Huia Water Treatment Plant replacement

Questions and answers

Updated: May 2019

Introduction

Planning is underway to build a water treatment plant and two storage reservoirs in Waima, west Auckland. The treatment plant will replace an existing plant that was built in 1928 and is reaching the end of its operational life.

As with the existing plant, the new plant will treat water from four dams in the Waitākere Ranges. The water produced by the plant will feed into Auckland's metropolitan water supply network, meeting up to 20 per cent of the city's water needs.

The primary objective of the project is to replace the ageing plant. In doing so, we will ensure the continued resilience of Auckland's metropolitan water supply network. This network is served by five treatment plants, numerous reservoirs and pump stations, and a highly-connected network of pipes. It means that if one treatment plant has an operational issue, the other treatment plants can meet the city's water needs. Huia Water Treatment Plant is a vital part of this network.

The new plant will offer more advanced treatment processes and will be easier to operate and maintain than the current plant. It will be carefully laid out to ensure service vehicles can move around the site safely and staff can access each treatment process safely and easily. We have grouped the questions and answers under the following general headings:

Fast facts

- The ageing treatment plant is nearly 100 years old and needs replacing.
- The replacement treatment plant will be able to treat up to 140,000 litres of water per day, meeting around 20 per cent of Auckland's water demand.
- Two water storage reservoirs will also be built; each one will be able to hold 25,000 litres of water.
- The replacement treatment plant and northern reservoir will be built between 2022 and 2025. The second reservoir will be built in 2030. Between now and then, we will be focussing on achieving statutory approvals and carrying out a detailed design.

What is happening in 2019

The land we plan to build on is owned by Watercare and has been designated for water supply purposes since 1972. This designation means we are able to build a water treatment plant and reservoirs there at any time, subject to Auckland Council reviewing and commenting on our outline plan of works. Our outline plan of works will show the proposed buildings and layout of the plant.

However, we need to seek resource consents for activities that will enable us to carry out construction work. For example: earthworks, stream works and vegetation removal.

In May 2019, we submitted our resource consent application to Auckland Council.

We have asked the council to notify the public of our application. This is because we want to give everyone the chance to have their say.

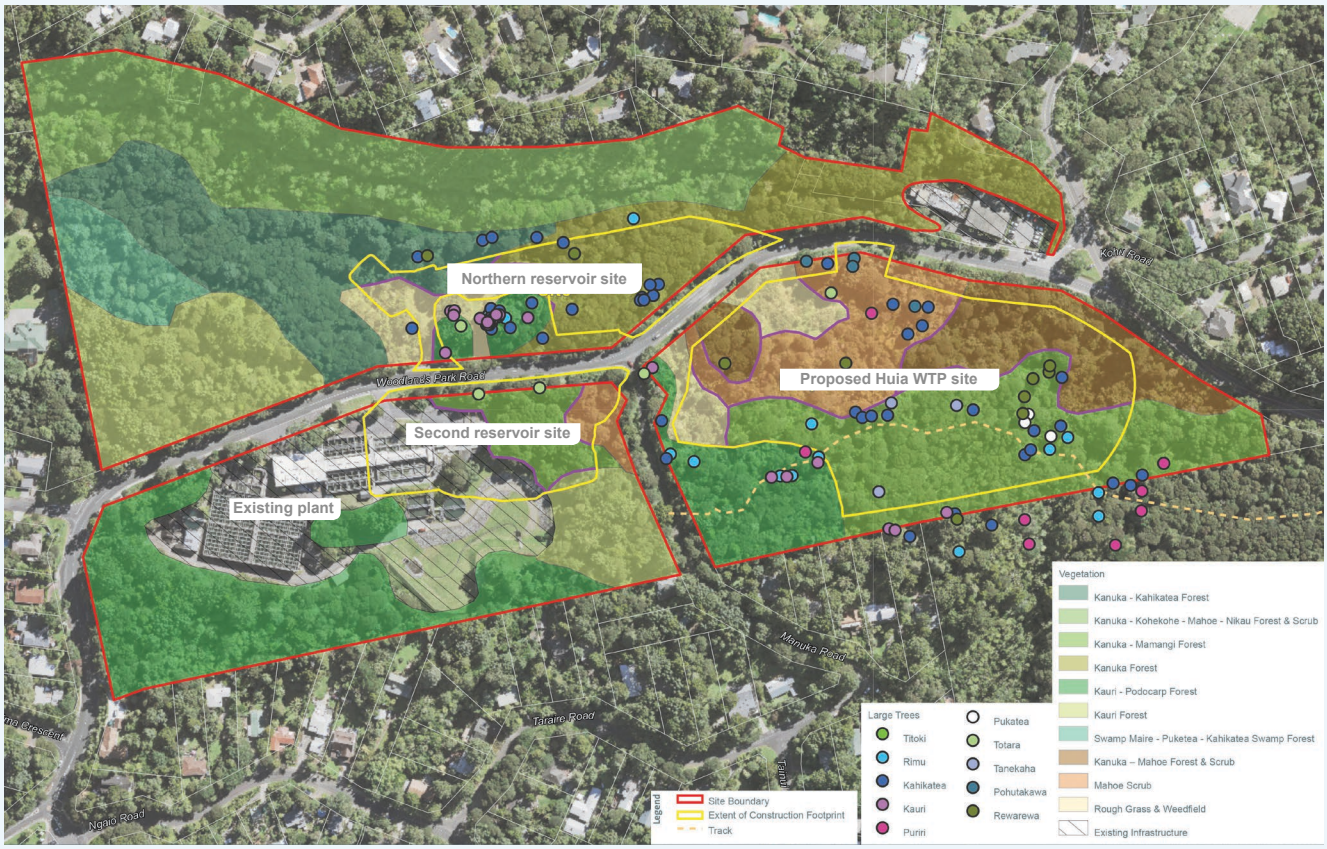
Auckland Council is likely to advertise the application in the local newspapers, and directly affected parties will be served notices individually. The Council will also post information on its website at the time of notification. Go to www.aucklandcouncil.govt.nz and search for *'Notified resource consent applications open for submission'*.

