWTP compound will be accessed via a new leg off the Lysnar Road Roundabout (constructed under Milldale Stage 8). A 3.5m-wide private vehicle crossing from the roundabout leg will provide direct access to the site. The compound has been designed as a one-way system, accommodating a 17.9m semi-trailer, ensuring efficient and safe vehicle circulation.

Traffic movements to the WWTP will be low, with vehicle trips primarily related to waste removal, chemical deliveries, and maintenance staff. Expected weekly movements include:

- 1 truck per week for chemical deliveries;
- 3 truck movements per week for sludge removal; and
- Additional movements from operational staff in vans or cars.

Since all personnel will arrive by vehicle, the site access design does not include footpaths or cycleways, as no staff will travel to the site by walking or cycling. Given the low vehicle volume, the WWTP's transport effects are considered minor, with no significant adverse impacts on the local roading network.

6.9 Landscape & Visual Amenity Effects

The proposed WWTP has been designed and sited to minimise its landscape and visual impacts on the surrounding area. The selection of the site for the WWTP takes into consideration both operational efficiency and the mitigation of potential visual disturbances.

The location of the treatment plant is strategically chosen to provide easy access for operation and maintenance, while minimising its visual prominence. The WWTP compound, covering an area of 3,670m², will be enclosed by a landscape bund and will be surrounded by a combination of native planting and existing vegetation enhancements. The visual impact of the WWTP is reduced through careful attention to design elements, such as the positioning of the treatment plant building and associated infrastructure.

A 2m high landscape bund will be constructed around the WWTP site compound to provide a visual barrier and screen the facility from surrounding views. This bund, made from topsoil, will cover an area of approximately 1,055m² and will help to reduce the visibility of the WWTP from surrounding areas. The bund will be planted with native species, further enhancing its effectiveness as a visual screen and integrating the facility into the surrounding landscape.

Enrichment planting will be carried out across 941m², in areas that already contain a mix of native and non-native species along the Waterloo Creek boundary. The proposed planting will remove non-native and weed species and replace them with native plants. This will improve the ecological value of the site and contribute to reducing the visibility of the WWTP by blending it more naturally into the landscape. Furthermore, the proposed enhancement of vegetation along Waterloo Stream will cover an area of 1,166m². This will involve removing non-native and weed species and replanting the area with native species, contributing to the overall enhancement of the local environment and further reducing the visual impact of the WWTP.

The WWTP building, which features a pitched roof ranging in height from 3.7m to 7.0m, will be located centrally within the site compound. The treatment plant building is constructed from precast concrete, chosen for its ability to provide noise attenuation and odour containment, which will also help to mitigate any potential impacts on the surrounding environment. By locating key equipment indoors and utilizing odour control systems, the WWTP aims to reduce any associated noise and odour emissions, contributing to an overall positive impact on the site's landscape and visual qualities.

The overall effect on the landscape and visual environment is expected to be less than minor, as the combination of landscape bunding, site enhancement planting, and stream planting will significantly mitigate the visual impact of the WWTP. The strategic siting of the building and careful design of the surrounding landscape features will ensure that the WWTP integrates well into the surrounding environment. Additionally, the enhancement of the stream area and the removal of non-native vegetation will contribute positively to the local ecology and aesthetic quality of the area.

6.10 Ecological Effects

The proposal has potential to result in adverse ecological effects due to the construction of, and operation of a WWTP within the project area. The ecological values associated with the proposal have been assessed by Viridis Environmental Consultants in (Appendix 4E).

6.10.1 Freshwater Effects

The proposal has the potential to result in adverse effects to freshwater habitat and ecology due to the proposed earthworks across the site for the construction of the WWTP, the discharge of treated wastewater to land eventually discharging to a stream, and the discharge of stormwater through a stormwater dry basin.

To minimise potential for adverse aquatic effects on streams within the subject site, an appropriate works methodology and best practice erosion and sediment measures to GD05 will be implemented prior to, and during, the proposed works. This will reduce the risk of potential discharge of sediment laden water from land to the adjoining watercourses. Further, the salvage of native eels and fish (if required) will be undertaken by an experienced ecologist.

The proposed wastewater treatment system has been designed to minimise potential ecological effects on the receiving environment. The treatment plant will utilise a MABR+MBR-RO Hybrid model, providing a high level of treatment before discharge. A portion of the treated wastewater will be discharged back into the Waterloo Transmission Line, which further minimises the level of treated wastewater to be discharged into the receiving environment. The treated effluent has been specifically designed to meet the appropriate discharge quality standards.

A portion of the treated wastewater will be discharged via the LCID before reaching the intermittent watercourse. The device that has been designed includes multiple infiltration layers, including topsoil, clean gravel, engineered bioretention media and planting. These layers will facilitate nutrient uptake, sediment retention, and further treatment of the discharged effluent before it reaches the freshwater environment. The engineered design of the LCID reduces the risk of surface runoff, ensuring the treated wastewater will soak into the ground from the device.

As concluded within the EIA, given the highly modified and degraded nature of the receiving freshwater environment and its existing degraded water quality, the highly treated discharge is not anticipated to cause additional adverse effects, provided treatment and infiltration processes function as designed. The inclusion of extensive planting and an engineered LCID will further mitigate the ecological impacts. Ongoing monitoring and maintenance of the LCID will be essential to ensure long-term performance and protection of downstream freshwater values.

