1.0 APPLICATION DESCRIPTION

Application and property details

Fast-Track project name:	Auckland Surf Park Community Stage 2 1320 Dairy Flat Highway, Dairy Flat, Kumeu
Fast-Track application number:	FTAA-2606-1246
Council reference number:	BUN60467823

2.0 Technical Specialist Memo (Final Draft) – Groundwater Abstraction

To:	Brooke Dales, Consultant Planner Warwick Pascoe – Principal Project Lead
From:	Sharon Tenger (ENGEO Ltd, Senior Hydrogeologist) on behalf of Coastal and Water Allocation Team, Auckland Council; and Sean Berry (ENGEO Ltd, Senior Hydrogeologist) on behalf of Coastal and Water Allocation Team, Auckland Council
Qualifications & Relevant Experience:	<u>Sharon Tenger</u> I hold a MAppSc. Groundwater and a BSc. (Hons) Earth Sciences. My masters specialised in catchment hydrogeology and hydrogeochemistry in Australia. I have 32 years of consulting and Council experience in geology and hydrogeology. For 13 of these years, I worked for Auckland Regional Council/Auckland Council as a groundwater and contaminated land specialist processing resource consents and undertaking compliance and enforcement under the RMA. I also worked as a Groundwater Scientist undertaking research, investigations and monitoring, including managing the State of the Environment SoE Groundwater Quality Monitoring Programme and the Contaminated Site Remediation Fund 'Green Stream' groundwater project. An important part of my role was providing specialized groundwater advice for Auckland Regional Council/Auckland Council regulatory services, policy and planning units and legislative development including regional & unitary plans and MfE national guidelines and National Environmental Standards. My consulting experience is both in New Zealand and overseas including hydrogeological assessments related to operational and closed landfills, managed fills, quarries, petroleum hydrocarbon & timber treatment facilities, wastewater treatment facilities, dairy industry, coal & gold mining and mine closures and land development projects. I specialized in hydrogeological assessments for Switzerland's

	National Cooperative for the Disposal of Radioactive Waste (NAGRA) and potential landfill disposal sites. I have a proven track record as an expert witness with successful groundwater take, use and discharge consents for clients in Environment Court and District Court. <u>Sean Berry</u> I hold a MSc (Geology) and BSc (Geology). My MSc thesis was based on 3D numerical groundwater modelling of urban aquifers containing municipal abstraction wells. I have 20 years of consulting experience in engineering geology and hydrogeology, across the land development and heavy industry sectors. My area of expertise includes groundwater supply, dewatering management / groundwater level control, and management of environmental effects of groundwater diversion and abstraction.
Preparation in Accordance with the Code of Conduct:	I, Sharon Tenger, confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified. I, Sean Berry, confirm that I have read the Environment Court Practice Note 2023 – Code of Conduct for Expert Witnesses and have complied with it in the preparation of this memorandum. I also agree to follow the Code when participating in any subsequent processes, such as expert conferencing directed by the Panel. I confirm that the opinions I have expressed are within my area of expertise and are my own, except where I have stated that I am relying on the work or evidence of others, which I have specified. During the initial technical review process, ENGEO hydrogeology staff have become aware of ENGEO's previous engagement for the applicant in the hazardous substance discipline (HSNO) to which we have made Auckland Council aware with respect to a potential perception of Conflict of Interest (COI). The HSNO works are unrelated in all material aspects to the scope of the groundwater abstraction assessment that I have reviewed.
Signature:	 Sharon Tenger  Sean Berry
Date:	14 October 2026

3.0 Executive Summary

AW Holdings 2021 Limited is seeking approval for the Auckland Surf Park Community Stage 2 project under the Fast-track Approvals Act 2024 (FTAA). The proposal comprises a mixed-use development including a surf lagoon, artificial intelligence data centre, residential neighbourhoods, accommodation, village centre, live-work precinct, solar farm, water and wastewater infrastructure, subdivision and associated activities at 1320 and 1350 Dairy Flat Highway, 89 and 105 Lascelles Drive, and 237 and 253

Postman Road, Dairy Flat. The proposal also includes variations to the previously approved Auckland Surf Park Community Stage 1 development. The project is intended to be serviced by an onsite potable groundwater water supply.

This memorandum reviews the applicant's proposal to take and use groundwater from the Rangitopuni Waitematā Aquifer to supply the Auckland Surf Park Community development. The application seeks approval for the abstraction of up to 1,303 m³/day and 256,230 m³/year of groundwater from up to two consented production bores for potable water supply purposes. Note only Bore 1 (LUC60444889) has been drilled and assessed in this application. The proposed groundwater take will provide the primary water source for the development, including the surf lagoon, residential, commercial, accommodation and associated community facilities. The development will also incorporate supplementary water sources, including a previously consented stream water take and rainwater harvesting measures.

To assess the potential effects of the groundwater abstraction, the applicant has provided the report '*Groundwater Take Assessment Auckland Surf Park Community – Groundwater Take'* prepared by Williamson Water & Land Advisory (AEE - Appendix 40), together with proposed groundwater take consent conditions contained in AEE - Appendix 61. The assessment considers groundwater availability, neighbouring bore effects, stream depletion, saline intrusion risk and land settlement effects associated with the proposed abstraction.

The AEE concludes that sufficient groundwater allocation is available within the Rangitopuni Waitematā Aquifer to accommodate the proposed demand. The applicant's assessment indicates that potential drawdown effects on neighbouring groundwater users are negligible, predicted stream depletion effects are small relative to mean annual low flows of receiving streams, the risk of saline intrusion is low due to the depth and construction of the production bores, and the potential for land settlement is negligible. The proposed consent conditions include abstraction limits, water metering and telemetry, groundwater level monitoring, water use efficiency reporting and ongoing compliance monitoring.

The applicant concludes that, subject to the groundwater take being undertaken in accordance with the application documents, any further information provided, and appropriate groundwater take conditions of consent, the adverse environmental effects associated with the proposed groundwater abstraction will be less than minor.

My review has identified several matters requiring further clarification and assessment, particularly regarding bore construction, aquifer characterisation, groundwater modelling assumptions and potential cumulative effects. These matters are summarised in Section 7 of this memorandum 'Section 67 Information Gap'.

