Hutt City Council
30 Laings Road
Private Bag 31912
Lower Hutt 5040
New Zealand
www.huttcity.govt.nz
T 04 570 6666
F 04 569 4290

23 September 2022

Jonathan Adie
[redacted] s7(2)(a)

Tēnā koe Jonathan

Request for Information – Local Government Official Information and Meetings Act (LGOIMA) 1987

We refer to your official information request dated 26 August 2022, as follows:

I am requesting all investigative information held by Lower Hutt City Council, for the entire Lower Hutt City and all its suburbs in regard to the capacity of services and the impact upon these services by the addition of high-density housing and housing developments.

SERVICES
1. Drinking water
2. Waste water
3. Storm water
4. Electricity supply
5. Traffic management
6. Parking
7. Noise
8. Rubbish and recycling collection

Hutt City Council does not hold information that is specific to high-density housing, however we have enclosed:

- the Hutt City Council Three Waters Growth Study report.
- a report that relates to the Noise chapter of the District Plan generally

Resource consent decisions for new multi-dwelling developments include information about the considerations given to existing dwellings in the area. Such considerations are specific to the development. We have attached the resource consent decisions for two developments in Raukawa Street, Stokes Valley, as examples. All resource consent decisions are publicly available by street address, under the Property Search function on the Hutt City Council website (see www.huttcity.govt.nz/property-and-building/search-property-and-building).

We also refer you to the following documents:

- Infrastructure capacity assessments for Plan Change 43, particularly for three waters and transport infrastructure - these are attached to the Proposed Plan Change 43 Volume 2 document for that plan change that is on the Council's website
- The infrastructure capacity assessments that feed into the Housing and Business Capacity Assessment process are on the Wellington Regional Leadership Committee's website: https://wrlc.org.nz/regional-housing-business-development-capacity-assessment-2022

- The following Council paper relating to waste and recycling may contain useful information for your request. It was developed for the implementation of the kerbside service in July 2021.
  https://haveyoursay.huttcity.govt.nz/rubbishandrecycling/widgets/288330/documents

Wellington Water Limited will be responding directly to you in relation to the drinking water, waste water and storm water aspects of your request. Prior to approving a multi-dwelling resource consent application, Hutt City Council consults with Wellington Water Limited to obtain advice on the capacity of water infrastructure in the area and its ability to cope with the increased load from additional housing.

As we advised previously, electricity infrastructure is the responsibility of Wellington Electricity, not of Hutt City Council.

You have the right to seek an investigation and review by the Ombudsman of this response. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Please note that this letter may be published on the Council's website.

Nāku noa, nā

Susan Sales
Senior Advisor, Official Information and Privacy

Encl:

- Hutt City Council Three Waters Growth Study report
- MHA Noise Review and Recommendations for Proposed District Plan
- Resource consents RM210455 and RM210061 for Raukawa Street developments

Hutt City Council
Three Waters Growth Study 2022

Document Control & Quality Record

The content of this report has been reviewed and prepared with the expert advice of Wellington Water's Chief Advisors and Three Waters Decision Making Committee.

Activity	Name/Position	Position	Signature
Prepared By	Kim Kelly,	Independent Consultant	
	Michelle Meaclem	Growth Planning Engineer	
Reviewed by	Katrina Murison	Team Lead Growth Planning	
	Mohammed Hassan	Principal Stormwater Engineer and Team Lead Consenting	
Approved by	Olena Chan	Manager Growth and Land Development	

Version Tracking

Version	Date	Details
A	31/08/21	Initial Draft
B	13/10/21	Working Draft
C	15/10/21	Draft for WWL Internal Review
D	25/03/22	WWL review content
E	13/05/22	WWL revised layout
F	24/05/22	WWL final draft
0	03/08/22	Final for release

Executive Summary

The Hutt City Three-Waters Growth Study has been undertaken to assess the anticipated forecast growth in the Hutt City territorial area, and identify three-water infrastructure improvements to accommodate predicted population growth over the next 30-years.

This study covers the geographical area of the Hutt City Council (HCC) including Wainuiomata, and Stokes Valley. The population used for assessment of drinking water and wastewater is based on forecasts provided and agreed with HCC in 2020, of 105,247 (2020) to 130,323 (2050), a growth of 25,075 (or 23.8%). Since population forecasts were confirmed for modelling, Sense Partners (2021) forecasts raised potential growth for HCC to 48,906 (42.9%) over 30-years (from 2021-2051).

The study is comprised of the following sub-components:

1. Three waters network constraints and opportunities assessment to enable growth;
2. Three-waters infrastructure options development to service HCC Plan Change 43 enabled development over the next 30 years (2020-2050).
3. Level 1 costs estimates for each identified concept option in accordance with the Wellington Water Cost Estimation Manual.
4. A strategic environmental assessment that identifies contributing factors for where growth impacts the environment via the three waters networks.

Due to the relatively flat nature of the Hutt valley floor, servicing for water supply is relatively straightforward, however, the topography brings significant challenges for wastewater and stormwater. Servicing Wainuiomata and Stokes Valley are the most challenging and expensive due to existing topographical constraints (e.g. Wainuiomata Hill requires pumping of wastewater over it; and in Stokes Valley steep hillsides and flat areas of land create challenges for managing stormwater).

This study has found that there is a significant programme of investigative, design, and physical works needed to meet the demands of future growth and bring existing networks to target levels of service. The proposed improvements that have been identified in this study have an associated cost estimate of approximately $1.27BIL.

The costs estimated to undertake water supply improvements are $191.26M, wastewater improvements are $271.13M and stormwater improvements are $810.2M. These were estimated using the Level 1 Cost Estimate method and using 2020 (revision 11) rates.

The significant cost estimates for stormwater are attributed to existing stormwater flooding issues and meeting targeted levels of service assumed for this study (habitable floor levels protected for 1 in 100yr + climate change). The prioritisation of investment needed in new stormwater infrastructure will need further early project development that factor in affordability criteria, emerging environmental standards, and community expectations for level of service.

The proposed capacity upgrades for city-level network infrastructure are:

a) Drinking water reservoir storage in Delaney (new), Holborn/Shaftesbury (new), Naenae (new), Wainuiomata (new) and Eastbourne (new).

b) Wastewater pump station and rising mains in Hutt CBD (new); Boulcott (new), North Wainuiomata (new); Wellington St & Wise Park, Wainuiomata (upgrades).

c) Wastewater storage at Engineered Overflow Points (EOPs) at Fraser and Main Road in Wainuiomata (new).

d) Wastewater improvements including regrading/upgrading pipes, increasing pump station capacity, and providing storage to address existing network constraints including in Stokes Valley, Alicetown, Maungaraki, Seaview, Waterloo and Waiwhetu.

e) Stormwater network capacity improvements and/or flood management in Stokes Valley, Alicetown, Taita, Naenae, Melling, Woburn and Wainuiomata.

f) Stormwater management improvements for Black Creek channel and Parkway Drive; and a proposed wetland in Upper Fitzherbert in Wainuiomata.

Exclusions from this study include:

- Bulk water source, treatment and distribution
- Wastewater Joint Venture Trunk Network and Seaview WWTP
- Water quality improvements (covered by SMS/SMPs consent)
- Local upgrades to facilitate development

A Strategic Environmental Assessment of growth, identified effects of growth varied depending on water type and receiving environment. In some situations, strategic interventions such as policies, may not be enough, resulting in need for communities to decide on allocation of investment to protect ecosystem services and also provide for growth. Strategic Interventions (or mitigation measures) are actions taken to avoid or minimise adverse environmental impacts. Examples may include caps on water use, increase in requirement for green infrastructure into new urban design, application of new technologies to reduce or improve water systems and sustained, deliberate and coordinated investment to support growth.

Key recommendations resulting from this study for HCC to consider include:

1. Review and prioritise investment to support growth for 2024 investment plan/strategy.
2. Develop adaptive and responsive strategies to manage uncertainty of growth, including improved data sharing and funding upgrades as growth progresses.
3. Identify opportunities to streamline projects with external infrastructure providers (e.g. Waka Kotahi, Kainga Ora)
4. Progress further policy/guidance work (as per Table 7)
5. Support option development, community engagement and investment cases for stormwater flood management.
6. Support WWL to undertake an integrated wastewater plan for Seaview WWTP and joint-venture network to support growth.

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Lower Hutt Growth Study – Proposed 3-W Servicing Improvements

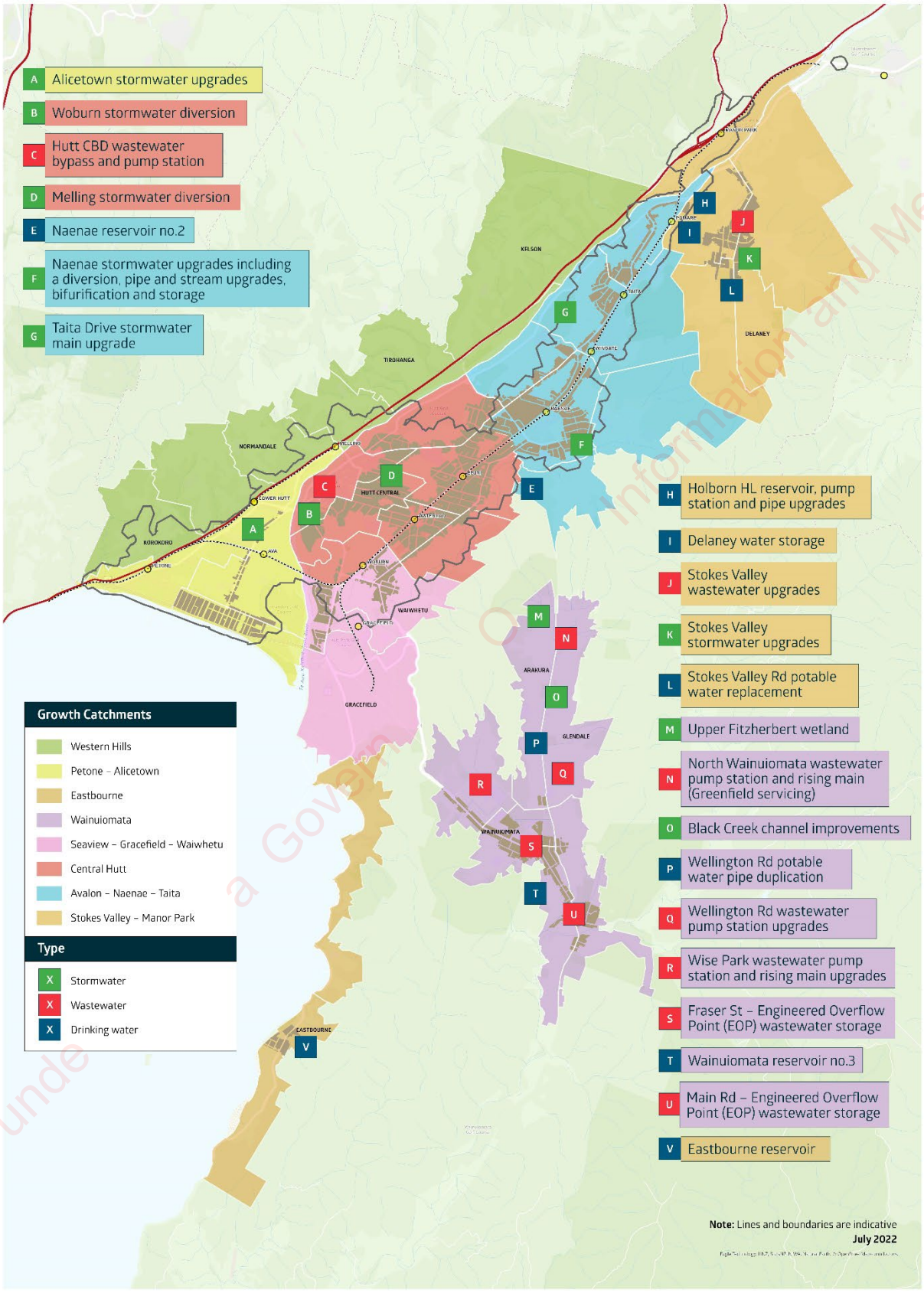

Figure 1: Hutt City Growth Study – Proposed key 3-W servicing improvements

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1. Introduction

1.1 Purpose of this study

The purpose of the Hutt City Growth Study is to assess the anticipated forecast growth in the Hutt City territorial area, and identify three-water infrastructure improvements to accommodate predicted population growth over the next 30-years (2020-2050).

The baseline information in this report provides a strategic overview of current knowledge, and recommendations for subsequent programming of further detailed investigations, business cases, early project development, and where possible, detailed design and delivery.

The information in this study can be used to develop long term planning and investment programmes for the City, such as, and not limited to, Long-Term Plans (LTP), Infrastructure Strategies, Asset Management Plans, and Development Contributions, and Wellington Regional Growth Framework (WRGF) Future Development Plans, Spatial and District Plans.

1.2 Scope of this study

The scope of the study includes:

- Assessing the three-waters upgrades required to support growth within Hutt City Council boundaries (including Wainuiomata).
- Support growth associated with Hutt City Council's Plan Change 43.
- Propose infrastructure servicing for city-level network infrastructure for drinking water, wastewater and stormwater. Refer to box below for categorisation of three waters infrastructure.
- Proposed improvements to address both Level of Service (LOS) and Growth.

There are a number of assumptions and limitations that have been applied to the study which can be found in 5.4.

Categorisation of three waters infrastructure

Three waters infrastructure can be categorised as:

- Regional (Trunk/Bulk) infrastructure – includes the wastewater (joint-venture) trunk pipe that runs the length of the Hutt Valley and connects to the Seaview Wastewater Treatment Plant (WWTP), and the WWTP itself. For water supply this includes water sources, bulk water pipelines and water treatment plants. This level of infrastructure is not included in this study and will be the subject of separate studies.
- City-level network infrastructure – includes upgrades to service growth at a city level, including addressing existing constraints and level of service deficits. For instance a new reservoirs in Stokes Valley, stormwater upgrades in Naenae, or wastewater upgrades across the city to support growth. The requirements for this level of infrastructure are included in this study.
- Local infrastructure – includes infrastructure to service localised areas such as pipes of 150mm diameter or less and other associated local (street or neighbourhood) infrastructure. For instance a small pipe that will need to be upgraded when a multi-unit development is undertaken in Epuni. The requirements for this level of infrastructure are not included in this study. Work on this will be required when pipes are being renewed, or local level developments are planned or being undertaken when more detailed information is available.

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1.3 Study Components

The study scope encompasses, the following sub-components:

1. Three waters network constraints and opportunities assessment to enable growth;

2. Three-waters infrastructure options development to service HCC Plan Change 43 enabled development over the next 30 years (2020-2050).

3. Level 1 costs estimates for each identified concept option in accordance with the Wellington Water Cost Estimation Manual.

4. A strategic environmental assessment that identifies contributing factors for where growth impacts the environment via the 3-W networks.

1.4 Growth Study Areas

The study area for this Hutt City Growth Study is all the areas within the Hutt City Council boundaries. To support focuses on eight areas as identified in Figure 2**.** The eight study areas have been developed as a mechanism to provide for ease of reading and presentation of information in manageable sizes. The study areas are consistent with the areas as defined in the Hutt City Development Contributions Policy 2021, with some of the larger areas in the Development Contributions Policy then broken down into smaller areas using suburbs and Statistical Area 2 Units as defined by Statistics New Zealand (see Appendix C.3 for more information on this). Being identified as a study area does not mean the area will necessarily be experience growth or that the projected level of growth for each study area is expected to be the same.

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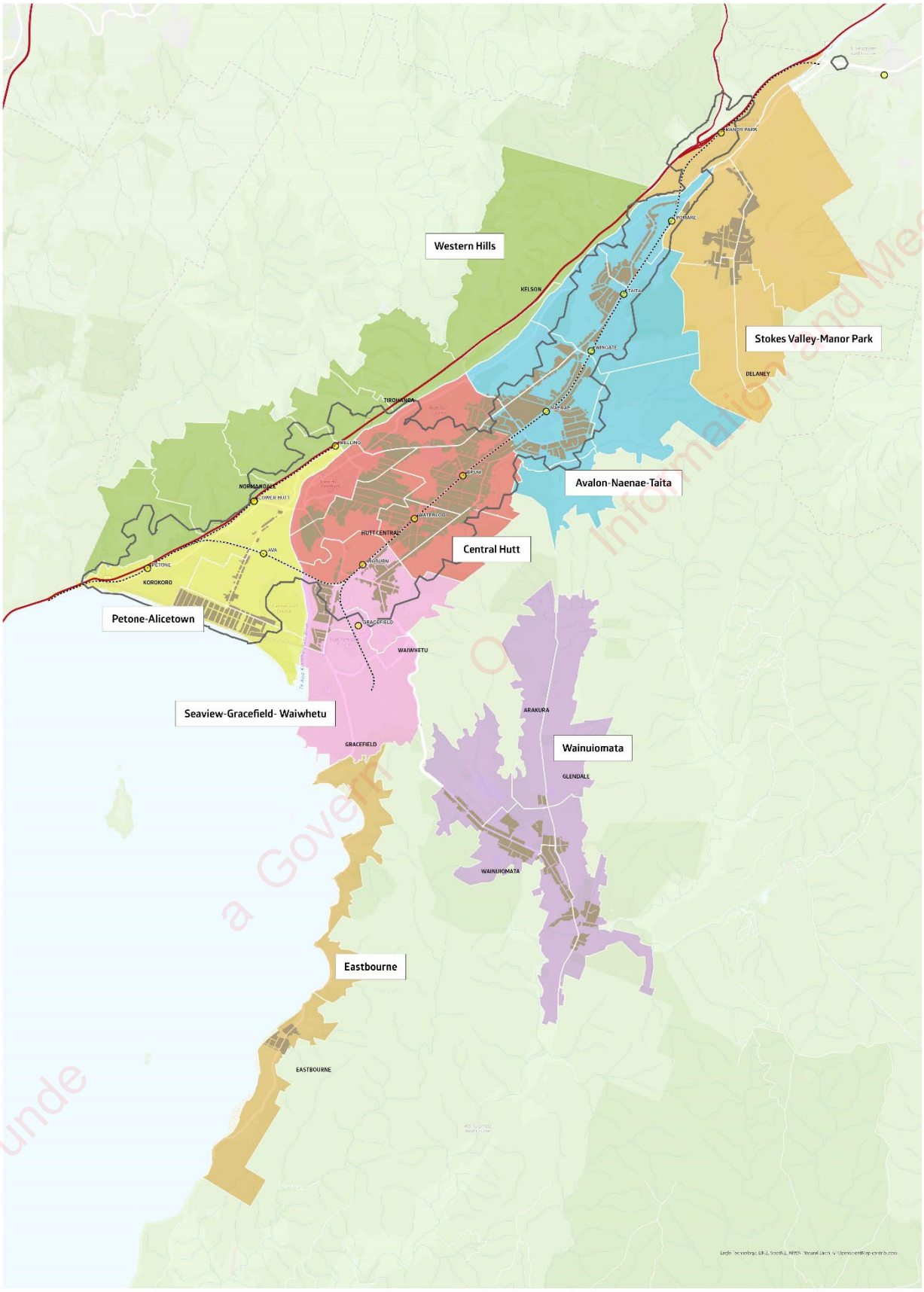

Figure 2: Growth Study Areas

1.5 Growth Assumptions

Understanding the level of housing and business growth expected in Lower Hutt over the next 30 years, or more is an important component of determining the three waters infrastructure requirements and the timing for these. However, population is only one consideration when planning three-waters infrastructure, and other factors such as hydraulic assumptions, network configuration/age, available material sizes, physical constraints, community/iwi views and consenting requirements may alter plans and designs. As designs develop the latest population forecasts and development intentions are used to assess requirements.

The level of growth for modelling purposes were provided by HCC and agreed in March 2020[1] to be used as a key input into all the technical reports undertaken to inform this study, a summary of the population is provided in Table 1.

Table 1: Hutt City Population Forecast (PC43, Forecast ID + Riverlink Dwellings) (HCC, March 2020)

Study Areas	2020	2050	2020-2050
Western Hills	13,310	15,208	1,898
Petone-Alicetown	12,109	13,565	1,456
Eastbourne	4,830	4,733	-97
Wainuiomata	18,510	24 494	5,983
Gracefield - Seaview – Waiwhetu	4,404	4,624	220
Central Hutt	21,945	34,038	12,093
Avalon-Naenae-Taita	19,988	21,694	1,706
Stokes Valley-Manor Park	10,151	11,966	1,815
Total	**105,247**	**130,323**	**25,075**

Since population numbers were confirmed for modelling in 2020 a number of things have occurred:

- COVID-19 and changing migration settings.
- The Wellington Regional Growth Framework has been completed which includes a "Lower Hutt Structure Plan" as an area of growth focus in the region covering the area from Woburn-Naenae-CBD/Riverlink and back across to Woburn.
- The Sense Partner forecasts (2021) developed as part of updating the Hutt City Council Housing and Business Development Capacity Assessment (HBA) shows a projected increase of nearly 49,000 people in Lower Hutt from 2021-2051.

Table 2 provides a comparison between modelled figures agreed in 2020, Sense Partners (2021) and (2022) forecasts.

Table 2: Population forecast comparisons

Population forecast source Lower Hutt Territorial Area	Current population (year)	Projected population (year)	Difference	% increase
Final HCC population numbers – March 2020 – based on PC43 using ForecastID	105,247 (2020)	130,323 (2050)	25,076	23.8
Sense Partners (developed for the HBA 2022) – 50th percentile – as at July 2021	113,905 (2021)	162,811 (2051)	48,906	42.9
Sense Partners – 50th percentile – as at March 2022	112,013 (2021)	153,192 (2051)	41,179	36.8

Note that:

- The Sense Partners (2021) projected growth in Wainuiomata (being a distinct catchment in itself) is lower than the entire urban area of Lower Hutt (projected to be a 33.6% increase in populations from 2021 to 2051).

[1] Note that whilst population forecasts have changed since the growth study was commissioned the modelling undertaken for this work has not been updated. Updating models is a time consuming and costly process, and only one factor in network design.

For further details on the growth assumptions used including comparison between sources, and breakdown of greenfield and infill assumptions, refer to Appendix C.

A faster increase in housing and population growth than first projected and modelled does not have the same implications for each of the three waters infrastructure requirements.

What are the implications from higher levels of population forecasts for the Lower Hutt Growth Study?

The implications for this Study from a higher/faster level of growth than initially projected are:

- Overall – housing development and therefore required three waters infrastructure to support this will occur faster than originally expected when ForecastID numbers were confirmed in March 2020. This has implications for the timing of funding for infrastructure.
- Drinking water – the level of water supply required is impacted by both the increase in population and the amount of water used per day per person. The increase in population forecast figures from the HCC population numbers provided in March 2020 to the Sense Partner forecast provided in July 2021 have been considered and are explored further the Appendix C.3 to this report. In summary, the new Naenae Reservoir No.2 capacity is driven by existing level of service deficit and future population growth.
- Stormwater – the main impact from a higher level of population and therefore dwellings is the increase in impervious surfaces and potential for proposed development on land that is less suitable (e.g. subject to ponding or overland flow paths). Significant impacts on flooding are expected if flood plains are filled in with housing resulting in reduction of storage and further constraining existing overland flow paths. Measures to reduce impermeable areas should be encouraged through water sensitive urban design and hydraulic neutrality measures.
- Wastewater – whilst more people will signal a higher level of wastewater being produced, assumptions on rainfall derived inflow & infiltration (RDII) and the ability to remove I&I from the network through for example pipe renewals and reduced cross connections is shown to have a significant impact on the theoretical capacity of the network. A continued increase in population in both Lower Hutt and Upper Hutt may result in an impact on the trunk network (i.e., the pipe running through the Hutt Valley to the Seaview Wastewater Treatment Plant and the plant itself). As noted in the introduction section of this report, trunk infrastructure is not considered in this Study and will be evaluated in separate studies. The new strategic trunk model has been prepared using the Sense Partners 2021 forecasts, and will be used to test sensitivity to forecast growth projections.

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2. Strategic Context

The strategic context for this study is twofold:

1. There are existing issues with meeting level of service within parts of Hutt City that need to be resolved to meet the needs of the existing population. A summary of the existing issues, are summarised in Section 6, with further details provided in supporting technical reports listed in Section 9.1
2. A need to provide a holistic view of the potential constraints and solutions for three-waters networks to service projected growth enabled under PC43.

HCC with support from wider actors have identified a number of areas for potential growth[2], these inc ude:

- Hutt CBD - Riverlink redevelopment area in association with stopbank upgrades and new Melling bridge
- Greenfield areas including Northern Wainuiomata, Kelson and Stokes Valley
- Naenae town centre
- Waterloo station

2.1 Environmental Context

The environmental context is an important backdrop to growth, as the environment itself, as well as the consenting, legislative and policy framework and proposed (RMA and water) reforms have a significant impact on the standards and expectations placed on three-waters infrastructure into the future. Further details of the environmental context can be found in Appendix A. Climate change will also have an impact on future planning and development controls, particularly in Petone, Seaview and Moera. Appendix B provides details of climate change considerations in supporting technical studies.

Of region wide significance is the Waiwhetu Aquifer which Wellington draws a significant portion of its drinking water from and which sits underneath the Lower Hutt valley floor. The aquifer has environmental protection limits as a drinking water source, and remains at risk of contamination from future development intensification.

2.1.1 Aquifer Source Protection

The Waiwhetu Aquifer is a vital water source for the region (refer to Figure 3). Typically, about 40 percent of Wellington Waters' customer's drinking water is sourced from the aquifer, but this can be up to 70 percent during the summer. The Waiwhetu Aquifer is a natural underground water system located beneath the Hutt Valley and Wellington Harbour. It is generally located between 20 m and 70 m below ground level and is 'fed' by a combination of river and rainwater seeping into the ground and becoming confined beneath its aquitard. Layers of gravel trapped below the aquitard allow for water to flow underground as an aquifer.

Water sourced from the Waiwhetu Aquifer is drawn from eight bores located along the "Knights Road spine" (collectively known as the Waterloo Wellfield) and transferred to the Waterloo WTP via the Waterloo collector main. The bores are approximately 40 m deep with the bore head and chambers located underground. Six of the bores were installed in 1980 and two further were added in 1989.

[2] Note, as certainty over plans and timing for areas tagged for growth develop, associated infrastructure should be reviewed in more detail.

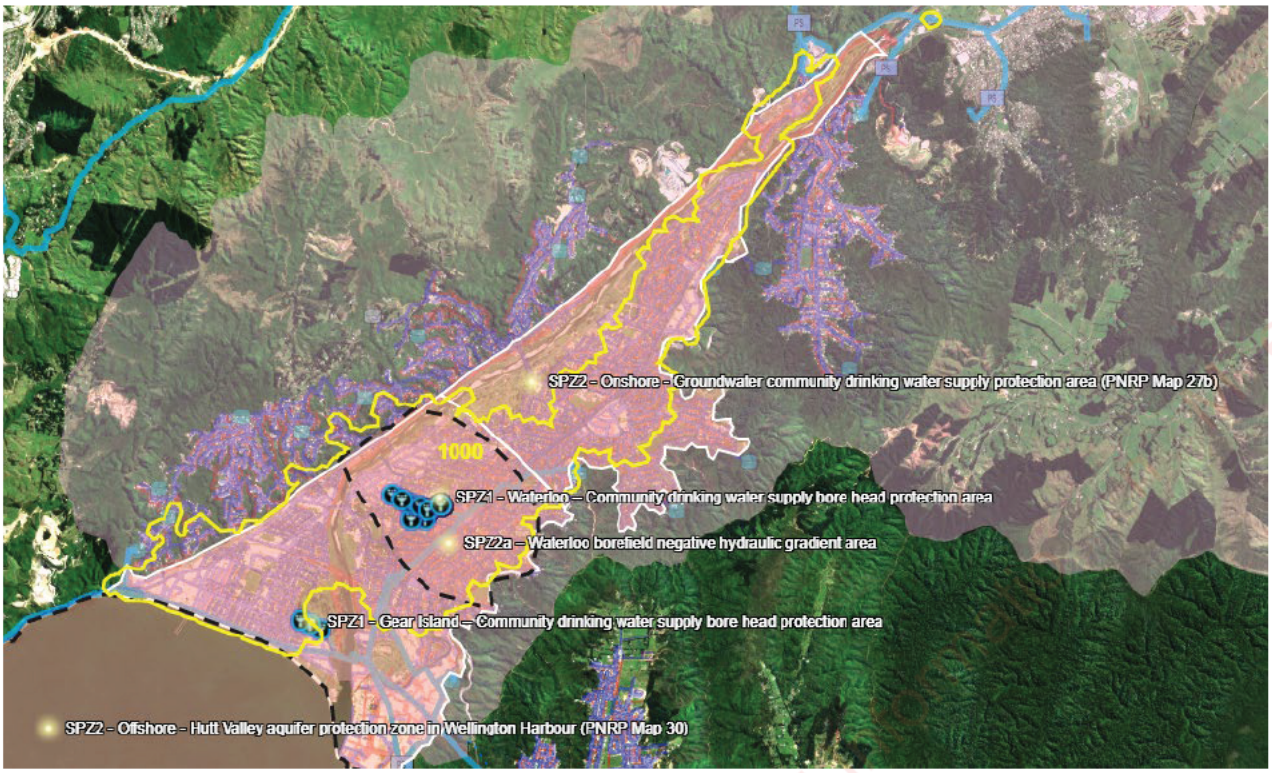

Figure 3: Aquifer Source Protection Zones and Walkable Catchments

What are the implications from this for the Lower Hutt Growth Study?
• Intensification within Source Protection Zone 1 needs o be appropriately managed so that development, in particular activity type and foundation design (e.g. piling) does not result in any negative effects on the aquifer. • Wellington Water has completed a technical assessment on the impact of building height on foundation design within the SPZ1 area to support future development assessments.

2.2 Strategic Environmental Assessment

To understand and recommend options to manage growth on the environment, a Strategic Environmental Assessment (SEA) was undertaken, and the findings of a case study focused on Lower Hutt are presented in Appendix F. The SEA utilised an ecosystems services approach focused on the benefits people obtain from ecosystems using four services of Provisional, Regulative, Supporting and Cultural.

Two scenarios are used in the assessment:

- **Maintain Status Quo Scenario** – Under this scenario environmental impacts have been assessed based on population growth without any specific Wellington Water intervention response other than continuing to meet regulatory requirements (i.e., policy implementation, meeting current consent conditions, implementing new consents and consent renewals) through maintenance of current three waters infrastructure
- **Strategic Intervention Scenario** – Under this scenario impacts of the three waters network on the receiving environment have been assessed assuming a level of intervention has been implemented to reduce significance of impacts.