Public submissions will be heard by independent commissioners appointed by the council at a hearing following the end of the submission period.

Is there a public fund that residents can apply for to challenge any decision to the Environment Court?
The Ministry for the Environment administers an Environmental Legal Assistance Fund:
www.mfe.govt.nz/more/funding/environmental-legal-assistance-fund

Location

Where is the new plant to be located?



We are proposing to build the replacement treatment plant as well as two water storage reservoirs in Waima (Titirangi), as shown on the map.

The plant and reservoirs have been carefully positioned on these sites to minimise their impact on significant vegetation. The reservoir located on the existing treatment plant site will be built once the new plant is operational and the ageing plant is demolished.

When were these sites selected?
These sites were confirmed in May 2017 by our Board of Directors.

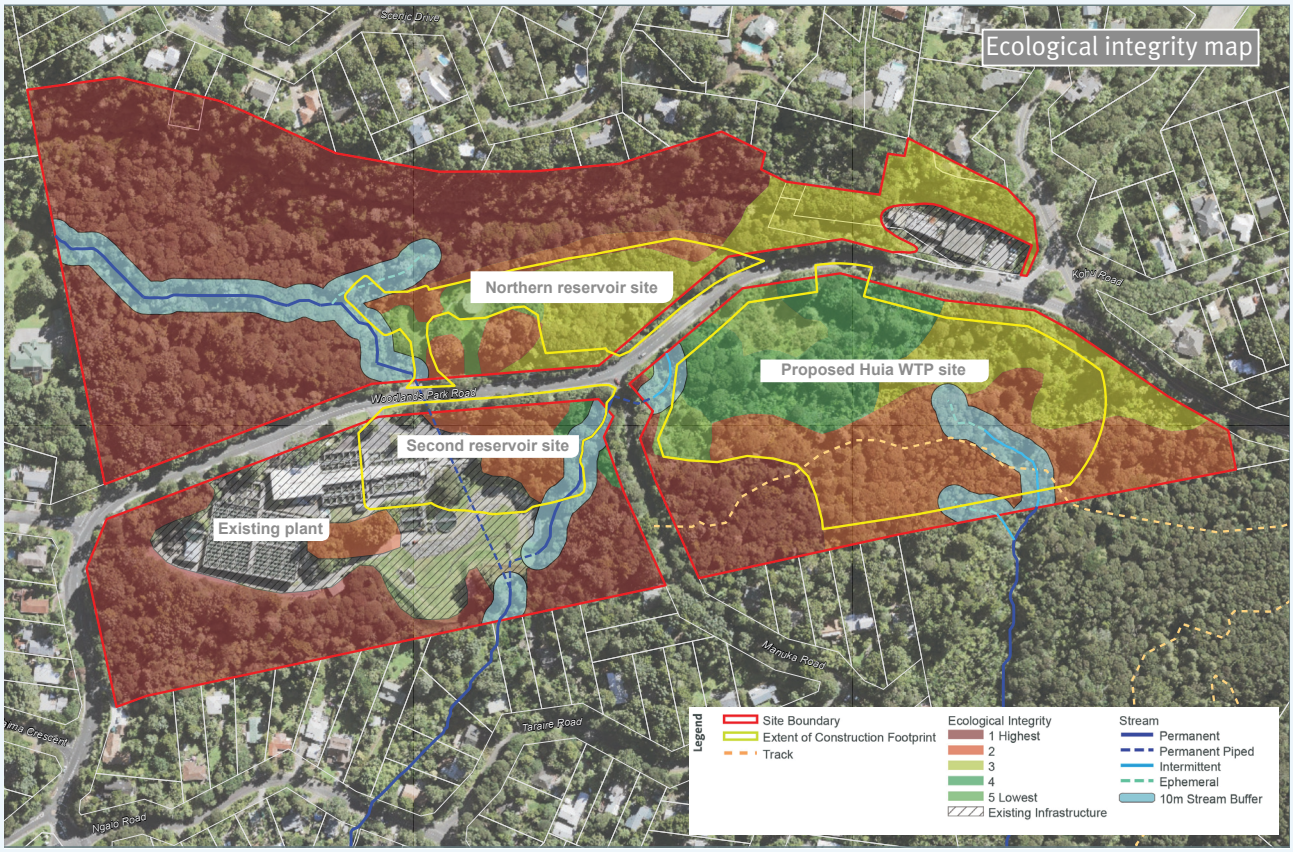
Why were these sites selected?
The Waima (Titirangi) sites were selected following a comprehensive site assessment that started off with over 100 sites. The number of possible sites reduced over time as technical, environmental, social and environmental factors were evaluated.

The fact that we own the land at Waima, and it is designated for water supply services, influenced our decision-making. It means we do not have to displace any people from their homes and we have the right to build a treatment plant and reservoirs there – subject to us gaining resource consents for the pre-construction work. The designation also provided the community with advance knowledge that one day Watercare could decide to construct water treatment facilities on these sites.

Our decision-making was also influenced by the elevation of the Waima (Titirangi) sites. Most of Auckland's water is supplied to homes and businesses using gravity. By using gravity, we can significantly reduce on-going operating costs and also ensure water can still be supplied when there is a power outage.

Why can't you build the replacement plant on the same site as the ageing plant?
If we were to build the replacement plant on the same site as the ageing plant, we would need to demolish the ageing plant at the start of construction. This is not possible because the ageing plant currently supplies around 20 per cent of Auckland's water. Without the ageing plant, there would be water shortages during construction affecting metropolitan Auckland.

How were the footprints of the plant and reservoirs decided?
We commissioned extensive studies – which were peer reviewed – to identify the ecological constraints of the sites. These findings were mapped and combined with the sites' physical constraints to identify the least intrusive footprints. Permanent watercourses and areas with the highest ecological integrity were deemed to be "no go" areas.



What is the footprint of the proposed replacement plant?
The footprint of the proposed replacement plant (25,000m^2) will be 13 per cent larger than the current plant (22,000m^2).

The increase in area is necessary to ensure that the replacement plant will have a modern layout that accommodates new water treatment technologies, on-going maintenance, and health and safety requirements. With the slightly larger footprint, the plant will be easier and safer to operate on a day-to-day basis.