4.0 Documents Reviewed

The following documents have been reviewed in preparing this memorandum:

- *Auckland Surf Park Community - Stage 2, 1320 and 1350, Dairy Flat Highway, 89 and 105 Lascelles Drive, 237 and 253 Postman Road, Dairy Flat. Hyperscale Artificial Intelligence Data Centre, Integrated Residential Development, Town Centre, Live – Work Development, Associated*

Activities, Subdivision and Variation to Stage 1 Decision BUN60429155, Assessment of Environmental Effects and Statutory Analysis. Prepared for AW Holdings 2021 Limited by Barker & Associates Urban & Environmental, dated 8 June 2026 (including Appendices 40, 61 & 68 only). (AEE)

- *Groundwater Take Assessment Auckland Surf Park Community – Groundwater Take.* Prepared for AW Holdings (LP) Partnerships by Williamson Water & Land Advisory (WWLA), Reference WWLA1623 Rev 4, dated 19 February 2026. (AEE Appendix 40 – Groundwater Take)
- *Auckland Surf Park Community, Stage 2 – Draft Resource Consent Conditions*. Prepared for AW Holdings 2021 Limited by Barker & Associates Urban & Environmental, dated 5 June 2026. (AEE Appendix 61 – Draft Consent Conditions)
- *Auckland Surf Park Community, Stage1 and Stage 2 Comparison Table and Drawings*. Prepared for AW Holdings 2021 Limited by Barker & Associates Urban & Environmental. (AEE Appendix 68 – Stage 1 and Stage 2 Comparison Table & Plans)

5.0 Additional Reasons for Consent Not included in AEE / Incorrect Reasons for Consent

The application correctly identifies the proposed groundwater take as a discretionary activity under Rule E7.4.1(A26) of the Auckland Unitary Plan. However, while the AEE acknowledges that the Chapter E7 objectives and policies are linked to the Chapter E2 Water Quantity, Allocation and Use provisions, it does not provide a separate assessment against the relevant E2 policy framework and instead concludes consistency with E2 by reference to the groundwater assessment prepared by Williamson Water & Land Advisory. Given the uncertainties identified in my Section 67 review regarding aquifer characterisation, groundwater availability and potential effects, I consider the assessment of the relevant E2 and E7 objectives and policies to be incomplete.

6.0 Specialist Assessment

This assessment is based on the AEE, proposed consent conditions and the matters identified through my Section 67 review.

6.1 Aquifer allocation and availability

The applicant describes the proposed take as being from the Rangitopuni Waitematā Aquifer. Bore 1 is 680 m deep, cased and grouted to 400 m below ground level (bgl), and open from 400 m to 680 m bgl. The application identifies this production interval as greywacke underlying the Waitematā Group mudstone and siltstone, however other logs describe the production zone as Waitematā Formation interbedded sandstone and mudstone. The available information therefore does not consistently establish whether Bore 1 abstracts from the Rangitopuni Waitematā Aquifer or the deeper Waipapa Terrane greywacke aquifer.

The Rangitopuni Aquifer Management Area allocation limit of 530,000 m³/year has recently been re-assessed by Auckland Council to be 1,175,500 m³/year. The updated Rangitopuni Waitematā Aquifer allocation and availability are summarised below.

Table 1: Groundwater allocation and availability - Rangitopuni Waitematā Aquifer

Allocation	Annual volume (m³/year)
Aquifer allocation limit	1,175,500
Existing consented allocation	42,650
Permitted activity takes	40,000
Auckland Council modelled demand under section 14(3)(b)	81,423
Total existing water demand	164,073
Availability before this application	1,011,427
Maximum abstraction modelled (1,303 m^3/day for 197 days)	256,691
Indicative remaining availability after this take	754,736

The application and proposed conditions specify an annual maximum of 256,230 m³/year. However, the modelled abstraction of 1,303 m³/day for 197 days totals 256,691 m³/year, a difference of 461 m³/year. The application, modelling and proposed conditions should be reconciled.

With the applicant's assumed Rangitopuni Waitematā Aquifer classification, there is sufficient nominal allocation for the proposed take. I cannot confirm that conclusion until the production aquifer is definitively identified.

Recent information provided to Council in the nearby 24 Horseshoe Bush Road water take application assesses the aquifer as the Rangitopuni Waitematā Aquifer through fossil dating. The technical supporting information needs to be provided to Council to confirm this classification, however on the basis that this dating assessment is likely accurate, sufficient water is available to allocate 256,691 m^3/year.

6.2 Water demand and efficient use

The requested groundwater take is based on an estimated average demand of 701.5 m³/day, peak-day demand of 1,303 m³/day and peak-hour demand of approximately 21.6 L/s for 2.5 hours per day (AEE Appendix 40, Table 4). Note, the accompanying text incorrectly describes the average- and peak-day

demands as yearly quantities. The applicant states that onsite storage will supplement bore flow during peak-hour demand.

The adopted demand includes 220 L/person/day for residential use, 65 L/person/day for several commercial and retail activities, 45 to 50 L/person/day for daycare uses, and a separate allowance of 100 m³/day for the surf lagoon. The proposed efficiency measures are regular maintenance of water-using equipment and metering with 15-minute recording and telemetry.

The demand assessment provides a broad basis for the requested quantity but does not yet demonstrate efficient use of water. Further information is required to:

- justify the adopted residential, commercial, retail and daycare demand rates;
- explain the derivation of the separate recurring / year-round 100 m³/day surf-lagoon allowance;
- demonstrate that onsite storage can fully meet peak-hour demand above the proposed 15 L/s bore supply;
- quantify how rainwater harvesting and the retained surface-water supply reduce groundwater demand; and
- establish measurable leakage, conservation, water-reuse and staged-demand measures.

Until these matters are addressed, I cannot confirm that the full quantity sought is justified or represents efficient use of the groundwater resource. The authorised limits should be linked to demonstrated demand, development staging, storage and available alternative supplies.