A summary of the catchments and impacts is provided in Table 3, showing the impact of growth in Lower Hutt on the effects of the three water network operations on specified receiving environment ecosystem services for catchments:

- Wainuiomata & Orongorongo / Headwater / Wainuiomata Estuary
- Hutt River (Middle to Lower)/Hutt Estuary/Petone foreshore through to Eastbourne

Table 3: SEA Catchment and Impacts Summary

Catchment	Impacts
Wainuiomata & Orongongo / Headwater / Wainuiomata Estuary	• It is anticipated that strategic interventions will reduce the significance of adverse impacts in this catchment but the impacts while reduced could still be considered significant (i.e., moderate, or above). • The effect of growth on the wastewater network impacts and stormwater impacts is most significant in the surface freshwater and estuary/CMA receiving environments in this catchment. Generally, impacts on groundwater are not considered to be significant. • The effect of growth on the water supply network impacts is most significant in the surface freshwater receiving environments for Lower Hutt in this catchment.
Hutt River (Middle to Lower)/Hutt Estuary/Petone foreshore through to Eastbourne	• It is anticipated that strategic interventions will reduce the significance of adverse impacts but the impacts while reduced could still be considered significant (i.e., moderate, or above). • The effect of growth on the wastewater network impacts and stormwater impacts is most significant in the surface freshwater and estuary/CMA receiving environments in this catchment. In general impacts on groundwater are not considered to be significant. • The effect of growth on the water supply network impacts is most significant in the surface freshwater receiving environments for Lower Hutt in this catchment. The groundwater receiving environments is also impacted in the Hutt River catchment.

This assessment, can be used to inform an adaptive pathways approach to managing the impacts of growth, using various policies, mitigation measures, and infrastructure solutions depending on the scale of impact. Strategic interventions can range in terms of policy, behaviour-change or infrastructure solutions, but refer to taking action to address issues within a proactive and beyond meeting minimum regulatory requirements.

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2.3 Growth Planning Framework

The *Wellington Water Growth Planning Framework* (Figure 4) shows the progression from planning to design & delivery as growth areas develop. Realistically this is a continuous cycle as system assumptions change both spatially and temporally.

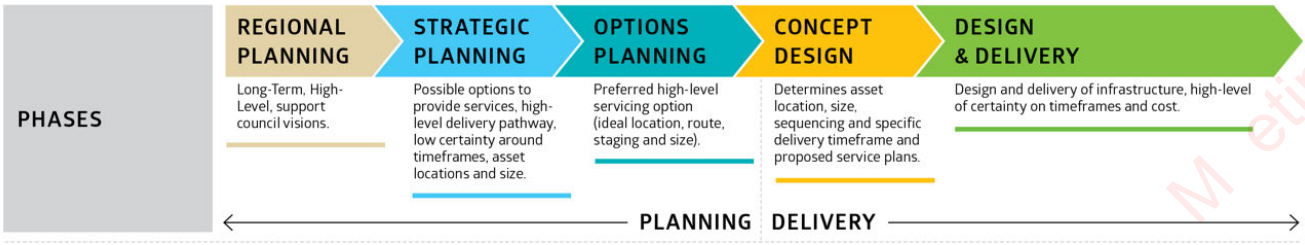

Figure 4: Growth Planning Framework Stages

The focus of the Hutt City Growth study is between the Strategic Planning and Options Planning stages of growth planning. Although options are used for the purposes of costing, these are only considered indicative at this stage as changes are expected when more detail and further information becomes available, which is addressed at the Concept Design stage.

Growth planning in this Study takes the best information available today, knowing that there are uncertainties that cannot be predicted. It looks to understand the dynamic nature of growth and looks at ways to close any existing level of service gaps and to future-proof infrastructure investment interventions.

3. Service Planning and Investment Advice

Wellington Water developed the Regional Service Plan (RSP) to show the connection between the Wellington Water three waters strategy and implementing the operational and capital investment programmes overall and for each council. To support consistent investment advice, a set of priorities was developed as follows:

Wellington Water Strategic Priorities
Priority 1: Looking after existing infrastructure
Priority 2: Supporting growth
Priority 3: Sustainable water supply and demand
Priority 4: Improving environmental water quality
Priority 5: Climate resilience
Localised issues: reducing flood risk, seismic resilience, firefighting water supply

Taking the current regional challenges into account alongside the funding options available, Wellington Water developed an investment plan that outlines HCC key activities and projects to begin bringing levels of service up to performance expectations. Figure 5 shows the 2021 LTP focus of spending consistent with the medium investment plan option provided to Hutt City Council.

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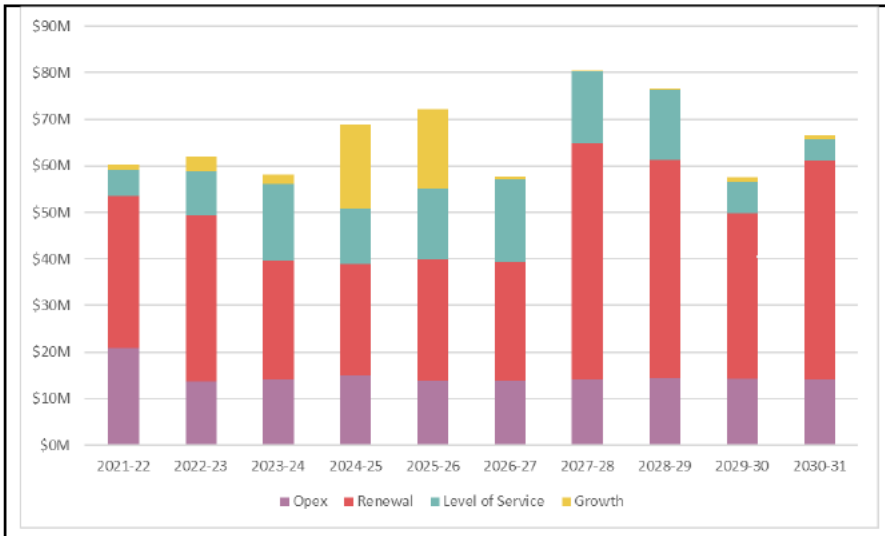

- Total capex spend on three waters infrastructure under the medium investment plan over the next 10 years is $512.2 M. $54.7 M or nearly 11% of this is for supporting growth.
- Total capex spend on three waters infrastructure under the medium investment plan over the next 30 years is $1,689.6 M. $141.7 M of this or just over 8% is for supporting growth.

Figure 5: HCC spend on three waters infrastructure over the next 30 years.

What are the implications from Hutt City Growth Study on service planning and investment?

- Decisions on what growth-related infrastructure to invest in from this Study are guided by the Wellington Water Service Goals (which are approved by Hutt City Council as a partner), Hutt City Council key priorities and the Regional Service Plan Strategic Priorities.
- Limits to growth funding and delays in infrastructure provision, comes with residual risks including:
    - Growth cannot occur due to no funding for growth related three waters infrastructure
    - Growth continues to occur, and the current levels of service are impacted i.e., current, and new customers get a lower level of service with Hutt City Council being unable to meet community and environmental requirements; or developers are required to put in place mitigations which result in longer term maintenance liabilities.
- At the time of 2021 LTP, work was not completed to support a full understanding of growth projects. Therefore, outputs from this study, can be used by Hutt City Council and new Entity, to consider in future LTP or Annual Plan changes to provide for new growth infrastructure.

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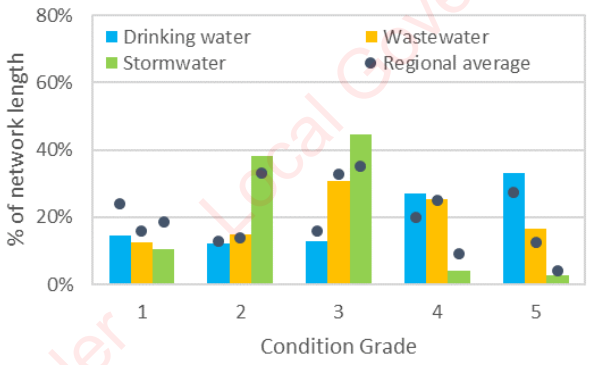
4. Existing three waters network

4.1 Overview of the three waters network

Hutt City Council has significant three-water network infrastructure across its city as shown in Figure 6.[3]

Figure 6: HCC three water assets (fair value)

In Hutt City, there is a sizeable amount of existing, aging infrastructure to look after, as can be seen in Figure 7.



Provisional condition grade	Remaining useful life range[4]	Condition description
1	>/= 75%	Very Good
2	50 – 74%	Good
3	25 – 49%	Moderate / Adequate
4	3 – 24%	Poor
5	</= 2%	Very Poor

Figure 7: Condition of Hutt City Councils pipe network

[3] As identified in Hutt City Council supplement to the Regional Service Plan for Water Services in the Wellington Region – August 2021

[4] Remaining Useful Life percentage range follows similar principals described in IPWEA Condition Assessment and Asset Performance Guidelines Practice Note 7 Water Supply and Sewerage, Table 9 - 2 (Water Mains).

4.2 Water Supply network

The water supply in Hutt City comprises:

- Bulk water supply - Greater Wellington owns the assets involved in the supply of bulk water in the region. In Lower Hutt that includes two water treatment plants, 13 pumping stations and just over 711 km of large-diameter pipeline.
- Water distribution system – this is the part of the water supply with components that carry potable water from a centralised place (e.g., a reservoir) to water consumers in order to adequately deliver water to satisfy residential, commercial, industrial, and firefighting requirements.

Three different water sources are used to supply Hutt City Council area, these are:

- The Te Marua water treatment plant (WTP) which can be fed from either the Hutt River intake or the Macaskill storage lakes. Water is pumped through the bulk network and distributed in Upper Hutt, the northern part of Hutt City, Porirua, and Wellington.
- The Waterloo WTP which is fed from the Waiwhetu aquifer and then boosted though one of two sets of pumps. The "Wellington" pumps convey water towards Wellington/Rahui/Wainuiomata. The "Naenae and Gracefield" pumps convey water towards the Naenae and Gracefield reservoirs.
- The Wainuiomata WTP which is fed from the Wainuiomata and Orongorongo rivers as well as three smaller creeks. Water gravitates to the Wainuiomata reservoirs. Any excess flow is conveyed towards the "Wellington" part of the Lower Hutt bulk network via the Tunnel Grove valve chamber.

The water network is required to meet certain performance criteria such as pressure, firefighting, pipe head losses, storage volume and storage replenishment.

The network to distribute this water through Lower Hutt can be broken down in seven different parts – Stokes Valley, Valley Floor, Western Hills, Eastbourne, Petone and Manor Park. The distribution network relies on a series of pump stations and booster pump stations across Lower Hutt. Figure 8 shows water storage areas (WSA)'s across Lower Hutt against Statistical Area 2 designations.

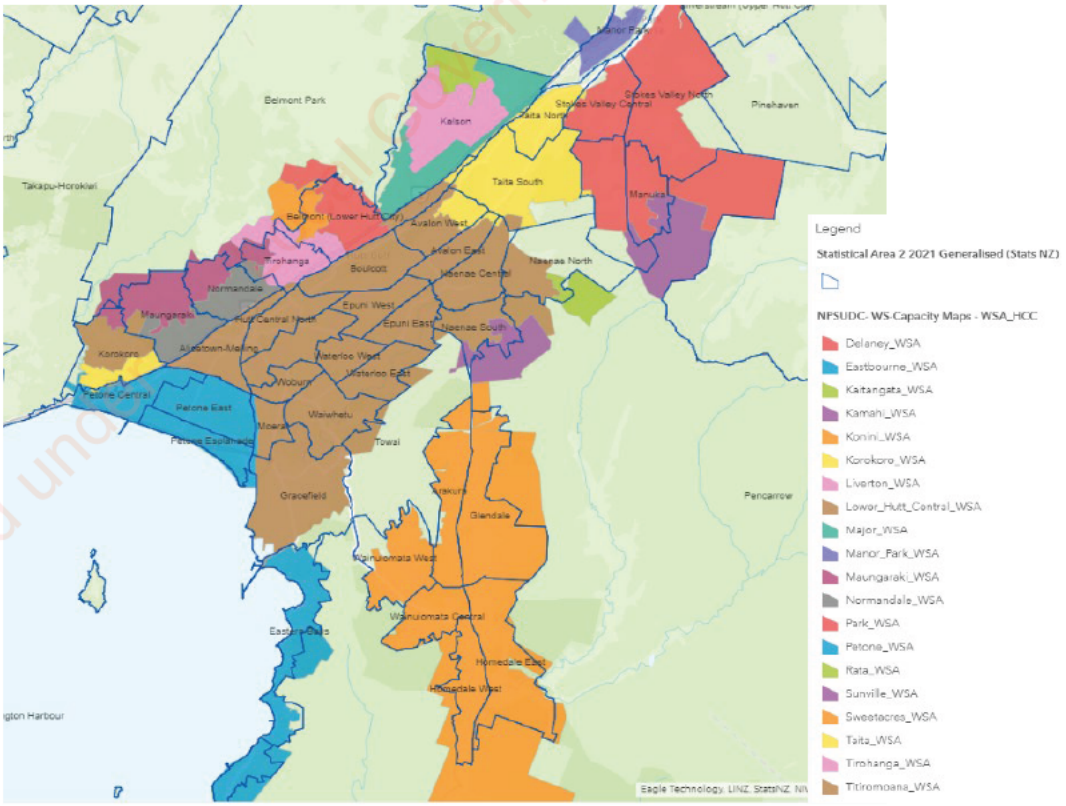


Figure 8: Hutt Water Storage Areas (WSA) v.s. Statistical Area 2

4.3 Wastewater network

The Lower Hutt wastewater catchment combines with inflows from the Upper Hutt catchment in the north and Wainuiomata catchment in the east, to discharge to the Seaview Wastewater Treatment Plant (WWTP).

The Lower Hutt wastewater catchment is approximately 3,200 ha in size and the wastewater network serves an estimated population of 80,865. When Upper Hutt and Wainuiomata are also included the totals are 5,800 ha and 134,000 people. The network consists of approximately 500 km of foul gravity sewers and 36 pump stations (HAL, 2021).

The Silverstream Storage Tank is located at the boundary between Lower and Upper Hutt and provides 10,000 m^3 storage immediately upstream of the river crossing providing some relief during large wet weather flow conditions. When activated, flows across the river are reduced and pumped into the storage tank and released once inflows have reduced.

The existing Wainuiomata wastewater catchment covers approximately 600 ha of predominantly residential land use. The network consists of six pump stations (with associated constructed overflow points), ten network Engineered Overflow Points (EOPs), and four bifurcations.

Two northern areas drain directly to the Wise Park and Wellington Rd pump stations, however, these both have wet weather flows diversions to the south and the remainder of the catchment drains directly to the Wainuiomata Pump Station. The Wise Park PS is the terminal point, from which the entire Wainuiomata catchment is pumped to the Seaview WWTP.

4.4 Stormwater network

Lower Hutt encompasses the following hydrological stormwater catchments as shown in Figure 9 Petone-Alicetown catchment, is located west of the Hutt River. The majority of the stormwater network operates under gravity, either to Wellington Harbour, the Hutt River, or the dead arm of the Hutt River. Five pump stations have been constructed in the Petone-Alicetown Catchment, the last of which was built in 1982. The catchment is also dissected with pressurised stormwater mains that drain areas in the western hills. The most significant of these is the Udy Street cu vert, which drains a catchment of approximately 165 ha in the western hills.

- Waiwhetu catchment is defined by Waiwhetu Stream which flows southward from its headwaters in the Eastern Hutt hills to enter the Hutt River downstream of Estuary Bridge. The catchment is approximately 18 km^2, with a main stream length of about 9 km. The headwaters of the stream, in the Eastern Hutt hills, are relatively steep but as the stream emerges onto the valley floor in Naenae the gradient reduces. An estuarine zone of 2 km extends upstream from the Waiwhetu Stream mouth (GWRC, 2004).
- Wainuiomata catchment is primarily drained by Black Creek, which is a highly modified channel running from north to south through the catchment. The western areas of Wainuiomata drain to Parkway Drain before connecting to Black Creek downstream of the Nelson Crescent bridge. Black Creek ultimately drains to the Wainuiomata River to the south.
- Stokes Valley catchment is situated in the north-eastern part of Hutt City. It comprises flat areas of land in the valley surrounded by steep hillsides. The catchment size considered part of this investigation is approximately 1,145 hectares, with an approximate population of 10,151.
- Western Hills catchment is largely undeveloped and consists of vast areas of forest park, and rural properties. Flows from the Western Hills impact the Petone catchment.
- Eastbourne catchment is long and narrow and consists of short catchments, which drain to the sea, and will likely be impacted by sea level rise.

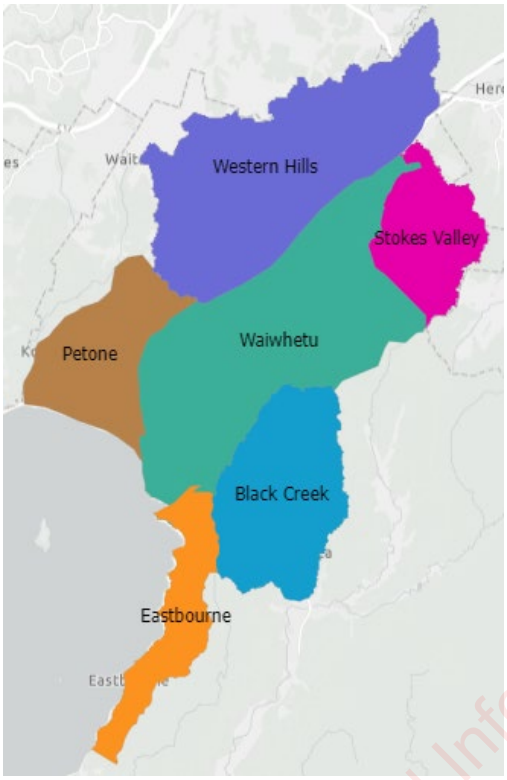


Figure 9: Hutt City Stormwater Catchments

4.5 Level of Service

LOS relates to a set of measures used to standardise customer and regulatory expectations. In this study LOS measures are used to verify that current and future populations will receive the same service. There remain uncertainties over future LOS in some areas especially those relating to environmental standards, such as water quality. Simplistically the gap in the targeted level of service required versus being provided, needs to be filled with water infrastructure and/or services and this comes at a cost.

In assessing existing level of service against a target level of service, several types of gaps need to be considered, as depicted in Figure 10.

- The existing capacity may not meet the current service target.
- The existing capacity may not meet the future service target.
- Apparent decline in capacity to match future service targets due to growth (increased demand) using up existing capacity.
- Changes to environmental requirements or community expectations are not met through existing infrastructure.

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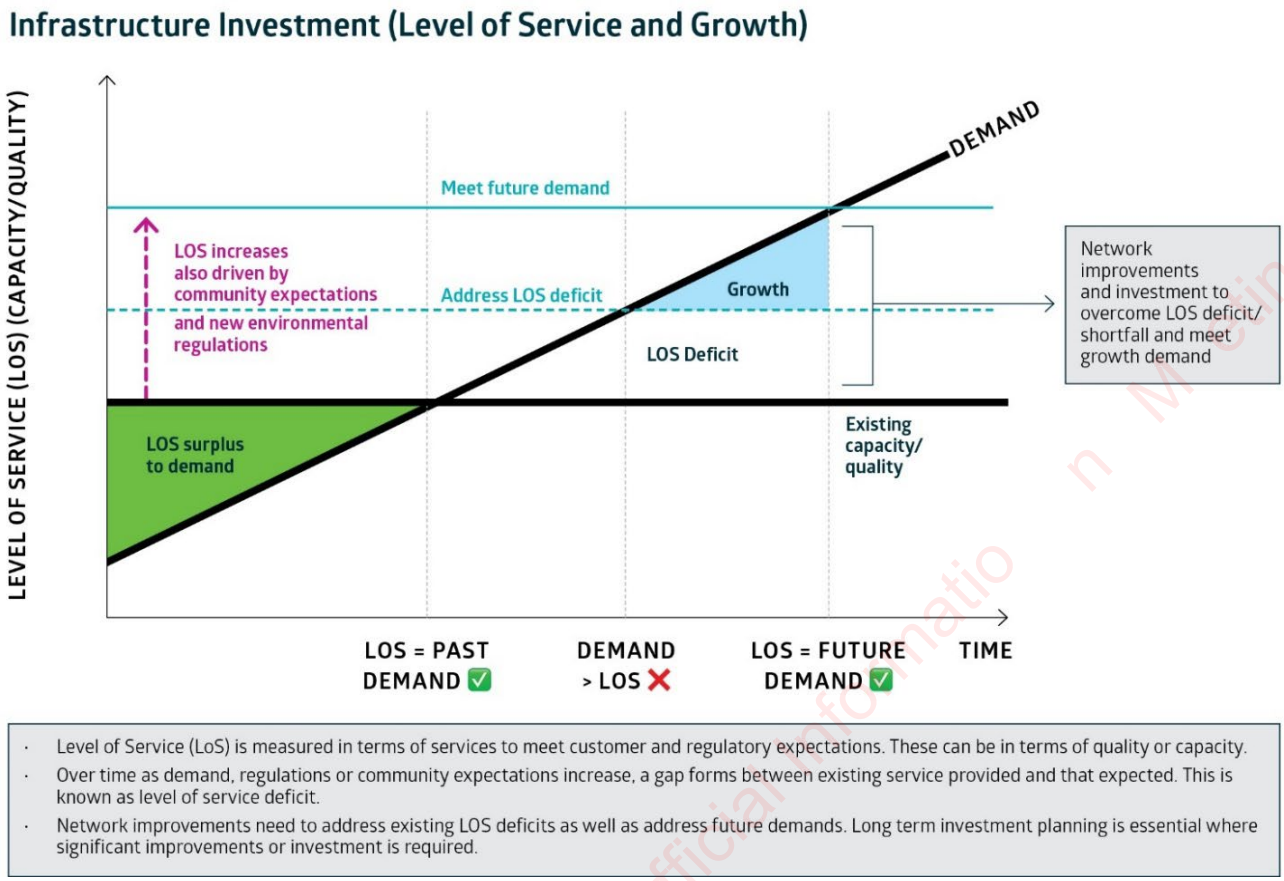

Figure 10: Level of Service and Growth

The following describes the level of service used in the Hutt City Growth Study.

4.5.1 Water Supply Level of Service

Water Supply levels of service are applied based on the Regional Standard for Water Services for:

- Minimum and maximum pressure
- Reservoir storage
- Reservoir replenishment (i e. time to fill)

4.5.2 Wastewater Level of Service

The target levels of service for this study are:

- Uncontrolled overflows to not exceed a one spill per year wet weather overflow frequency
- Overflows at constructed locations to not exceed an average of two spills per year wet weather overflow frequency.

These levels of service may change in future as further work is completed to understand the community-environmental objectives, and cost-benefit of various scenarios through the consent process.

4.5.3 Stormwater Level of Service

The stormwater level of service used for growth planning are as follows:

- Safe access to and protection from flooding of habitable floors in the 100-year flood event that includes the predicted impact of climate change (20% increase in rainfall intensity).
- Safe access to and protection from flooding for Commercial/Businesses in the 10-year flood event.

In addition to flood protection, water quality considerations need to include the effects of existing and future stormwater networks discharging into the receiving environment. These must be managed in accordance with the Wellington Water Stormwater Management Strategy for the catchments as well as Greater Wellington Regional Council guidelines.

5. Overview of approach

The development and presentation of the findings of the Hutt City Growth Study involved the following key elements.

5.1 Baseline Performance and Constraint Analysis

Given the vast and complex Hutt City three-water networks it was important to start by undertaking a stock-take of existing network performance, including known issues and geographical challenges.

This stage involved:

- Development of constraints maps for each water, for example preliminary flood maps, known water storage constraints, and wastewater overflows shown within models.
- Review and compilation of existing study and options development information so as to make use of previous planning and investigations.
- Review of existing issues with network engineering and operational input to assess confidence and ground-truth modelled issues.

5.2 Option Development

Upon completing baseline performance and constraint analysis the next step was to close gaps in performance knowledge, assess potential causes, identify existing level of service deficiencies and assess the impacts of growth scenarios on the three-waters networks. The process followed was slightly different for each water, and catchment. Option development involves issues/problem identification and confidence assessment; followed by development of long-list of options before short-listing and modelling the outcomes of making changes to the networks to service future growth.

For water supply option development is further advanced due to clear level of service requirements, model calibration and relatively straight-forward nature of the network.

For wastewater, options were developed to achieve an assumed reasonable level of service criteria based on industry practices, however there is potential that performance criteria may change following development of future network overflow consents and regulatory requirements.

For stormwater, we have provided high-level options to address existing issues and support stormwater flooding levels of service driven by habitable floor flooding. The costs of reducing and mitigating flooding can be significant, therefore it is likely that further stakeholder consultation, option development and business case preparation be undertaken to support preferred ways forward.

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5.3 Aggregation and Presentation of Findings

The last step in the preparing the growth study findings, was to aggregate and present the findings on the basis of constraints, options and recommendations. This involved compilation of findings of relevant technical options studies into a list and maps.

The findings represent a point in time, and a series of options available to meet the current and future target performance levels to service 30-year growth. It is likely that these options will evolve over time with growth demands, development activity, major infrastructure projects, community expectations and new standards. Therefore, identified projects and programmes should be considered as a set of possible options that will likely change as designs progress, costs are refined and community priorities change. They are our current best understanding to support a pipeline of future projects and investment profile.

5.4 Assumptions and Limitations

There remain a number of assumptions and limitations that have been used to support the development of this study, as follows.

Stormwater flooding areas
The following areas are excluded from the study for stormwater flooding, as these models are still under development, and areas were identified as low growth:

- Eastbourne
- Western Hills

Stormwater quality
Due to remaining uncertainty over the stormwater management strategy and management plans framework; stormwater quality has not been addressed in this growth study. Further detailed catchment level analysis will be needed to support the identification of catchment and localised water quality devices. What we do know is that future standards will likely be much more stringent and require investment in improving water quality outcomes and growth offers an opportunity to advance these objectives.

Population
Population information used to support the development of the growth study is based on the best available information at the time of modelling and option development. It is acknowledged that growth estimates remain uncertain and that there are likely further changes in these estimates based on a range of demographic, economic and regulatory factors. Where possible efforts have been made to assess the impacts of changes in population growth, and to comment on potential sensitivity of options to this growth. It is also important to remember, that as options develop into projects and progress through design and delivery the latest growth information is used.

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6. Key Findings – Constraints and Solutions

This section of the report identifies the constraints on the current three waters networks and possible solutions available and costs to resolve these constraints, and provide for growth. For an understanding of solutions by study area refer to Appendix E. Figure 11 summarises the proposed options required to address existing constraints and provide for growth.

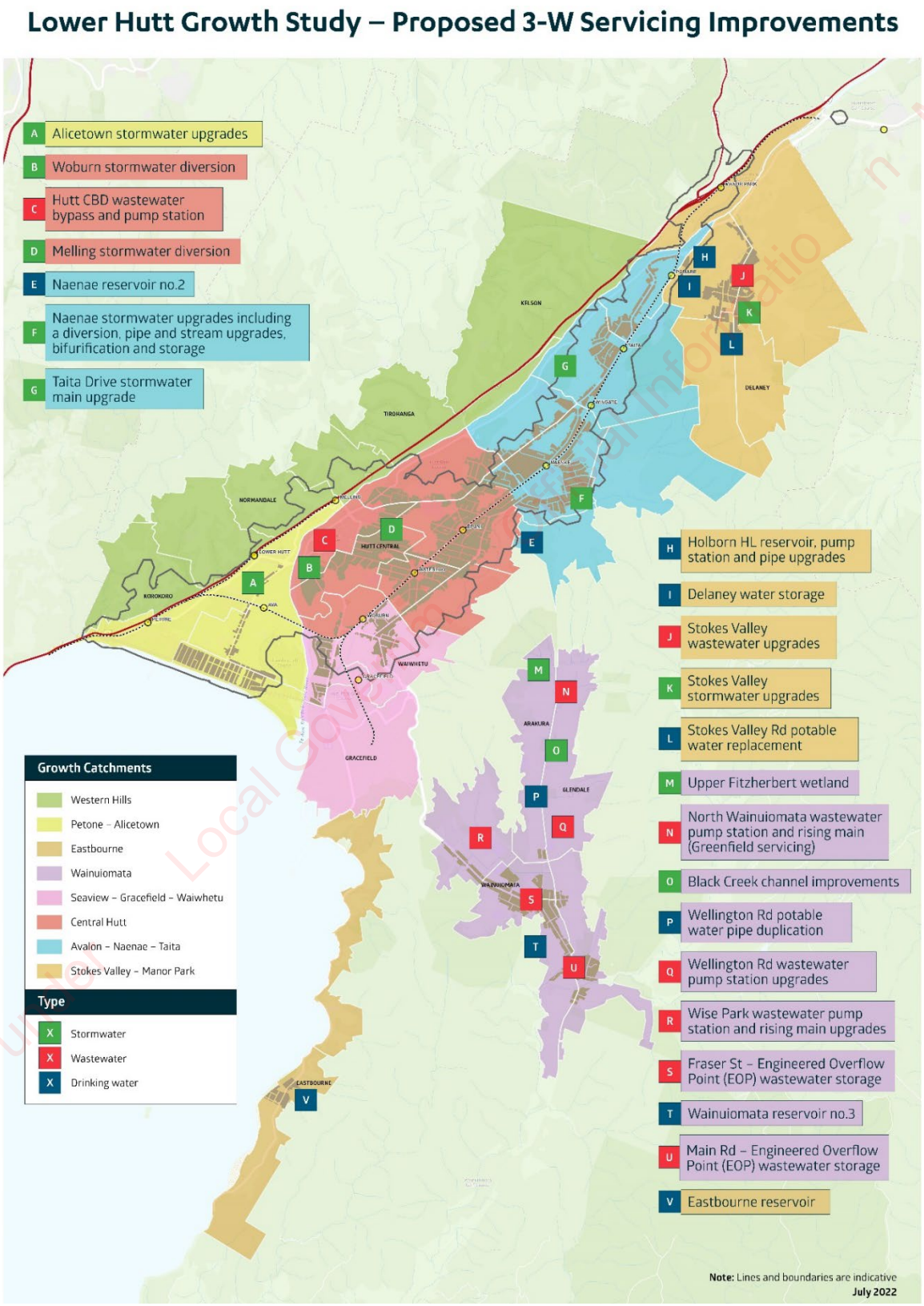

Figure 11: Hutt City Growth Study – Proposed key 3-W servicing improvements

6.1 Scale of infrastructure investment

6.1.1 Three waters costs by category

This study has sought to compile as far as possible a comprehensive list of drinking water, wastewater and stormwater options to support capacity upgrades needed to provide a defined level of service to existing communities and for growth in Lower Hutt over 30-years. At a strategic level, the solutions offered provide a basis to support long-term infrastructure investment planning, and funding discussions with council, agencies, communities and developers.

The overall cost of the three waters solutions presented in this study are summarised Table 4 and Figure 12 and detailed in Appendix D. These cost estimates, represent three-waters infrastructure to address existing level of service deficits, and provide for growth. Noting there may be some renewal components in upgrade infrastructure, but this is expected to be limited given the age of most parts of the network. These estimates exclude condition/age based renewals, compliance drivers (e.g. water quality), Joint-Venture wastewater assets and regional council owned bulk water network.

It is likely further costs will be incurred for local level infrastructure upgrades e.g. smaller local pipes that may need upgrading or relocating as development progresses.

Table 4: Three waters costs by category

Category	Total cost $M (note 1)	Currently funded in 2021 LTP $M[5]	Shortfall $M
Water Supply (exc. bulk)	191.26	149.1	42.16
Wastewater (excl. JV)	271.13	24.5	246.63
Stormwater (excl. WQ)	810.2	60.0	750.2
TOTAL[6]	**1272.59**	**233.60**	**1038.99**

Note 1: There are a number of exclusions from the total cost, these include:

- 3-waters renewals
- Water supply – seismic strengthening of reservoirs, Manor Park reservoir, and fire upgrades as well as GWRC assets including new source and bulk water system upgrades.
- Stormwater – water quality requirements which will be covered in stormwater network discharges consent requiring the development of Stormwater Management Strategy and Management Plans.
- Wastewater – upgrades required for local networks caused by discrete developments; joint-venture assets; as well as any infrastructure required to meet more stringent containment standards. Containment standards are being developed as part of the wastewater overflows consents collaborative committee.