6.10.2 Terrestrial Ecology Effects

While the proposal includes the removal of trees within the riparian yard, the existing quality of this vegetation to be removed is considered to be low. Outside of the riparian yard, the vegetation is considered to be of low quality and removal will not result in any significant adverse ecological effects. Riparian vegetation removal will be limited as far as practicable to dying or exotic species, and overall effects are considered to be moderate managed to positive. Following completion of the removal, extensive revegetation and planting will occur within the riparian yard.

The revegetation planting proposal includes 1,166m² of enhancement planting within at least 10m on either side of the intermittent stream, downstream of the existing culvert, and along the edge of the existing bush. The intermittent stream within the site currently has little existing riparian vegetation within the area and is also proposed to be enhanced. Additionally, pest and exotic trees will be removed from the riparian margin of Waterloo Creek, followed by infill planting with enrichment species

The planting plan includes species suited to site conditions and designed to allow for ecological succession, incorporating a mix of understorey, early successional, and canopy species. The proposed revegetation and enhancement planting will result in significant ecological benefits, increasing the extent of native and riparian vegetation, enhancing terrestrial biodiversity, improving habitat connectivity, and supporting freshwater ecosystems through shading and filtration.

The loss of, and disturbance to, habitat within the site is not expected to permanently displace the bird community. There is significant unaffected similar habitat along Waterloo Creek and in the immediate surrounds and wider landscape. It is expected any birds present within the site will move away from the disturbed habitat while works are occurring.

The proposed riparian revegetation and enhancement planting is anticipated to enhance its value for native birds by providing increased resources such as food, nesting opportunities, and shelter as the vegetation becomes established.

The potential adverse effects on lizards is considered to be moderate and temporary and can be mitigated to low. Effects on lizards will be managed through a Lizard Management Plan (LMP). Additionally, as the surveys of the site have not identified any bats, any effects are considered to be negligible.

6.11 Arboricultural Effects

Whilst the proposal includes the removal of trees and riparian vegetation across the site, the existing quality of this vegetation to be removed is considered to be low. Outside of the riparian margin, the vegetation is considered to be of low quality and removal will not result in any significant adverse ecological effects. Riparian vegetation removal will be limited as far as practicable to dying or exotic species, and overall effects are considered to be low and can be managed to positive. Following completion of removal, revegetation and planting will occur around the riparian margins of the Waterloo Creek and across the site.

The temporary loss of vegetation across the site, it not anticipated to adversely impact any birds across the site. As birds are highly mobile, there is suitable available habitat within the receiving

environment for them to relocate. However, any tree removal will occur outside of the bird nesting season.

Accordingly, the proposed removal of trees across the site is not anticipated to result in any significant adverse effects impacting biodiversity across the site.

6.12 Discharge of Wastewater Effects

Apex Environmental has provided a design report in **Appendix 4K** that details the treated wastewater disposal design, which is a combination of wastewater treatment through an MABR-MBR-RO process to then discharge to land through the LCID.

The treatment process involves raw sewage screening, flow balancing, an anoxic stage incorporating a membrane aerated biofilm reactor, an aerobic stage, a second anoxic stage, hollow fibre MBR membrane filtration, UV disinfection and Reverse Osmosis membranes. Within the system there are recycle loops (nitrate and activated sludge) and chemical dosing (to provide a supplementary carbon source, adjust pH and remove phosphorus). This treatment train produces two waste streams, sludge and reverse osmosis reject. Sludge is periodically wasted by the system to storage tanks, from where it is dewatered by a centrifuge ahead of removal from site in skips. The reverse osmosis reject stream shall be reintroduced into the Watercare network under a bespoke Trade waste Agreement between FHLD and Watercare.

As detailed within the design report, the treatment process proposed can produce treated wastewater to such a high level of quality that its nutrient concentration profile will be significantly lower than both acceptable drinking water and stormwater.

The assessment of the implications of the increase in baseflow levels as a result of the discharge of treated wastewater on Waterloo Creek has been assessed by WWLA (**Appendix 4C**). The additional discharge will increase the baseflow by 8 L/s (28m^3/hr), which is the proposed dry weather flow processed through the WWTP. The increase in flow is most likely to be most evident during summer, and have a beneficial effect on maintaining flow during dry periods. WWLA have concluded that the discharge of high quality treated effluent will improve downstream water quality during summer when the flow will be naturally low. During winter flows, the impact of the treated wastewater disposal will be neutral. Overall, the addition of treated wastewater to Waterloo Creek will have a less than minor adverse effect on the existing environment and potentially a more than minor positive effect.

Babbage Consultants has undertaken baseline environmental monitoring within **Appendix 4F**, and reviewed previous environmental monitoring results and assessments, and has prepared a technical report to outline the water quality characteristics of the Waterloo Creek and assess the potential effects of the treated wastewater discharge on the receiving environment.

The Babbage assessment on water quality effects to the receiving environment has concluded that:

- The proposed discharges associated with the proposed development should have a minor impact on the Site's receiving waters and ecological values; and
- Freshwater within the area is proposed to be managed in a way that gives effect to Te Mana o te Wai, a tenet detailed in the National Policy Statement for Freshwater Management 2020 (**NPS-FM**) that frameworks the importance of maintaining or providing for the health

and well-being of water, the health needs of people, and the ability of people and communities to provide for their social, economic and cultural well-being. The proposed development is consistent with the provisions of the NPS-FM and Te Mana o te Wai. It is expected that due to the recommended consent conditions and proposed discharge management, the adverse effects of the development will be less than minor.