6.3 Bore capacity and sustainable yield

Only Bore 1 has been constructed and assessed. Bore 2 has not been drilled and no bore-specific assessment of effects has been provided for abstraction from that location. The present assessment should therefore apply to Bore 1 only, specifically since the geology/hydrogeology surrounding Bore 2 is unknown and the location is significantly closer to Redvale Landfill with the potential risk of changing hydraulic pressures and contaminated groundwater flow direction. Abstraction from Bore 2 would require further assessment and appropriate authorisation.

The applicant states that Bore 1 has sufficient capacity to meet the development demand. However, the pumping-test and recovery analysis supporting the adopted aquifer parameters and sustainable yield have not been provided. The heterogeneous fractured-rock aquifer, potential for aquifer boundary effects with the Allochthon faulting, low aquifer hydraulic conductivity and predicted large drawdown mean that short-duration (24hr) pumping testing would not adequately identify sustainable yields or aquifer-boundary effects.

A minimum 72-hour constant-rate pumping test, at not less than the proposed maximum abstraction rate, with at least 90% recovery is required. Monitoring should include Bore 1, (Bore 2 if drilled) and nearby neighboring bores completed in the Tauranga Group, Mahurangi limestone, Waitematā/Greywacke production aquifer (including the proposed 24 Horseshoe Bush Road water

bore(s) if drilled) together with relevant Redvale landfill/contaminated-site monitoring wells. Until this testing is completed, I cannot confirm that the proposed 15 L/s yield or annual volume is sustainable.

6.4 Conceptual hydrogeological model and modelling

The conceptual site model is not consistent with the available geological information of the area. The AEE text, bore log and drillers' summary provide different interpretations of the geological sequence and production aquifer. The conceptual model of the structurally complex and heterogeneous Northland Allochthon, Waitematā Group and possible Waipapa Terrane materials is represented as broadly continuous and homogeneous layers. Groundwater occurrence is likely to be strongly controlled by variable weathering, bedding, fractures, faults, shear zones and clay-rich materials, and therefore may not conform to the adopted laterally continuous, layered aquifer geometry or associated aquifer characteristics.

The Bore 1 static water level of approximately 54 to 56 m bgl represents the pressure level of the deep production aquifer and should not be applied as the unconfined (Layer 0) water-table depth. Available nearby bore information indicates shallow groundwater in Tauranga Group materials at approximately 0.2 to 3 m bgl. The hydraulic head separation or leakage between these shallow materials, limestone, Waitematā units and the deep production interval has not been established.

The applicant's analytical model predicts approximately 200 m of drawdown in the deep production aquifer beside Bore 1 after 197 days of continuous pumping, reducing to 1 m at 2.7 km and 0.2m at 3.9km, however based on the laterally continuous layering and relatively high production aquifer storativity of 0.0019, the accuracy of the drawdowns may be questionable for the complex faulted and fractured rock geology in this area.

These uncertainties materially affect the reliability of the predicted drawdown, recharge response, stream depletion, neighbouring-bore interference, settlement, saline intrusion and contaminant migration. The conceptual model and groundwater modelling should be revised using confirmed geological units, verified bore information, an extended pumping-test response and observation well monitoring to provide, representative hydraulic parameters and sensitivity analysis, and diagnosis of aquifer boundary conditions.

6.5 Assessment of effects

<u>6.5.1 Aquifer recharge:</u>
The applicant's assessment relies principally on comparison with the reported Rangitopuni Waitematā Aquifer allocation limit. It does not establish the relative contributions of recharge, storage, lateral inflow, vertical leakage and induced surface-water depletion. Long-term monitoring should confirm seasonal recovery and identify any progressive groundwater-level decline.

<u>6.5.2 Aquifer consolidation and settlement:</u>
Settlement effects are likely to be low if abstraction is confined to competent, fractured rock that is hydraulically separated from compressible near-surface materials. However, this separation has not been adequately demonstrated. The assessment should be revisited using the revised conceptual model and

pumping-test observations, particularly if measurable drawdown occurs in shallow groundwater or compressible strata.

6.5.3 Surface water:
The applicant predicts that 14% of abstraction would be derived from the shallow model layer after 197 days, equivalent to stream depletion of approximately 182 m³/day or 2.1 L/s. This prediction depends on the uncertain model layering and vertical hydraulic connection. The distribution of depletion between the Rangitopuni Stream, Dairy Stream and unnamed tributaries, particularly during low-flow conditions, has not been adequately established. Shallow groundwater and representative surface-water monitoring should be incorporated into the pumping test and the depletion assessment subsequently updated.

6.5.4 Saltwater intrusion:
The applicant considers the risk to be low due to the bore depth and grouted casing. While this reduces direct vertical leakage beside the bore, it does not prevent lateral saline movement within the production aquifer. Given the predicted deep-aquifer drawdown and uncertain aquifer boundaries, the pumping test and operational monitoring should include electrical conductivity, chloride and other appropriate salinity indicators.

6.5.5 Groundwater drawdown and effects on other lawful takes:
The applicant identifies 36 bores within the modelled production zone 0.2 m drawdown contour, which extends approximately 3.9 km from Bore 1, and predicts up to 4.5 m drawdown in bore (#1119) assumed to be installed in the overlying mudstones/siltstones located ~1.2 km from Bore 1. It concludes that effects on neighbouring bores will be negligible. However, the bore search may not include current Council records, and a number of bore depths, casing depths and static water levels have been assumed or interpolated. Some bores treated as potential supply bores appear to be monitoring wells for the Redvale Landfill, for which “available drawdown” is not an appropriate effects measure.

Other lawful takes and relevant environmental monitoring bores have therefore not been adequately identified or assessed. An updated Council bore and consent search verified construction details, aquifer assignments and water levels, and a cumulative drawdown assessment are required. The revised assessment should identify locations where modelled drawdown is unreliable and establish appropriate monitoring and interference-response measures.

6.5.6 Potential contamination & contaminant mobilisation:
The application does not adequately assess whether pumping could mobilise contaminated groundwater or alter existing leachate migration and containment. Potential sources include Redvale Landfill and a nearby service-station monitoring network. The modelling indicates approximately 2 to 8 m of drawdown across the landfill area, while Bore 1119, assessed by the applicant as a neighbouring bore, may form part of the landfill monitoring network.