[5] 2021 LTP advice used findings of technical reports at the time (e.g. Wainuiomata growth study and HCC valley floor ZMP) and used 2019 base rates.

[6] Cost estimates are Level 1 (95th percentile excluding 8% management fee), and use 2020 (revision 11) rates.

Figure 12: Proportion of costs by category

6.1.2 Cost-Allocation

Understanding renewal, level of service and growth components of projects is best completed at a project by project level and at the time of finalising investment plans, growth models and development contributions policies. Wellington Water have developed a Cost-Allocation process to be completed during investment planning to supporting funding categories (e.g. Renewal, LOS, Growth). This process uses two methods, average cost of capacity and beneficiary split. Average cost of capacity is useful where capacity information (such as volume of storage can be directly correlated to dwellings), otherwise a beneficiary split approach is recommended (in simple terms this splits cost based on growth over the capacity life provided). At a general level the portion of growth expected, e.g. 23.8% by HCC Plan Change 43 (March 2020) or 42.9% Sense Partners (June, 2021) (refer to Table 5) can give a sense of the level of cost recovery that can be expected across the network over time using a beneficiary approach. Where upgrades involve replacement of assets, depending on asset age, a portion may also be attributed to renewals.

6.1.3 Three-Waters Costs by Study Area

Table 5 shows a comparison of the growth study areas, with total cost (excluding WWL fees), and forecast population in 2050. This comparison shows that Stokes Valley-Manor Park and Wainuiomata result in the highest total cost/total population 2050.

This measure should be used for comparison purposes only, due the number of assumptions that have been used to distribute costs for each study area, as these may not fully reflect the contribution each project has towards renewals, levels of service, and growth which should be assessed individually.

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Table 5: Three-Waters Upgrades Costs by Study Area and Population Forecast

Study area	Total Cost (Level 1 exc. WWL fee) ($M)	Total Population 2050 (HCC, 2020)	Total Cost/Total Population 2050
Avalon - Naenae - Taita	$181.2	21,694	$8,354
Central Hutt	$274.4	34,038	$8,062
Petone-Alicetown	$91.1	13,565	$6,714
Seaview-Gracefield - Waiwhetu	$24.6	4,624	$5,320
Hutt Valley Floor Sub-Total	$571.3	73,922	$7,729
Western Hills**	$11.6	15,208	$766
Eastbourne	$21.7	4,733	$4,590
Wainuiomata	$311.2	24,494	$12,704
Stokes Valley - Manor Park	$356.7	11,966	$29,812
TOTAL	$1,272.6	130,323	$9,765

Notes:
**These costs include for all existing and new dwellings, and serve as a comparison only for scale of investment based on the projects and growth assumed in this study.*
***note Belmont Park has been excluded from Western Hills due to uncertainty over greenfield servicing.*
****These results are only based on the assumptions used in this report, a range of factors may result in new infrastructure being required, and therefore changing the servicing costs.*

6.2 Water supply constraints and solutions

Summary

The water infrastructure requirements are most affected by the higher than projected population growth figures. Table 6 shows the comparison of total system demand on a peak day between the two population forecasts for Lower Hutt.

Table 6: Comparison of total system demand on a peak day under two population forecasts

Source	2018	2033	2048
HCC Zone Management Plan (2020)	43,436	47,183	49,961
Sense Partners 50th Percentile (2021)	47,271	56,026	63,190

Water Supply Constraint No 1 - Water storage

The water storage capacity for the whole city currently consists of 72.25 ML of storage with the main storage facilities being:

- Naenae, Gracefield and Taita reservoirs which have a combined capacity of 22.6 ML.
- Wainuiomata which has a storage capacity of 9.0 ML.

There is already a shortfall in the water storage in Hutt City that is impacting on existing levels of service, and this will be further impacted by growth. In particular and of most significance, there is not enough water storage volume in the Naenae and Gracefield reservoirs to meet Wellington Water's guidelines and meet modelled growth levels and there is a shortfall in Wainuiomata and Stokes Valley required to meet growth forecasts.

The amount of water storage required both for current storage and going forward is determined by the increase in the population of the city – the faster the population increases, the more demand on current storage and the sooner new storage capacity might be needed.

This projected shortfall as identified by Stantec (2021) is 25.7 ML or approximately 36% of the current water shortage in water storage. Unless a number of water storage solutions are implemented this will be a constraint to growth and continue to impact levels of service.

Figure 13 shows storage shortfall for the city as a whole in three ways - the current shortfall, the shortfall with expected growth levels and no solutions implemented and the shortfall with expected growth with solutions added. It is broken down into Water Storage Areas (WSA).

Points with regards to key[7] water storage constraints in the city are:

- Lower Hutt Central - the shortfall related to modelled levels of growth if calculated by strictly following the guidelines and the WSA extent is very large - around 30 ML. Given the proximity of the reservoir to the water treatment plant and source the required volume to service Lower Hutt Central has been reduced, with a new proposed 15ML reservoir.
- Wainuiomata - there is a predicted shortfall of 8.0 ML of storage volume with growth, to meet the seismic and operational (peak daily demand) levels of service. This will mean almost doubling the current storage volume in this area. Approximately half of this storage volume is needed just to meet current population and demand levels and the other half relates to predicted growth in existing areas and new greenfield.
- Stokes Valley – there is a forecast a shortfall of in Stokes Valley, as a result two new reservoirs are required in Stokes Valley – a 1.5 ML reservoir in Holborn to service greenfield growth in the short term and a 1.2 ML in Delaney in the long term. Both reservoirs address storage issues in Stokes Valley due to growth. Further analysis using Sense Partners (2021) increased population forecasts for the area may increase the longer term shortfall from 1.2ML to 4.2 ML. The size and storage configuration requirement needs to be investigated further.
- Eastbourne - the supply to Eastbourne can easily be interrupted through an operational outage or in a seismic event as the bulk supply crosses liquefaction-prone ground through Seaview. Whilst not a storage size issue, it could impact on supply. The size of this reservoir may need to be increased from the initial estimate of 1.3 ML to 2.2 ML due to increased populations forecasts (Sense Partners 2021) for this study area. A suitable location to place a new reservoir has proven challenging due to the terrain.
- Western Hills - The ZMP (2020) recommended no major investment was required as the shortfall in this study area was small and options available for construction of a new reservoir are limited. The ZMP recommended greenfield developments of in total of 370 lots, be fed by the existing Liverton Reservoir.

[7] Note there are other minor works recommended but these are of a smaller scale and therefore not included in this report. The full information can be found in the Stantec report "Hutt City Water Supply Zone Management Plan (Hutt Valley excluding Wainuiomata) – November 2020".

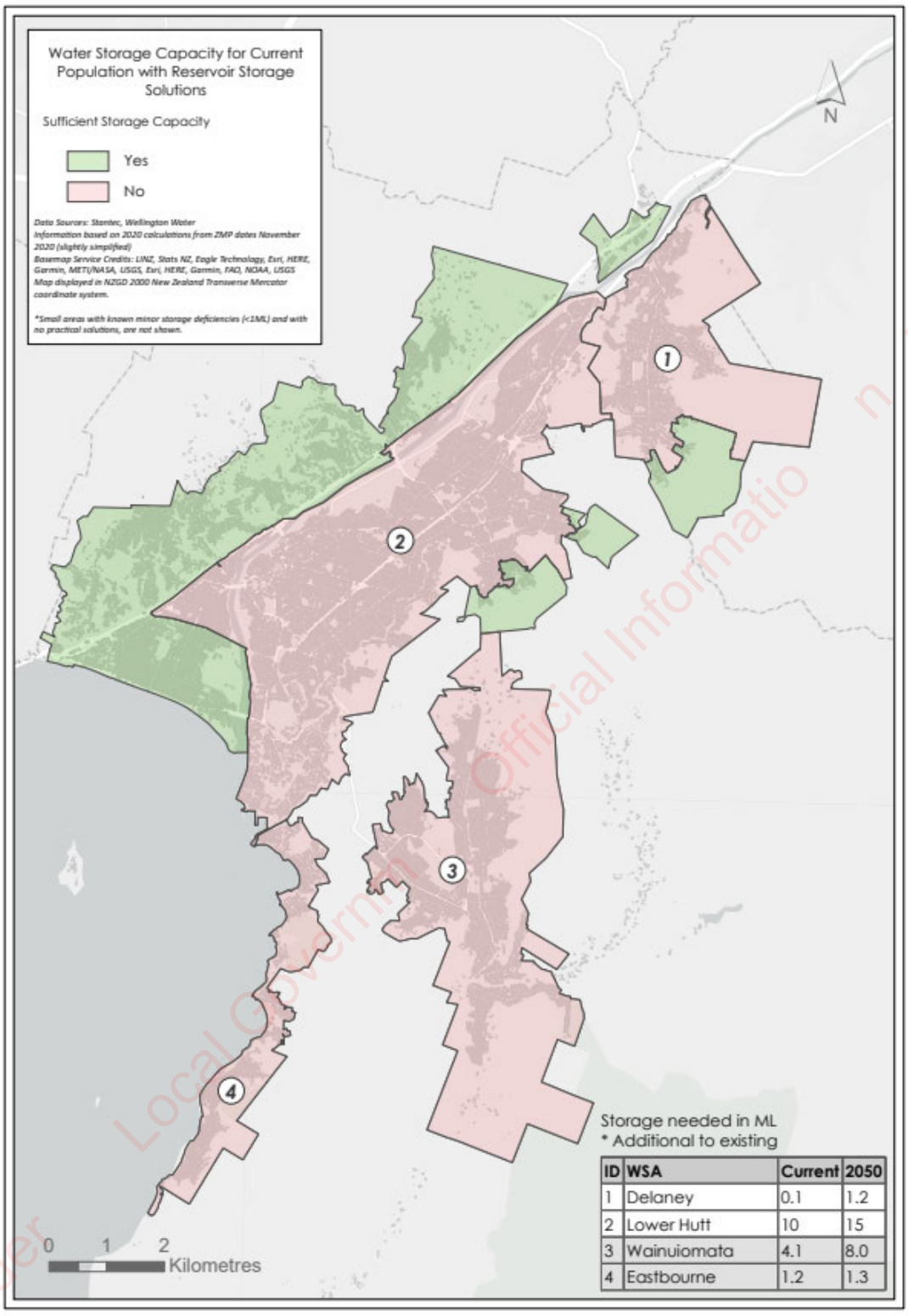

Figure 13: Water storage capacity for current population with reservoir storage solutions based on ZMPs.

Preferred water storage solutions

The preferred solutions to address the calculated storage shortfall in Lower Hutt are:

1. Central Hutt - a new 15 ML Naenae reservoir No.2[8] be constructed beside the existing Naenae Reservoir No.1. This is assumed to be online within the next 5 years. As discussed, 15 ML is less than the shortfall calculated strictly following Wellington Water's storage guidelines due to unique factors associated with the proximity of the reservoir to the WTP resulting in a reduction in the criteria relating to seismic storage. The new reservoir is also contingent on the installation of control valves to enable Operations to manage the transfer of water from the hills in an emergency.
2. Wainuiomata - a new 8.0 ML storage reservoir with the preferred location being adjacent to Fraser Street. This includes creating a new low-level pressure zone. The timing of the reservoir should be reviewed alongside changes in population growth.
3. Stokes Valley – There are two solutions here:
   a. To meet the current storage shortfall a number of options were examined and for the purpose of this study, the assumption is that land would be secured for additional future storage adjacent to the proposed Holborn High Level reservoir needed for greenfield growth.
   b. To meet the total number of new dwellings in the Holborn and Shaftesbury development sites the construction of Holborn High Level reservoir (approximately 1.5 ML) will be required.
4. Western Hills - with the 2021 Sense Partners forecasts, showing increased growth for the entire Western Hills study area, it is now noted that there may potentially be a need for a new reservoir for Normandale and Tirohanga. Both Normandale and Tirohanga are unlikely to contain a site suitable for a new reservoir, but it is recommended that this is confirmed.

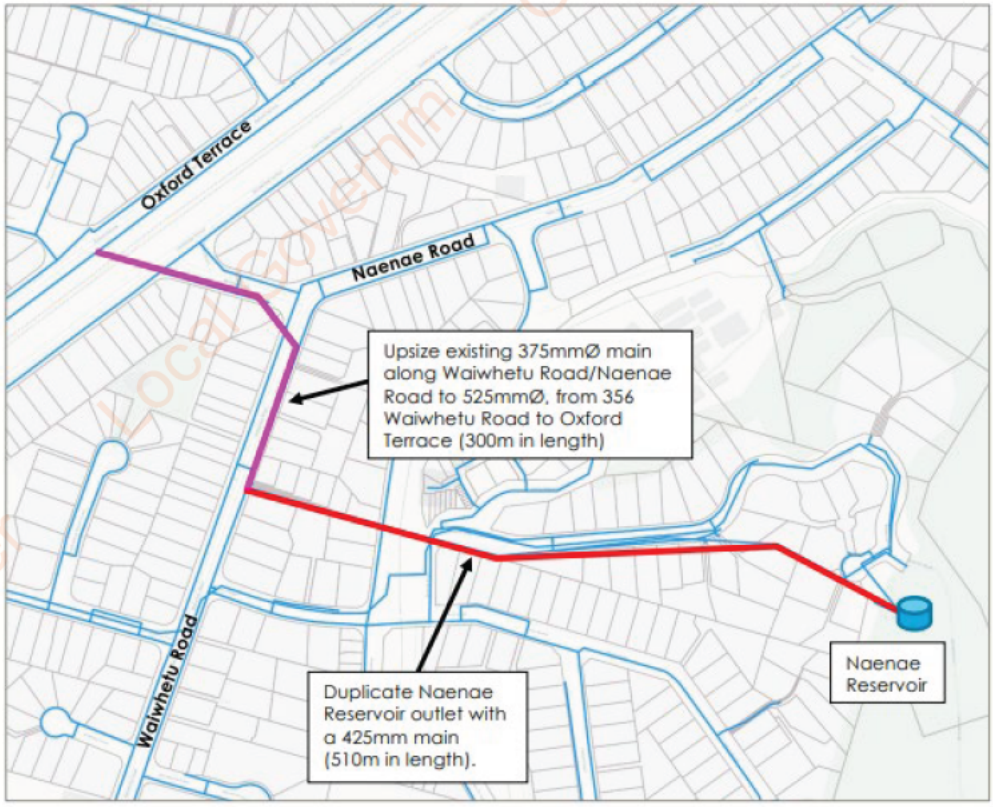

Figure 14: Upgrades to accommodate increased flow through Naenae reservoir outlet main

[8] The size of a reservoir is determined by a number of factors including population growth, seismic resilience, fireflow and water usage levels per person per day

Water Supply Constraint No 2 - Bulk water network connection to the distribution network

A key current feature of the Valley Floor network that needs attention is that the bulk network is connected to the distribution network via three un-metered cross-connections located near the Waterloo WTP.

The key drivers for keeping these cross-connections open, historically, was to maintain sufficient pressure upstream of the Pharazyn Pump Station (this has now been upgraded) and the cross connections also remain open to maintain sufficient pressure to some high-elevation properties.

Maintaining the cross connections open is problematic as it:

- Leads to pressure increase during peak demand.
- Causes undesirable effects on the water quality and safety with lime additive used in the Waterloo WTP tending to precipitate and deposit in the network.
- Causes a reduction in effective pipe diameter and water quality issues.
- Means that the Naenae and Gracefield reservoirs which would normally provide buffers against a possible source water contamination are essentially by-passed – meaning a contamination event not eliminated by the WTP can reach customers directly.

It is essential to close the bulk network cross-connections for water quality and safety reasons. However, closing the cross-connections causes substandard pressures in the Eastern Hills, specifically on the higher elevation properties adjacent to the Rata and Sunville DMAs. Solutions for improving the pressure in these areas are therefore required hand in hand with closing the cross connections and these are covered below in to address water pressure.

Water Supply Constraint No 3 - Water pressure

The current network does not have capacity to maintain sufficient pressure if the water demand increases following the projected population growth. In particular:

1. Stokes Valley - there are two greenfield development sites in Stokes Valley – Holborn (186 lots) and Shaftesbury Grove (120 lots). Both development sites are located at the end of Shaftesbury Grove, a high elevation area within the Kingsley Reservoir pressure zone (~165 m HGL) which is currently experiencing pressure and firefighting deficiencies.
2. Wainuiomata – the pressure across the Wainuiomata network is generally high (up to 100 m), particularly along the valley floor. According to the hydraulic model, the pressure in the network remains above 45m under current demand conditions. In some areas, the pressure is above 90 m, which is outside the target level of service. The proposed developments at the northern end of Wainuiomata will generate a significant water demand. The existing water distribution network has insufficient capacity for proposed developments and upgrades will be required to meet the target level of service for pressure.

Preferred water pressure and bulk water cross connection solutions
1. To enable bulk water cross connections to be closed - numerous network upgrades are required, including 3 km of old AC pipe renewal, 350 m of new pipe, two new PRVs. In the long term (before 2033), it will also be necessary to increase the capacity of the Naenae Reservoir outlet main.
2. Stokes Valley - to address pressure and firefighting deficiencies as well as enable the network to supply to the development sites, it is proposed to construct and install the new Holburn High Level reservoir, install a new pump station adjacent to the Delaney Reservoir, construct a number of dedicated outlet mains (over 2 km in length in total), rezone the existing Holburn DMA into the new Holburn HL DMA and renew the existing AC pipes in the new Holburn PMA (approximately 1.4 km in total length). This upgrade also addresses firefighting deficiencies in Whitechapel Grove and Shaftesbury Grove.

Water Supply Constraint No 4 - Fire flow deficiencies

The current network does not have sufficient capacity to meet the Fire Code requirements in certain areas. This is an existing issue and not directly associated with growth.

Preferred fire flow solutions
1. No upgrade is recommended in some instances e.g., where fire flow is not achieved due to high elevation of properties and most properties not connected to reticulation and have private tanks.
2. A number of fire flow upgrades are suggested, and these can be seen in Table 13.1 on pages 82-86 of the Hutt Valley Water Supply Zone Management Plan (Hutt Valley excluding Wainuiomata) – November 2020.
3. These fire flow upgrades will need to be reviewed and prioritised for funding.

6.3 Wastewater constraints and solutions

Summary

Problem areas were identified throughout the Lower Hutt network, these problem or issue areas range in scale and complexity. In some instances they represent local network constraints and in other cases represented significant constraints or problems. Figure 15 and Figure 16 provide a view of all identified problem areas and Figure 17 and Figure 18 provide a view of the network solutions.

The timing of wastewater upgrades will need to be integrated with the resource consent process for wastewater network overflows.

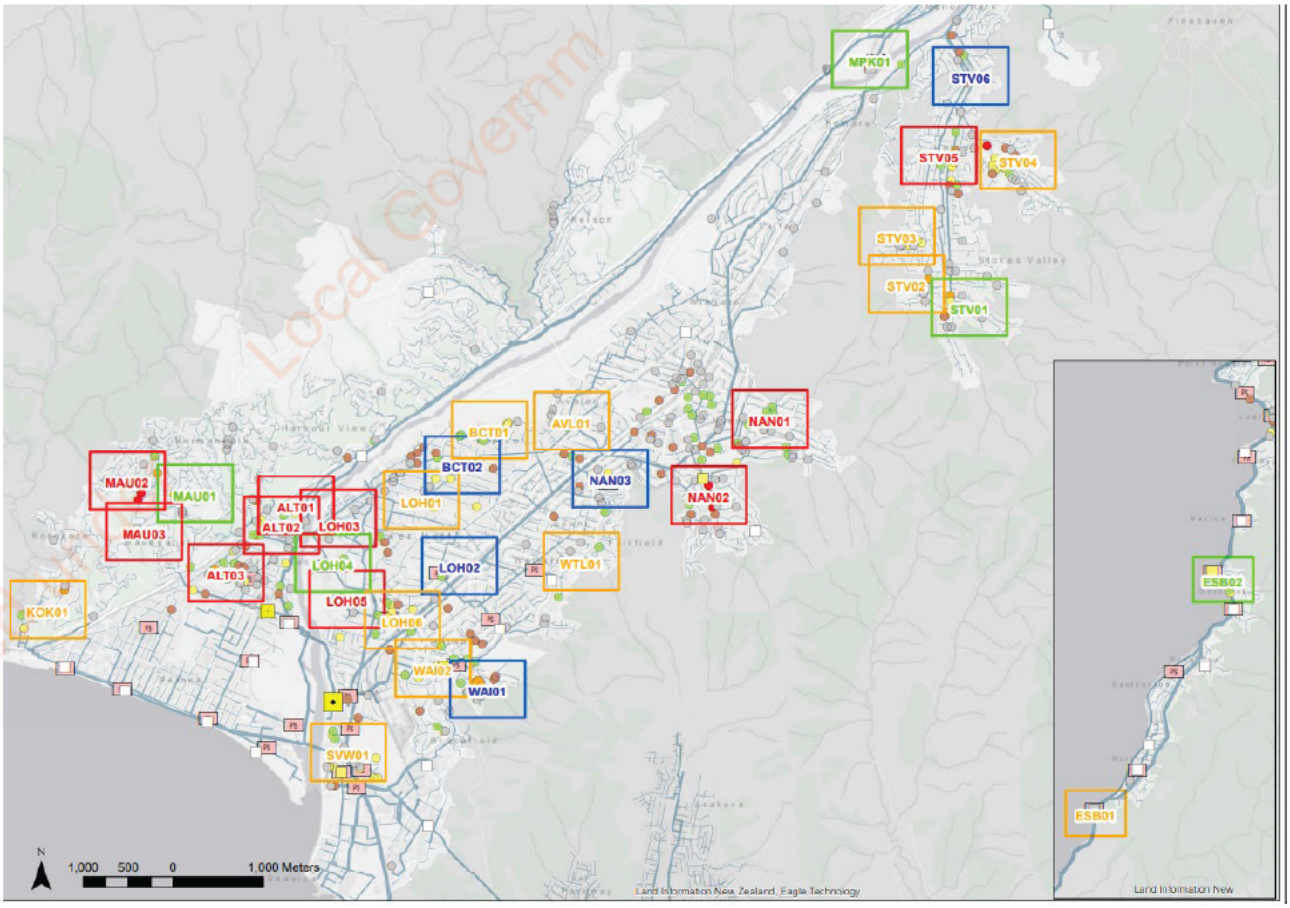

Figure 15: Identified wastewater problem areas (Hutt City Valley Floor excluding Wainuiomata)

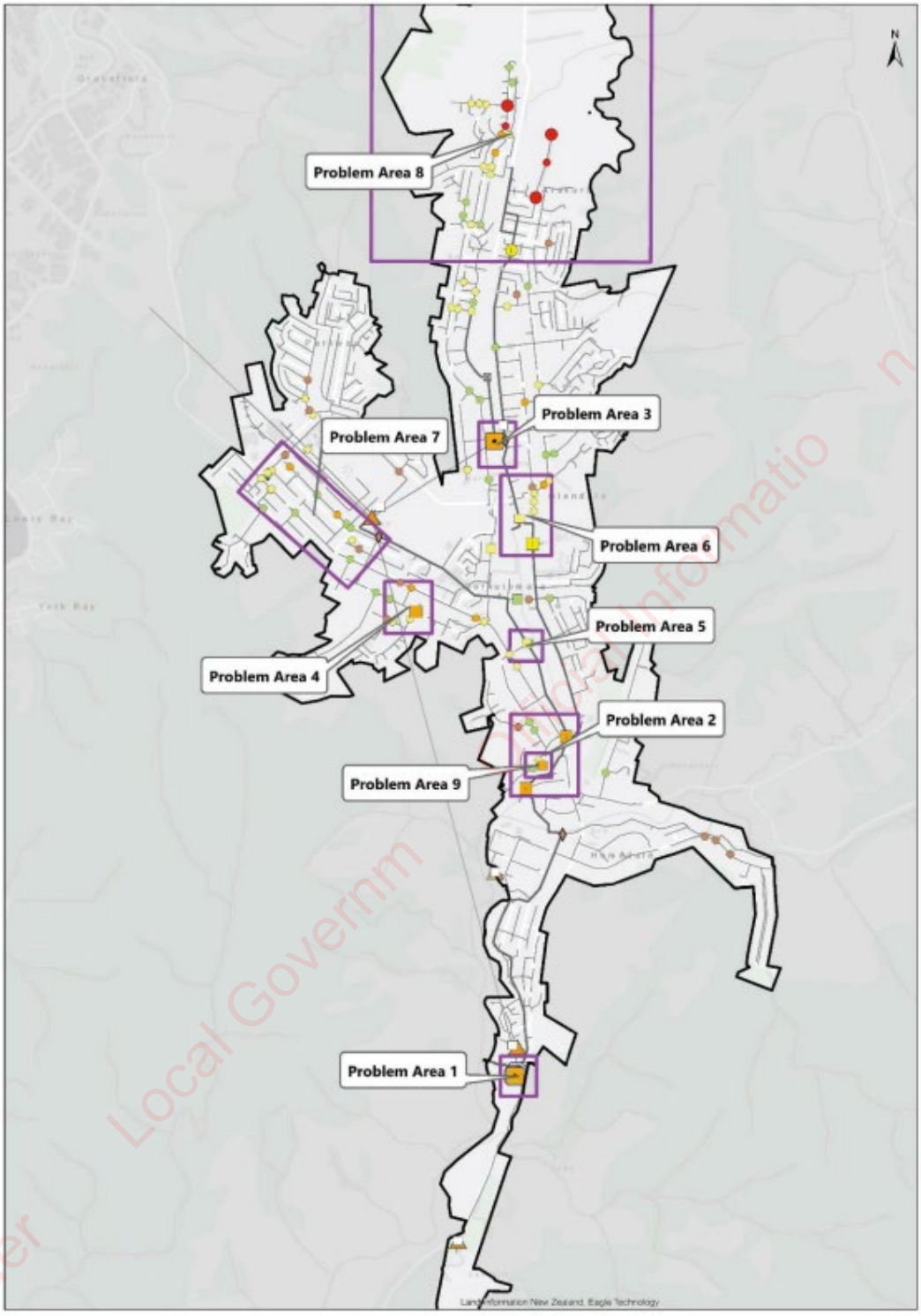

Figure 16: Identified wastewater problem areas Wainuiomata (HAL, 2020)

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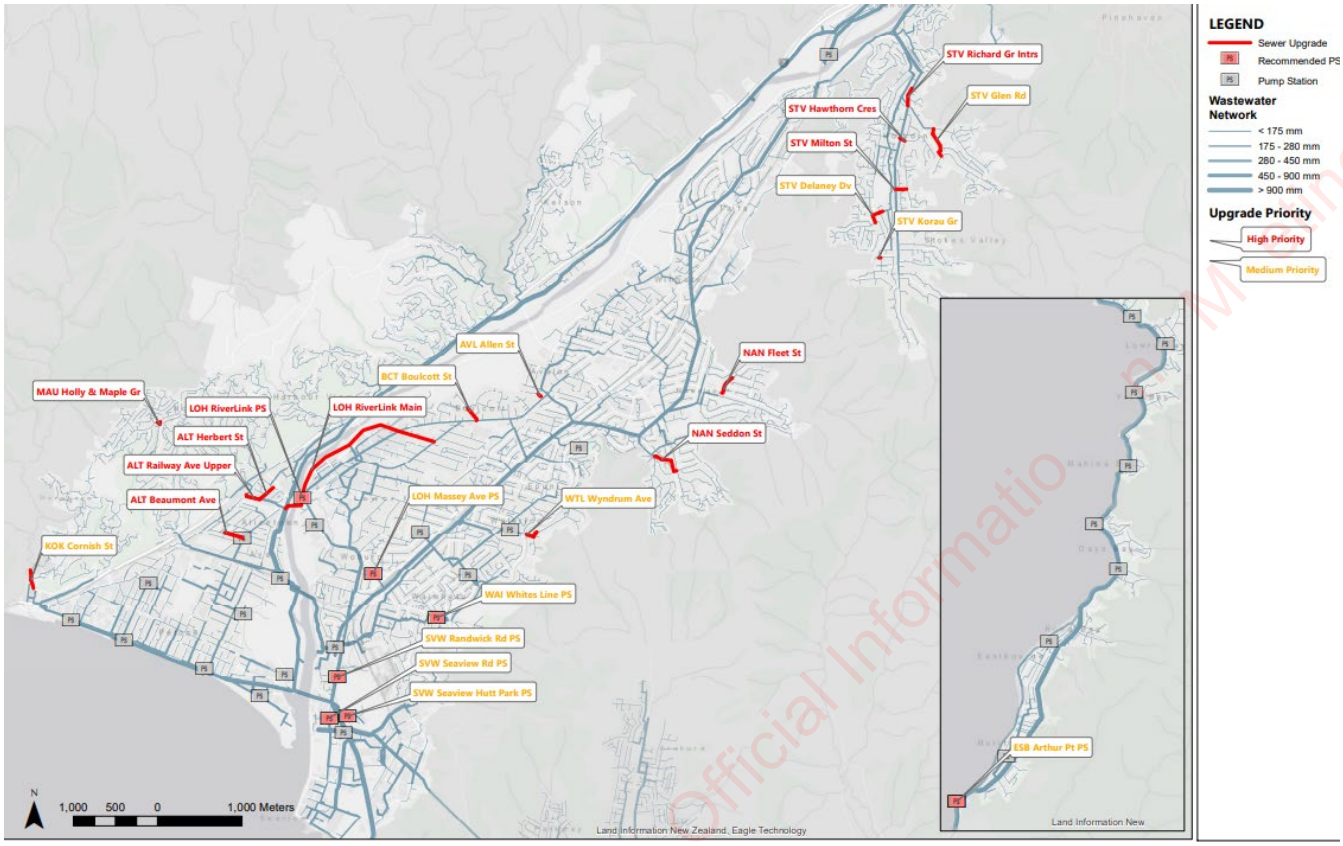

Figure 17: Identified wastewater network upgrades (excluding Wainuiomata) (HAL, 2021)

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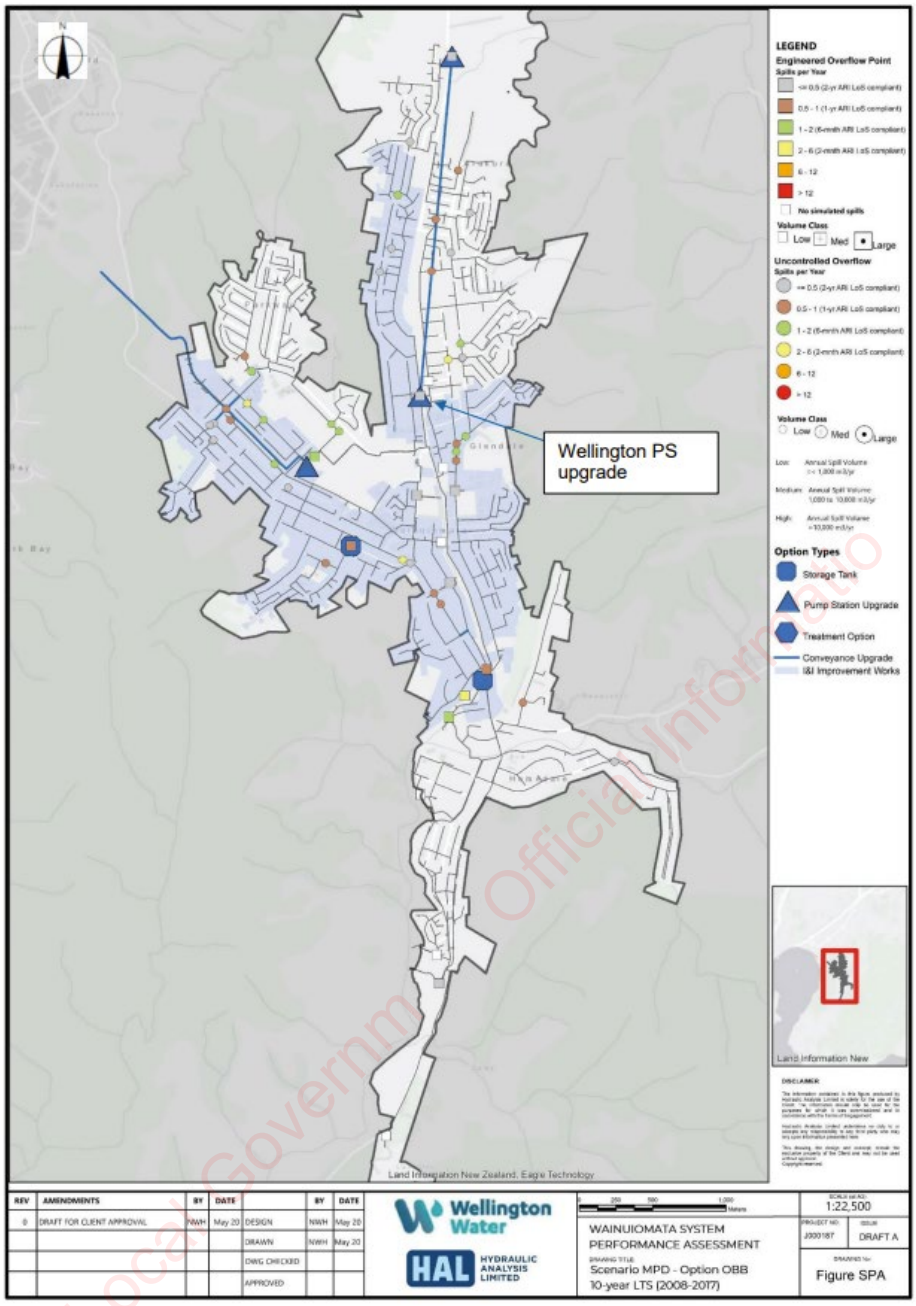

Figure 18: System Performance including Proposed Upgrades (HAL, 2020)

Wastewater constraint No 1 – Alicetown

The wastewater network in Alicetown is aged and in many places in a poor condition. Flooding issues are confirmed by Wellington Water and renewal projects are currently being planned for. A number of pipe sections have inadequate capacity causing relatively steep hydraulic grade lines and large energy losses.