Consent conditions are proposed relating to stream monitoring for water quality and undertaking ecological surveys, as well as ongoing monitoring of the wastewater discharge testing various measures including temperature, pH, level of nitrogen and other matters) and riparian planting to be undertaken along the length of Waterloo Creek adjacent to the project area.

Overall, it has been concluded that the proposed discharges associated with the proposed development, would have a minor impact on the Site's receiving waters and ecological values. It is expected that due the recommended consent conditions and proposed discharge management and mitigation measures, the adverse effects of the development will be less than minor.

6.13 Air Discharge & Odour Effects

The wastewater treatment process has the potential to generate odours, primarily due to the anaerobic decomposition of organic matter such as food waste, human waste, and oils. While odour generation in the wastewater network leading to the plant cannot be fully controlled, the WWTP design includes multiple mitigation measures to minimise odour emissions during treatment.

Apex has assessed each stage of the wastewater treatment process to identify potential odour sources and has proposed appropriate control measures that have been integrated into the design and operation of the plant (refer to Apex Report in Appendix 4K).

Within the treatment plant building, a dedicated odour control system is proposed which captures and treats air from enclosed spaces using negative pressure to prevent odour release. This air is then passed through to the carbon scrubber which uses activated carbon pallet beds to absorb and neutralise odour-causing compounds. Additionally, the carbon pallets can be treated with sodium hydroxide, enhancing their ability to remove acidic gases such as hydrogen sulphide, which is commonly produced from sewage and sludge. The odour scrubber offers reliability and well-demonstrated performance without onerous operational requirements.

Additionally, the technical air discharge assessment by Air Matters Ltd (Appendix 4G) concluded that:

- The WWTP's mitigation measures represent the best practical option for eliminating and minimising odour; and
- The modern plant design and integrated odour control system ensure that no odour emissions beyond the site boundary are expected.

Additionally, the WWTP site has been selected due to available land owned by FHLD that is located outside of the Wainui Precinct Plan area. This means that there will be adequate separation of the facility from any surrounding residential land uses.

Based on the above, the WWTP is not anticipated to generate any significant adverse air discharge and odour effects, with appropriate mitigation and operational measures proposed to avoid any impacts on the surrounding residential community.

6.14 Noise Effects

6.14.1 Construction Noise

During the construction phase of the WWTP, there will be temporary construction effects for the duration of the proposed earthworks, including traffic, noise, sediment and dust effects. As confirmed by the investigations undertaken by Styles Group in **Appendix 4N**, all construction activities will comply with the maximum AUP(OP) construction noise and vibration standards.

All practicable measures will be put into place to reduce the potential sources of noise and vibration during earthmoving periods, whereby noise limits recommended in the New Zealand Standard NZS 6803:1999, Acoustics-Construction Noise, and any relevant amendments, will be adhered to.

6.14.2 WWTP Operational Noise

The WWTP has been designed to operate with minimal noise disturbance. Noise generation primarily comes from mechanical equipment such as pumps and blowers used in the wastewater treatment process. However, these systems are designed to operate quietly and are housed within soundproofed enclosures to reduce the impact of noise on nearby residents.

Regular noise monitoring will be conducted to ensure compliance with the AUP(OP). This will cover both day-to-day operations and any temporary increases during maintenance or upgrades. If noise levels exceed permitted thresholds, immediate corrective actions will be taken.

To mitigate the effects of noise associated with the operation of the WWTP, noise reduction measures have been incorporated into the design of the along with the proposal of ongoing monitoring. The combination of soundproofing and strategic placement of buildings will ensure that the plant operates quietly and unobtrusively, thereby minimising its impact on the surrounding community.

Styles Group has carried out an Acoustic Assessment of the WWTP, which is included in **Appendix 4N**. The Acoustic Report has confirmed that:

- The proposed construction works will consistently comply with the AUP(OP) permitted construction noise and vibration limits. The potential construction noise and vibration effects will be mitigated by working during standard construction hours and communicating with the neighbours before the works begin;
- Operational noise emissions from the site will comply with the AUP(OP) noise limits for permitted activities in the Future Urban Zone and the neighbouring Residential – Mixed Housing Suburban Zone. The level and character of the noise during the day will be consistent with the existing environment and the noise emissions at night will not cause sleep disturbance; and
- It is not expected that noise from the construction and operation of the wastewater treatment plant will cause unreasonable disturbance on any neighbouring site.

Accordingly, it is considered that the proposal will not result in any significant adverse noise effects, and the proposed on-site management measures will appropriately mitigate the potential for any significant adverse effects on future residents.

6.15 Hazardous Substance Effects

The WWTP will store and use hazardous substances essential for the treatment process, including Acetic Acid; Aluminium Sulphate; Citric Acid; Diesel Fuel; Sodium Hydroxide; and Sodium Hypochlorite (refer to the Hazardous Substances Report in **Appendix 4P**). Whilst these chemicals are necessary to ensure treated wastewater meets quality standards, their storage, handling, and disposal must be carefully managed to prevent risks to human health and the environment.

To mitigate potential adverse effects associated with the hazardous substances, they will be stored in secure, purpose-built facilities within the site with secondary containment systems to prevent leaks or spills. These areas will be monitored regularly, with routine inspections ensuring compliance with safety regulations. Strict handling protocols will be in place, requiring trained staff to use PPE and follow safe operating procedures.