The significance of these effects cannot be determined until the production aquifer, inter-aquifer connections, contaminant-source depths and existing hydraulic containment mechanisms are confirmed. Pumping tests and long-term monitoring should include appropriate water-quality locations and parameters. A Groundwater Monitoring and Response Plan (GMRP) should establish baseline conditions, trigger levels, investigation requirements and criteria for reducing or ceasing abstraction if contaminant migration is identified.

6.6 Conclusion

Based on the applicant's assumed aquifer classification, the proposed groundwater take falls within the reported nominal allocation. However, the reviewed information does not establish that the requested quantity is efficient and fully justified, that Bore 1 can sustainably provide the required yield, or that the potential environmental effects have been adequately identified, assessed, and appropriate monitoring adopted.

The key unresolved matters are:
1) the identification of the production aquifer and applicable allocation framework;
2) reconciliation of the requested 256,230 m^3/year with the modelled 256,691 m^3/year;
3) substantiation of water demand and alternative-source contributions;
4) completion of a minimum 72-hour pumping test and recovery monitoring;
5) revision of the conceptual hydrogeological model and groundwater modelling;
6) identification of potentially affected lawful takes and monitoring bores; and
7) reassessment of surface-water depletion, settlement, saline intrusion and contaminant-migration effects.

Until these matters are resolved through the Section 67 information response, field testing and an updated assessment of effects, I am unable to confirm that the proposed groundwater take can be supported in its current form. I do however note that the bulk of uncertainties as identified are matters that can typically be addressed through:
a) industry standard processes
b) adoption of monitoring against adverse effects trigger levels
c) conditioning for delivery of outstanding information prior to commencement of abstraction, and for provision of ongoing monitoring against adopted thresholds

7.0 Section 67 Information Gap

The following key information gaps were identified during the Section 67 review:

Production aquifer identification

- Inconsistent geological descriptions, bore logs and drilling records create uncertainty as to whether Bore 1 abstracts groundwater from the Rangitopuni Waitematā Aquifer or a deeper greywacke aquifer associated with the Waipapa Terrane.
- Definitive geological logging and confirmation of the production aquifer are required.

Groundwater allocation and availability

- Confirmation of the applicable allocation framework and groundwater availability is required for the aquifer production zone.

Water demand and efficient use

- Further justification is required for the adopted water demand assumptions, including residential, commercial and surf lagoon demands.
- The contribution of alternative water sources, onsite storage and water conservation measures has not been adequately quantified.

Bore sustainable yield

- Pumping test information is insufficient to demonstrate that Bore 1 can sustainably yield the proposed abstraction rate.
- Further pumping test, or performance monitoring, information is required to demonstrate that Bore 1 can sustainably supply the proposed abstraction rate and annual volume. This may include a longer-duration (minimum 72-hour) pumping test and recovery monitoring sufficient to assess sustainable yield, aquifer boundaries and groundwater response.

Conceptual hydrogeological model and groundwater modelling

- The conceptual site model is inconsistent with the available geological information.
- Additional justification is required for the adopted hydrogeological parameters, model calibration and sensitivity analyses.
- The discrepancy between the modelled abstraction volume (256,691 m^3/year) and requested annual take (256,230 m^3/year) requires clarification.

Potential effects on groundwater and surface water

- Additional assessment is required to verify predicted drawdown, stream depletion and groundwater-surface water connectivity, and to confirm the assumptions adopted regarding aquifer recharge.
- Existing lawful groundwater takes and environmental monitoring wells require further verification using updated Auckland Council bore records.

Affected parties and bore inventory

- Updated Auckland Council bore records, bore construction details, screened intervals and groundwater levels have not been fully incorporated into the assessment.
- Further verification is required to confirm potentially affected groundwater users and environmental monitoring wells. Of note, a recent nearby application proposing to take up to 593 m^3/day and 217,175 m^3/year groundwater from 2 bores at 24 Horseshoe Bush Rd and associated properties is also in process. Should this application be granted the boreholes are proposed to be drilled to similar depths, and the groundwater take is anticipated to be from the same aquifer.

Both applications, if granted, are potentially affected parties to the other proposed bores and takes.

Groundwater quality and contaminant migration

- Further assessment is required regarding potential groundwater quality effects and contaminant migration, including possible hydraulic effects on Redvale Landfill monitoring wells and other nearby contaminated sites.
- Long-term groundwater level and groundwater quality monitoring requirements remain to be developed.

Resolution of these matters is necessary before the environmental effects of the proposed groundwater take can be reliably assessed.

8.0 Recommendation

While significant information gaps exist in the groundwater take assessment, in principle, with appropriate consent conditions and mitigation controls, the outstanding issues are not expected to be insurmountable. Based on this, and where the applicant is prepared to, a) accept the risk of the uncertainty around the long term bore yield / sustainability, and b) implement performance monitoring and mitigation measures should hydraulic heads changes exceed adopted thresholds, I would support the application.

If the application is granted, I highly recommend that the water take is approved for Bore 1 only, since the hydrogeology of Bore 2 and the surrounding area is currently unknown and no assessment of yield or environmental effects has been provided in this application for a water take from Bore 2.

Based on the Panel Minute 2 – Appendix 1 Parties invited to comment under section 53(2) of the Act, I recommend under s53(2)(h) owners and s53(2)(i) occupiers that the land associated with the 24 Horseshoe Bush Road proposed residential development and groundwater take application are invited to comment, noting the proposed groundwater take is large, likely within the same aquifer and there is potential for cumulative drawdown effects for both parties.

9.0 Proposed Conditions

9.0 Applicant's Proposed Conditions

The applicant has proposed a suite of conditions for the s14 Water Permit for groundwater take and use consent within Appendix 61 - Stage 2 LUC, DIS and WAT Conditions.pdf. The proposed conditions comprise general administrative requirements, abstraction limits, monitoring requirements, reporting obligations and a review condition.

Table 1 below contains the groundwater take related conditions proposed by the applicant and my comment on them. I have followed the numbering of the Stage 2 - Draft Resource Consent Conditions proposed in the AEE Appendix 61.