There are the following constraints/issues:

- Williams Grove - manhole is simulated to spill frequently (4.5 spills/yr on average under existing conditions) due to downstream pipe capacity constraints at Herbert Street. Some sections of the network in this area are due for renewal and could be combined with provision of additional capacity. GIS data shows pipe condition grade 5 (i.e., Fail) for half of Herbert St.
- Railway Ave - manhole surcharges frequently (simulated 7 spills/yr on average under existing conditions) due to pipe capacity constraints. Also, other fairly frequent overflows simulated in this area, and static

capacity calculations also indicate potential limitations, as does the existence of a bifurcation. GIS data shows pipe condition grade 5 (i.e., Fail) for all of Railway Ave.

- Beaumont Ave - frequent flooding (simulated 8 spills/yr on average under existing conditions) of multiple manholes in Beaumont Ave, Victoria St and Wakefield St. Wakefield St is affected by elevated levels further downstream and close to Ava PS. Further, there are several bifurcations within the vicinity which makes assessment of the performance of the network complex, but which are indicative of capacity constraints. GIS data shows pipe condition grade 5 (i.e., Fail) or 0 (i.e., not assessed) for most of this network.

Preferred Alicetown solutions
Providing pipe upgrades in Alicetown at Railway Avenue and Herbert Street including a storage tank / large diameter pipe at Beaumont Avenue to mitigate the flooding issues in this area. The proposed upgrades at Herbert Street, Railway Avenue and Beaumont Avenue are expected to be adequate to reduce spiling risk to acceptable spill frequencies. It is recommended that those upgrades are further optimised.

Wastewater constraint No 2 – Central Lower Hutt including RiverLink

The central Lower Hutt area is low lying and very flat and consists of fair y large trunk sewer pipes (up to 600mm diameter). There are a number of trunk wastewater mains close to or below their capacity and result in frequent uncontrolled flooding which are locations at risk of frequent overflowing, especially around Kings Crescent, Woburn Road and Massey Avenue pump station.

The RiverLink urban redevelopment will significantly increase the population in the Hutt CBD and will subsequently put additional pressure on the network capacity.

Preferred Central Lower Hutt including RiverLink solutions
Significant upgrades are required to accommodate the increased flows associated with population growth in the RiverLink re-development area. Due to the flatness of the terrain, upgrading or extending the existing gravity network is not considered effective. A new pump station is proposed near Woburn Road roundabout near Ewen Bridge. This pump station can be installed with a low invert level to provide the opportunity of installing a new trunk main at a fairly efficient gradient (i.e., 0 3%) servicing the RiverLink development. The rising main for this new pump station is proposed to run across the Hutt River to join the main trunk gravity line to Ava pump station. Planned upgrade of the Barber Grove and Ava pump station rising mains are required to allow for the additional discharge from the new pump station. The new pump station (including associated trunk main and rising main) in combination with the proposed upgrade of the Massey Avenue pump station is expected to provide the required future drainage capacity for the majority of the Lower Hutt area (as shown in Figure 19). An alternative option is a new rising main to Barber Grove PS (this would have benefits of being more resilient, but would be 2 km longer). During concept design development these options should be evaluated and a preferred alignment confirmed.

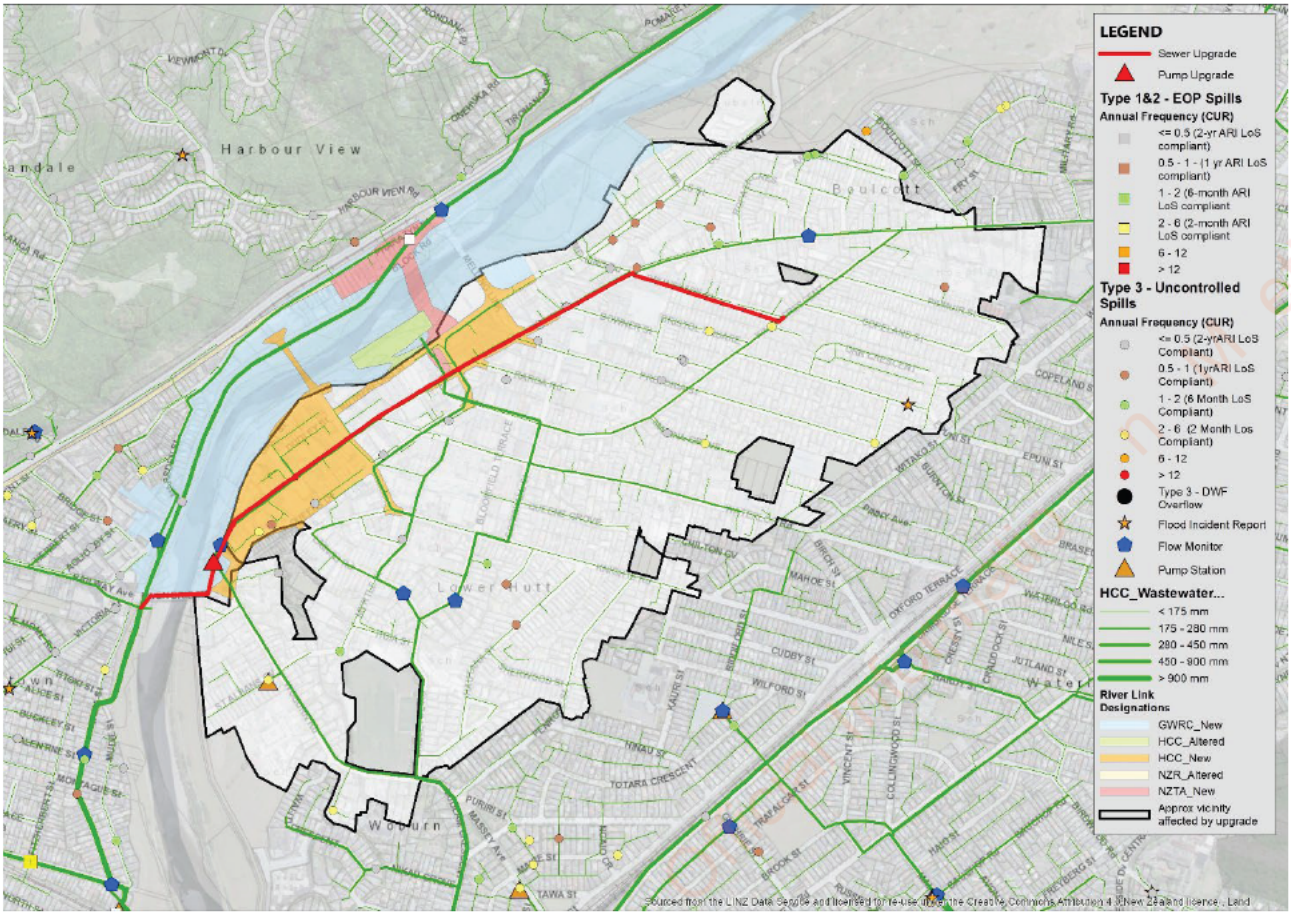

Figure 19: Preliminary extent of capacity improved by modelled Riverlink option

Wastewater constraint No 3 – Maungaraki

The main network constraints are located on a wastewater line installed in a steep valley west of Dowse Drive. Upsizing this line is expected to be complicated and relatively expensive due to access. Providing storage in the catchment is also not considered very effective.

Preferred Maungaraki solutions
I&I investigations are recommended to analyse to firstly quantified existing I&I (as this catchment was not directly monitored during the model calibration) and to assess if I&I reduction could be of some benefit for this catchment.

Wastewater constraint No 4 – Naenae

The suburb of Naenae experiences wastewater capacity constraints resulting in overflows, with some high confidence problem areas.

Preferred Naenae solution
To resolve the problems at Naenae it is required to provide storage options to prevent increasing overflows and flooding further downstream in the catchment. Pipe upgrades and storage is proposed at Fleet Street and Seddon Street in Naenae, which includes a diversion of flows through a new line at Waddington Drive.

Wastewater constraint No 5 – Stokes Valley

The suburb Stokes Valley experiences wastewater capacity constraints resulting in overflows, with some high confidence problem areas. A key constraint in Stokes Valley is the relatively small diameter pipe section at

Stokes Valley Road directly north of the intersection with Rischard Grove and Glen Road. Modelling results show this potential constraint causes backwater issues further up in the catchment. It is acknowledged that the current pipe diameter needs to be confirmed prior to further analysis.

Preferred Stokes Valley solution
Upgrades of the main sewer line at Stokes Valley Road (near Richard Grove / Glen Road intersection) as enabling work for other upgrades at Hawthorn Crescent and Milton Street. Additional asset investigation is recommended prior to further concept development.

Wastewater constraint No 6 – Wise Park pass forward capacity

Wise Park previously had a pass forward capacity of 210 l/s, and was a significant constraint upon the network. Whilst it was not predicted to spill, this is because as water levels at the pump station rise, the Wainuiomata and Wellington Road pump stations progressively shut down through the Remote Telemetry Control (RTC) operation to minimise the risk of wet weather overflows at this location. Modelling completed in 2020 recommended the pump station be upgraded to 300 l/s which has now taken place, a future upgrade will be needed (referred to as Stage 2).

The two main types of issues are:

- Engineered overflow point not meeting the level of service.
- Frequent, uncontrolled wet weather overflows

The Seaview Wastewater Treatment Plant (WWTP) receives flow from Upper and Lower Hutt as well as Wainuiomata. Passing forward additional flows from Wainuiomata will increase the frequency and volume of wet weather overflows at the WWTP, as there are limitations on the capacity of the outfall. Therefore, although passing forward is an option, optimisation of the whole network is required to adequately manage hydraulic capacity of the existing trunk network, WWTP and outfall.

Preferred solutions
Two refined solution sets were chosen from a longlist, an interim upgrade, and a future state upgrade. The assessment of required wastewater infrastructure improvement options which initially was projected to be required within **2033 planning horizon, and with increased growth rates may be required by earlier.** The options include a number of pump stations, inflow and infiltration programme, greenfield servicing, storage tanks and assessment and replacement of laterals. Within the **2050** growth horizon additional wastewater infrastructure improvements include the duplication of the gravity line - from Wainuiomata to Gracefield, further inflow and infiltration work and Wellington Road Pump Station upgrade.

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6.4 Stormwater constraints and solutions

Stormwater constraint No 1 – Wainuiomata channels, pipe network and backwater effects

Flooding has been an issue in Wainuiomata for many years. Black Creek is a highly modified channel which was originally designed to convey a 1 in 50-year average recurrence interval (ARI) storm event. However, a hydraulic study undertaken in 2004/2005 found that much of the channel had less than a 1 in 30-year ARI capacity.

It has been identified that flooding in the network is a result of three key issues:

- Undersized channels - the major channels in the network, Black Creek and Parkway Drain, have insufficient capacity for large sections of the channels. The previous channel upgrades did not go far enough to resolve all of the problems associated with insufficient channel capacity.
- Undersized pipe network - the upstream piped network is undersized in numerous locations such as the area around Parkway Drain and upstream of Mary Crowther Park. A number of open channels in the network which drain to Black Creek and Parkway Drain have road crossings with undersized culverts.
- Backwater effects - flow from the network and from overland is unable to enter the channel network at key locations due to backwater effects. For example, this occurs at mu tiple locations along the western side of Black Creek and around Mohaka St and Parkway Drain.

Preferred solutions
The preferred options through to 2033 are a new Detention / Wetland in Northern Greenfield, Black Creek and Parkway widening and Lees/Fraser and Upper Fitzherbert Pipe upgrade. In addition to the above options, there is a proposed Waiu Stormwater Upgrade for growth through to 2050 (now 2045). The calculated increase in channel capacity as a result of the proposed channel improvements is between 52% and 84%.

Stormwater constraint No 2 – Alicetown-Petone catchment flooding

The Petone-Alicetown catchment is a low-lying area at the southern end of the Hutt Valley and covers an area of 500 ha. It is approximately triangular in shape and is bounded to the northwest by Belmont Hills and State Highway 2 (SH2), the east by the Hutt River and the south by Wellington Harbour.

The catchment is very flat and low lying, with approximately 60% of the catchment area below the predicted future high tide level of 2.1 m RL. The catchment has a history of flooding, with significant events occurring in 2004, 2015 and 2016. Flooding affected both residential and commercial properties.

The five sources of flooding within the Petone-Alicetown catchment are shown in Figure 20 and are:

- Rainfall inside the catchment
- Runoff from the western hill's catchment
- Flooding of the Korokoro Stream
- Flooding due to the high-water level in the Hutt River
- Flooding due to high tide level

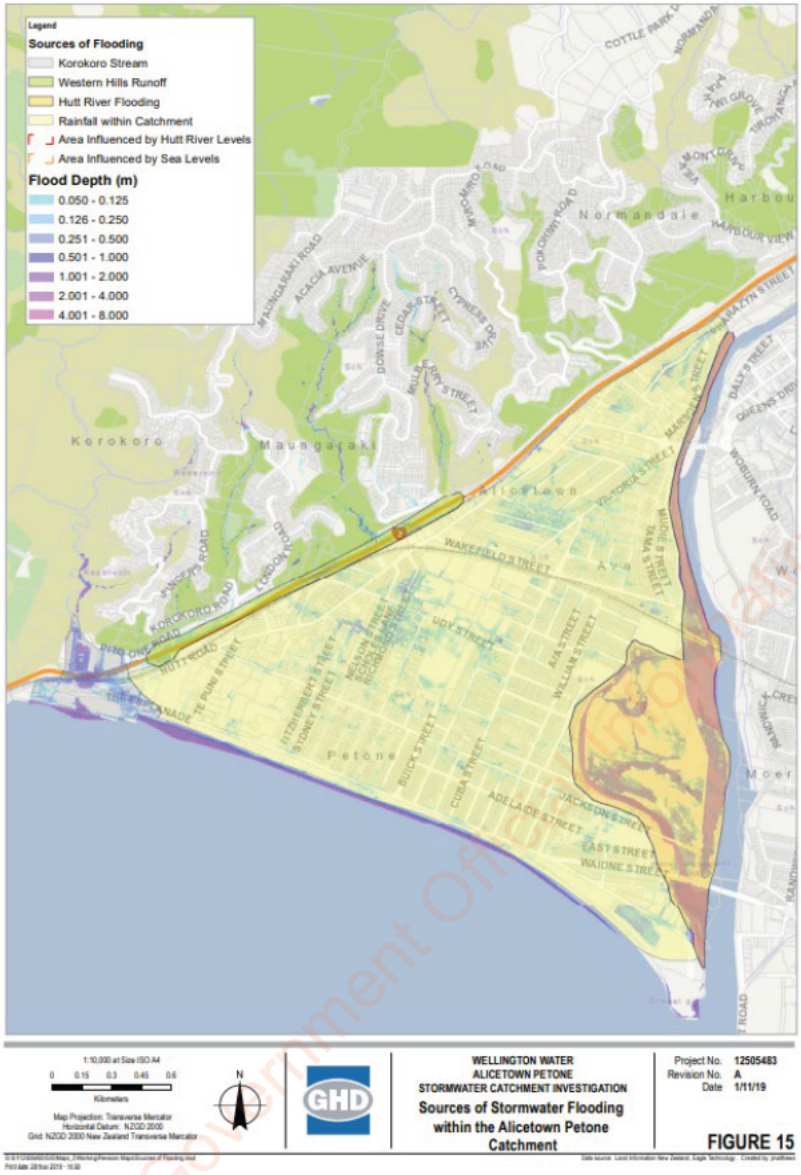

Figure 20: Source of flooding within the Alicetown-Petone catchment

Preferred solutions
The preferred solution is a mix of projects, aspects for further consideration and investigations as below: Projects - Ensure all outlets to the Hutt River have operating flapgates and proceed with the Hume to Victoria culvert project. Considerations including installing non-return valve on all outlets to the harbour, storage or options to reduce and elongate peak runoff upstream of the Udy Street culvert and construction of a pump station at the end of Nelson Street. Investigations including capacity constraints in the network upstream of the Marsden Street pump station, pumpstation upgrade options for Te Mome pump station, upsizing the Nelson Street culvert, Regent Street stormwater main and John Street pump station and the existing Korokoro Stream culvert constraints. Planning controls including building floor level and overland flow path controls are also important to manage risks to new dwellings.

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Stormwater constraint No 3 – Waiwhetu catchment flooding

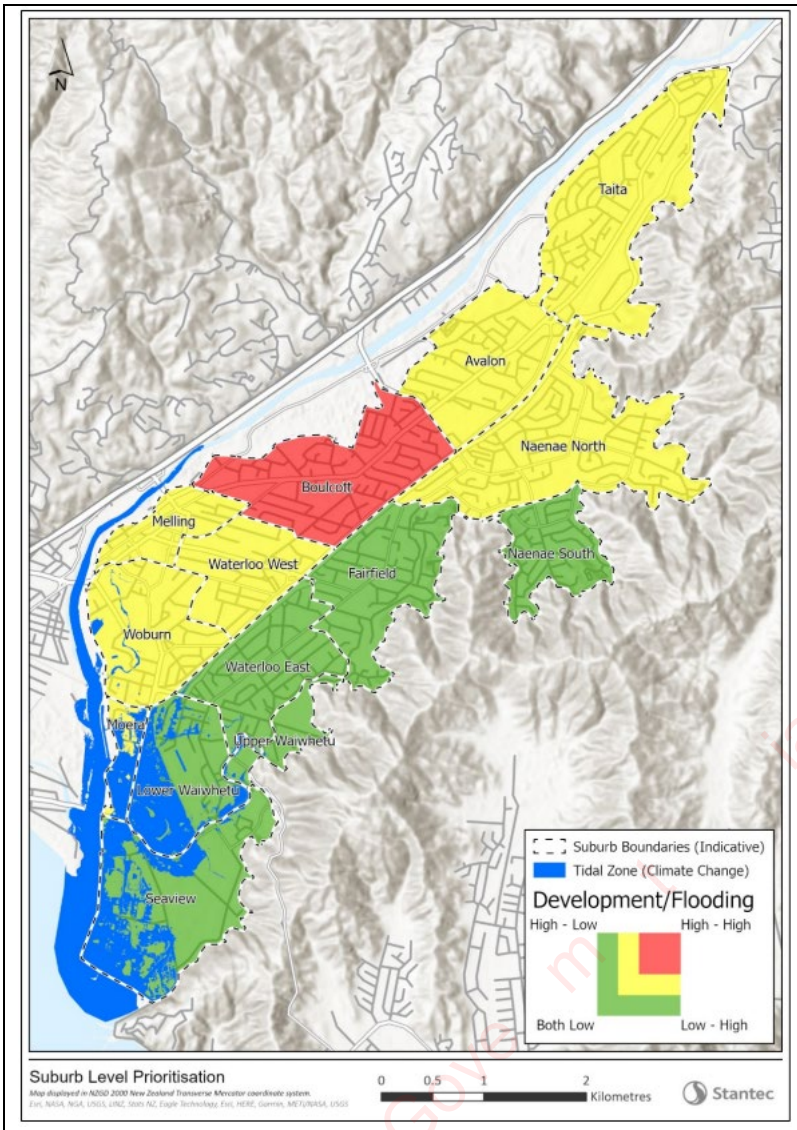

Figure 21: Suburb Prioritisation within Waiwhetu Catchment

The Waiwhetu (sometimes referred to as Eastern Lower Hutt) catchment includes the following suburbs

- Taita
- Avalon
- Naenae North and Naenae South
- Boulcott
- Fairfield
- Melling
- Waterloo West and Waterloo East
- Woburn
- Upper Waiwhetu and Lower Waiwhetu
- Moera
- Seaview

These areas are shown on Figure 21, which also indicates the resulting prioritisation following the assessment of flood risk and growth.

It includes areas that are low-lying which causes them to be prone to flooding.

An assessment was undertaken to understand flooding in the Waiwhetu catchment and identify the key causes of flooding in the area (as shown in Figure 22). This was done by examining reported flooding incidences, examining modelled areas of flooding, and undertaking some catchment-wide conceptual modelling These are shown in

The main causes of flooding in the Waiwhetu catchment are:

- High inflows (particularly from steep rural catchments in Naenae and Taita)
- Pipe network undersized
- Channels undersized
- Depressions and overland flow obstructions
- High tailwater (Hutt River, Waiwhetū Stream, tide)
- Intake capacity issues (sumps, inlets)

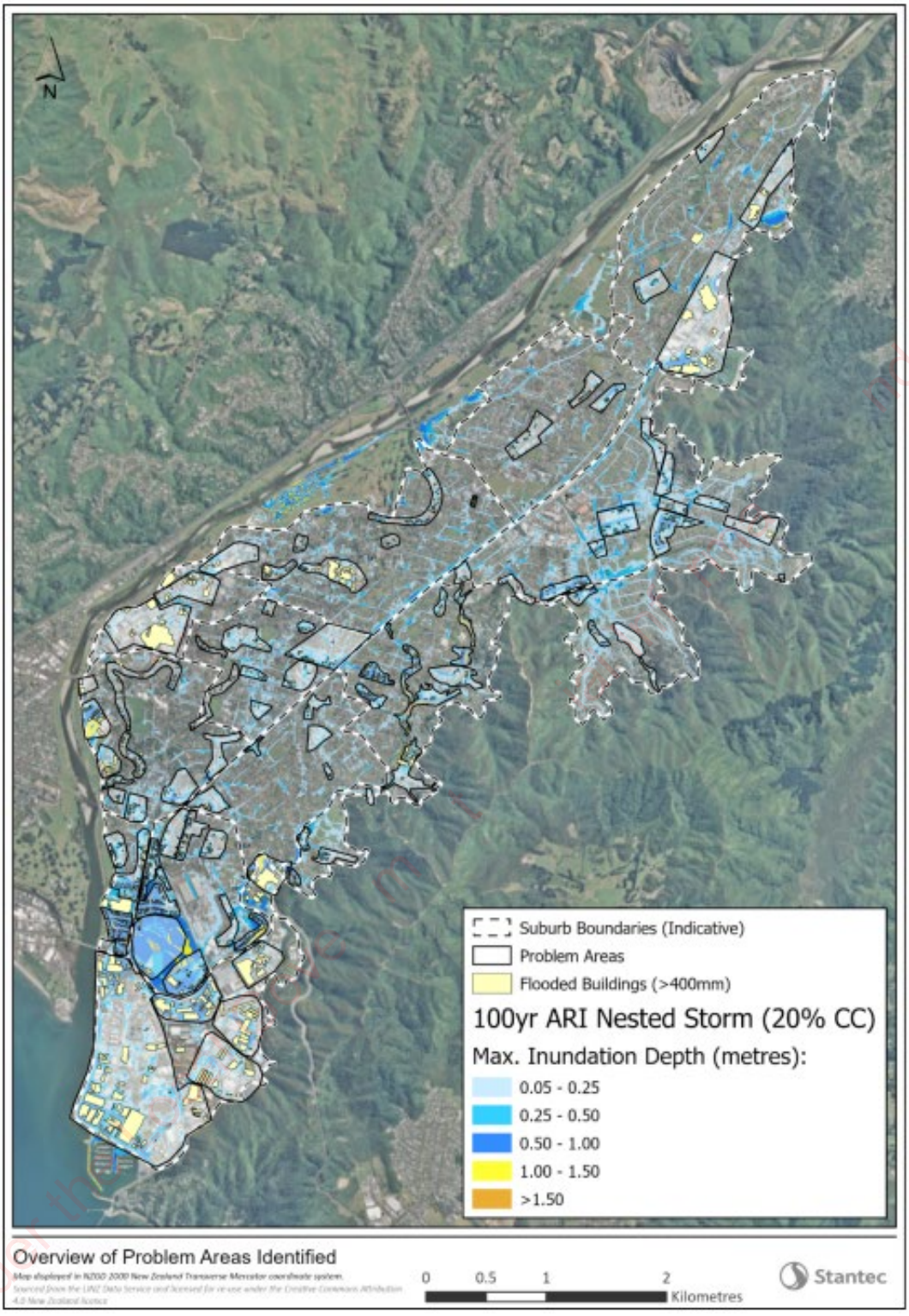

Figure 22: Waiwhetu Problem areas identified as flood prone in 1%AEP + CC event (Stantec 2021)

Work was undertaken to identify flood prone areas and understand the cause, extent and impact of flooding in the Waiwhetu catchment. The Opahu Stream was identified as key constraint to the network with much of the Boulcott, Melling, Woburn and Waterloo West networks discharging to it. The Opahu Stream is relatively small and meanders through residential properties; therefore, it is considered un-feasible to increase the capacity of the stream. Flow diversion from the Opahu Stream directly to the Hutt River has instead been considered.

Preferred solutions
The preferred solutions for the Waiwhetu (otherwise referred to as Eastern Lower Hutt) catchment are listed below and all solutions are shown in Figure 23: • Woburn-Melling - a combination of the Kings Crescent Diversion and the Woburn Diversion + Riddiford St Diversion noting that the Kings Crescent Diversion would likely provide the greatest benefit to the Melling catchment including the 'Golden Triangle' area. • Naenae solutions are independent of each other, and it is recommended all upgrades are undertaken. These are a range of projects including diversions, pipe upgrades, bifurcation, stream updates and detention storage. • Avalon solutions – three options are provided - Taita Drive Main Upgrade (Preferred solution) High Street Soakage Tanks and High Street building Floor Level Raise. • Boulcott solutions – two preferred options are provided - Kingston St Rising Main and High Street upgrade + Pump station. The other options are soakage tanks, floor level raises, pump stations and a stream diversion. • Waterloo West solutions – the preferred option is the Waterloo Rd Rising Main. Other options are floor level raises and soakage/storage.

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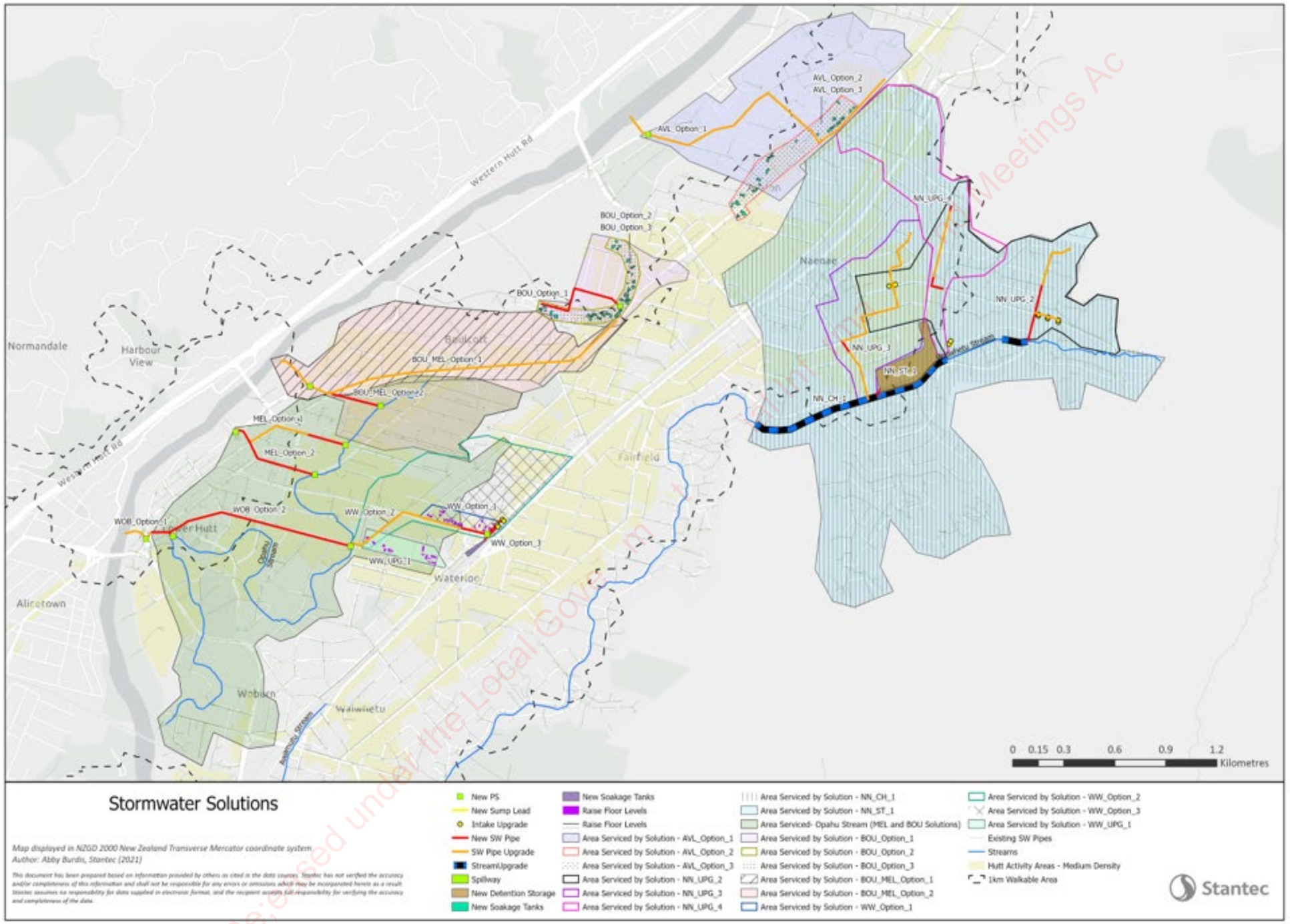

Figure 23: Waiwhetu Stormwater Solutions

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7. Observations

Geographical constraints

For Hutt City, geographical features (i.e. flat valley floor, with steep hills, and separate valleys) play an important role in the options and issues to overcome in the provision of three-waters services. For example, with hill catchments draining to a flat valley floor making it more difficult to manage stormwater flooding however easier to provide water storage at scale. The Wainuiomata catchment, being separated from Seaview WWTP by a large hill, results in the need for expensive rising mains and pump stations to remove wastewater.