In the event of a spill or accidental release, an emergency response plan will be activated to contain and manage hazards promptly. Additionally, all hazardous waste will be disposed of in accordance with regulatory requirements, ensuring treatment or disposal at certified facilities to prevent environmental contamination. With these safety measures in place, the WWTP will effectively manage hazardous substances, minimising risks while maintaining high operational and environmental standards.

There are no other facilities anticipated to store and use hazardous substances in the surrounding area given the predominantly residential nature of the surrounding development. As a result, there are not expected to be any cumulative effects from other sources of hazardous substances. Additionally, in the event of any small spills they will be contained and managed, so there will be no cumulative effects on human health or the environment as a result of this type of incident.

Overall, implementing the proposed mitigation and operational measures and plans will ensure that the WWTP avoids or adequately mitigates adverse effects, including risks, to people, property and the environment.

6.16 Mitigation and Monitoring

Clause 6(1)(d) of Schedule 5 of the FTAA requires that an AEE include *"a description of the mitigation measures (including safeguards and contingency plans where relevant) to be undertaken to help prevent or reduce the actual or potential effect of the activity".*

A description of the mitigation measures proposed are provided in the technical assessments appended to this AEE, summarised in the preceding subsections and are also documented in the proposed consent conditions. The Overview Report (**Volume 1**) provides a summary of the mitigation and monitoring including associated management plans for the proposed WWTP.

Clause 6(1)(g) of Schedule 5 of the FTAA also requires that and AEE include *"if the scale and significance of the activity's effects are such that monitoring is required, a description of how the effects will be monitored and by whom, if the activity is approved"*

The monitoring that is proposed as part of the construction of the development is also documented in the proposed consent conditions (refer Overview Report).

6.17 Summary of Effects

Overall, it is considered that the actual and potential effects on the environment relating to this proposal will be less than minor and appropriate.

7.0 Assessment of Relevant Statutory Considerations

This section of the application is provided in accordance with clauses 5(1)(h), 5(2) and 5(3) of Schedule 5 of the FTAA. The FTAA requires that applications must include an assessment of the activity against the relevant provisions and requirements of those documents listed in clause 2(2) being:

(e) a national environmental standard:

(f) other regulations made under the Resource Management Act 1991:

(g) a national policy statement:

(h) a New Zealand coastal policy statement:

(i) a regional policy statement or proposed regional policy statement:

(j) a plan or proposed plan; and

(k) a planning document recognised by a relevant iwi authority and lodged with a local authority.

7.1 National Environmental Standards

The proposal does not require resource consent under any of the National Environmental Standards. However, of relevance to the proposed WWTP is the:

- National Environmental Standards for Air Quality Regulations 2004 (NESAQ); and
- National Environmental Standards for Greenhouse Gas Emissions from Industrial Process Heat Regulations 2023 (NES-GHG).

An assessment of the proposal against the NESAQ and NES-GHG is provided in the Air Matters report included in Appendix 4G.

With regard to the NESAQ, the site is not located in a polluted airshed, and the operation of the WWTP is not likely to generate PM_{10} emissions. The operation of the onsite emergency generator will generate carbon monoxide and oxides of nitrogen emissions. However, the ambient air quality standards will not be exceeded as a result of its operation. The discharges to air from the WWTP are expected to contain negligible concentrations of SO_2 and VOC's. Therefore, the NESAQ does not restrict the granting of this consent for discharges to air.

With regard to the NES-GHG, the only greenhouse gas emission from the proposed WWTP is from the combustion of fossil fuel associated with the diesel-fired backup electricity generation device.

Backup heat devices are specifically excluded from the regulations (Section 10(1)(b)), and therefore the NES-GHG does not need to be considered as part of the proposal.

7.2 National Policy Statements

7.2.1 National Policy Statement on Urban Development 2020

The National Policy Statement on Urban Development 2020 (NPS-UD) recognises the national significance of:

- Having well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural wellbeing, and for their health and safety, now and into the future;
- Planning decisions improve housing affordability by supporting competitive land and development markets;
- Providing sufficient development capacity to meet the different needs of people and communities; and
- Improving how cities reposed to growth to enable improved housing affordability and community wellbeing.

The NPS-UD contains objectives and policies that require councils to carry out long term planning to accommodate growth and ensure well-functioning cities. There is an emphasis on allowing for growth 'up' and 'out' in a way that contributes to a quality urban environment and to ensure their rules do not necessarily constrain growth. Councils must also enable higher density development in areas close to employment, amenity, infrastructure and demand and in some instances remove minimum car parking requirements.