9.1 Council's Proposed Conditions

To fulfill the outstanding gaps in the groundwater take assessment and provide confirmation on the conclusions of the assessment, the additional conditions of consent are proposed in Table 2. These conditions close the main gaps by: a) limiting the consent to Bore 1, b) requiring aquifer and sustainable-yield verification before operational abstraction, c) updating the effects assessment, d) establishing enforceable monitoring, triggers and responses, and e) allowing for short-term regulatory review of consented abstraction limits.

Should the Expert Panel choose to grant this groundwater take consent to include abstraction of groundwater from Bore 2 as per the lodged application, it is recommended to include the additional condition of consent proposed in Table 3. This additional condition of consent is to reflect the unknown hydrostratigraphy at the bore 2 location, and lack of any assessment of yield or environmental effects having been provided for the additional abstraction point. It is noted that completed bore 1 is understood to have differed significantly from the original proposed construction due to variations in the assumed ground conditions, and a similar variability at bore 2 (if constructed) may be encountered.

Table 1 – Applicant's Proposed Consent Conditions

Condition	Proposed Conditions	Comment or suggestion
368	The groundwater take and use must be undertaken in general accordance with the application formally received by the Environmental Protection Authority on [insert date], and the following documents: (a) Application form and Statutory Analysis and Assessment of Environmental Effects prepared by Barker & Associates Ltd titled "Auckland Surf Park Community - Stage 2 and s.127 for Stage 1" and dated [insert date]; (b) The reports listed at Attachment 1; and (c) The drawings and plans listed at Attachment 2. If any of the provisions of the documents at Attachments 1 or 2 conflict with the requirements of these conditions of consent, these conditions of	Auckland Council Planner to advise.

	consent must prevail.	
369	The Consent Holder must pay the Council an initial consent compliance monitoring charge of $796 (inclusive of GST), plus any further monitoring charge or charges to recover the actual and reasonable costs incurred to ensure compliance with the conditions attached to these consents.	Auckland Council Planner to advise.
370	The taking of water permit [insert WAT ref] will expire 35 years from the commencement date unless it has lapsed, been surrendered, or been cancelled at an earlier date, pursuant to section 123 the RMA.	Expiry to be 25 years on 30 June 2051, this giving effect to Policy E.2.3 (17) which provides for the concurrent review or all water take and use consents in the Rangitopuni Waitemata Aquifer, and accounts for the uncertainties in the water take assessment.
371	The Consent Holder must notify the Council, within one week of the commencement of groundwater abstraction under water permit [insert WAT ref]. *Advice Note: The notification of the commencement of groundwater abstraction should be submitted to monitoring@aucklandcouncil.govt.nz.*	Change wording to 'within one week prior to the commencement of groundwater abstraction…'
372	The consent will lapse 10 years after the granting of consent if the consent has not been given effect to.	Consent lapse time to be 3

<table>
<tr><td></td><td></td><td>years after granting (refer to Council proposed Condition 388)</td></tr>
<tr><td>373</td><td>The take and use of groundwater from the Rangitopuni Waitematā Aquifer is authorised in the manner set out below:

(a) The take is from the following proposed bores or bores certified by the Council:

<table><tr><th>Bore ID</th><th>Bore Name</th><th>Consent No</th><th>Proposed depth (m)</th><th>Proposed location</th></tr><tr><td>31647</td><td>Bore 1</td><td>LUC60444889</td><td>680</td><td>1747217mE, 5942222mN</td></tr><tr><td>31657</td><td>Bore 2</td><td>LUC60446994</td><td>600</td><td>1746739mE, 5942032mN</td></tr></table>
(b) The take must only be used for the ASPC development on land legally described as the following:

• Lot 3 DP 607404

• Lot 4 DP 607404

• Lot 1 DP 151504

• Lot 2 DP 151504

• Lot 4 DP 66181

• Lot 1 DP 605825</td><td>Bore 1 only to be authorised.

Abstraction from Bore 2 will be subject to Council's approval and following provision of a separate pumping test assessment of effects and report.</td></tr>
<tr><td>374</td><td>Within 10 days of the consent being granted, the Consent Holder must provide to the Council the details of a nominated contact person, including their full name, their role with respect to the consent (for example, consent holder, tenant, site manager), a valid email address and mobile phone number that the Council may contact if required, regarding water use data. The contact details must be kept up-to-date, and the Council must be notified of any changes within 10 working days of the change occurring.

Advice Note: The contact person may be someone other than the consent holder, for example, a site manager or tenant. However, overall</td><td>Auckland Council Planner to advise</td></tr>
</table>

	responsibility for compliance with consent conditions remains with the consent holder.	
375	The abstraction in accordance with consent [insert WAT ref] must comply with the following: (a) The total daily abstraction must not exceed 1,303 cubic metres; (b) The total volume of water abstracted in each 12-month period, commencing 1 July of any year and ending 30 June of the following year must not exceed 256,230 cubic metres.	Accepted
376	If any limits specified in Condition (375) are exceeded, the consent holder must provide the Council with a report detailing: (a) The reason for the exceedance and the mitigation measures proposed to ensure future compliance; and (b) A timeframe for implementing the mitigation measures.	The consent holder must notify the Council within 1 week of the exceedance.
377	The report required under Condition (376) must be submitted to the council within one (1) month of the identified exceedance. *Advice Note: The exceedance notifications report should be submitted to monitoring@aucklandcouncil.govt.nz.*	Accepted
378	A water meter with a visual tumbler display and an electronic pulse output connected to a data logger and telemetry device, must be installed and maintained on bores 1, 2, and 3 prior to the abstraction of groundwater, to the satisfaction of Council. The water meters and recording device/systems must: (a) Be fit for the purpose and water it is measuring; (b) Measure the volume of water taken, with an accuracy of +/- 5% of the actual volume taken; (c) Transmit the volume of water taken in real time. The telemetry device must transmit logged data at intervals of no more than 60 minutes to the Council Consents and Compliance Water portal of the Hydrotel database (or to any replacement database required in writing by Council) in a format	Accepted, except only to apply to Bore 1. It is recommended not to authorize the water take from Bore 2 (nor the unreferenced bore 3).