Common themes continue to emerge from growth planning studies, that brownfield development is less expensive and more incremental than greenfield development. Greenfield developments are typically at the extent of networks and require the installation new and upgrade of existing infrastructure.

To service growth in Hutt City (Lower Hutt), the costs to service Wainuiomata are in the order of $311.2 million in comparison to $274.4 million in Central Hutt, and $356.7 million in Stokes Valley.

Addressing stormwater flooding challenges for Hutt City Council are significant, with estimated costs in the order of $1072 million to meet targets levels of service used in this study for current and new residents. This challenge raises a number of opportunities for more integrated land-use in water sensitive urban design, land-use planning options and guidance to reduce the demands on hard infrastructure solutions.

Dispersed nature of growth

With new residential capacity enabled under PC43, and further enablement required by NPS-UD and medium density residential standards, the opportunities for intensification are significantly increased. This also brings with it challenges, in terms of forecasting and planning three-waters upgrades to support growth which is likely to be more dispersed and difficult to predict.

This more dispersed growth, lends itself to more adaptive and flexible approaches, involving:

- Improving visibility of developer intentions (including scale and timing) to better understand impacts.
- Preparing catchment/neighbourhood plans that developers contribute to implementing, this will be particularly important in large-scale and high-intensification areas.
- Allowing budgets and esources for responsive upgrades to address network constraints and impacts of growth as these arise.
- Using renewals driven programmes as an opportunity to provide for future needs.
- Undertaking programme approaches to remove existing network constraints

Managing bulk and trunk network infrastructure

This study focused on network infrastructure to support Hutt City Council growth, and excludes regional/cross-council assets in bulk water infrastructure; and wastewater joint-venture trunk infrastructure. There is more work to do in this space to manage the regions water and wastewater infrastructure; including managing the timing of future upgrades to manage changes in growth patterns.

Uncertainty and Sensitivity to Change

When planning into the future there will remain a degree of uncertainty. The work completed for this study is based on a set of assumptions, and the best available knowledge at the time. As there are many dynamic factors that influence the provision of future three water services, including future regulatory and community expectations, population growth, funding options and designs progress these are expected to evolve. In the future we are expecting higher community and environmental expectations, and more

severe events (e.g. sea level rise, storm events, droughts) – these will increase the demands and risks to our three-waters networks and may result in higher levels of investment needed.

The recommendations and outputs from this study are intended to provide a consolidated set of options, investigations and recommendations for how to service growth to achieve a defined levels of service.

How has our understanding changed?
This study is the culmination of years of model development, analysis and options development. It is the first time that all of this knowledge has been compiled into a single place to support a holistic view of the network and how it will be impacted by growth. We have been able to use new tools (such as the Waiwhetu stormwater model). New tools and data will continue to become available, and these will support future in-depth understanding of the networks refinement of options and designs.

This study has significantly increased our understanding of the costs involved in managing existing and future three-waters networks.

8. Findings, Recommendations and Next Steps

8.1 Key findings

The key findings from the Hutt City Growth Study, include:

- There is a significant programme of investigative, design, and physical works needed to meet the demands of future growth and bring existing networks to target levels of service. The proposed improvements that have been identified in this study have an associated cost estimate of approximately $1.27BIL.
- The costs estimated to undertake water supply improvements are $191.26M, wastewater improvements are $271.13M and stormwater improvements are $810.2M. These were estimated using the Level 1 Cost Estimate method and using 2020 (revision 11) rates.
- The significant cost estimates for stormwater are attributed to stormwater flooding issues and meeting targeted levels of service assumed for this study (habitable floor levels protected for 1 in 100yr + climate change). The prioritisation of investment for new stormwater infrastructure will need further development factoring in climate retreat/mitigation policies, emerging environmental standards, and community expectations for level of service and affordability.
- The proposed capacity upgrades for city-level network infrastructure are:
    a) Drinking water reservoir storage in Delaney (new), Holborn/Shaftesbury (new), Naenae (new), Wainuiomata (new) and Eastbourne (new).
    b) Wastewater pump station and rising mains in Hutt CBD (new); Boulcott (new), North Wainuiomata (new); Wellington St & Wise Park, Wainuiomata (upgrades).
    c) Wastewater storage at Engineered Overflow Points (EOPs) at Fraser and Main Road in Wainuiomata (new).
    d) Wastewater improvements including regrading/upgrading pipes, increasing pump station capacity, and providing storage to address existing network constraints including in Stokes Valley, Alicetown, Maungaraki, Seaview, Waterloo and Waiwhetu.
    e) Stormwater network capacity improvements and/or flood management in Stokes Valley, Alicetown, Taita, Naenae, Melling, Woburn and Wainuiomata.
    f) Stormwater management improvements for Black Creek channel and Parkway Drive; and a proposed wetland in Upper Fitzherbert in Wainuiomata.

Exclusions from this study include:

- Bulk water source, treatment and distribution
- Wastewater Joint Venture Trunk Network and Seaview WWTP
- Water quality improvements (covered by SMS/SMPs consent)
- Local upgrades to facilitate development

- Due to the relatively flat nature of the Hutt valley floor, servicing this system for water supply is relatively straight-forward, however brings significant challenges for wastewater and stormwater.
- Servicing Wainuiomata and Stokes Valley (although each with their own unique setting) are the most challenging and expensive due to their existing topographical constraints.
- Growth will continue to place pressure on existing networks, and require the need for new investment in each level of infrastructure, from bulk/trunk; to city-level network, and local upgrades. This study has largely focused on city-level network infrastructure, further upgrades may be needed at the time of land development in the local network; and will be required in bulk/trunk infrastructure.
- Changes to urban planning rules and policies will make it more difficult to predict when and where development will take place. This will require more adaptive responses, including policies/standards for new land developments when connecting to the three-waters network, neighbourhood/catchment infrastructure plans and progressive upgrades as areas develop.
- A Strategic Environmental Assessment of growth, identified effects of growth varied depending on water type and receiving environment. In some situations, strategic interventions such as policies, may not be enough, resulting in need for communities to decide on allocation of investment to protect ecosystem services and also provide for growth. Strategic Interventions (or mitigation measures) are actions taken to avoid or minimise adverse environmental impacts. Examples may include caps on water use, increase in requirement for green infrastructure into new urban design, application of new technologies to reduce or improve water systems and sustained, deliberate and coordinated investment to support growth.

8.2 Recommendations

Key recommendations resulting from this study for HCC to consider include:

7. Review and prioritise investment to support growth for 2024 investment plan/strategy.
8. Develop adaptive and responsive strategies to manage uncertainty of growth, including improved data sharing and funding upgrades as growth progresses.
9. Identify opportunities to streamline projects with external infrastructure providers (e.g. Waka Kotahi, Kainga Ora)
10. Progress further policy/guidance work (as per Table 7)
11. Support option development, community engagement and investment cases for stormwater flood management.
12. Support WWL to undertake an integrated wastewater plan for Seaview WWTP and joint-venture network to support growth.

8.3 Further work

Table 7: Lower Hutt Growth Study – Further Work

No.	Further Work	Responsibility
1.0	**Policy**	
1.1	Identify preferred areas and staging of growth within Lower Hutt to better enable prioritisation of spend on three waters infrastructure. At present there is minimal identification of where growth would be preferred and timing which makes it harder to prioritise which three waters infrastructure should be invested in first.	Hutt City Council
1.2	Support Finance & Policy position on local-stormwater flood controls, and target level of service with stakeholders to inform investment. The proposed upgrades are based on the regional water services standard, which have identified significant investment required. Without clear positions on criteria to make an investment decision it is difficult to prioritise these projects.	Hutt City Council
1.3	Policy position required on the use of alternative sewer options, including pressure sewers in Wainuiomata.	Hutt City Council
1.4	Prepare foundation design guide for building near Waiwhetu aquifer.	Wellington Water
1.5	Prepare building on flood plains policy/guidelines. For example, when to have piled foundations and when no filling of flood plains can occur and any minimum width requirements especially along main streams/ flowpaths.	Hutt City Council / Wellington Water
2.0	**Business Case/Investment Planning**	
2.1	Undertake a programme level business case process for the Seaview wastewater system including trunk and Seaview WWTP and outfall given the increase in population forecasts for both Lower Hutt and Upper Hutt; and potential vulnerability to sea level rise and increasing environmental standards.	Wellington Water
2.2	Fund and undertake a business case process for stormwater flooding upgrades required in Lower Hutt, including cost-benefit analysis, willingness to pay for level of service upgrades, and insurance obligations etc.	Wellington Water

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9. Information sources and references

9.1 Information sources

This Lower Hutt Growth Study, draws on a range of information sources as presented in Table 8.

Table 8: Information Sources

Name of report	Undertaken by	Version, Date	Purpose/Objectives
Strategic Environmental Assessment (SEA)	Jacobs	Ver 0, July 2021	To assist the assessment of the environmental impacts arising from population growth across Lower Hutt over the next 30 years, specifically as it relates to Wellington Waters response in ensuring continued 3 waters services in the future.
Hutt City Three Waters Catchment Growth Study Including Plan Change 43 - Wainuiomata Catchment	GHD	Ver 3, Dec 2020	To assess the performance of the existing three waters network in Wainuiomata, the impacts the projected population growth will have on the networks and consider catchment scale options needed to meet the required levels of service and population growth to 2050.
Lower Hutt Wastewater Network Options Assessment	Hydraulic Analysis Limited (HAL)	Ver 1, Sept 2021	To summarise the understanding of existing and future predicted system performance capacity issues within the Lower Hutt wastewater network, identify potential upgrade options, and select preferred options to enable growth and mitigate existing network constraints.
Alicetown - Petone Stormwater Catchment Investigation Options Report	GHD	Ver 0, Jan 2020	To undertake a catchment wide investigation into flooding, and options for mitigation, of the Petone-Alicetown catchment. This will provide a greater knowledge of potential flooding in the catchment and provide evidence to inform future spending
Waiwhetu Stormwater Solutions	Stantec	Ver 2, Oct 2021	To assess and identify the stormwater issues and constraints in Waiwhetu (Eastern Lower Hutt), with a focus on areas identified for future growth.
Hutt City Water Supply Zone Management Plan (excluding Wainuiomata)	Stantec	Ver 4, Nov 2020	Zone Management Plan (ZMP), which identifies investigations and capital upgrades required for the water supply network to meet the Level of Service now and in the future. This report focuses on the Hutt Valley, including the Western Hills, Eastbourne, and Stokes Valley, but excluding Wainuiomata.
HCC Water Supply Zone Management Plan (Wainuiomata)	Stantec	Ver 1, May 2020	Hutt Zone Management Plan (ZMP), which identifies investigations and capital upgrades required for the water supply network to meet the Level of Service now and in the future. This report focuses on the Hutt Valley, including the Western Hills, Eastbourne, and Stokes Valley.

Name of report	Undertaken by	Version, Date	Purpose/Objectives
Wainuiomata Stormwater Model Options Assessment Report	GHD	Dec 2020	To assess and identify the stormwater issues and constraints in Wainuiomata, with a focus on areas identified for future growth.
Wainuiomata Wastewater Growth Options Report	HAL	June 2020	To summarise the understanding of existing and future predicted system performance capacity issues within the Wainuiomata wastewater local network, identity potential upgrade options, and select preferred options to enable growth and mitigate existing network constraints.
Stokes Valley Catchment Stormwater Flood Mitigation Investigation Report	Calibre	May 2022	Investigation and hydraulic modelling for the Stokes Valley stormwater catchment to provide concept design solutions to mitigate identified flooded areas.

9.2 Abbreviations

Table 9: Abbreviations

Abbreviation	Description
ARI	Average recurrence interval
CAA	Climate Adaptation Act
CC	Climate Change
DMA	District Metered Area
ELH	Eastern Lower Hutt
EOPs	Engineered Overflow Points
HBA	Housing and Business Development Capacity Assessments
HCC	Hutt City Council
LOS	Level of Service
LTP	Long Term Plan
ML	Mega Litre (a million litres)
MLD	Mega litres per day
MPD	Maximum Probable Development
NBA	Natural and Built Environments Act
NPSUD	National Policy Statement on Urban Development
PC43	Plan Change 43
RiverLink	Project encompassing Melling Interchange & River Stopbank Upgrades
RPS	Regional Policy Statement
SEA	Strategic Environmental Assessment
SPA	Set Pair Analysis (model)
WRGF	Wellington Regional Growth Framework
WSA	Water Storage Area
WTP	Water Treatment Plant

WWTP	Wastewater Treatment Plan
ZMP	Zone Management Plan

9.3 References

Table 10: References

Title	Author (year)	Link
Wellington Regional Standard for Water Services	Wellington Water (2021)	https://www.wellingtonwater.co.nz/contractors/technical-information/regional-standard-for-water-services/
Flood hydrology of the Waiwhetu Stream	Greater Wellington Regional Council (2004)	http://www.gw.govt.nz/assets/council-publications/Flood%20Hydrology%20of%20the%20Waiwhetu%20Stream%20Screen%20Version%20.pdf
HCC Provided Population Forecasts for PC43 (2019/2020)	Hutt City Council with Forecast ID Inputs	

9.4 Definitions

Table 11: Definitions

Level of service expenditure	Capital expenditure that is required to bring the infrastructure service provided to the existing community up to the adopted level of service. This is also called backlog expenditure.
Renewals expenditure	Capital expenditure that renews existing infrastructure assets or replaces them with modern assets of the same capacity.
Growth expenditure	Capital expenditure that provides for growth such as upgrading to, extending networks, or providing new services and/or capacity at the adopted level of service.

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APPENDICES

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APPENDIX A: CONTEXTUAL INFORMATION

A.1 Environmental context

Environmental Consenting Framework

On behalf of its client councils, Wellington Water is responsible for obtaining and implementing resource consent applications under the Resource Management Act 1991 (RMA). In addition, Wellington Water also inputs to resource management policy and plan development processes to ensure that provisions relating to three waters management are appropriate and enable the delivery of these services in accordance with the organisation's Statement of Intent.

Table A-1 outlines a number of environmental aspects and key resource management challenges that need to be considered and taken into account when responding to and planning for growth. Some of these are still underway or the outcome of them is unknown.

Table A-1: Environmental and resource management challenges

What	Explanation
Whaitua te Whanganui-a-Tara Implementation Plan (WIP)	This is a catchment based set of recommendations for achieving Te Mana o to Wai developed by community members, local authorities and mana whenua. It will form the basis of upcoming Regional Plan changes and has a number of detailed recommendations relating to three waters infrastructure.
RC-1 Seaview WWTP intermittent discharges and associated infrastructure	The consents for the discharges to the Waiwhetū Stream expired in 2018 and replacement consents are currently being processed. These consents are required because, during heavy rainfall events, when stormwater enters the wastewater network, the ocean outfall from the treatment plant has insufficient capacity for the additional flows. The excess flows (diluted by stormwater) are discharged to the lower Waiwhetū Stream. That overflow pipe has also been used from time to time to divert treated wastewater to enable maintenance work on the main outfall pipe (MOP).
RC-4 Wastewater network consents	Wellington Water is preparing resource consent applications to address our existing overflows of untreated wastewater from the network. These consents will be on catchment wide scales, with one covering all of Hutt Valley.
RC-9 Global stormwater consent, stage 2 – metropolitan area	The existing consent for discharges from the stormwater networks in Wellington, Lower Hutt, Upper Hutt and Porirua expires in November 2023. A Phase 2 replacement consent needs to be lodged in May 2023. This application needs to be accompanied by stormwater management strategies for each council's network.

What are the implications from this for the Lower Hutt Growth Study?
• The Wellington Regional Natural Resources Plan will consider recommendations from the Whaitua. This may result in new targets or environmental limits which the network and those connecting to it are required to comply with. This may result in more stringent requirements for growth. • The wastewater network consents will define the regulatory framework for how network overflows will be managed. This will have an impact on the target levels of service that new infrastructure will be required to meet. • The stormwater management strategies and subsequent more detailed catchment management plans will detail the water quality interventions required to achieve agreed outcomes in each catchment. This may require future network infrastructure or require developers to incorporate mitigations or design elements (e.g. Water Sensitive Urban Design) in order to connect to the public stormwater network.

A.2 Legislative and Policy Context

An increasing amount of legislative and policy direction either has been developed, is underway or is proposed. This section considers the requirements of these directions where known and identifies any implications for the Lower Hutt Growth Study.

Table A-2 provides an overview on direction that either does or has the potential to impact on growth related to three waters infrastructure requirements.

Table A-2: Summary of relevant legislative and policy context

National or regional statutory document	What is this?	Timing
National Policy Statement on Urban Development (NPSUD)	The NPSUD is designed to improve the responsiveness and competitiveness of land and development markets. In particular, it requires local authorities to open up more development capacity, so more homes can be built in response to demand. The NPSUD provides direction to make sure capacity is provided in accessible places.	The NPSUD is active. 20 August 2022 is the deadline for Tier 1 and 2 councils (which includes Hutt City) to notify intensification plan changes.
Natural and Built Environments Act (NBA)	This is the core piece of legislation to replace the RMA. The purpose of this Act is to enhance the quality of the environment to support the wellbeing of present and future generations. This would be achieved by: • Promoting positive outcomes for both the natural and built environments. • Ensuring that use, development, and protection of resources only occur within prescribed environmental limits ensuring adverse effects of activities on the environment are avoided, remedied, or mitigated.	An Exposure Draft (an early look at key parts of the new NBA) was released for comment in mid-2021. The NBA bill is to be introduced to Parliament, along with the Strategic Planning Act bill, in early 2022. It is intended these bills will be enacted this parliamentary term.
National Planning Framework (NPF)	Under the NBA this Framework will provide a set of mandatory national policies and standards on specified aspects of the new system. These will include environmental natural limits, outcomes, and targets.	The NBA Bill will contain transitional provisions to address how this requirement applies to the preparation of the first NPF.
Strategic Planning Act (SPA)	This Act will provide a strategic and long-term approach to how we plan for using land and the coastal marine area. Long-term spatial strategies in each region will be developed to identify areas that: • Will be suitable for development • Need to be protected or improved	The SPA bill is to be introduced to Parliament in early 2022. It is intended these bills will be enacted this parliamentary term.

National or regional statutory document	What is this?	Timing
	• Will need new infrastructure and other social needs such as hospitals and schools • Are vulnerable to climate change effects and natural hazards such as earthquakes.	
Climate Adaptation Act (CAA)	This Act will support New Zealand's response to the effects of climate change. It will address the complex legal and technical issues associated with managed retreat and funding and financing adaptation.	The aim is to have the CAA being passed into law in by the end of 2023.
Essential Freshwater Package including the National Policy Statement Freshwater (NPSFM)	The Essential Freshwater package introduces new rules and regulations to: • Stop further degradation of New Zealand's freshwater resources and improve water quality within five years • Reverse past damage and bring New Zealand's freshwater resources, waterways, and ecosystems to a healthy state within a generation. New National Environmental Standards for Freshwater and a new National Policy Statement for Freshwater Management will prevent further loss and degradation of freshwater habitats and introduce controls on some high-risk activities.	These came into force on 3 September 2020.
Regional Policy Statement (RPS)	The Regional Policy Statement (RPS) sets out the framework and priorities for resource management in the Wellington region. The Resource Management Act 1991 (the Act) requires all regional councils to produce an RPS for their region and review it every 10 years.	The RPS for the Wellington region was made operative in April 2013. There are two upcoming dates for changes to the RPS with different requirements at each timeframe being mid-2022 and mid/end 2024.

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What are the implications from this national and regional direction for the Lower Hutt Growth Study?
• NPSUD - HCC will be required to enable more housing density around rapid transit networks. This will impact on the amount of growth that we will need to account for in this study. • National and Built Environment Act – at this stage there are no known implications for this Study (mainly due to the stage the NBA changes are at). In the future the entity responsible for regional and local planning is likely to change. • National Planning Framework - at this stage there are no known implications for this Study (mainly due to the stage the work is at). It is noted that the set of national directions in the NPF will be integrated, with conflicts between instruments resolved e.g., NPSUD and Freshwater Management. • Strategic Planning Act – there will be minimal impact as the region including Hutt City has already developed the Wellington Regional Growth Framework which includes most of the aspects (as known) required under the Strategic Planning Act. • Climate Adaptation Act – at this stage there are no known implications for this Study (mainly due to the stage the work is at). It may impact areas of growth into the future. • Essential Freshwater Package – as this is already in force this will need to be considered as part of future district plan and resource consent considerations. • Regional Policy Statement – requirements from the current RPS will already be taken into account in the Hutt City District Plan changes. The RPS will be updated by mid-2022 and then mid 2024 as required. This may result in implications for growth in Lower Hutt.

A.3 Three waters reform context and assumptions

In July 2020, the Government launched the Three Waters Reform Programme – a three-year programme to reform local government three waters service delivery arrangements. The Government's starting intention is to reform local government's three waters services into a small number of multi-regional entities with a bottom line of public ownership. Wellington Water client councils are identified as being part of Entity C, being one of four entities across the country.

The current three waters reform programme timetable and activity is as follows:

- 2021 – consultation and decisions on reforms
- 2022 – preparation for the formation of water service entities
- 2023 – preparation for operation of new water services entities.
- 2024 – operation of new entity

What are the implications from the three waters reform for the Lower Hutt Growth Study?
• Wellington Water is currently undertaking this study for Hutt City Council. The reforms signal that the current structure of three waters will be changed by mid-2023. • The proposed form of the reforms has ownership of the assets and/or management of the service provision and three waters infrastructure work changing. • Hutt City Council has current issues with LOS and resilience of three waters networks and needs to understand, plan for and invest in three waters infrastructure to meet current and growth requirements, regardless of what occurs with the three waters reform. • Regardless of the ownership structure of three-water assets, investment will continue to be required to close level of service gaps and provide for growth.

APPENDIX B: CLIMATE CHANGE CONSIDERATIONS

Table provides an overview of climate change considerations in supporting technical reports.

Table B-1: Climate Change Considerations in study

Report	Comment
Strategic Environmental Assessment (SEA)	Climate change impacts are not part of scope and so are not assessed in this report. Climate change has broadly been considered using the GWRC/NIWA online climate tool. Over the lifetime of the assessment described in this report (30 years), at a high-level impacts of climate change were regarded as a consistent impact across the region and were could not meaningfully be broken down into domain specific or catchment specific impacts that could be brought into this assessment methodology.
Three Waters Catchment Growth Study Including Plan Change 43 - Wainuiomata Catchment December 2020	The stormwater Levels of Service for the HCC Catchment Plan in Wainuiomata are in accordance the following - Safe access to and protection from flooding of habitable floors in the 100-year flood event that includes the predicted impact of climate change.
Lower Hutt Wastewater Network Options Assessment – July 2021	The current SPA model does not include an allowance for future climate change conditions. Ideally, the performance of a future scenario for the network would be tested with a 10-year rainfall time-series adjusted for climate change. Developing such a time-series is complex. An alternative is to use the projections of extreme rainfall events. An initial methodology has been developed as is proposed to be formalised; once this has been completed, the hydraulic sizing of the options should be reviewed.
Alicetown - Petone Stormwater Catchment Investigation Options Report January 2020	To evaluate and understand the effectiveness of each stormwater option, a base scenario was initially modelled. This involved modelling three design floods. The design floods are as follows: • 10% MAF: Represents a design storm with a 10% AEP, coinciding with a mean average flow in the Hutt River • 10% 10%: Represents a design storm with a 10% AEP, coinciding 10% AEP high in the Hutt River • 1%+CC 10%+CC: Represents a design with a 1% AEP, coinciding with a 10% AEP high in the Hutt River. The study also considered the effects of climate change on the tide level. For future, climate change conditions, 1 m was added to represent sea level rise. The peak of the tide was set to correspond to the peak rainfall event.
Hutt Valley Growth Stormwater Solutions September 2021	Each suburb was rated according to percentage of area within the identified growth areas. Following this, suburbs were then further rated on potential flood risk, which was assessed using the maximum modelled flood depths (m) for the 1% AEP event + 20% rainfall increase for climate change and pipe surcharge state for the 10% AEP event.
Hutt City Water Supply Zone Management Plan (excluding Wainuiomata) November 2020	Climate change is not applicable to storage, and network performance as these are based on pre-defined levels of service. Climate change of course is related to source water availability (supply-side) and demand-side management.

APPENDIX C: GROWTH IN LOWER HUTT

C.1 Growth in Lower Hutt

Understanding the level of housing and business growth expected in Lower Hutt over the next 30 years, or more is an important component of determining the three waters infrastructure requirements and the timing for these.

The level of growth for modelling purposes was agreed in 2020[9] based on Forecast ID forecasts and used as a key input into all the studies undertaken to inform this report. These forecasts and the percentage of change associated with these can be seen in Figure .

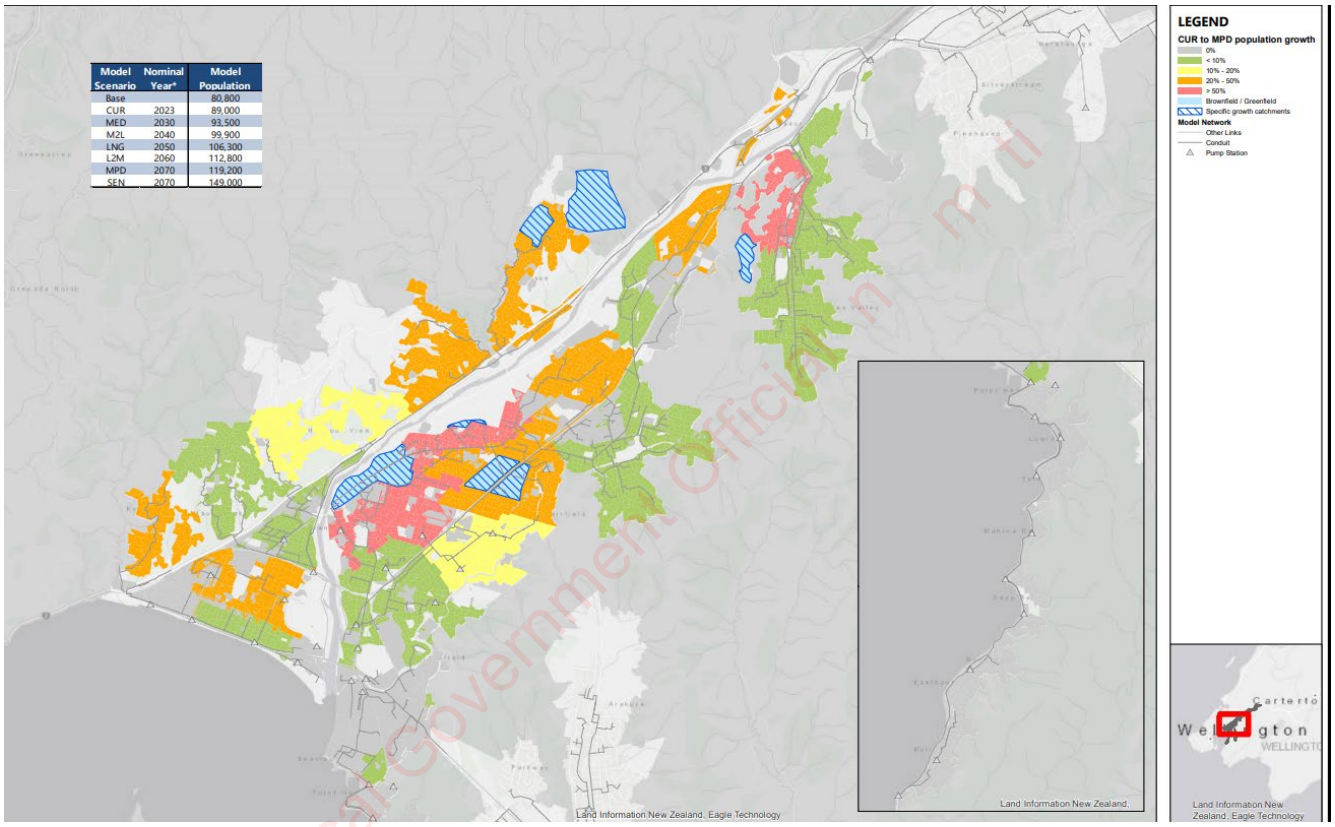

Figure C-1: Modelled populations forecasts (HCC provided based on Forecast ID 2019)

Since those population numbers were first confirmed for modelling in 2020 a number of things have occurred. These are explained below and comparison of populations shown Table

1. The National Policy Statement – Urban Development (NPS-UD) has been finalised and requires that Hutt City Council provides for a higher level of density than has already been accounted for in PC43. Analysis on what potential housing growth is likely to be required to align with the NPSUD requirements is currently underway and is expected to be completed by mid-2022. Once complete the implications for three waters infrastructure will become clearer.

2. The Wellington Regional Growth Framework has been completed which includes a "Lower Hutt Structure Plan" as an area of growth focus in the region covering the area from Woburn-Naenae-CBD/Riverlink and back across to Woburn. Growth figures in this area have not been developed in detail, however, at this stage the level of growth is expected to be in line with PC43 and RiverLink expectations.

[9] Note that whilst population forecasts have changed the modelling undertaken for this work has not been updated. Updating models is a time consuming and costly process.

3. Housing and population numbers in Lower Hutt have recently been growing at a much faster rate than expected when modelling figures were confirmed in 2020. This change is consistent with what is being seen across the region.
4. The latest Sense Partner forecasts developed as part of updating the Hutt City Council Housing and Business Development Capacity Assessment (HBA) shows a projected increase of nearly 49,000 people in Lower Hutt from 2021-2051.

Table provides a comparison between the modelled figures agreed in 2020/21 and the Sense Partners (2021) forecasts.