Overall, the proposal is completely in keeping with the NPS-UD:

- Objective 1 and Policy 1 seek to achieve a well-functioning urban environment that provides for several outcomes. The proposed WWTP will enable the Milldale development to continue where there are otherwise downstream infrastructure capacity constraints with the Army Bay Wastewater Treatment Plant. The Milldale development provides for an increase in homes in an area identified for planned and future growth, close to transport links, employment, commercial centres, including the Milldale Local Centre, open space and education facilities;
- Policy 2 directs local authorities to have sufficient development capacity in the short, medium and long term. In the NPS-UD, in addition to the provision of appropriate zoning and other controls in planning documents, development capacity also includes the provision of adequate development infrastructure to support the development of land for housing. Currently, the limitations of the Army Bay Treatment Plant do not provide sufficient development capacity for the demand for housing in the wider Wainui area. In proposing a private WWTP, the development capacity of Milldale is unlocked, enabling Stages 10 – 13 to progress and contribute to meeting the demand for housing in the region;
- Policy 6 requires planning decisions to have particular regard to the planned urban built form, the benefits of urban development, contributions to development capacity, and the effects of climate change. By proposing a WWTP that resolves capacity issues of the current

public infrastructure, the proposal directly contributes to facilitating urban development in an area that has been identified as appropriate for growth; and

- Objective 8 requires New Zealand's urban environments to support reductions in greenhouse gas emissions and be resilient to the current and future effects of climate change. In facilitating the development of land through the Milldale Stages 10 – 13 by unlocking infrastructure capacity constraints, the proposal will enable the continued development of a well-functioning urban environment that provides a connected roading network with improved, safe and attractive active transport facilities for pedestrians and cyclists. This will reduce the reliance on car travel by providing more options for travel and supports a reduction in vehicle emissions.

7.2.2 National Policy Statement on Freshwater Management 2020

The NPS-FM requirements include:

- Managing freshwater in a way that 'gives effect' to Te Mana o te Wai;
- Improving degraded water bodies, and maintaining or improving all others; and
- Avoiding any further loss or degradation of wetlands and streams, map existing wetlands and encourage their restoration.

The proposal is in keeping with the NPS-FM. In summary:

- Mana Whenua have been consulted throughout the development of the proposal as set out in the Overview report. No concerns have been raised in relation to Te Mana o te Wai;
- The proposal involves replanting along existing waterways within the site, along with removal of and maintenance of pest plants. This will improve the overall ecological health of the onsite streams; and
- The proposal does not involve the degradation of any identified wetlands within the site.

7.2.3 National Policy Statement on Indigenous Biodiversity 2023

The relevant objectives and policies of the National Policy Statement on Indigenous Biodiversity (**NPS-IB**) includes:

- Indigenous biodiversity is managed in a way that gives effect to Te Rito o te Harakeke;
- Significant indigenous vegetation and significant habitats of indigenous fauna are identified as Significant Natural Areas (**SNAs**) using a consistent approach; and
- The importance of maintaining indigenous biodiversity outside SNAs is recognised and provided for.

It is considered that the proposed development accords with the NPS-IB objectives and policies for the following reasons:

- Mana Whenua have been consulted throughout the development of the proposal as set out in the Overview report. No concerns have been raised in relation to biodiversity;
- The Site has not been identified as an SEA or SNA. The closest SEA is located approximately 0.9km to the north-east of the Site;

- The Site does not present any features, fauna or flora habitats that present significant ecological values; and
- The Site is currently vegetated with pasture, low-lying shrubs, and sparse trees. The proposal will result in ecological gains through the removal of pest and weed species and the enhancement planting proposed across the site, including riparian planting.

7.2.4 New Zealand Coastal Policy Statement 2010

As the proposed development is not located within close vicinity to the coastal environment, the New Zealand Coastal Policy Statement 2010 (**NZ-CPS**) is not relevant.

7.2.5 Other National Policy Statements

There are no other National Policy Statements that are relevant to the proposal.

7.3 Regional Policy Statement, Regional Plan and District Plan

The AUP(OP) comprises Auckland's Regional Policy Statement (**RPS**), as well as regional and district plans. An assessment of the proposal against the AUP(OP) is provided below.

7.3.1 AUP(OP) Regional Policy Statement

The **RPS** sets out the overall strategic statutory framework to achieve integrated management of the natural and physical resources of the Auckland Region. The RPS broadly gives effect to the strategic direction set out in the Auckland Plan.

The Auckland Regional Policy Statement (RPS) is contained within Chapter B of the AUP(OP). Section B1.4 of the AUP(OP) which sets out the strategic framework for the identified resource management issues of significance for the Auckland region, and the policies and methods to achieve integrated management of the natural and physical resources. Section B2 specifically addresses objectives and policies relating to urban growth and form, with B3 addressing infrastructure, B6 addressing mana whenua values and Section B7.3 and B7.4 containing objectives and policies relating to freshwater systems and freshwater. The RPS recognises the relevance of the Auckland Plan and gives effect to any national policy statement and to the New Zealand coastal policy statement. The RPS must not conflict with sections 7 and 8 of the Hauraki Gulf Marine Park Act 2000 and treat those provisions as a New Zealand coastal policy statement and must give effect to the purpose of the Waitakere Ranges Heritage Area Act 2008 and the objectives of the heritage area.

An assessment of the proposal against the RPS has been included in the Overview Report (**Volume 1**), with additional comments provided in relation to the WWTP proposal provided below. Overall, the WWTP proposal aligns with the objectives and policies of the RPS, particularly in supporting urban growth, infrastructure development, recognising mana whenua values and protecting freshwater management. Of relevance:

- The WWTP supports urban intensification by providing essential wastewater infrastructure to support the ongoing growth of the Milldale development, including Stages 10 – 13. Enabling the growth of Milldale will provide an increase in housing capacity and the range of housing choice that meets the varied needs and lifestyles of Auckland's diverse and growing population;

- Locating the WWTP near, but outside of the urban zoned land ensures efficient land use. Until the Milldale North Plan Change rezones the site and surrounding land for urban development, the site remains well-utilised without taking up land that could otherwise be used for urban development;
- The treatment train approach of the WWTP will ensure high-quality treated wastewater is discharged from the facility. Discharging the treated wastewater via a ground discharge device will mitigate any potential adverse effects on the Waterloo Creek, maintaining freshwater values; and
- Consultation with mana whenua has been undertaken, incorporating cultural considerations into the proposal. The design also reflects the principles of te Titiri, ensuring that mana whenua values, mātauranga, and Tikanga are integrated into the management of natural and physical resources, particularly freshwater. This has been achieved through the WWTP design, treatment train process, and proposed discharge method, which allows treated wastewater to be filtered through the ground before entering Waterloo Creek.