	that is compatible with Council systems; (d) Be tamper-proof and sealed; (e) Be installed (water meter) on the outlet pump; (f) Have systems and equipment in place to ensure continued operation in the event of a power outage; (g) Have backup data storage; (h) Be safely accessible; and (i) Be installed and maintained in accordance with the manufacturer's specifications.	
379	Prior to exercise of this consent, the Consent Holder must contact environmentaldata@aucklandcouncil.govt.nz or to any replacement email address identified in writing by the Council, to arrange set-up of the telemetry device to ensure logged data is transmitting to the Council correctly. *Advice Note: As per the Resource Management (Measurement and Reporting of Water Takes) Amendment Regulations 2020, a water permit holder (resource consent holder) is required to record measurements of their water abstraction at 15-minute intervals and electronically provide to council daily records of the measurements by the end of the next day (unless otherwise agreed by council) starting on the following date for a water permit that allows water to be taken at the rate specified:* *(a) 3 September 2022 for a water permit for ≥20 litres/second;* *(b) 3 September 2024 for a water permit for ≥10 but <20 litres/second;* *(c) 3 September 2026 for a water permit for ≥5 but <10 litres/second.*	Accepted
380	The water meters and any device or system used to record water take volume, must be verified in-situ as accurate by a person that has obtained a relevant NZQA recognised qualification in the verification and installation of water meter, at the following times: (a) Prior to the exercise of this consent; (b) Within 5 working days of the water meter being serviced or replaced;	Accepted

	and (c) By 30 June of the fifth year from the commencement of consent, and thereafter at five yearly intervals. The water meters, their verification and evidence of its accuracy must be in accordance with the Resource Management (Measurement and Reporting of Water Takes) Regulations 2020 (or any equivalent regulations that may replace them) and a copy of the verifications must be provided to the Council within 10 working days of the meter/devices being verified as accurate.	
381	Provision at the top of the bore for water level measurements must be made and maintained so that a probe can be lowered vertically into the bore between the riser tube and casing to measure the static water level in the bore. *Advice Note: Access to the wellhead for water level measurement can be achieved by having an access tube of at least 2 centimetres internal diameter extending from the top of the bore to the submersible pump. In order to keep out foreign matter, the tube should be fitted with an easily removed plug.*	Accepted
382	Provision at the top of the bore for water quality sampling must be made and maintained so that a sample of water can be taken from the bore for water quality analysis. A tap or hand valve must be fitted as close to the pump outlet as possible and before the water enters any storage tank or filter. The tap or valve should have at least 0.3 metre clearance above ground level or any other obstruction to allow a sample bottle to be filled. This condition must be implemented within three months from the granting of the consent.	Accepted
383	A photograph of the water meters showing the meter reading, must be provided to the Council annually by the first week of July. *Advice Note: This photo must be provided to the following email address monitoring@aucklandcouncil.govt.nz.*	Accepted
384	Water meter measurements of water abstraction from the outlet of the	Accepted

	pumps must be recorded daily at 15-minute intervals, commencing before pumping starts for the day and finishing at the end of pumping for the day. Daily records of the measurements must be provided electronically to the Council by the end of the next day (unless otherwise agreed by the Council). In the event of failure of the data logger, telemetry unit and/or associated electronic devices, the water meter must be read manually at daily intervals until the devices are repaired and records kept of the date, time and corresponding water meter reading. If no water is taken during any period, then the current meter reading must still be recorded. *Advice Note: For any issues with the submissions of compliance data or documentation, including access to the Water Use Data Management System, contact monitoring@aucklandcouncil.govt.nz.*	
385	Water levels in the production bores must be measured at quarterly intervals in the following months: June, September, December and March each year, and records kept of the date, time and corresponding water level for the production bores, in accordance with criteria specified in the advice note below. The results of each quarterly water level reading must be submitted to the Council at monitoring@aucklandcouncil.govt.nz by no later than the 7th day of the following month in which the reading was undertaken. *Advice Note: The static water level shall be measured from the top of surface elevation, and shall be recorded to the nearest 0.01 of a meter (nearest cm). The bore shall be monitored after pumping water levels have fully recovered to non-pumping levels. Recovery to non-pumping levels shall be verified by taking a series of three or more water levels made over a half hour period that are all within 0.02m of each other and are not showing a rising or falling head. If there is a difference of more than 0.02m, then the bore shall be allowed to recover further from any pumping, until the groundwater level has stabilised.*	Accepted, including water levels to be measured with a manual dip meter to allow verification of any water level logger data. All water levels including verification levels shall be recorded and submitted to Council.
386	An Environmental Monitoring and Water Efficiency Report must be submitted to the satisfaction of the Council in [insert date], and at 5-year	Accepted, including the

	intervals thereafter. This report must provide a summary and analysis of the past water use, and water quality and level monitoring for the previous reporting period. The report must also assess the water use over the previous five-year reporting period, against best practice with respect to the efficient use of water for the purpose consented. This report must include, but not be limited to: (a) Annual summary of water usage in relation to the water consented; (b) Comparison of the site's water use against the industry best practice usage for the same activity; (c) Reasons why annual water use may have varied over the previous five years; (d) Information demonstrating decision making and any changes planned for the coming five years; (e) Water conservation steps taken (e.g., leak detection); (f) Demonstrate the measures that have been implemented to ensure the abstraction limit is not breached. These could be sensors, alarms, shut off activation, etc; and (g) Maintenance or contingency plan. The report must assess the effects of the water take on the aquifer and be prepared by a Suitably Qualified Hydrogeological Professional.	report must provide pumping flow rates and daily and annual abstraction volumes.
387	Pursuant to Section 128 of the RMA, the conditions of this consent may be reviewed by the Council at the Consent Holder's cost in [insert date] and subsequently at intervals of not less than five years thereafter in order: (a) To deal with any adverse effect on the environment which may arise or potentially arise from the exercise of this consent and which it is appropriate to deal with at a later stage; or (b) To vary the quantities, monitoring, operating and reporting requirements and performance standards in order to take account of information, including the results of previous monitoring and changed environmental knowledge, on: water availability, including alternative	First review date to be 1 year after abstraction commences (refer to Council proposed Condition 398)

	water sources; actual and potential water use; groundwater levels; efficiency of water use; groundwater quality; and the relationship of Māori with water. (c) To deal with non-compliances or inefficiencies on the applicant's site related to water use. *Advice Note: Under section 128 of the RMA the conditions of this consent may be reviewed by the Manager Resource Consents South at the consent holder's cost in the following circumstances:* *(a) To provide compliance with rules in any regional plan relating to use of water, water or air quality etc. (refer section 128(1) (b) of the RMA) that have been made operative since the commencement of consent;* *(b) To provide compliance with any relevant national environmental standard that has been made since the commencement of consent; and* *(c) At any time, if it is found that the information made available to the Council in the application contained inaccuracies which materially influenced the decision and the effects of the exercise of the consent are such that it is necessary to apply more appropriate conditions.*	