What is the difference in ecological values shown on the map? Aren't all areas of bush valuable?
All vegetation has some inherent value. The areas shown as highest value on the map include more intact areas of mature and regenerating indigenous forest with a diverse native flora and few weeds.

The full 'Assessment of ecological values' report by Boffa Miskell is available on our website.

Construction effects

Vegetation and ecology

What area of vegetation will be removed?
The removal of vegetation is the primary ecological impact arising from the proposed development. The footprints of the treatment plant and reservoirs have been designed to avoid areas assessed as being of highest ecological integrity, including kauri forest, kauri-podocarp forest and swamp forest ecosystems.

The proposal requires the removal of 3.1ha of native forest and scrub out of the total area of 3.6ha. On the replacement water treatment site, the area of bush to be removed is 2.4ha out of the total area of 2.7ha. The construction of the reservoirs requires the removal of 0.7h of the 0.9ha that the reservoirs will cover.

How many trees will be removed?
The proposed development footprints have been designed to avoid areas assessed as being of the highest ecological integrity, including mature kauri forest, kauri podocarp forest and swamp forest eco-systems.

Within the replacement water treatment plant site, approximately 34 native trees with diameters greater than 20cm will need to be removed, including 14 kahikatea estimated to be 80-120 years old.

Within the northern reservoir site, the affected vegetation mainly comprises kanuka forest and patches of kahikatea forest. An estimated 10 canopy or emergent trees will need to be removed.

Vegetation clearance in the existing plant site comprises mostly kanuka-mamangi forest; no large succession trees are present within this vegetation. There is a large totara growing on the road reserve.

No mature kauri trees will need to be felled as part of the project.

What is the plan to prevent the spread of kauri dieback?
Auckland Council and central government have prepared separate kauri dieback protocols. We are liaising regularly with Auckland Council's biosecurity team on the matter. Protocols and procedures will be prepared as part of the consent application in consultation with this team. Precedent already exists for such practices, including the Puhoi to Warkworth motorway project. It is likely similar protocols would be followed by Watercare. We will be required to comply with the protocols that are agreed as part of the consent.

How many streams and wetlands are affected?
We will ensure the impact of this project on waterways is minimised as far as practicable. Our ecological assessment identified the need to realign 53 metres of an intermittent stream at the headwaters of the Yorke Gully Stream. We intend to divert it around the treatment plant, ensuring it benefits from enhanced riparian margins and vegetation.

Was any sensitive ecology identified during the ecological assessments?
Ecological assessments were undertaken by Watercare's specialist ecologist as well as by an independent ecologist working for the Community Liaison Group. The proposed forest clearance will result in the removal of vegetation species that are identified as being threatened or at risk, although it is noted that the classification is due to disease risk rather than scarcity or habitat loss as they currently have large and widespread populations.

Earthworks

What is Watercare's approach to earthworks?
Our approach is to minimise the extent and impact of earthworks. We will seek to reuse excavated material on site where possible in a cut-and-fill process to reduce the volume of traffic movements on neighbouring streets.

What volume of earthworks is required?
The detailed designs for the plant and reservoirs will determine the volume of earthworks to be completed. However, we anticipate the creation of the building platform for the treatment plant will involve approximately 28,000m^3 of cut (exported) and 30,000m^3 (imported) of fill. Following detailed geotechnical work, the cut material may be found to be suitable for fill.

The northern reservoir site will require the excavation and removal of approximately 65,000m^3 of material. This is because it will be buried to achieve the required elevation so that water can flow by gravity to Auckland's western and northern suburbs.

Will the existing Parau sludge disposal site be used for earthworks disposal?
There is an opportunity for some of the excavated material to be directed to the Parau disposal site. Using the sludge site would help to reduce traffic movements through Titirangi and Glen Eden.

Traffic

What are the construction truck routes?
The main construction routes for earthworks are Woodlands Park Road, Scenic Drive, Atkinson Road and Titirangi Road.

How many truck movements are expected during construction?
Our busiest construction period will span 11 months. Over this time, we expect there to be 88 to 118 heavy vehicle movements per day. This equates to around 13 to 17 movements per working hour and represents less than a two per cent increase in daily traffic numbers on Titirangi and Atkinson roads.