It is therefore considered this proposal is consistent with the relevant objectives and policies of the RPS section of the AUP(OP).

7.3.2 AUP(OP) Objectives & Policies

As set out earlier in this report, the proposal is a discretionary activity under the AUP(OP). The proposed WWTP and associated activities have been assessed against the relevant objectives and policies of the AUP(OP) contained in the following chapters:

- E1 Water Quality and Integrated Management;
- E11 / E12 Land Disturbance – Regional and District;
- E14 Air Quality;
- E15 Vegetation Management and Biodiversity;
- E25 Noise and Vibration;
- E26 Infrastructure;
- E31 Hazardous Substances; and
- H18 Future Urban Zone.

7.3.2.6 E1 Water Quality and Integrated Management

The E1 Water Quality and Integrated Management chapter covers activities under the provisions of E6 Wastewater Networks Management. The objectives and policies contained in E1 recognise the variable quality and health of Auckland's variable freshwater resources. The focus of the provisions is to avoid adverse effects as far as practicable, particularly in greenfield developments where there are greater opportunities to do so. Additionally, some land use activities and discharges, including wastewater networks, have the potential to cause greater effects on freshwater systems and need to be specifically managed.

The proposal is considered to be consistent with these provisions for the following reasons:

- An assessment of alternative methods, sites and routes has been carried out for the proposed WWTP and the proposed site, treatment and discharge methods are considered to be the best practicable option to serve the Milldale development until such time that the Army Bay wastewater plant has been upgraded and has sufficient capacity;
- The proposal has avoided any direct discharge into the coast of freshwater streams, instead discharging into a ground infiltration basin. This allows the high-quality treated wastewater to infiltrate through the ground before it is ultimately discharged into the Waterloo Creek;
- Any potential adverse effects associated with the proposal have been avoided, remedied, or mitigated as far as practicable. The ecological values of Waterloo Creek are anticipated to not be adversely impacted, with water quality testing and assessments by Babbage confirming this;
- The WWTP will be retained in private ownership and operated by Apex. The day-to-day operations will be carefully managed to ensure the ongoing protection of public health and safety;
- An integrated stormwater management approach is proposed for the management of stormwater across the site. The stormwater discharge outlet has been designed to avoid any scouring of the Waterloo Creek; and
- Mana whenua have been consulted with in relation to the proposal (refer to the Overview Report, Volume 1).

Overall, it is considered that the proposal accords with the objectives and policies of the water quality and integrated management provisions.

7.3.2.7 E11 Land Disturbance Regional and E12 Land Disturbance District

A combined assessment against Chapters E11 and E12 is provided below, given the similarities between the provisions for regional and district land disturbance. The common outcome sought is to ensure that land disturbance is undertaken in a manner where the safety of people is protected, and adverse effects on the environment are avoided, remedied or mitigated. This is supported by a range of policies which, generally, seek to manage the adverse effects of a sediment discharge on the environment, avoid adverse effects on natural, cultural and historic heritage where practicable, and design and undertake earthworks in a manner that ensures the stability and safety of surrounding land and buildings.

The proposal is considered to be consistent with these provisions for the following reasons:

- The land subject to earthworks is not located within any AUP(OP) overlays associated with natural heritage, mana whenua, natural resources, historic heritage or special character. Accordingly, we do not consider that the bulk earthworks will adversely affect the matters associated with these overlays;
- The earthworks comply with all the relevant standards for earthworks under E11.6 of the AUP(OP). The earthworks methodology, as set out in the Infrastructure Report (Appendix 4A), confirms that they are in accordance with GD05 and will adequately avoid or minimise adverse effects on the water quality and the ecological health of the receiving environment.

Additionally, the riparian margins will be appropriately protected during the earthworks, and any work within the margins has been kept to a minimum;

- The earthworks will be carried out in accordance with the recommendations of the GIR, and soil compaction will only be carried out in the required parts of the site;
- The quantum of earthworks proposed does not require them to be staged or carried out over multiple earthworks seasons. However, they will be appropriately managed, and monitoring will be carried out to ensure that sediment discharge is appropriately minimised and that all sediment control measures are working effectively; and
- Archaeological reporting has not identified the presence of, or potential presence of, any archaeological sites within the works area.

Overall, it is considered that the proposal accords with the objectives and policies of the regional and district land disturbance provisions.

7.3.2.8 E14 Air Quality

The E14 Air Quality chapter establishes a framework for managing air quality across Auckland. It focuses on managing air quality from individual discharges to air and the separation of incompatible land uses. Industrial processes and their operation need to be recognised because they cannot avoid discharging contaminants into the air. Their effects need to be managed using suitable control technology and on-site management techniques. These industries also need to be located in appropriate areas.