Table 2 – Council's Proposed Consent Conditions

Condition	Proposed Conditions
388	Under section 125 of the RMA, this consent lapses three years after the date it is granted unless: (a) The consent is given effect to; or (b) The Council extends the period after which the consent lapses.
389	Groundwater authorised by this consent may be taken only from the existing production bore known as Bore 1, located at the Auckland Surf Park Community site at 1320 Dairy Flat Highway, Dairy Flat, and described as approximately 680 m deep. No groundwater may be taken under this consent from Bore 2 or any other bore.

Bore ID	Bore Name	Consent No	Proposed depth (m)	Proposed location
31647	Bore 1	LUC60444889	680	1747217mE, 5942222mN

	Advice note: The application assesses abstraction from Bore 1 only. A separate resource consent or change to this consent is required before groundwater is taken from Bore 2 or another bore.
390	Before groundwater is taken for water supply purposes, the Consent Holder must undertake a constant-rate pumping test of Bore 1 that: (a) is at least 72 hours; (b) is undertaken at a constant pumping rate of 15 L/s; (c) records the abstraction rate and groundwater level in Bore 1 at intervals not exceeding five minutes; and (d) includes groundwater-level recovery monitoring until either: i. 90 per cent of the pumping-test drawdown in Bore 1 has recovered; or ii. 72 hours of recovery monitoring have been completed. (e) includes monitoring of nearby observation bores as required in Condition 391. For the purpose of clause (d), percentage recovery must be calculated relative to the groundwater level measured immediately before the constant-rate pumping test commenced and the maximum drawdown measured during that test. If pumping cannot be maintained at 15 L/s for the full 72-hour test without exposing the pump intake or risking damage to the bore or pumping equipment, the flow rate is to be reduced to a sustainable rate and the change must be recorded in the pumping-test report required by Condition 392.
391	At least 20 working days before the pumping test required in Condition 390 begins, the Consent Holder must submit a pumping-test methodology to Council for approval in writing by the Manger Resource Consents. The methodology must be prepared by a suitably qualified and experienced hydrogeologist and must identify: (a) the proposed pumping equipment, pumping rate and discharge location; (b) the equipment and intervals to be used to measure groundwater flow and groundwater levels; (c) the proposed monitoring locations, including (where accessible): i. Bore 22128 or equivalent accessible bore (completed in Tauranga Group); ii. Bores 5468 and 21462, or equivalent accessible bores (completed in limestone); iii. Two bores completed in the Waitematā Group, selected from Bores 1119, 1121 and 954 or equivalent alternatives;

	iv. the proposed production bore at 24 Horseshoe Bush Road, if constructed and accessible; and v. an accessible Redvale Landfill monitoring well northeast/east of the landfill; (d) at least one surface-water monitoring location in each surface-water system identified by the application as potentially affected by stream depletion; (e) water quality monitoring including field parameters (electrical conductivity, temperature, pH, Eh, DO) and chloride; (f) manual dip measurements to verify automated groundwater-level records; and (g) measures to prevent the abstracted groundwater from re-entering the production aquifer or causing erosion, flooding or adverse water-quality effects.
392	Within 30 working days after completing the pumping test and recovery monitoring, the Consent Holder must provide Council with a pumping-test report prepared by a suitably qualified and experienced hydrogeologist. The report must include: (a) pumping rates and abstraction volumes; (b) groundwater-level and recovery records from all monitoring locations; (c). water quality monitoring results; (d) estimates of transmissivity and storage, including the analytical methods and assumptions used; (e) identification and interpretation of leakage, delayed responses and aquifer-boundary effects evident in the test data; (f) an interpretation of the geological unit and aquifer supplying Bore 1; (g) an conceptual hydrogeological model that reconciles the bore log, drilling records, groundwater levels and pumping-test responses; (h) comparison of observed and modelled drawdown at Bore 1 and each monitoring location; (i) an assessment of whether Bore 1 can sustain abstraction at 15 L/s and the authorised annual volume without exposing the pump intake or causing progressive groundwater-level decline; (j) an updated assessment of drawdown and cumulative drawdown, stream depletion, effects on wetlands, settlement, saline intrusion and potential for altering contaminant migration at Redvale Landfill or other identified contaminated site.

393	Within 30 working days after completing the pumping-test report, the Consent Holder must provide Council with a Groundwater Monitoring Response Plan (GMRP) prepared by a suitably qualified and experienced hydrogeologist and include: a) Monitoring objectives and performance criteria. b) Monitoring locations, including the production bore, observation bores, surface-water monitoring points (where relevant) and groundwater-quality monitoring locations. c) Groundwater quantity monitoring programme, including abstraction volumes, pumping rates and groundwater levels. d) Groundwater quality monitoring programme, including parameters, sampling methods and sampling frequency. e) Baseline monitoring requirements. f) Data collection, validation, storage and reporting procedures. g) Trigger levels for groundwater levels, groundwater quality, saline intrusion and contaminant migration (where applicable). h) Procedures for verification and investigation of trigger exceedances. i) Response actions for alert and action trigger exceedances, including increased monitoring, abstraction reduction and cessation of pumping where necessary. j) Procedures for assessing and managing effects on neighbouring groundwater users and groundwater-dependent ecosystems. k) Annual and incident reporting requirements. l) Plan review and update procedures, including adaptive management measures where monitoring identifies actual or potential adverse effects.
394	Groundwater abstraction from any individual bore must not commence until: a) The pumping test report (Condition 392) and updated assessment of effects is provided to and certified in writing by Council. b) The Groundwater Monitoring Response Plan (GMRP) is provided to and certified in writing by Council c) Any required mitigation measure or additional monitoring is in place. d) Council is provided written confirmation of Taumata Arowai's acceptance of the Drinking Water Safety Plan (DWSP; see note below)