The average number of truck movements across the programme of work is approximately 37 per day, which equates to around eight trucks per hour.

Can the roads handle the proposed truck movements?
Yes. The main local roads are class one arterial roads and are designed to handle traffic movements including trucks.

Can construction traffic be timed to avoid busy or peak traffic periods such as school drop-offs?
Yes. We will balance the need to avoid busy and peak traffic periods with the need to deliver the project on schedule, in a timely manner. It is likely that the actual routes and times will be subject to conditions imposed on the consent.

Timing and duration of proposed construction works

What is the timing for the construction?
We plan to carry out building work from 2021 to 2025 for the plant and then 2030 for the second reservoir. Between now and then, we will be focusing on achieving statutory approvals and carrying out a detailed design.

Design

Has the proposed replacement plant been designed yet?
No, we will engage a contractor to design and build the replacement treatment plant, based on parameters that are set by the conditions of the resource consents and the outline plan of works. This gives the contractor the opportunity to be innovative.

Employment

Will you provide employment to locals and use local businesses during construction?
We will follow an open tender process when engaging contractors to undertake construction. Once appointed, it will be up to the contractor to engage local businesses, however in a competitive market this is not a stipulation. Normally there are some flow-over localised economic benefits of construction at this scale in a small community.

Mitigation

What mitigation is proposed to offset any adverse environmental or social effects?
We are proposing a substantial environmental compensation package as well as social mitigation initiatives to off-set any adverse effects. These include:

- Establishing and funding a charitable public trust to provide funding (at this stage for 10 years) to private groups that seek to undertake pest and weed control and other environmental projects in the 'Waima' catchment of the Waitākere Ranges. The trust will be managed by a full-time person funded by the trust through Watercare. The trustees will include a Watercare representative and members of the community/interest groups.
- Upgrading the intersection of Woodlands Park Road and Scenic Drive, including the Exhibition Drive car park, to improve traffic and pedestrian safety and parking.
- Carrying out remedial work on the historical Nihotupu Filter Station in order to give it new life as an office and/or exhibition space.

What will happen to the historic Huia Water Treatment Plant?

Heritage aspects of the building will be retained and protected. The remainder of the site is likely to be demolished, including that part of the plant to the east of the historic section. This will be demolished to make way for the second reservoir. Opportunities will be considered for the on-going use of the heritage facility once the works are completed.

Community engagement and impacts

How have you been engaging with the community?
We recognise the significance of the proposed construction site and understand why our project is of public interest. For this reason, we are taking great care to engage with the community through numerous channels.

We have held open days at our ageing plant and drop-in events at Lopdell House in Titirangi. We have distributed newsletters to the local community, briefed councillors and local board members, and responded to over 1600 emails.

In 2017, we set up a community liaison group to work with us as we developed the proposal for the plant. We meet regularly to discuss ways to optimise the design, minimise adverse effects and deliver good community outcomes.

The group is made up of representatives from a wide range of organisations: West Auckland Historical Society, Titirangi Protection Group, Waitākere Ranges Protection Society, Titirangi Residents and Ratepayers Association, Auckland Botanical Society, Tree Council, Forest and Bird Waitākere Branch, and Waima and Woodlands Park Residents and Ratepayers Association.

We also supported the appointment of an independent ecologist and planner to the community liaison group. They have been advising the group on ecological, planning and mitigation matters.

Has the impact on 'village life' in Titirangi been considered?
The treatment plant has been a part of the local Waima community since 1928. We are simply proposing to replace the existing plant with a modern facility built to today's standards. We don't believe there will be any direct impact on village life or local schools on the completion of the project.

Will Exhibition Drive be closed during the works?
We understand the value of Exhibition Drive to the community and will aim to keep the walkway open where we can ensure public safety. There could be some temporary access restrictions in order to ensure public safety during construction of the treated water reservoir. Notice would be given well in advance.

What is the impact on local walking tracks and what new tracks will be developed to replace any affected?
Auckland Council has closed Clarks Bush walking track due to kauri dieback. Watercare will work with the council if requested to realign the walkway if it is reopened.