The proposal is considered to be consistent with these provisions for the following reasons:

- Air quality will be maintained within the WWTP's location due to the high degree of mitigation measures designed into the plant. This will avoid any significant odours emanating from the site, mitigating nuisance impacts on the surrounding community and protecting any significant adverse effects on human health;
- The WWTP is located on future urban zoned land and outside of the Milldale urban development area. This provides adequate separation distances of the plant from any existing or future sensitive activities (i.e. residential dwellings). The assessment by Air Matters (**Appendix 4G**) supports this;
- The proposed odour management for the WWTP includes housing the high-odour-generating activities within the treatment plant building. The building has been designed to allow continuous fresh air to enter while treating air within the building through an odour scrubber before it is released back into the outdoor environment. This will result in minimal odour emissions during operations; and
- The on-site odour management measures, combined with operational procedures including robust monitoring and a robust set of proposed consent conditions, will ensure that significant adverse effects on human health, including cumulative adverse effects, can be avoided, remedied or mitigated.

Overall, it is considered that the proposal accords with the objectives and policies of the air quality provisions.

7.3.2.9 E15 Vegetation Management and Biodiversity

The relevant provisions of the E15 Vegetation Management and Biodiversity chapter seek to ensure that indigenous biodiversity is restored and enhanced in areas where ecological values are degraded or where development is occurring. There is an emphasis on managing the effects of activities to avoid significant adverse effects on biodiversity values as far as practicable. Where avoidance is not practicable, then significant adverse effects should be minimised. The provisions also seek to avoid, remedy or mitigate any other adverse effects on indigenous biological diversity and ecosystem services, including soil conservation, water quality and quantity management, and the mitigation of natural hazards. Vegetation management under the provisions of E26 Infrastructure refer back to the objectives and policies for vegetation management under E15.

In the context of this application, it has been determined that the site's terrestrial and freshwater ecological values are generally low due to previous land uses. There are also no areas of contiguous vegetation cover on site. As such, the outcomes sought for the site under E15 Vegetation management and biodiversity relate to the restoration and enhancement of indigenous biodiversity.

The proposal is considered to be consistent with this policy direction. While terrestrial and riparian vegetation is proposed to be removed, the majority of this comprises weeds, pest plants or exotic species, with native species retained where practicable. The applicant has offered several management plans and conditions of consent to ensure adverse significant effects on biodiversity values are avoided or mitigated. The proposal will contribute to improved ecosystem services and indigenous biological diversity values in this part of Auckland.

Overall, it is considered that the proposal accords with the objectives and policies of the vegetation management and biodiversity provisions.

7.3.2.10 E25 Noise and Vibration

The E25 Noise and Vibration chapter acknowledges the adverse amenity impacts noise and vibration can have, depending on where and when they occur, their duration, physical characteristics (loudness and pitch), steadiness, and whether special audible characteristics are present. The objectives and policies for noise and vibration seek to control the levels of noise and vibration created by activities to limit the adverse effects of noise and vibration on amenity values and human health and to protect existing noisy activities from reverse sensitivity effects.

The proposal is considered to be consistent with these provisions for the following reasons:

- The WWTP has been designed to minimise adverse noise impacts as far as practicable. This is through the enclosure of key processes within the plant building and the proposed construction materials of the building itself; and
- Styles Group (**Appendix 4N**) has provided recommendations to ensure that operational noise emissions from the treatment plant remain compatible with nearby residential areas in the Milldale development. These measures will help protect residents from excessive noise, particularly at night.

Overall, it is considered that the proposal accords with the objectives and policies of the noise and vibration provisions.

7.3.2.11 E26 Infrastructure

Infrastructure is critical to the social, economic, and cultural well-being of people and communities and the quality of the environment. The E26 Infrastructure chapter provides a framework for developing, operating, using, maintaining, repairing, upgrading and removing infrastructure. Additionally, it recognises the benefits that infrastructure can have a range of adverse effects on the environment, visual amenity of an area, and public health and safety.

The proposal is considered to be consistent with these provisions for the following reasons:

- The WWTP provides the needed infrastructure to treat wastewater associated with the Milldale development. As the current Army Bay Treatment Plant is nearing capacity, the later stages of Milldale development will not be able to progress if an alternative treatment solution is not proposed. The benefits of enabling the Milldale development to progress are considered to be regionally significant;
- An assessment of alternative methods, sites and routes has been carried out for the proposed WWTP and the proposed site, treatment and discharge methods are considered to be the best practicable option to serve the Milldale development until such time that the Army Bay wastewater plant has been upgraded and has sufficient capacity;
- The main Watercare transmission line has been sized to accommodate flows from the Milldale development. Therefore, the proposed take-off manhole is a simple solution to divert flows for treatment to the proposed plant. This builds capacity into the network until such time that the Army Bay plant is upgraded;
- The location and design of the WWTP will avoid any adverse effects associated with the proposed infrastructure. The proposed on-site mitigation and operational procedures, which include measures to minimise odour and noise, will protect the health, well-being, and safety of people and communities;
- The landscaping proposed around the compound will minimise views of the facility from the public realm including Lysnar Road; and,
- The discharge of high-quality treated wastewater through a ground infiltration device avoids direct discharges into Waterloo Creek.

Overall, it is considered that the proposal accords with the objectives and policies of the infrastructure provisions.