	e) Written approval is provided by Council stating that the water take abstraction can commence. Note: Updated approval with respect to any updated DWSP must be supplied prior to any abstraction commencing from any additional bores later authorised by Auckland Council for the purpose of abstracting groundwater.
395	The groundwater take authorised by this consent must not exceed: (a) 1,303 m³ in any consecutive 24-hour period; (b) an abstraction rate of 15 L/s; and (c) 256,230 m³ during the period from 1 July to 30 June of the following year. Water taken for bore testing after commencement of this consent must be measured and included in the applicable daily and annual abstraction totals.
396	The Consent Holder must maintain a record of every complaint alleging interference with an existing lawful groundwater supply. The record must include the complainant's contact details, bore location, date and nature of the alleged effect and actions taken. Within two working days after receiving a complaint, the Consent Holder must: (a) notify Council; (b) review the abstraction and groundwater-level records relevant to the complaint; (c) arrange an inspection of the affected supply where the bore owner provides access; and (d) commence an investigation by a suitably qualified and experienced hydrogeologist. The investigation report must be provided to Council and the complainant within 10 working days. Where the investigation determines that abstraction under this consent caused or materially contributed to the loss or reduction of an existing lawful water supply, the Consent Holder must: i. immediately provide a temporary alternative supply sufficient for the existing lawful use; and ii. implement permanent mitigation within 20 working days, unless Council agrees in writing to a longer period because the required physical works cannot reasonably be completed within 20 working days.

397	The consent holder must surrender this consent by giving written notice to Council under section 138 of the RMA within two months after the first of the following events occurs: (a) the Substantive Application is withdrawn, or is returned by the EPA and not re-lodged within 3 months; (b) the Panel declines the approvals for the Project that this consent is intended to serve (or, if that decision is appealed, the appeal is finally determined and the approvals remain declined); or (c) the fast-track approvals for the Project lapse without having been given effect to, or are surrendered. The Council may in its discretion, on a written request made by the consent holder before the relevant period expires, agree in writing to extend any period in this condition. In this condition, 'Project' means Auckland Surf Park Community Stage 2 (FTAA-2606-1246) as described in the application for this consent, and 'Referral Application' and 'Substantive Application' mean the referral application and substantive application for the Project under the Fast-track Approvals Act 2024 (FTAA). 'Fast-track approvals' means the approvals for the Project granted under the FTAA.
398	Under section 128 of the RMA, the conditions of this consent may be reviewed by the Manager Resource Consents, at the consent holder's cost, 1 year after abstraction commences, and thereafter at intervals of not less than 5 years, for the following purposes: (a) to deal with any adverse effect on the environment which may arise or potentially arise from the exercise of this consent and which it is appropriate to deal with at a later stage. (b) to vary the quantities, monitoring, operating and reporting requirements, and performance standards, in order to take account of information, including the results of previous monitoring and changed environmental knowledge, on: i. water availability, including alternative water sources; ii. actual and potential water use; iii. ongoing water requirements; iv. groundwater levels; v. groundwater quality; vi. efficiency of water use;

	vii. the extent to which the development this consent is intended to serve has proceeded, and whether it has been connected to public water supply; and viii. the relationship of Māori with water (c) To deal with non-compliances or inefficiencies on the applicant's site related to water use. *Advice Note: Under section 128 of the RMA the conditions of this consent may be reviewed by the Manager Resource Consents South at the consent holder's cost in the following circumstances:* *(a) To provide compliance with rules in any regional plan relating to use of water, water or air quality etc. (refer section 128(1) (b) of the RMA) that have been made operative since the commencement of consent;* *(b) To provide compliance with any relevant national environmental standard that has been made since the commencement of consent; and* *(c) At any time, if it is found that the information made available to the Council in the application contained inaccuracies which materially influenced the decision and the effects of the exercise of the consent are such that it is necessary to apply more appropriate conditions.*

Table 3 – Council's Proposed Consent Conditions (only if Bore 2 included in consent)

399	The consent holder must: (a) Within 30 working days of the completion of Bore 2 drilling, constructed as authorised under (LUC60446994), provide to the Council a Borehole Drilling Report including a detailed geological log, groundwater level, interpretation of stratigraphy and aquifers, borehole yield estimation and water quality testing. (b) Prior to groundwater abstraction, undertake pumping drawdown performance testing and water quality testing in Bore 2 in accordance with conditions 390, 391, 392 (a-i) and 393 where, for the purpose of this condition, 'Bore 1' is to be read as 'Bore 2'. (c) Within 30 working days of the completion of the pumping test required under Condition 399 (b), provide an assessment of environmental effects report for Bore 2 including

	drawdown and cumulative drawdown, stream depletion, effects on natural wetlands, settlement, saline intrusion and potential for altering contaminant migration at Redvale Landfill or other identified contaminated site. The report must also include: i. Confirmation that the anticipated effects in relation to pumping testing performance are within: 1. The envelope of effects outlined in the report titled "*Groundwater Take Assessment Auckland Surf Park Community – Groundwater Take".* Prepared for AW Holdings (LP) Partnerships by Williamson Water & Land Advisory (WWLA), Reference WWLA1623 Rev 4, dated 19 February 2026; and 2. The limit of effects outlined in the Groundwater Monitoring Response Plan (GMRP) approved by Auckland Council in accordance with Condition 394 and if not, provide recommendations to avoid, remedy and/or mitigate the effects to within the consented envelope of effects. ii. The water quality field parameters and results of the cation/anion (including nitrogen species) laboratory analyses of groundwater collected from the pumping test bore. This must include a characterisation of the groundwater type and water quality as a baseline, and a water quality assessment of effects. Groundwater abstraction from Bore 2 must not commence until the required reports are provided to Council and certification provided in writing by the Manager Resource Consents.