Table C-1: Population forecast comparisons

Population forecast source Lower Hutt Territorial Area	Current population (year)	Projected population (year)	Difference	% increase
Final HCC population numbers – March 2020 – based on PC43 using ForecastID	105,247 (2020)	130,323 (2050)	25,076	23.8
Sense Partners (developed for the HBA update) – 50th percentile – as at July 2021	113,905 (2021)	162,811 (2051)	48,906	42.9

Note that:

- With most of the expected growth in housing in Lower Hutt coming from infill and intensification development (i.e., within the current urban boundary) this will result in a focus on upgrading current three waters network infrastructure (rather than building new infrastructure) which will also include level of service components.
- The Sense Partners projected growth in Wainuiomata (being a distinct catchment in itself) is lower than the whole of Lower Hutt (projected to be a 33.6% increase in populations from 2021 to 2051).

The difference in these population forecast numbers in Table can be explained by two main things:

1. Firstly, the population forecasts for Lower Hutt and the country as a whole have increased significantly in the sixteen months between March 2020 and July 2021, relative to previous periods.
2. Secondly, the methodology used by ForecastID, and Sense Partners are different with the migration outlook being the key difference between the two as noted below:
    a. Sense Partner forecasts include 0.7% increase in population per year, on average, due to net migration
    b By comparison Statistics New Zealand's forecasts include 0.1% growth per year due to net migration
    c. Historically, net migration (nationally) caused a 0.7% increase in the population each year on average between 1991 and 2018, based on cumulative net migration since 1991 as a proportion of the 1991 population averaged over 27 years.

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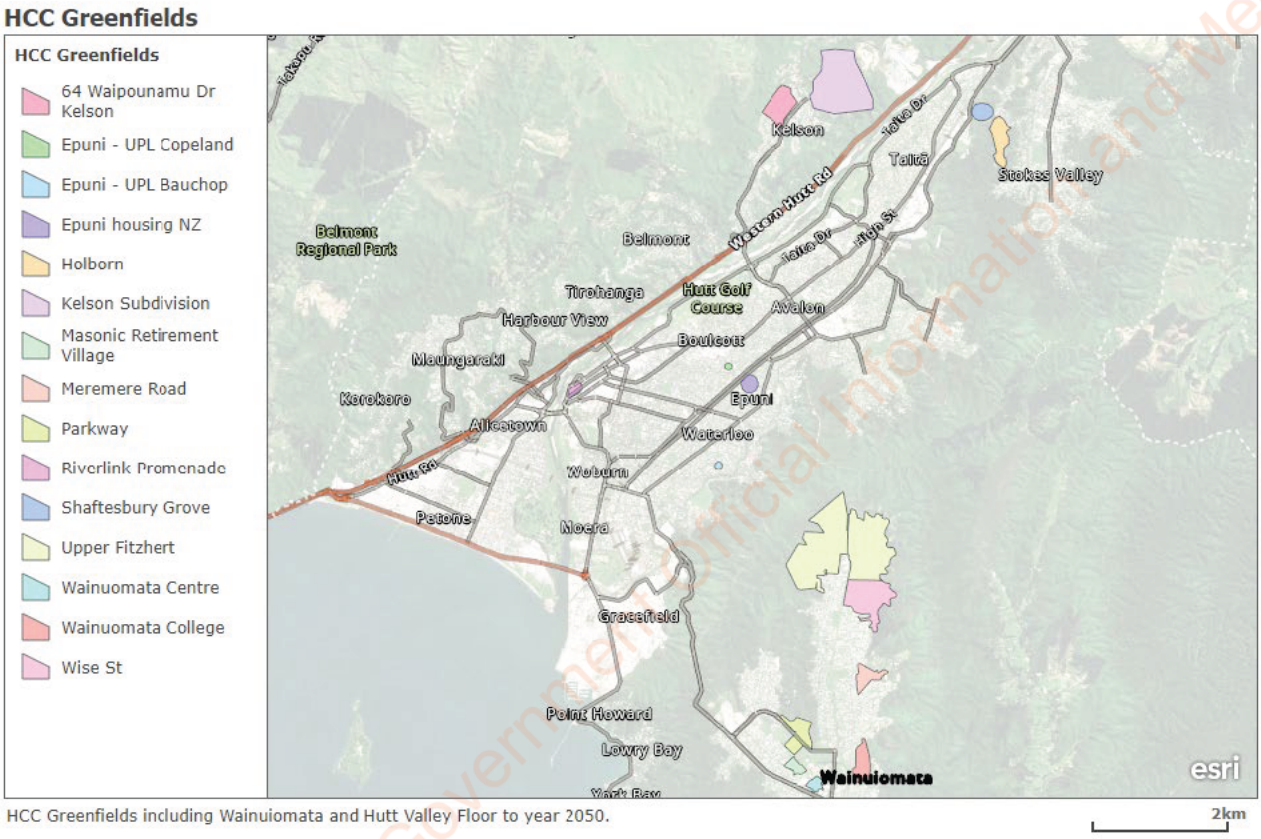
C.2 Greenfield growth in Lower Hutt

Most of the projected growth in Lower Hutt is expected to be within the current urban boundary – areas of the city where housing already exists. However, a number of potential greenfield development sites were identified by HCC for this Study as shown in Table C-2.. These are the projected greenfield sites identified and used for modelling and infrastructure solutions purposes. Some of these have since been completed. It is noted the development yields were estimated before the announcement of the new intensification rules in October 2021. These rules allow buildings of up to three storeys on most sites without the need for resource consent from August 2022.



HCC Greenfields including Wainuomata and Hutt Valley Floor to year 2050.

Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors | Eagle Technology, LINZ, StatsNZ, NIWA, DOC, © OpenStreetMap contributors, Natural Earth

Figure C-2: Greenfield Development Areas (HCC, 2019)

Table C-2: Greenfield development site expected number of new dwellings (HCC, 2019)

Development site	Expected number of dwellings 2050
Waipounamu Drive Kelson	250
Epuni – UPL Copeland Street	32
Epuni – UPL Bauchop	32
Epuni – Kainga Ora	153
Holborn	186
Kelson Subdivision	120
Riverlink *(redevelopment site)*	1750
Shaftesbury Grove, Stokes Valley	120
Wainuiomata North	1841
Wainuiomata – Parkway (2 sites)	176
Wainuiomata – Glendale (Moohan St and Moores Rd)	208
Wainuiomata – Wise Street Stage 1	120
Wainuiomata – Wise Street Stage 2	1100

C.3 Dwelling Data by Study Areas

Table C-3: Growth Study Areas Dwellings (HCC, 2020) – Data used for water supply and wastewater modelling

Study Areas	Suburbs	2020		2050		2020-2050
Western Hills	Belmont	2,770	13,310	3103	15,208	**1,898**
	Haywards-Manor Park – Kelson	3,283		4384		
	Maungaraki	3,940		4097		
	Normandale - Tirohanga	3,317		3624		
Petone-Alicetown	Alicetown – Melling	2,645	12,109	2634	13,565	**1,456**
	Esplanade	2,661		2737		
	Korokoro - Petone Central - Wilford	6,803		8194		
Eastbourne	Eastbourne	4,830	4,830	4733	4,733	**-97**
Wainuiomata	Arakura	2,576	18,510	3627	24,494	**5,983**
	Fernlea	2016		2077		
	Glendale	4116		7380		
	Homedale – Pencarrow	6282		6923		
	Parkway	3520		4486		
Gracefield - Seaview – Waiwhetu	Gracefield	4,404	4,404	4624	4,624	**220**
	Seaview					
	Waiwhetu					
Central Hutt	Boulcott	2,610	21,945	3846	34,038	**12,093**
	Epuni West	3,128		3529		
	Epuni East	3,128		4183		
	Hutt Central - Waterloo West	5,409		14369		
	Moera – Woburn	3,285		3402		
	Waterloo East	4385		4709		
Avalon-Naenae-Taita	Avalon	5,188	19,988	5987	21,694	**1,706**
	Naenae North	4,825		5046		
	Naenae South	3,784		3868		
	Taita North	3122		3594		
	Taita South	3069		3200		
Stokes Valley-Manor Park	Stokes Valley East	5244	10151	5409	11966	**1815**
	Stokes Valley Northwest – Holborn	2287		3635		
	Stokes West	2620		2922		
Total			**105,247**		**130,323**	**25,075**

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Table C-4: Growth Study Areas Dwellings (Sense Partners 2021)

Study Areas	Suburbs	SA2	2018	2048	2018-2048 Change
Western Hills	Belmont Haywards-Manor Park – Kelson Maungaraki Normandale - Tirohanga	Maungaraki Korokoro Tirohanga Kelson Normandale Belmont (Lower Hutt)	5959	9809	3850
Petone-Alicetown	Alicetown – Melling Esplanade Korokoro - Petone Central - Wilford	Petone East Petone Central Alicetown-Melling Petone Esplanade	4782	6931	2149
Eastbourne	Eastbourne	Eastern Bays Eastbourne	2308	2739	431
Wainuiomata	Arakura Fernlea Glendale Homedale – Pencarrow Parkway	Wainuiomata West Glendale Wainuiomata Central Arakura Glendale Homedale West Homedale East	7227	10432	3205
Gracefield - Seaview – Waiwhetu	Gracefield Seaview Waiwhetu	Gracefield Moera Waiwhetu	2718	4003	1285
Central Hutt	Boulcott Epuni West Epuni East Hutt Central - Waterloo West Moera – Woburn Waterloo East	Boulcott Epuni East Epuni West Hutt Central – North Hutt Central – South Woburn Waterloo East Waterloo West	8835	12699	3864
Avalon-Naenae-Taita	Avalon Naenae North Naenae South Taita North Taita South	Avalon East Taita North Avalon West Taita South Naenae Central Naenae North Naenae South	8092	12091	3999
Stokes Valley-Manor Park	Stokes Valley East Stokes Valley Northwest – Holborn Stokes West	Manor Park Stokes Valley Central Stokes Valley North Delaney Manuka	4193	7008	2825

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APPENDIX D: LOWER HUTT THREE-WATER GROWTH STUDY PROJECT SCHEDULES AND COSTS

D.1 Cost estimation process

Level One cost estimates for capital upgrades were prepared according to the WWL Cost Estimation Manual (rev 0). Level One estimates are based on:

- Risk Register outputs
- No site investigations
- Estimate land requirements.
- Estimated consent conditions.
- Possibility of scope change
- A range of options that may be developed and delivered

This is further explained below and is illustrated by Figure D-1, with Level One cost estimates including a 40% contingency and a 60% funding risk.

The cost estimates provided in this assessment, use 2020 base rates (version 11). Funding and investment plans using these estimates should consider additional costs associated with inflation, financing, land costs and management fees.

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WWL Cost Estimation Manual – Estimate Process

1. Physical Works Price: Covers costs associated with construction activities, environmental management, commissioning, requirements for historic places, service protection or diversion and contaminated land mitigation.
2. Council Costs: Land and property purchase of non-council land.
3. Consultants and Council Fees: Development, consenting, detailed design, procurement and MSQA. The base estimate for these fees is 18% of the physical works price.
4. The sum of physical works price, council costs and consultants, and council fees is the Base Cost.
5. Contingency: The financial provision for the known and unknown risks.
6. The base cost with contingency added is the Expected estimate.
7. Funding Risk: An additional 60% on top of the expected estimate, to cover the difference between the statistical mean and the 95th percentile of threats and opportunities.
8. The expected estimate with the funding risk added is the 95th Percentile Estimate.
9. Wellington Water Management Fee: 8% of the 95th Percentile Estimate. The final cost with the Wellington Water Management Fee added is the LTP Budget.

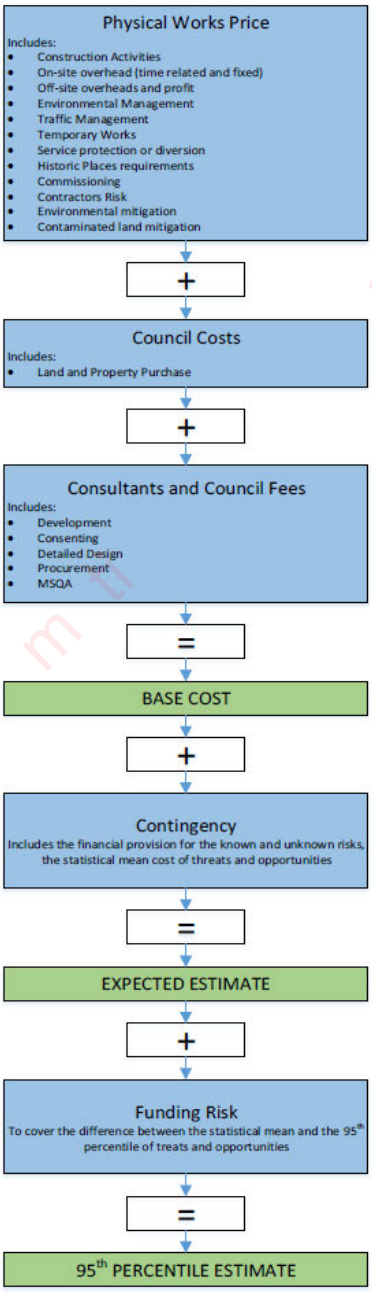

Figure D-1: WWL Cost Estimation Manual Process

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D.2 Cost Estimation Schedules

The following schedules provide project summary information for each water type and geographically grouped. These schedules can provide a useful compilation of options available to provide for growth and meet levels of service. Although there are a number of limitations in the geographic extent of areas covered and assumptions on level of service which should be taken into account when reviewing this data. As per details outlined on the cost estimation process, estimates exclude inflation, financing and land costs.

D.2.1 Water Supply – Central (excluding Wainuiomata)
D.2.2 Water Supply – Wainuiomata

D.2.3 Wastewater – Central (excluding Wainuiomata)
D.2.4 Wastewater – Wainuiomata

D.2.5 Stormwater – Petone Alicetown
D.2.6 Stormwater – Central, Eastern, Stokes Valley
D.2.7 Stormwater – Wainuiomata

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HUTT CITY GROWTH STUDY - WATER SUPPLY (Ex. Wainuiomata)										
Reference	**Growth Areas**	**Infrastructure type**	**Option**	**Reason / Benefit**	**New/Existing Asset**	**Recommended Priority**	**Include / Discounted**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected opex**	**Trigger for upgrade**
H_UPG-S1_Rezone Rata (pipe upgrades + new PRV)	Avalon - Naenae - Taita	Pipes and Pressure relief valve	- Replace AC pipes to be included in the new Rata pressure zone (1.5km of 100mmØ ID mains) - New PRV set at 95m head at the intersection of Hay St and Rata St	To address pressure issues	Existing / New	High	YES	$ 6,615,031	Low	To address zone changes
H_UPG-S2_Rezone Sunville (rising main, PRV and pipe relocation/replacement)	Avalon - Naenae - Taita	Pipes and PRV	- 350m of new 150mmØ suction main along Wilkie Crescent to the pump station - 100m of new 150mmØ rising main along Wilkie Crescent from the pump station to Swainson Drive. - Relocate existing Sunville PRV to the top of Swainson Drive and set to 95m head. - Replace 1 5km of 150mmØ AC pipes in the new Sunville pressure-reduced zone. - New PRV on Seddon Street and set to 95m head.	To address low pressures	Existing / New	High	YES	$ 9,213,646	Low	To address zone changes
H_UPG-S3_New Holborn HL reservoir, pump, rising main and outlet main, and pipe renewal	Stokes Valley - Manor Park	Reservoir, pump station, & pipes	- New 1 5 ML reservoir at ~184m TWL. - New 17kW pump station adjacent to Delaney Reservoir - 600m of new dedicated 150mmØ rising main from the new pump station to the new Holborn HL Reservoir. - Renew 1.4km of existing 100mmØ/150mmØ AC pipes in the new Holborn HL PMA - 1 5km of new 200mmØ outlet main	To increase capacity to cater for the development sites.	New / Existing	Med um	YES	$ 25,155,183	High (Pumpstation) / Low (pipes and reservoir)	To address growth from greenfield sites
H_UPG-S4_Naenae Reservoir Outlet Duplication and Upgrade of Waiwhetu Rd Main	Central Hutt, Avalon-Naenae-Taita	Main and reservoir outlet	- Duplicate Naenae Reservoir outlet with 510m of 425mm mains. - Upsize 300m of existing 375mmØ main along Waiwhetu Road/Naenae Road to 525mmØ, from Waiwhetu Road to Oxford Terrace	To address decreasing pressure as population increases	Existing / New	Medium	YES	$ 4,952,746	Low	To address anticipated growth
H_UPG-S5_Naenae Reservoir No.2	Central Hutt, Avalon-Naenae-Taita, Gracefield	Water storage	- Construct additional Naenae storage (15ML)	To address calculated storage shortfall	New	High	YES	$ 37,078,929	Low	To address existing LOS issues
H_UPG-S6_Delaney Reservoir No.2	Stokes Valley - Manor Park	Water storage	- Construct additional Delaney storage (4 2ML)	To increase capacity to cater or the development sites (future stages)	New	Medium	YES	$ 18,409,974	Low	To address future storage storage shortfall
H_UPG-S7_Lower Hutt Central Alternative Source - Emergency PRVs and Flow Control Valves	Lower Hutt Central & Western Hills	PRV and flow control valves	- Use emergency PRVs and flow control valves to transfer supply from the Western Hills to the Hutt Valley Floor	For resilience during operational or seismic outage	New	Medium	YES	$ 1,633,498	Low	To address network resilience
H_UPG-S8_Lower Hutt Central Alternative Source - PRV controls	Lower Hutt Central & Western Hills	Controls for the PRV and flow control valves	- Set up of controls for PRVs and flow control valves to transfer supply from the Western Hills to the Hutt Valley Floor	Fo resilience during operational or seismic outage	New	Medium	YES	$ 136,125	Low	To address network resilience
H_UPG-S9_New Eastbourne Reservoir	Eastbourne	Water storage	- Construct additional Eastbourne storage (2.2ML reservoir)	For resilience and to meet existing seismic and operational requirements	New	Medium	YES	$ 12,900,584	Low	To address existing shortfall (decision required based on growth and network resilience factors)
H_INV_P1_Gracefield Reservoir Refill Investigation	Gracefield, Avalon-Naenae-taita, and Central Hutt	Investigation	- Undertake investigation to enable Gracefield Rese voir to refill to at least 70% full.	To meet WWL storage requirements to be 70% full under current peak day	N/A	High	YES	$ 272,250	N/A	To address existing LOS issues
H_INV-P2_Petone - High Pressure Investigations	Petone - Alicetown	Investigation	- Undertake further investigation on press re reduction	Assess opportunities to reduce very high leakage	N/A	Medium	YES	$ 272,250	N/A	To address existing LOS issues
							SUM	**$ 116,640,214**		

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HUTT CITY GROWTH STUDY - WATER SUPPLY - WAINUIOMATA											
Reference	**Growth Areas**	**Infrastructure Type**	**Option**	**Reason/Benefit**	**New / Existing Asset**	**Included / Discounted**	**Recommended Priority**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected Opex**	**Trigger for Update**	**Comments**
WMTA_PW1_Local Upgrade Fire	Wainuiomata	Pipes	- Upsize 170m of 200mm dia main to 250mm dia - Upsize 430m of 150/200mm dia main to 225mm dia along Meremere St - Upsize 520m of 100mm dia to 150mm dia along Lees Gr, Reading St, and Holland St - Upsize 500m of 100mm dia to 150mm dia along Hair St - Open boundary valves along Fitzherbert Rd and install two flowmeters	- Address existing LOS issues for firefighting flows.	Existing	Included	High	$ 8 165,897	Low	- Address existing LOS issues	2019/2020 planning horizon
WMTA_PW2_Local Upgrade Fire	Wainuiomata	Pipes	- Upsize 450m of 200mm dia to 225mm along Parkway Rd - Upsize 600m of 150mm dia to 200mm dia along Main Rd and Homedale Rd	- Address growth LOS issues for firefighting flows.	Existing	Included	High	$ 6,235,236	Low	- Address future growth LOS	2033 planning horizon
WMTA_PW3_Strategic Upgrade Option 1 (Fitzerbert Rd + Meremere St PRVs, Wainuiomata 3 Reservoir)	Wainuiomata	Reservoir, Pumpstation and pipes	- Install two emergency PRVs at Fitzherbert Rd and Meremere St - New Wainui 3 Reservoir	- Reduce existing high pressures, leakages, demand and bursts.	New	Included	Medium	$ 40,218,479	Low	- Address future growth LOS	2033 planning horizon
WMTA_PW4_Local Pressure Upgrade Wise St, Wellington Rd	Wainuiomata	Pipes	- Construct new parallel 150mm dia main along Wise St - Extend existing 150mm dia main along Wise St with a 20mm dia main up to the development site - Upsize 1400m of 150mm dia to 300mm dia along Wellington	- Address growth LOS issues	New / Existing	Included	High	$ 20,002,080	Low	- Address future growth LOS	2050 planning horizon
WMTA_PW5_Section 1 Bulk Watermain Reservoir Rd	Wainuiomata	Pipes	- Offline replacement of 750mm dia pipeline in Section 1 along Reservoir Rd	- Improve resilience of the bulk water main	Existing	Included	Medium	$ 39,727,802	Low	- Address resilience	Not a direct cost to HCC as it is owned by GWRC
WMTA_PW6_Section 2 Bulk Watermain Moores Valley Rd	Wainuiomata	Pipes	- Offline/online replacement of 750mm dia pipeline in Section 2, (Moores Valley Rd / hair St). - New alignment at Moores Valley Rd / Hair St intersection to remove the pipe from private land and facilitate relocation of the motorised line valve. - Abandon section of Orongorongo to Karori main	- Improve resilience of the bulk water main	Existing	Included	Medium	$ 10,149,364	Low	- Address resilience	Not a direct cost to HCC as it is owned by GWRC
WMTA_PW7_Section 3 Bulk Watermain Wainuiomata Rd	Wainuiomata	Pipes	- Online replacement of Section 3a (Main Rd / Wainuiomata Rd) - Existing steel connection pipework to Wainuiomata PS No.1 to be retained - Online / offline replacement of Section 3b (Wainuiomata Rd)	- Improve resilience of the bulk water main	Existing	Included	High	$ 72,146,270	Low	- Address resilience	Not a direct cost to HCC as it is owned by GWRC
							SUM	$ 196,645,127			
					Sub-Total (HCC)			$ 74,621,692			
					Sub-Total (GWRC)			$ 122,023,436			

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HUTT CITY GROWTH STUDY - WASTEWATER (Ex. Wainuiomata)									
Reference	**Growth Areas**	**Infrastructure type**	**Option**	**Reason / Benefit**	**New / Existing Asset**	**Recommended Priority**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected opex**	**Trigger for upgrade**	**Information gaps**
ALT03_Beaumont Ave WW pump station connection / storage tank	Petone-Alicetown	Storage	- Replace 150mm sewer with 100m long 1500mm dia storage tank. - Upgrade 150m to 225mm dia and connection to PS to 300mm dia.	- Improve existing frequent flooding of multiple Manholes	Existing	High	$ 3,481,064	Low	Address existing LOS issues	- Network Optimisation (around bifurcation operation) as storage could provided in away to allow the existing poor condition assessed to be abandoned.
ALT01_Herbert St gravity main upgrade	Petone-Alicetown	Conveyance	- Upgrade 225mm dia gravity main to 300mm dia	- Address potentially frequent spills of the MH shown in the model. - This option also allows for the replacement of the poor condition asset	Existing	High	$ 2,393,242	Low	Address existing LO issues and part of curren renewal programme	
ALT02_Railway Ave - sewer replacement	Petone-Alicetown	Conveyance	- Replacement of the 225mm with 180m of 300mm ID sewer	- Improve manhole surcharges	Existing	High	$ 1,225,810	Low	Address existing LOS issues and part of current renewal programme	
LOH03_Lower Hutt CBD Wastewater Bypass	Central Hutt	Pump Station & Network	- New 80-100 l/s pump station with 600m3 of emergency storage - New 350m of 300mm dia rising main across Ewen Bridge to trunk line on true right river bank. - New 2,050m of 375mm dia gravity sewer	- Improve frequent surcharges in existing manhole - Address flooding which is expected to increase due to expected growth Riverlink project	New	High	$ 33,109,444	High (pump station) / Low (pipes)	Riverlink housing regeneration (growth)	- Whether a pumped overflow should be installed with the station to provide resilience to surrounding network. - Extent and size of the required gravity sewer - Ability for the downstream network to receive flows during extended wet weather flow periods and operation of the Silverstream Tank. - Investigations into staging of works including pump station capacity requirements at differing horizons, as upgrade is likely to be influenced by the riverlink redevelopment
MAU02_Holly & Maple Gr WW storage	Western Hills	Investigations	- Install 300m3 of storage at the intersection of Acacia Avenue & Dowse Drive.	- Improve existing flooding issues	New	High	$ 10,137,649	Low	Address existing LOS issues	- Flow monitoring required to assess feasibility of I&I reduction
NAN01_Fleet St WW storage	Avalon - Naenae - Taita	Storage	- 230m of 150mm large diameter sewer tank (providing ~400m3 of storage)	- Improve existing spill issues	New	High	$ 5,272,621	Low	Address existing LOS issues and provide for growth	- Investigations are required to identify whether this storage tank can be installed on grade or requires a pumped return to the existing network
NAN02_Seddon St WW Storage	Avalon - Naenae - Taita	Storage & Conveyance	- Provision of 200m3 of storage, consisting of: - 100m long 1500mm dia storage tank - 150m of 225mm dia gravity sewer - 100m of 150mm dia gravity sewer	- Improve frequent surcharges	New	High	$ 3,964,836	Low	Address existing LOS issues and provide for growth	
STV05a_Hawthorn Cres Sewer Connection	Stokes Valley - Manor Park	Conveyance	- Install a new 225mm dia sewer connection and raise IL of existing lines to complete catchment diversions and provide wet weather capacity	- Improve surcharge of manholes and constraints in the downstream trunk network	New/existing	High	$ 1,157,898	Low	Needed to address existing issues	
STV05b_Richard Gr Intrsctn Sewer	Stokes Valley - Manor Park	Conveyance	- Upgrade of 310m of existing 375mm dia sewer to 450mm dia.	- Improve surcharge of manholes and constraints in the downstream trunk network	Existing	High	$ 5,671,071	Low	Needed to address existing issues	- Additional investigation into the asset data as there are anomalies with low confidence
AVL01_Allen St Storage	Avalon - Naenae - Taita	Storage	- Installation of 100m3 storage tank	- Improve existing spilling of manhole	New	Medium	$ 8,824,208	Low	Address existing LOS issues and provide for growth	- Whether this storage tank can be installed on grade or requires a pumped return to the existing network.
BCT01_Boulcott St WW Main Upgrade	Avalon - Naenae - Taita	Pump Station	- Upgrade 190m main from 150mm to 225mm dia	- Improve existing frequent surcharges in manhole	Existing	Medium	$ 1,573,956	Low	Address existing LOS issues	- Sensitivity of downstream sewer to this option and tailwater levels
ESB01_Pt Arthur PS Storage Tank	Eastbourne	Storage	- Install a 100m3 storage tank	- Improve existing spills	New	Medium	$ 8,824,208	Low	Address existing LOS issues	- Difference between model and existing situation
KOK01_Cornish St Sewer Main Upgrade	Western Hills	Conveyance	- Upgrade the existing sewer main from 150mm da to 225mm dia.	- Address modelled spills and improve existing issues	Existing	Medium	$ 1,157,898	Low	Address existing LOS issues	- Linkage with the trunk performance and the currently proposed upgrade to pass additional flow forward requires additional investigation
LOH06_Massey Ave WW Pump Station	Central Hutt	Pump Station	- Increase pump station capacity (from 11L/s to 25L/s)	- Address modelled spills	Existing	Medium	$ 3,752,955	High	Growth	- Downstream network capacity - The pump station and rising main capacity and condition
STV03_Delaney Dv Sewer Main Upgrade	Stokes Valley - Manor Park	Conveyance	- Upgrade 230m of existing 150mm dia sewer main with a 230m long gravity main (i.e. 225mm dia).	- Improve existing spills at manholes - Address model ed sp lls at manholes	Existing	Medium	$ 1,905,315	Low	Address existing LOS issues and provide for growth	- Linkage with the trunk performance and the currently proposed upgrade to pass forward additional flow requires additional investigation.
STV04_Glen Rd Sewer Main Upgrade	Stokes Valley - Manor Park	Investigations	- Upgrade 380m of existing 150mm dia sewer main to 225mm dia	- Address the modelled overflows in the upper network	Existing	Medium	$ 1,905,315	Low	Address existing LOS issues and provide for growth	- Further investigation needs to be undertaken to confirm modelled asset data prior to progressing this option. - Linkage with the trunk performance and the currently proposed upgrade requires additional investigation.
STV02_Korau Gr WW Storage Tank	Stokes Valley - Manor Park	Storage	- Install storage tank (provisionally 100m3) including back flow prevention	- Improve the existing spills and address the modelled looding	New	Medium	$ 8,824,208	Low	Address existing LOS issues and provide for growth	- Investigations required to identify whether this storage tank can be installed on grade or requires a pumped return to the existing network
SVW01_Seaview Rd WW Pump Station Upgrade	Seaview-Gracefield - Waiwhetu	Conveyance	- Increase Seaview Rd pump station capacity to 18L/s from 12L/s - Replace existing rising main with 100mm dia pressure pipe	- Address modelled spilling (caused by inadequate pump capacity)	Existing	Medium	$ 3,933,064	High	Address existing LOS issues	- Capacity of downstream network - Linkage with the trunk performance and the currently proposed upgrade to pass forward additional flow
SVW01_Seaview Hutt Park WW Pump Station Upgrade	Seaview-Gracefield - Waiwhetu	Conveyance	- Increase Seaview Hutt Park pump station from 7 L/s to 12L/s	'- Address modelled spilling (caused by inadequate pump capacity)	Existing	Medium	$ 3,433,263	High	Address existing LOS issues	- Capacity of downstream network - Linkage with the trunk performance and the currently proposed upgrade to pass forward additional flow
SVW01_Randwick Rd WW Pump Station Upgrade	Seaview-Gracefield - Waiwhetu	Conveyance	- Increase Randwick Rd Pumpstation capacity from 19L/s to 28L/s	'- Address modelled spilling (caused by inadequate pump capacity)	Existing	Medium	$ 3,826,404	High	Address existing LOS issues	- Capacity of downstream network - Linkage with the trunk performance and the currently proposed upgrade to pass forward additional flow
WAI01_Whites Line WW Storage	Seaview-Gracefield - Waiwhetu	Conveyance	- Provide 200m3 storage volume (either tank or pipe storage)	- Improve the existing uncontrolled overflow and other smaller flooding locations in the catchment upstream of Whites Line PS.	New	Medium	$ 9,480,929	Low	Address existing LOS issues	
WTL01_Wyndrum Ave Sewer Main Upgrade	Central Hutt	Conveyance	- Upgrade 150m long existing 150mm dia sewer main to 225mm dia	- Address modelled spilling at manhole and improve existing issues.	Existing	Medium	$ 868,423	Low	Address existing LOS issues	- Linkage with the trunk performance and the currently proposed upgrade requires additional investigation
						SUM	**$ 124,723,781**			