7.3.2.12 E31 Hazardous Substances

The E31 Hazardous Substances chapter manages the use, storage and disposal of hazardous substances on land and in the coastal marine area that can present a specific risk to human or ecological health and property. The sites where activities take place are defined as hazardous facilities. Risks are influenced by the nature of the hazardous substance, its quantity, what parts of the environment may be affected by an adverse event, the likelihood of an event, and the degree of effect.

The proposal is considered to be consistent with these provisions for the following reasons:

- The risks of the storage and use of hazardous substances within the WWTP to people, property and the environment are minimised to acceptable levels through a range of proposed controls;
- These risks will be primarily managed through the site design of the treatment compound, including spill containment measures such as bunded storage, appropriate equipment selection, and designated unloading areas with diversion to the WWTP. Additionally, operational procedures such as a spill response plan, safe unloading and handling protocols, and an Environmental Management Plan will be implemented. The risk to people from a corrosive substance spill is limited to on-site workers, as the containment systems are specifically designed to prevent exposure beyond the facility;
- The Waterloo Creek and its associated tributaries are sensitive receiving environments and would be significantly affected in the event of an uncontrolled spill. However, given the level of on-site management proposed to contain the hazardous substances, it is considered that the risk is less than minor;
- The WWTP and compound will be restricted to authorised personnel only, with no public access. Only certified site workers who have undergone induction and training on the use, management, and safety protocols for hazardous substances will be permitted on-site. This ensures that any risks to human health are avoided and or minimised; and
- WWLA (Appendix 4P) have assessed the on-site storage, management and use of hazardous substances and concluded that they are appropriate for the site.

Overall, it is considered that the proposal accords with the objectives and policies of the provisions for hazardous substances.

7.3.2.13 H18 Future Urban Zone

The H18 Future Urban Zone chapter sets out the framework for managing this area until it is rezoned for urban development. The Future Urban Zone is a transitional zone applied to greenfield land that has been identified as suitable for urbanisation. Land may be used for a range of general rural activities but cannot be used for urban activities until the site is rezoned for urban purposes.

The proposal is considered to be consistent with these provisions for the following reasons:

- The development of future urban land is proposed to accommodate new buildings associated with the WWTP;
- The WWTP is necessary infrastructure to facilitate urban development on zoned land. The Army Bay Treatment Plant does not have sufficient capacity to treat the wastewater from the final Milldale stages of development meaning land zoned for housing could not be progressed unless an alternative treatment facility is developed;
- The WWTP is located on future urban land, ensuring that existing urban-zoned areas remain available for their intended development. The site was previously used as a contractor's construction yard, so its redevelopment for infrastructure does not negatively impact the surrounding rural environment, as it was already used for non-rural purposes; and

- The WWTP will remain in private ownership by FHLD, with no subdivision proposed around the compound as part of this application. If the site is rezoned in the future, and the Army Bay treatment plant upgrades eliminate the need for the WWTP, it can be decommissioned, and the land can be redeveloped for residential use as part of the Milldale North expansion.

Overall, it is considered that the proposal accords with the objectives and policies of the future urban zone provisions.

7.3.3 AUP(OP) Assessment Criteria

The AUP(OP) specifies the relevant assessment criteria to be considered in assessing this application for each of the consent matters in the chapters identified in 7.3.2 above. These criteria largely cover the same matters that have been discussed and assessed in the above report, pertaining to environmental effects and the objectives and policies of the AUP(OP).

In particular, the proposal is generally compliant with the AUP standards, and where there are non-compliances, appropriate mitigation measures have been proposed through management plans, works methodologies, or conditions of consent.

Overall, the proposal meets the assessment criteria of the AUP(OP) for the reasons described in sections 7 and 8 above.

7.4 Treaty Settlements and Iwi Management Plans

Matters relating to Treaty Settlements and Iwi management plans have been assessed in the Overview Report.

7.5 Statutory Considerations Summary

Overall, the application is considered to be consistent with, and not contrary to, the applicable provisions of the relevant National Environmental Standards, National Policy Statements and the AUP(OP).

8.0 Conclusions

The proposal seeks approval to construct and operate a temporary wastewater treatment plant. The WWTP will support the Milldale development, providing additional capacity within the wastewater network if capacity is unavailable within the Army Bay Treatment Plant. Based on the above report and information included in the Overview Report, it is considered that:

- Appropriate consultation and engagement have been undertaken with Auckland Council including Mana Whenua, Auckland Transport, Watercare, and the Administering Agencies;
- Consideration of planning documents recognised by relevant iwi authorities and lodged with Auckland Council has been undertaken;
- Having considered the actual and potential effects of the proposal, the proposal will generate only minor adverse effects that, subject to appropriate conditions of resource consent, will be avoided, remedied or mitigated;
- The proposal accords with the relevant AUP(OP) objectives, policies and assessment criteria;
- The proposal meets the requirements of the NES-CS and NES-FM;
- The proposal accords with the NPS-UD, NPS-FM and NZ-CPS;
- The proposal achieves the purpose of the FTAA to facilitate delivery of infrastructure and development projects with significant regional or national benefits;
- The proposal is considered to be consistent with Parts 2, 3, 6, and 8 to 10 of the RMA; and
- The proposal is considered to be consistent with the purpose, principles, and relevant sections of the NZHPT Act.

It is therefore concluded that the proposal satisfies all matters the EPA is required to assess, and that it can be granted consent under the FTAA subject to conditions.