How will local residents be affected by the replacement plant?
The replacement plant may visually impact some neighbouring properties. We will work with landscape architects to screen the site and choose building cladding and colours to minimise any effect. The proposed plant will be screened from the roadway by planting as is the existing plant.

The new storage reservoir on Woodlands Park Road will be buried and screened from the road by appropriate planting. This means it will not be visible from Woodlands Park Road.

The storage reservoir on the existing site will also lie below the adjacent section of Woodlands Park Road for most of its length. Screen planting will be carried out to ensure that the reservoir is also screened from the roadway.

Will there be a buffer around the houses that back onto the site?
Of the five houses that have a common boundary with the plant site, three will be separated from the plant by the area of bush that has been excluded from any development. The other two properties will be screened from the plant by extensive landscaping.

Running the replacement plant and reservoirs

Will you need to expand the new treatment plant in the future?
No. As with the existing treatment plant, the replacement plant will only treat water from four dams in the Waitākere Ranges and we do not intend to increase the size of these dams. Water from Waitākere Dam will continue to be treated at Waitākere Water Treatment Plant. We assessed whether the replacement plant could accommodate water from this dam and decided it is not viable.

Will the replacement plant have an impact on local traffic?
The ageing plant has around 10 truck movements per week, with additional traffic from up to 15 staff located at the site during normal working hours. The new plant would have similar traffic movements.

Is the site suitable to accommodate a new treatment plant without a risk of slips and earthquakes?
Geotechnical engineers have studied the site and believe that the new plant can be developed on the site without risk of land instability. More detailed work will be undertaken on the geotechnical aspects of the site prior to construction to inform construction plans. Unlike the current plant, the new plant will be designed and built to current earthquake standards.

How much noise will the new plant make?
Most of the treatment processes utilise gravity and are non-mechanical so noise can be managed. Unlike the current plant, the processes and auxiliary equipment will be within buildings. This design will minimise any 'noisy' components, ensuring all regulatory noise limits can be met.

How much light will the plant generate?
Lighting will be required for safety purposes and will be designed to minimise any light spillage. Access lighting will be sensor-based and designed for safety.

Is chlorine stored at the current Huia Water Treatment Plant and will this be the same for the new water treatment plant?
Chlorine gas for water disinfection has been successfully and safely used in Auckland, at a number of our water treatment facilities, since the early 1900s. The operational use of chlorine gas is governed by comprehensive standards that are designed to ensure that this substance is used safely and requires strict controls regarding its management, storage and use. At our larger facilities, chlorine is stored on site in 920 kilogram containers in purpose-built facilities designed and operated to the required standards. The Huia Water Treatment Plant currently stores eight of these 920 kilogram containers. There is a long history of safe chlorine use by Watercare at such water treatment facilities without incident.

Watercare has not decided the chemical to be used for in the disinfection process at the replacement Huia facility. There are a number of options available, each of which have their own complexities. Until this decision is made we cannot confirm whether chlorine will be used, whether it will be in a gas form or produced on site or another process used.

How will you blend and integrate the plant into its surroundings?
A 10-metre buffer zone of vegetation will remain around the plant, helping to screen some of the facility. Unlike the old plant, the new one will be architecturally designed with the environment as a consideration to blend the building into its surroundings by using colour and texture treatments.

Can access be provided to the top of the new reservoirs for viewing?
The two reservoirs will not be elevated so will not provide any viewing platforms.

How will you incorporate sustainability into the replacement treatment plant?
One of the biggest factors is the use of gravity which reduces the need for energy. Other factors will also be incorporated into the design including low-energy lighting. Solar panels will also be considered, subject to potential issues with their visual impact.

Will the off-spec water discharges from the treatment plant impact on downstream waterways?
The replacement treatment plant will utilise the dry lagoon on the existing treatment plant site. Currently, there are very few off-specification water discharges from the ageing treatment plant. We expect there will be even fewer from the replacement treatment plant.

The replacement plant will focus on returning off-spec water to our dams where it can be reused. Any water discharged from the site will be released in a controlled manner via an onsite storage lagoon, ensuring effects on the environment are managed in accordance with resource consents.

All stormwater from the proposed facilities will be either directed into the existing dry lagoon or into a new lagoon on the new treatment plant site.