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HUTT CITY GROWTH STUDY - WASTEWATER - WAINUIOMATA											
Reference	**Growth Areas**	**Infrastructure Type**	**Option**	**Reason/Benefit**	**New / Existing Asset**	**Included / Discounted**	**Recommended Priority**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected Opex**	**Trigger for Update**	**Comments**
WMTA_WW1_Wise St PS 1	Wainuiomata	Pump Station	- 300L/s upgrade to existing PS on Wise St	- Reduce frequency and volume of wet weather overflows	Existing	Included	High	$ 1,240,234	High	Address existing issues and also to meet future LoS for growth	Interim upgrade 2020 planning horizon
WMTA_WW2_Wise St PS 2	Wainuiomata	Pump Station	- 400L/s upgrade to existing PS - Upgrade to 1.56km of 560mm Rising Main	- Reduce frequency and volume of wet weather overflows	Existing	Included	Low	$ 16,216,021	High	Address existing issues and also to meet future LoS for growth	Future state 2050 planning horizon
WMTA_WW3_Prioritised I&I	Wainuiomata	Pipes	- Prioritised inflow and infiltration reduction though CCTV investigation and relining of pipes with faults	- To reduce inflow and infiltration	Existing	Included	High	$ 41,591,235	Low	To meet existing LOS	Interim upgrade 2020 planning horizon
WMTA_WW4_Targeted I&I	Wainuiomata	Pipes	- Targeted inflow and infiltration reduction though CCTV investigation and relining of pipes with faults	- To reduce inflow and infiltration	Existing	Included	Low	$ 28,268,572	Low	To meet existing LOS	Future state 2050 planning horizon
WMTA_WW6_Greenfield Servicing	Wainuiomata	Pump Station, pipes	- New 40L/s PS - New 2.4km DN180mm rising main	- To service northern greenfield development	New	Included	Medium	$ 10,058,133	High	Address future growth	Interim upgrade 2033 planning horizon
WMTA_WW7_Fraser St EOP Storage	Wainuiomata	Storage tank	- 120m, 2.1m dia RCRRJ storage pipe in berm	- To reduce spills	New	Included	High	$ 5,302,221	Low	To meet existing LOS	Interim upgrade 2020 planning horizon
WMTA_WW8_Main Road EOP Storage	Wainuiomata	Pipes	- 144m length, 2x2.1m dia pipes	- To address existing capacity issues and spills	New	Included	High	$ 6,256,619	Low	To meet existing LOS	Interim upgrade 2020 planning horizon
WMTA_WW9_Private Lateral I&I CCTV Investigation	Wainuiomata	Investigation	- CCTV investigation of private WW laterals and relining of pipes with faults	- To reduce inflow and infilt ation	N/A	Included	Medium	$ 28,715,135	Low	To meet existing LOS	Interim upgrade 2020 planning horizon
WMTA_WW10_Wellington Rd PS Upgrade	Wainuiomata	Pump Station	- Upgrade to 225L/s for existing Wellington Rd Pump Station	- To reduce spills	Existing	Included	Low	$ 1,087,040	High	Address future LoS for growth	Future state 2050 planning horizon
WMTA_WW11_Duplicate Gravity Main in Tunnel	Wainuiomata	Pipes	- Duplicate 355mm OD PE gravity main in existing tunnel	- To address potential future development which may push for a replacement of the on-site WW disposal.	New	Included	Low	$ 7,671,203	Low	Address future LoS for growth	Future state 2050 planning horizon
							SUM	$ 146,406,414			

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HUTT CITY GROWTH STUDY - STORMWATER (Petone-Alicetown)											
Reference	**Growth Areas**	**Infrastructure type**	**Option**	**Reason / Benefit**	**New / Existing Asset**	**Included / Discounted**	**Recommended Priority**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected opex**	**Trigger for upgrade**	**Information gaps**
PNATN_ Option_1b_Te Mome Pump Station, Wakefield St, Fitzherbert St, & Kiwi St Upgrade	Petone-Alicetown	Pump station, New pipes	- Construction of new pump station, stormwater pipes and manholes	- Improve the pumping capacity of current undersized pump stations. - Address existing flooding issues	New	Included	Medium	$ 31,935,907	High	Needed to address existing issues and also to meet future LoS for growth	
PNATN_ Option_2_William St Pump Station and South St Upgrade	Petone-Alicetown	Pump station, New pipes	- Construction of new pump station, stormwater pipes and manholes	- To address flooding issues	New	Discounted	Low	~~$ 13,263,556~~	High	Needed to address existing issues and also to meet future LoS for growth	
PNATN_ Option_3a_John St Pump Station & Nelson St Upgrade	Petone-Alicetown	Pump station, New pipes	- Construction of new pump station, stormwater pipes and manholes	- Reduce flooding in the John Street pump station catchment	New	Included	High	$ 21,060,889	High	Needed to address existing issues and also to meet future LoS for growth	Further investigations into a PS at the end of Nelson Street
PNATN_ Option_4_Marsden St Pump Station, Marsden St & Bridge St Upgrade	Petone-Alicetown	Pump station, New pipes	- Construction of new pump station, stormwater pipes and manholes	- Reduce flooding around Pharazyn Street. Existing pump station undersized.	New	Included	Low	$ 6,121,248	High	Needed to address existing issues and also to meet future LoS for growth	Further investigation into the capacity constraints between the flooding in Pharazyn Street and Marsden Street pump station are needed
PNATN_ Option_6_Nelson St, Regent St, & Hutt Road Upgrade	Petone-Alicetown	New pipes and nodes	- Construction of stormwater pipes and manholes	- Reduce existing flooding issues	New	Included	Medium	$ 18,738,640	Med	Needed to address existing issues and also to meet future LoS for growth	
PNATN_ Option_7_Kiwi St, Beaumont St, Laery St, & Railway Ave Upgrade	Petone-Alicetown	New pipes and nodes	- Construction of stormwater pipes and manholes	- Reduce flooding. Existing stormwater pipes are undersized.	New	Included	Medium	$ 5,843,668	Med	Needed to address existing issues and also to meet future LoS for growth	
					SUM		**SUM**	**$ 83,700,352**			

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HUTT CITY GROWTH STUDY - STORMWATER (CENTRAL, EASTERN AND STOKES VALLEY)											
Reference	**Growth Areas**	**Infrastructure type**	**Option**	**Reason / Benefit**	**New / Existing Asset**	**Included / Discounted**	**Recommended Priority**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected opex**	**Trigger for upgrade**	**Information gaps**
AVL_Option 1_Taita Drive SW Pump Station and Realignment	Avalon - Naenae - Taita	Alignment	- New Pump station (4m3/s capacity) - Realignment from High St, along Mabey Rd, and down Taita Dr	- Improve conveyance & backwater effects/ponding - Pumping will assist discharge to the Hutt River when flows are high.	New	Included	Medium	$ 63,050,415	High	Needed to address existing issues and also to meet future LoS for growth	
BOU_MEL_Option_1_High Street SW upgrade + Pump station	Central Hutt	Pump Station & main upgrade	- New pump station - Main upgraded in diameter to convey more flow	- Improve conveyance & backwater effects/ponding - Pumping will assist discharge to the Hutt River when flows are high.	New / existing	Included	Medium	$ 61,918 204	High	Needed to address existing issues and also to meet future LoS for growth	The impact of upsizing the High Street main.
BOU_Option 1_Kingston St SW Rising Main	Central Hutt	Rising Main	- A new rising main	- Pump flows from properties affected by ponding	New	Included	Medium	$ 7,898,312	Med	Needed to address existing issues and also to meet future LoS for growth	
MEL_Option_2_Kings Crescent SW Diversion	**Central Hutt**	**Flow diversion**	**- Flow diversion and pumping at diversion - Riverlink proposed sump and storm alignment upgrades undertaken alongside Pretoria Street Opahu Diversion - The Melling diversion is undertaken with one of the Woburn diversions to maximise flooding improvements**	**- Reduce backwater effects by diverting stream flows to the Hutt River. - Pumping will assist discharge to the Hutt River when flows are high.**	New	**Included**	**High**	$ 36,573,860	**High (pump) / Low (pipe)**	**Needed to address existing issues and also to meet future LoS for growth**	**The most feasible route for diversion of the Opahu Stream.**
NN_CH_1_Naenae Waiwhetū Stream Upgrade	Avalon - Naenae - Taita	Stream upgrade	- Waiwhetū Stream upgrade (between Waddington Dr and Balgownie St)	- Increase capacity of stream to reduce backwater effects on network.	Existing	Included	Medium	$ 989,878	High	Needed to address existing issues and also to meet future LoS for growth	
NN_ST_1_Naenae Park Detention Storage	Avalon - Naenae - Taita	Spillway/Weir	- Detention storage in Naenae Park during Waiwhetū Stream high flows. - A spillway/weir and the park regraded to allow detention. - Flow to re-enter the channel slowly at the southern end of the park	- Detain flows to slowly re-enter the network. Storage should help to offset downstream effects of the increase in channel conveyance	New	Included	Medium	$ 1,869,060	Med	Needed to address existing issues and also to meet future LoS for growth	
NN_UPG_2_Rimu Street SW Diversion	Avalon - Naenae - Taita	Flow diversion	- A new alignment from Prebble Street, along Rimu Street to the Waiwhetū Stream.	- Divert large flows to channel with more capacity to reduce overland flow from pooling - Improve ponding	Ex ti g	Included	Medium	$ 21,012,455	Low	Needed to address existing issues and also to meet future LoS for growth	
NN_UPG_3_Dempsey Rd to Waiwhetū Stream Pipe Upgrade	Avalon - Naenae - Taita	Pipe upgrade, new alignment and new connection	- Pipe upgrade along Chapman Cres, Dempsey St, Bush St, and Naenae Rd. - A new alignment to bifurcate some flows to the Waiwhetū Stream where the channel upgrade is proposed - A new connection, and upgrade of the Seddon St main	- Improve conveyance to reduce ponding	New / Existing	Included	Medium	$ 23,036,258	Low	Needed to address existing issues and also to meet future LoS for growth	
NN_UPG_4_Naenae Rd Bifurcation	Avalon - Naenae - Taita	New pipe connection Pipe upgrade New pipe	- A new connection is installed - the main along Naenae Rd is upgraded and new pipe is installed to continue to Rata St to discharge to the Waiwhetū Stream.	- Provide conveyance storage to educe overland flow and ponding in properties	New / Existing	Included	Medium	$ 12,300,382	Low	Needed to address existing issues and also to meet future LoS for growth	
WOB_Option_2_Woburn + Riddiford St SW Diversion	**Central Hutt**	**Stream diversion**	**- Incorporates Option 1 – Woburn but includes an additional diversion location for the Opahu Stream at Riddiford St.**	**- Reduce backwater effects on the network from the Opahu Stream by dive ting stream flows to the Hutt River. - Pumping will assist discharge to the Hutt River when flows are high**	New	**Included**	**High**	$ 77,005,400	**High**	**Needed to address existing issues and also to meet future LoS for growth**	**Further investigation is recommended to determine the most feasible route for diversion of the Opahu Stream**
Waterloo_West_Option 2_Waterloo Rd SW Rising Main	Central Hutt	Pump overland flows	- Pump overland flows from Oxford Terrace. This solution would only be feasible in conjunction with one of the Opahu Stream diversions (Melling and Woburn solutions)	- Collect overland flows from Oxford Terrace that cause po ding in properties along Waterloo Rd. Reduce impact of flooding in Waterloo Station	New	Included	Medium	$ 32,107,847	High	Needed to address existing issues and also to meet future LoS for growth	
Waterloo_West_Upgrade_1_Knight s Rd/Birch St Floor Level Raise	Central Hutt	Floor level survey	- An assessment on floor levels along Mahoe St, Birch St, and Knights Rd to determine whether floor levels are above predicted flood levels. Followed by raising floor levels for properties at sk of flooding.	- Reduce inundation for properties in flood prone depression.	N/A	Included	Medium	$ 4,900,493	N/A	Needed to address existing issues and also to meet future LoS for growth	
SV_Stokes Valley Catchment-Stormwater Flood Mitigation	Stokes Valley	New pipes and nodes	A range of solutions have been developed to meet a 1% AEP, in order to provide a high-level cost estimate. ur her work is required to refine these solutions, and prioritise them g ven the high-cost to achieve this level of protection in the catc ment.	- Stormwater flood mitigation for 1% AEP	New	Included	Medium	$ 293,706,543	Med	Needed to address existing issues and also to meet future LoS for growth	
							SUM	**$ 636,369,108**			

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HUTT CITY GROWTH STUDY - STORMWATER - STOKES VALLEY								
Reference	**Growth Areas**	**Infrastructure Type**	**Option**	**Reason/Benefit**	**New / Existing Asset**	**Level 1 (95 percentile) w/out WWL Fee**	**Trigger for Update**	**Comments**
Upgrade stormwater network at Stokes Valley Road	Stokes Valley	Pipes and Sumps	• Upsize the existing 750mm diameter pipeline between 493 and 435 Stokes Valley Road to 1350mm diameter culvert, and the 900mm diameter culvert between 435 Stokes Valley and the Korau Culvert to 1500mm diameter culvert with some adjustment to the vertical alignment for 1% AEP • Barricade around the inlet at 493 Stokes Valley Road to isolate people and minimise the risk of drowning • Divert the upstream part of sub-catchment O (discharging to the stream) to drain to the pipe system at Stokes Valley, starting outside property No. 570 Stokes Valley Road. Diversion reduces the flooding problems downstream, where the options to upgrade the downstream networks are limited • Add pipe network starting from outside No. 570 Stokes Valley and upgrade the existing 225 diameter pipeline between 560 and 525 Stokes Valley Road to 1350mm diameter • Install High-Capacity sump upstream of property No. 568 Stokes Valley Road. To control the surface runoff before it entre this private property • Upgrade the existing 1050 mm diameter pipeline between 435 and 371 Stokes Valley to 1500mm diameter culvert, including adjustment of the vertical alignment for the culvert • Install a new 1500 dia culvert from 371 Stokes Valley to the intersection of Tanekaha Street and upgrade existing pipes along Stokes Valley Road from Tanekaha Street and Rawhiti Street stream	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
Upgrade of Raukawa Street Culvert	Stokes Valley	Culvert Upgrade Stream Capacity and Sumps	• Upgrade existing 1050 diameter culvert between property number 15 and 10 Raukawa Street to 1350 diameter, • Increase the capacity of the downstream section of the existing stream by installing 450mm high bunds along the stream. The bunds installation would achieve a 300mm freeboard, • Replace existing sumps outside number 15 and 10 Raukawa Street to higher capacity sumps.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
Upgrade Stormwater network in Kairimu Street and Akepiro Grove	Stokes Valley	Kerb and Channel, Pipe/Culvert and Sumps	• Establish a new Kerb and Channel along Akepiro Grove to divert surface water running down this road away from Koraunui school grounds, • Install new sumps at the intersection of Kairimu Street and Akepiro Grove to control surface runoff from upstream section of the roads, • Upgrade the existing 300 and 375 dia pipe between 17 Kairimu Street and Stokes Valley Road to a new 900 dia culvert and connect to the proposed culvert at Stokes Valley Road, • Install High-capacity sump (Superpit) outside 17 Kairimu Road.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
New pipework in George Street	Stokes Valley	Sumps, Culvert, Outlet Upgrade	• Install new Megapits outside 375 and 400 George Street and connect to the proposed culverts along George Street, • New 1800mm diameter culverts along George Street between property numbers 400 and 113 George Street. Installation of 1800mm diameter culverts along George Street is to drain to the existing stream, • Upgrade existing 225mm diameter outlet discharging to the stream at the rear of 109 George Street.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
New pipework in Chittick Street	Stokes Valley	Sumps	Replace existing single sumps outside property numbers 11 and 20 Chittick Street with new Megapits and connect to the proposed culverts at George Street.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
Upgrade of the piped network in Delany Drive, August Street, Hanson, and Rintoul Grove	Stokes Valley	Culverts, Sumps	• Install 2x1200mm diameter culverts along Delaney Drive starting from Shackleton Grove intersection and connecting to the proposed pipe network at George Street, • Divert pipe network between 80 and 74 Delaney Drive; connects to the proposed drainage sy tem along Delany Drive, • Divert pipe flow starting from outside property number 3 August Street; connects to the p oposed culverts at Delaney Drive, • Retain the existing pipeline at the rear of property numbers 49 and 29 to drain the already connected properties to this line, • Upgrade existing sumps to high-capacity sumps in Delaney and connect to the new proposed culverts, • Upgrade existing 600mm diameter pipe from the intersection of Wainhouse Street and number 18 Hanson Grove to 900 dia.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
Upgrade and re-route Lowry Crescent and Lowry Heights Stormwater network	Stokes Valley	Pipes	• Install a new 450 dia pipe from outside 24 Lowry Crescent and connect to the manhole at Lowry Cres and Horoeka Street intersection. Upgrade existing 300mm diameter pipeline to 600mm diameter pipeline between 41 and 43 Horoeka Street, • 9B Lowry Crescent: The inlet and outlet pipes connected to he manhole in the driveway are 150mm diameter. Upgrade the SW system and connect to the proposed 450mm diameter pipe a Lowry Crescent to deviate the flow instead of discharging the pipelines crossing property numbers 10 and 8 Lowry Crescent, • 37 Lowry Crescent: Pipes conveying flow from the creek are 300mm diameter before decreasing to 225mm diameter and becoming under capacity. Install a new 450mm d ameter pipeline and intake and connect to the proposed within the Lowry Cres rather than discharging to pipelines along the back of properties, • Consider connecting the creek and associated SW system at 1 Lowry heights to the new suggested pipe within Lowry Crescent, instead of the 225mm diameter discharging to the 600mm diameter at the back of 16-24 Lowry Crescent.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
Upgrade in Poppy Watts Grove	Stokes Valley	Culvert	• Upgrade the existing 1050mm d ameter culvert, crossing Poppy Watts Gr between 404 Stokes Valley (on Poppy Watts side) and 14 Poppy Watts, to a new 1500mm diameter culvert for 1% AEP. • Upgrade the depth of the existing streams by 450mm. Upgraded stream depth would allow a 300mm freeboard.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
Upgrade Stormwater network in Tawhai Glen and Glen Road	Stokes Valley	Pipe/Culvert, Diversion	• Upgrade the pipe network along Tawhai Street to 1500mm diameter culvert, • Upgrade piped network along Glen Road to 2000mm diameter culvert, • Increase capacity of the stream by diverting some of the catchments to drain to the proposed culvert within Tawhai Street.	- Address existing flooding with consideration of forecast growth	New/Existing	N/A	Needed to address existing issues and also to meet future LoS for growth	LOS + Sequencing to be deteremined.
					SUM	**$ 293,706,543**		

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HUTT CITY GROWTH STUDY - STORMWATER- WAINUIOMATA											
Reference	**Growth Areas**	**Infrastructure Type**	**Option**	**Reason/Benefit**	**New / Existing Asset**	**Included / Discounted**	**Recommended Priority**	**Level 1 (95 percentile) w/out WWL Fee**	**Expected Opex**	**Trigger for Update**	**Comments**
WMTA_SW3_ Storage C: Upper Fitzherbert Wetland	Wainuiomata	Wetland	- 1.05ha wetland (ave depth 1.5m)	- Address existing flooding with consideration of forecast growth	New	Included	Medium	$ 20,402,518	Low	Needed to address existing issues and also to meet future LoS for growth	2033 planning horizon
WMTA_SW4_Black Creek A: Wellington Rd to Upper Fitzherbert	Wainuiomata	Channel	- 332m of channel deepend by 3m and ave width 3m	- Increase capacity of channel by 6m3/s with catchment growth taking up 1.4m3/s of the increased capacity	Existing	Included	High	$ 2,098,689	Low	Needed to address existing issues and also to meet future LoS for growth	2020 planning horizon
WMTA_SW5_Black Creek B: Norfolk St to Wellington Rd	Wainuiomata	Channel	- 1190m existing channel widened	- Increased capacity of channel by 25.8m3/s with catchment growth taking up 10.3m3/s of this increased capacity	Existing	Included	High	$ 5,754,307	Low	Needed to address existing issues and also to meet future LoS for growth	2020 planning horizon
WMTA_SW6_Black Creek C: Nelson Cr to Norfolk St and Nelson Cr Bridge	Wainuiomata	Channel	- 1500m existing channel widened - Bridge redesign	- Increased capacity of channel by 29.1m3/s with catchment growth taking up 11.3m3/s of increased capacity	Existing	Included	High	$ 6,998,648	Low	Needed to address existing issues and also to meet future LoS for growth	2020 planning horizon
WMTA_SW7_Parkway Drain Improvements	Wainuiomata	Channel, weir	- 595m existing channel widened - Weir removed	- Increased capacity by 6.8m3/s, with catchment growth taking up 0.8m3/s of this increased capacity.	Existing	Included	High	$ 2,438,147	Low	Needed to address existing issues and also to meet future LoS for growth	2020 planning horizon
WMTA_SW8_Waiu St SW Upgrade	Wainuiomata	Pipes	- SW pipes upgrade along Waiu St - Support adjacent buildings within 3m of alignment	- Address capacity issues	Existing	Included	Medium	$ 13,426,145	Low	Needed to address existing issues and also to meet future LoS for growth	2033-2050 planning horizon
WMTA_SW9_Lees/Fraser St SW Upgrade	Wainuiomata	Pipes	- Upgrade SW pipes along Lees/Fraser St. - Support adjacent buildings within 3m of alignment	- Address capacity issues	Existing	Included	Medium	$ 28,339,947	Low	Needed to address existing issues and also to meet future LoS for growth	2020 planning horizon
WMTA_SW10_Upper Fitzherbert SW Network	Wainuiomata	Pipes	- New SW network in Upper Fitzherbert to drain to proposed wetland	Growth For new development in Upper Fitzherbert	New	Included	Medium	$ 10,677,083	Low	Needed to address existing issues and also to meet future LoS for growth	2033 planning horizon
					SUM		**SUM**	**$ 90,135,484**			

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APPENDIX E: THREE-WATER ANALYSIS BY STUDY AREA

E.1 Summary of Three-Water Infrastructure Investment

This section of the report provides key infrastructure required to facilitate growth (which includes significant level of service upgrades) by Study Area to provide a spatial view of requirements. Table E.1 shows the total cost for each of the three waters by Study Area.

Table E.1: Cost of City- level infrastructure by Study Area and three water type.

Study area*	(Level 1 exc WWL Mgmt Fee)			
	Water** $MIL	Stormwater $MIL	Wastewater $MIL	Total Cost $MIL
Avalon-Naenae-Taita	39.34	122.26	19.64	181.24
Central Hutt	16.28	220.40	37.73	274.42
Petone-Alicetown	0.27	83.70	7.10	91.1
Seaview-Gracefield-Waiwhetu	3.93	excluded	20.67	24.60
Western Hills	0.35	excluded	11.30	11.65
Eastbourne***	12.9	excluded	8.82	21.72
Wainuiomata	74.62[10]	90.14	146.41	311.17
Stokes Valley-Manor Park	43.57	293.71	19.46	356.74
Hutt Total	**191.26**	**810.21**	**271.13**	**1272.64**

Notes to the table:
* The costs in this table indicate the 95th percentile level 1 estimate excluding Wellington Water management fee; land, inflation and financing costs.
** Only city-level upgrades have been considered in this analysis. Therefore, there are an additional $44.1 M (Level 1 Cost Estimate excl. WWL Management Fee) of fire and pressure upgrades which have not been included. Furthermore, there are some water upgrade projects which cover multiple study areas. High level approximations to breakdown by study area have been made. More detailed analysis for each project will be prepared based on Cost Allocation Guide to support any proposed Development Contributions.
*** Eastbourne water reservoir excluded.
****GWRC bulk water main renewals/upgrades not included.

[10] Note this excludes the $122 M for the renewal of bulk water main as this is a GWRC cost

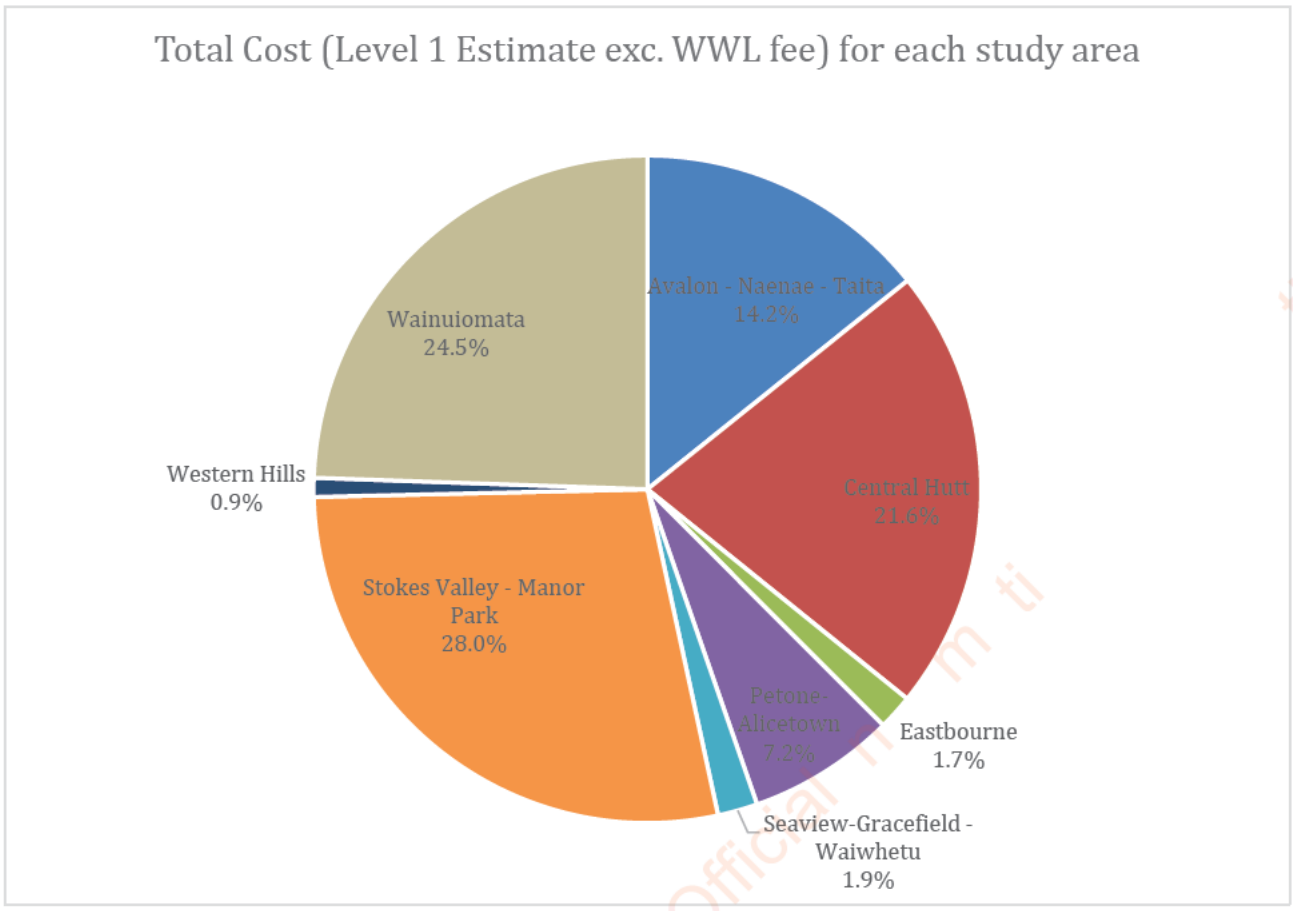

Figure E.1: Total HCC Cost (Level 1 Estimate excl. WWL fee) for each study area

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E.2 Petone-Alicetown Study Area

Petone-Alicetown study area		
Summary	This study area as shown in the adjacent map. This area is expecting relatively high levels of population growth over the next 30 years compared to the rest of Lower Hutt and is more likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 2149 dwellings – a 45% increase from 2018.	
Greenfield/ Brownfield	All of the considered growth in this study area is brownfield development. No greenfield has been considered.	

Figure E.2: Petone-Alicetown study area

Key three waters solutions required in the Petone-Alicetown study area to support growth are:

Water
No major growth investment required.

Wastewater
The wastewater network in Alicetown is aged and in many places in a poor condition. Flooding issues are confirmed by Wellington Water and renewal projects including the Barber Grove rising main are currently being planned for. Once the upgrades are completed it is expected that the capacity of Ava pump station would increase.

There are proposed upgrades at Herbert Street, Railway Avenue and Beaumont Avenue and these are expected to be adequate to reduce spiling risk to acceptable spill frequencies. It is recommended that those upgrades are further optimised.

Stormwater
The following are recommended:

- Projects - Ensure all outlets to the Hutt River have operating flap gates and proceed with the Hume to Victoria culvert project
- Installing non-return valve on all outlets to the harbour, storage or options to reduce and elongate peak runoff upstream of the Udy Street culvert and constructions of a pump station at the end of Nelson Street.

Investigations are required including capacity constraints in the network upstream of the Marsden Street pump station, pumpstation upgrade options for Te Mome pump station, upsizing the Nelson Street culvert, Regent Street stormwater main and John Street pump station and the existing Korokoro Stream culvert constraints.

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E.3 Central Hutt Study Area

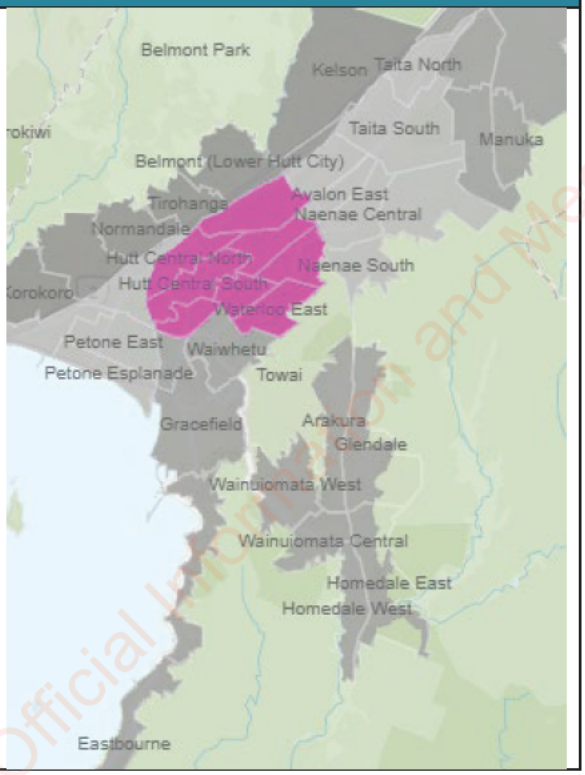
Central Hutt Study Area		
Summary	This study area as shown in the adjacent map. This area is expecting relatively higher levels of population growth over the next 30 years compared to the rest of Lower Hutt and is less likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 3864 dwellings – a 44% increase from 2018.	
Greenfield/ Brownfield	All of the considered growth in this study area is brownfield development. No greenfield has been considered.	

Figure E.3: Central Hutt study area

Key three waters solutions required in the Valley Floor study area to support growth are:

Water

- The High Street water main is recommended to be renewed, due its age and network criticality.
- In addition, new water infrastructure outlined under the Naenae-Taita study area will provide improvement in this study area.
- The current network does not have sufficient capacity to meet the Fire Code requirements in certain areas and a number of upgrades are recommended.

Wastewater

- A new pump station is proposed near Woburn Road roundabout near Ewen Bridge. This pump station can be installed with a low invert level to provide the opportunity of installing a new trunk line (375mm) at a fairly efficient gradient (i.e., 0.3%) servicing the RiverLink development. The rising main for this new pump station is proposed to run across the Hutt River to join the main trunk gravity line to Ava pump station. The new pump station (including associated trunk line and rising main) in combination with the proposed upgrade of the Massey Avenue pump station is expected to provide the required future drainage capacity for the majority of the Lower Hutt central area.
- Upgrade of the planned Barber Grove and Ava pump station and rising mains are required to allow for the additional discharge from the proposed new pump station.
- The alternative is to have a new rising main to Barber Grove pump station. This would avoid having to construct a rising main along Ewen Bridge, which would add risk in case of a major seismic event. The disadvantage is that the length of the rising main would be approximately 2km longer, although it can be

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constructed along the true left riverbank, which should not cause major conflicts with other services or infrastructure. During concept design both options are recommended to be investigated.

Stormwater

The key focus for solutions in **Boulcott** is to address ponding for properties that appear to be in an old stream bed. The following describes two preferred solutions and three options to mitigate the ponding in Boulcott. The Melling Rd pump station proposed by the Riverlink project is utilised in the proposed solutions.

There are two preferred options provided for Boulcott - Kingston St Rising Main and High Street upgrade + Pump station. The other options are soakage tanks, floor level raises, pump stations and a stream diversion.

The focus for stormwater solutions in **Woburn and Melling** is to relieve some of the flows in the Opahu Stream which much of the Melling, Woburn and Waterloo West network discharges to. A combination of the Kings Crescent Diversion and the Woburn Diversion + Riddiford St Diversion are preferred noting that the Kings Crescent Diversion would likely provide the greatest benefit to the Melling catchment including the 'Golden Triangle' area.

The focus for stormwater solutions in **Waterloo West** is to address localised ponding that results from depressions in the terrain. The solutions propose upgrades to mitigate flooding that is residual following the Opahu Stream upgrades. The preferred option is the Waterloo Rd Rising Main. Other options are floor level raises and soakage/storage.

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E.4 Wainuiomata Study Area

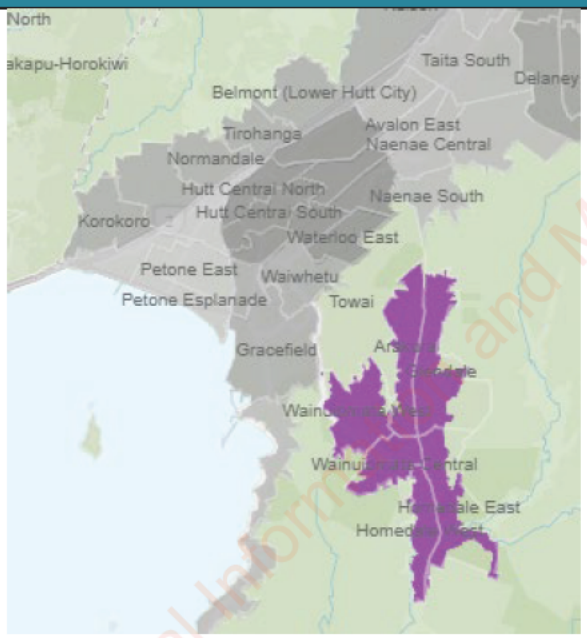
Wainuiomata		
Summary	The Wainuiomata study area is shown in the adjacent map. Wainuiomata is expecting relatively comparable levels of population growth over the next 30 years compared to the rest of Lower Hutt and is less likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 3205 dwellings – a 44% increase from 2018.	
Greenfield/ Brownfield	The considered growth in this study area includes both brownfield and greenfield (Wainuiomata North greenfield area).	

Figure E.4: Wainuiomata study area

Key three waters solutions required in the Wainuiomata study area to support growth are:

Water

- An 8ML reservoir of which 50% (4 ML) is required to resolve current LOS issues and 50% is required for growth. Note that the location of the reservoir requires costly earthworks and so the cost of building a 4ML reservoir is more than half of the cost.
- A series of pipe network upgrades
- Renewal of 5.2 km of existing bulk water main (this is a GWRC not a HCC cost)

Wastewater

Wastewater solutions were originally for two-time frames to support a certain level of population in Wainuiomata at those times. Population growth is now expected faster than originally expected and this can be seen in Table If the rate of population increases or slows down from these current forecasts, this will affect the time at which these solutions are required. As a base, the population in Wainuiomata in 2013 was 17,787.

Table E.2: Wainuiomata population forecast changes (Forecast ID 2019 v.s. Sense Partners 2021)

Timeframe	Wainuiomata population level	Year originally projected to occur by	Year currently projected to occur by[11]
Medium Term	21,190	2033	2027 or 2028
Long-Term	24,294	2050	2045

[11] Using Sense Partners (2021) Population Forecasts

Wastewater – to support growth in Medium Term

- Wise Park pumpstation upgrades (Stage 1 and Stage 2)
- I& I programme primarily for level of service requirements
- Greenfield servicing
- Fraser storage tank and Main/Rowe storage tank
- Assessment and replace of laterals for LOS

Wastewater – to support growth in Long-Term

- Duplication of the gravity line (from Wainuiomata to Gracefield)
- Further I&I work
- Upgrade of Wellington Road Pump Station

Stormwater – – to support growth in Medium Term

- New detention/wetland to provide for northern greenfield growth
- Black Creek widening (top, middle, and lower sections)
- Parkway widening
- Lees/Fraser pipe upgrade
- Upper Fitzherbert pipe upgrade to provide for growth

Stormwater – to support growth in Long-Term

- Waiu stormwater upgrade to provide for growth

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E. 5 Avalon-Naenae-Taita Study Area

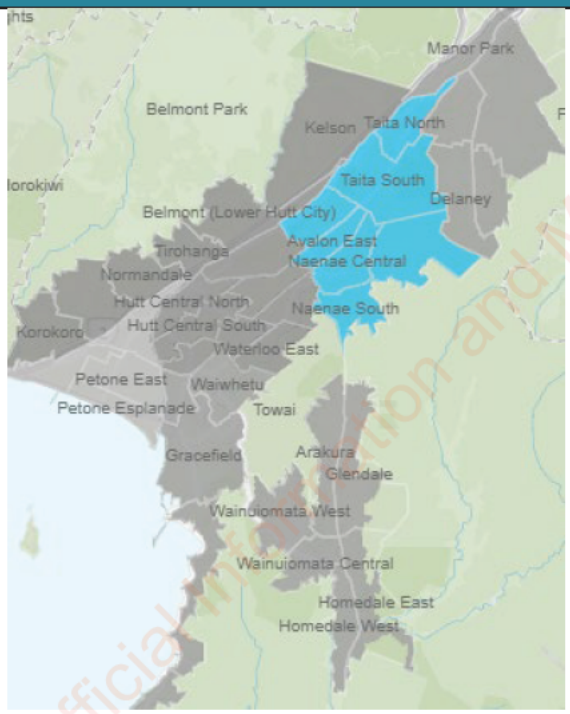
Avalon-Naenae-Taita Study Area		
Summary	The Avalon-Naenae-Taita study area is shown in the adjacent map. This area is expecting relatively comparable levels of population growth over the next 30 years compared to the rest of Lower Hutt and is less likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 3999 dwellings – a 49% increase from 2018.	
Greenfield/ Brownfield	All of the considered growth in this study area is brownfield development. No greenfield has been considered.	

Figure E.5: Avalon-Naenae-Taita study area map

Key three waters solutions required in the Naenae-Taita study area to support growth (brownfield) are:

Water

- New Naenae Reservoir No.2 (15 ML) beside the existing Naenae Reservoir to service Hutt Central water storage area. This new reservoir is assumed to be online within the next 10 years.
- To enable bulk water cross connections to be closed - numerous network upgrades are required before the cross-connections can be closed, including 3 km of old AC pipe renewal, 350 m of new pipe, two new PRVs. In the long term (before 2033), it will also be necessary to increase the capacity of the Naenae Reservoir outlet main.

Wastewater

To resolve the problems at Naenae it is considered required to provide storage and conveyance options at Fleet Street and Seddon Street to prevent increasing overflows and flooding further downstream in the catchment

Stormwater

The key focus for solutions in **Naenae** is to improve conveyance to the Waiwhetū Stream, address channel capacity issues (which causes much of the flooding in Naenae) and mitigate the effects of increasing conveyance through network upgrades by providing detention.

Each proposed upgrade for Naenae addresses an independent flooding issue. It is proposed that all solutions are undertaken, and some solutions rely on others to be feasible. These are a range of projects including diversions, pipe upgrades, bifurcation, stream updates and detention storage.

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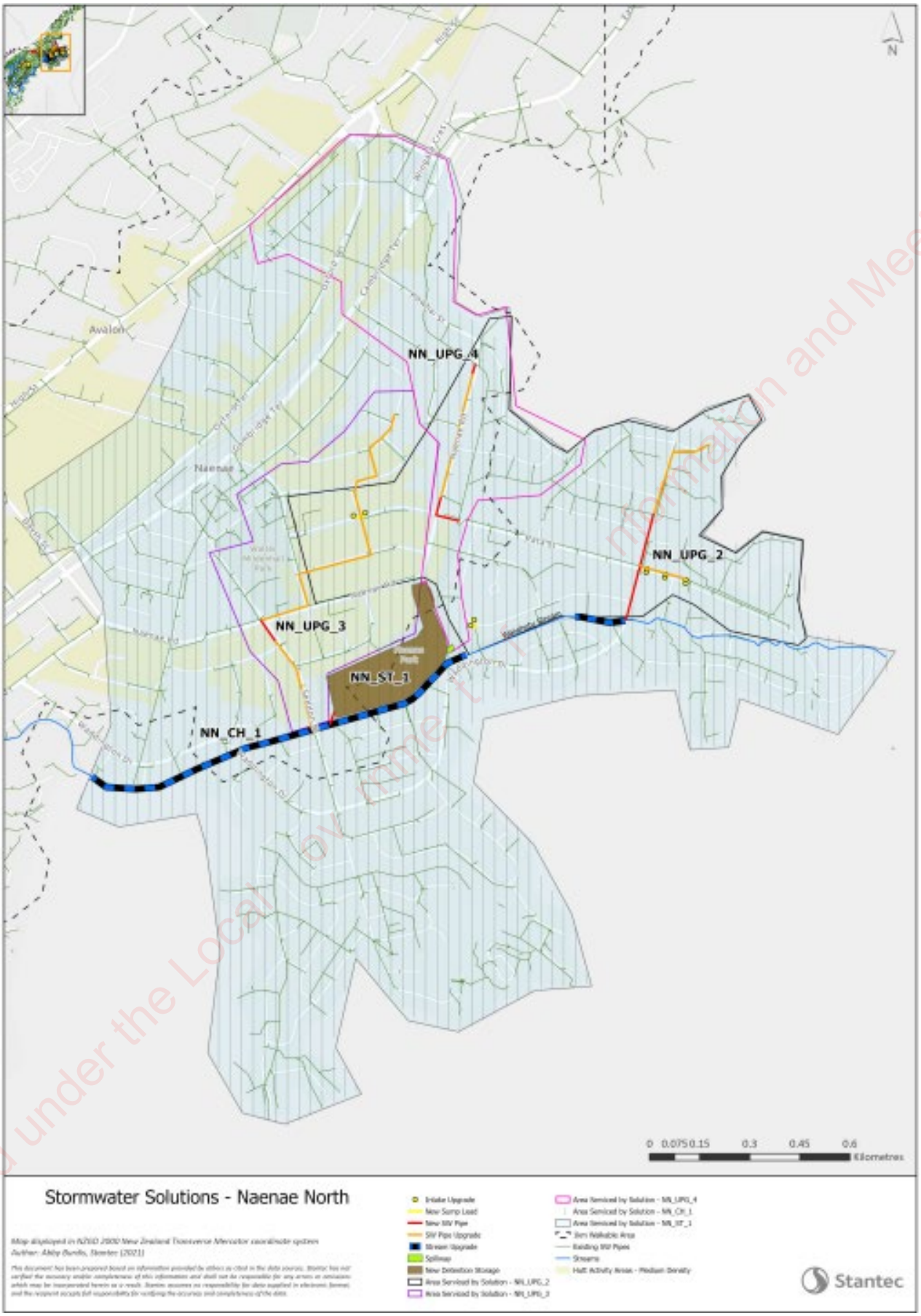


Figure E.6: Naenae North - Stormwater Solutions

The key focus for stormwater solutions in **Avalon** is to improve conveyance in the Taita Drive main which should in turn improve capacity issues where the network discharges to the Taita Drive main. It is also to

mitigate ponding in properties along High St that appear to be within an old overland flow path or depression.

Three options are provided for Avalon being Taita Drive Main Upgrade (Preferred solution), High Street Soakage Tanks and High Street Floor Level Raise.

E.6 Stokes Valley-Manor Park Study Area

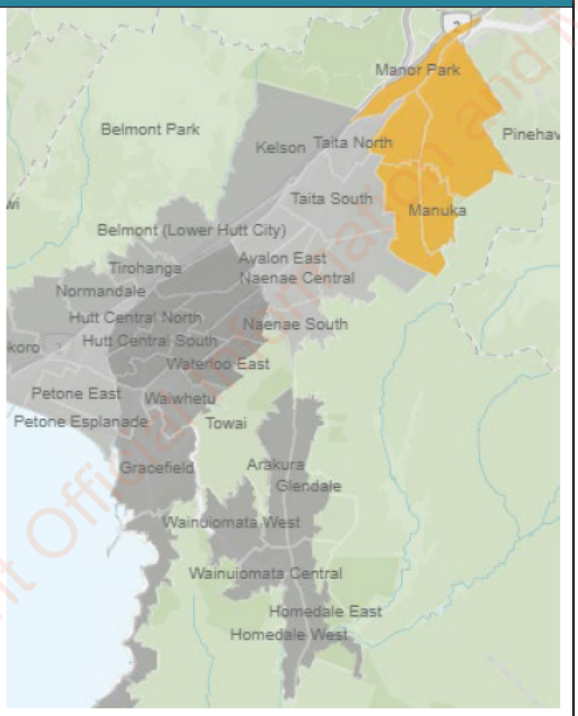
Stokes Valley-Manor Park Study Area		
Summary	The Stokes Valley-Manor Park study area is shown in the adjacent map. This area is expecting relatively higher levels of population growth over the next 30 years compared to the rest of Lower Hutt and is less likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 2825 dwellings – a 65% increase from 2018.	
Greenfield/ Brownfield	The considered growth in this study area includes both brownfield and greenfield. The greenfield sites are Shaftesbury Grove (120 lots) and Holborn Drive (186 lots) greenfield areas).	

Figure E.7 Stokes Valley-Manor Park study area

Key three waters solutions required in the Stokes Valley-Manor Park study area to support growth are:

Water

- To meet the total number of new dwellings in the Holborn and Shaftesbury development sites a 1.5 ML reservoir will be required (referred to as Holburn High Level) (shown in Figure E.8).
- To service existing communities and provide for infill development, additional storage will be required (in the order of 1.2ML to 4.2ML depending on scale of growth and options for suitable sites). In the ZMP (2020) it was recommended that land be secured for a future reservoir and further investigations be undertaken into site selection, sizing and staging of water storage.

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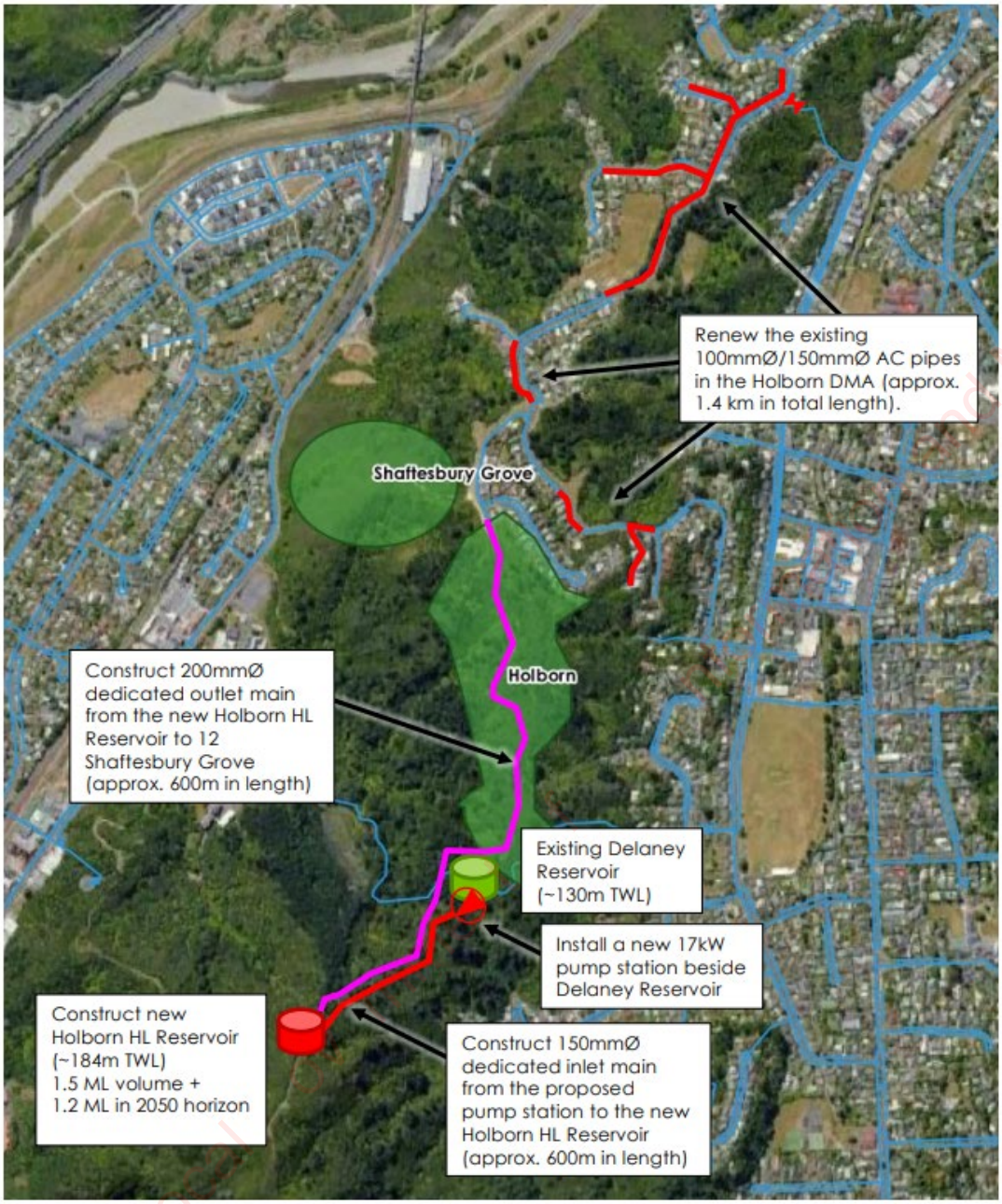

Figure E.8: Greenfield development sites in Stokes Valley and proposed upgrades

Wastewater

A key constraint is the relatively small diameter pipe section at Stokes Valley Road directly north of the intersection with Richard Grove and Glen Road. Modelling results show this potential constraint causes backwater issues further up in the catchment.

Stormwater

Stormwater flooding investigations identified a number of issues with the existing network including:

- Inadequate or incorrect location of sumps to capture surface runoff
- Overgrown vegetation, sedimentation, and debris in the streams, stream inlets and sumps reducing network capacity.
- Under capacity conveyance systems.

Concept level upgrades have been developed across the catchment, which involve a range of pipe/culvert upsizing, diversions, and high-capacity sump upgrades, across 9 areas. The extensive upgrades identified are

likely to be unaffordable and require further refinement and community engagement on levels of service and costs involved to support prioritisation and options for funding.

- Upgrade stormwater network at Stokes Valley Road
- Upgrade of Raukawa Street Culvert
- Upgrade Stormwater network in Kairimu Street and Akepiro Grove
- New pipework in George Street
- New pipework in Chittick Street
- Upgrade of the piped network in Delany Drive, August Street, Hanson, and Rintoul Grove
- Upgrade and re-route Lowry Crescent and Lowry Heights Stormwater network
- Upgrade in Poppy Watts Grove
- Upgrade Stormwater network in Tawhai Glen and Glen Road

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E.7 Eastbourne Study Area

Eastbourne Study Area		
Summary	The Eastbourne study area is shown in the adjacent map. This area is expecting low levels of population growth over the next 30 years compared to the rest of Lower Hutt and is more likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 431 people – a 19% increase from 2018.	
Greenfield/ Brownfield	All of the considered growth in this study area is brownfield development. No greenfield has been considered.	

Figure E.9: Eastbourne Study Area

Key three waters solutions required in the Eastbourne Study area to support growth are provided below. There are minimal recommended solutions in this study area as there is minimal growth expected.

Water

The supply to Eastbourne can easily be interrupted through an operational outage or in a seismic event as the bulk supply crosses liquefaction-prone ground through Seaview. Whilst not a storage size issue, it could impact on supply.

A new storage reservoir of at least 1.3 ML, which may need to be increased up to 2.2 ML (applying Sense Partners 2021 population forecasts for this study area).

Wastewater

No major investment identified.

Stormwater

No major investment has been identified in this study to service growth. However, further investment in Eastbourne will be required to manage existing level of service and expected impacts of sea level rise. Further investigations will be required to address these as required.

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E.8 Western Hills Study Area

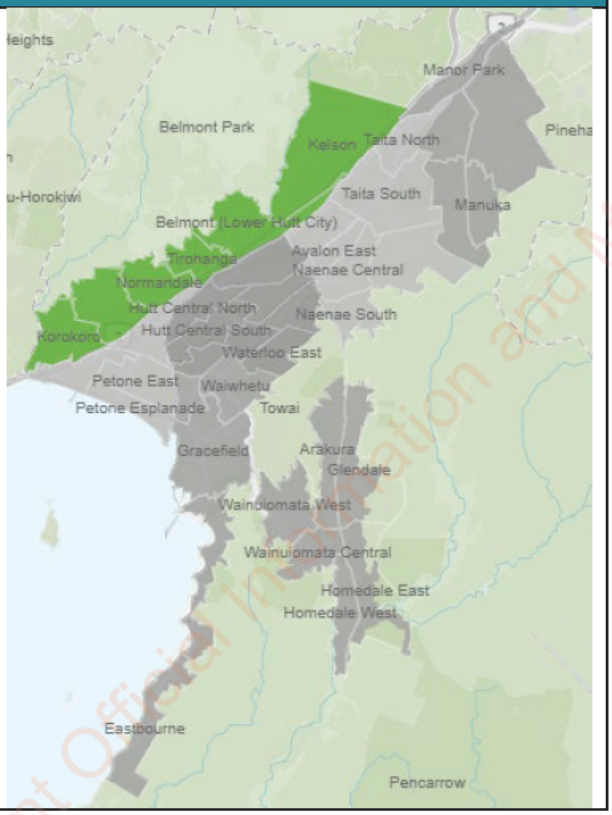
Western Hills Study Area		
Summary	The Western Hills study area is shown in the adjacent map. This area is expecting relatively comparable levels of population growth over the next 30 years compared to the rest of Lower Hutt and is less likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 3850 people – a 42% increase from 2018[12].	
Greenfield/ Brownfield	The considered growth in this study area is both brownfield and greenfield development. There are two major development sites in Kelson – Kelson Subdivision (120 lots) and 64 Waipounamu Drive (250 lots).	

Figure E.10: Western Hills Study Area

Key three waters solutions required in the Western Hills study area to support growth are provided below. Overall, there are minimal recommended solutions in this study area as there is minimal growth expected. However, Sense Partners 2021 forecasts predicted significant growth in Western Hills, this growth hasn't been assessed in this study, and any indications of largescale future growth in this catchment will require further three-waters servicing assessments.

Water

The ZMP (2020) recommended that no major investment was required as the shortfall in this study area was too small and the construction of a new reservoir was considered too difficult. The ZMP recommended that the greenfield developments, in total of 370 lots, be fed by the existing Liverton Reservoir as seen in Figure .

However, with the 2021 Sense Partners forecasts, showing increased growth forecasts for the entire Western Hills study area, it is now noted that there may potentially be a need for a new reservoir for Normandale and Tirohanga. Both Normandale and Tirohanga are unlikely to contain a site suitable for a new reservoir, but it is recommended that this is confirmed.

[12] Note this does not include Belmont Park

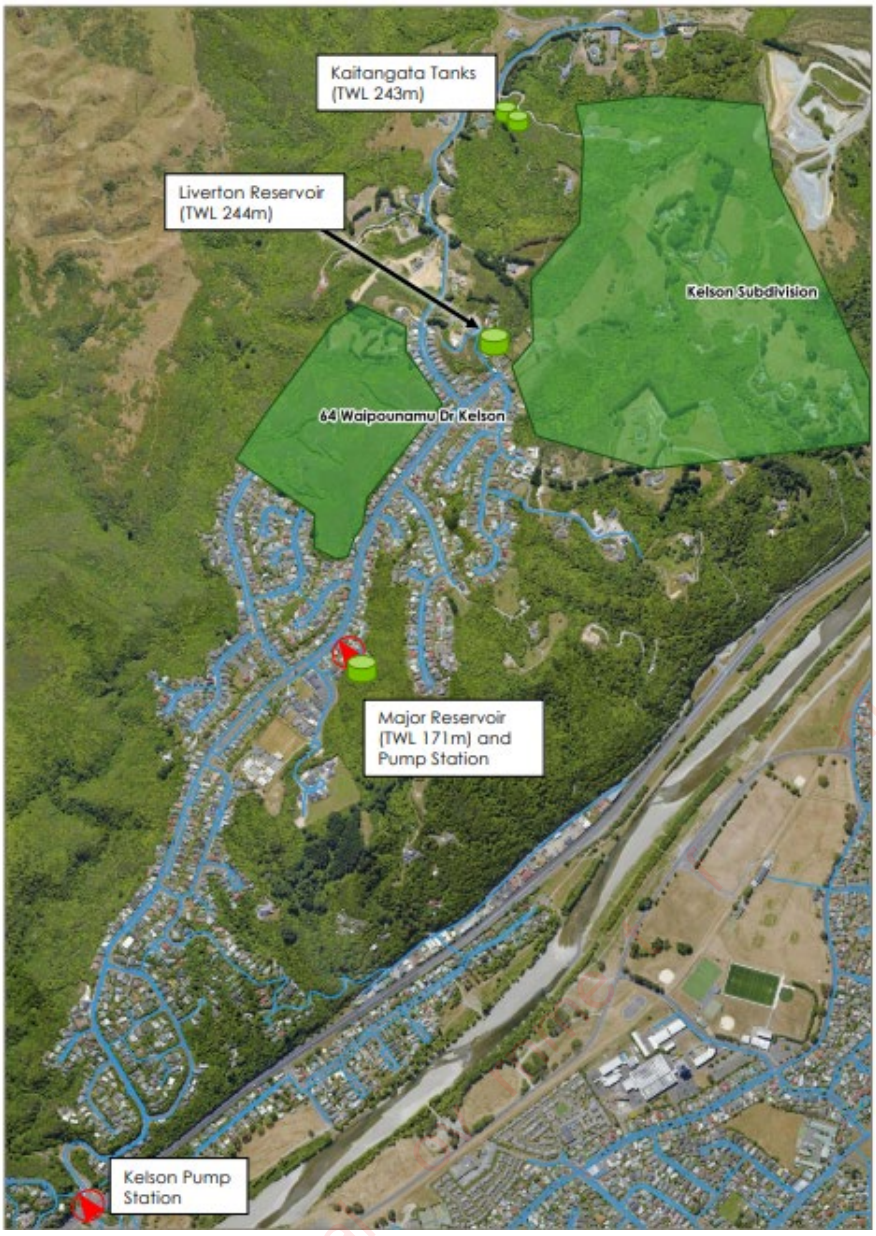


Figure E.11: Greenfield sites in the Western Hills study area

Wastewater

I&I investigations are recommended to firstly quantify existing I&I (as this catchment was not directly monitored during the model calibration) and to assess if I&I reduction could be of benefit for this catchment.

Stormwater

Greenfield developer/s will be required to demonstrate Water Sensitive Urban Design (WSUD) practices, provide stormwater neutrality, and demonstrate no downstream effects.

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E. 9 Seaview-Gracefield-Waiwhetu Study Area

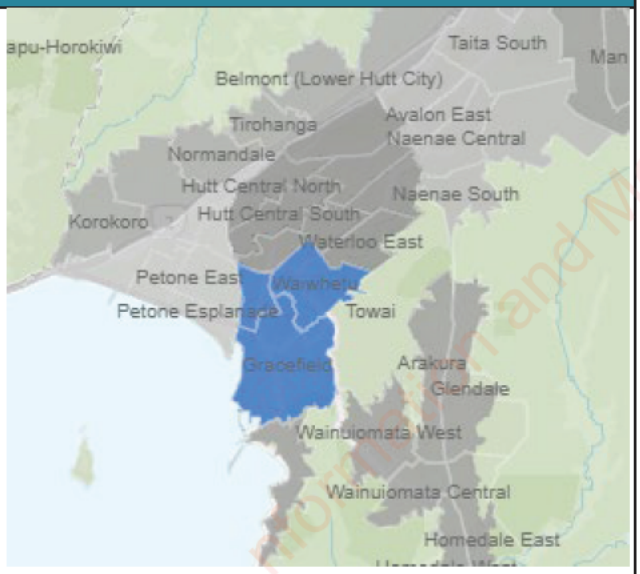
Seaview-Gracefield-Waiwhetu Study Area		
Summary	This study area as shown in map is expecting relatively comparable levels of population growth over the next 30 years compared to the rest of Lower Hutt and is more likely than other areas in Lower Hutt to be affected by climate change impacts.	
Population	Sense Partner (2021) forecasts to 2048 for this study area show an increase of 1285 dwellings – a 47% increase from 2018.	
Greenfield/ Brownfield	All of the considered growth in this study area is brownfield development. No greenfield has been considered.	

Figure E.12: Seaview-Gracefield-Waiwhetu study area

Key three waters solutions required in the Seaview-Gracefield-Waiwhetu study area to support growth are:

Water

The water infrastructure outlined under the Naenae-Taita study area will provide improvement in this study area.

Wastewater

To address modelled spilling, caused by inadequate pump capacity, pump capacity should be increased for Seaview Road PS, Seaview Hutt Park PS and Randwick Road PS. Furthermore, the existing uncontrolled overflow and smaller flooding locations in the catchment upstream of Whites Line Ps can be improved by providing 200m^3 storage volume.

Stormwater

This area is subject to stormwater flooding, and recognised to be further impacted by climate change and sea level rise. Residential growth in this area is expected to be minimal, therefore no specific upgrades have been recommended to support growth.

APPENDIX F: STRATEGIC ENVIRONMENT ASSESSMENT (SEA) CASE STUDY

F.1 SEA Background

Wellington Water commissioned a Strategic Environmental Assessment (SEA) to account for the effects of planned and future growth across the Wellington Region for which Wellington Water manages its client councils three waters assets.

Key catchments currently serviced by Wellington Waters three waters network were assessed in terms of the Ecosystem Services provided to people in those catchments, from groundwater, surface water, and coastal water receiving environments.

Within the SEA population growth was considered as the key driver for change in potential impacts and was assessed at the strategic level regarding how potential or actual impacts may change over the 30-year growth period. There are other potential drivers of changes in impacts, climate change is briefly commented on as it may exacerbate potential changes in impacts.

An ecosystems services approach was undertaken to this assessment which means that it focused on the benefits people obtain from ecosystems. Therefore, the conclusion on sensitivity is grouped into the following four services:

1. Provisional: Essential resources, food, freshwater.
2. Regulative: Climate regulation, water purification, disease control.
3. Supporting: nutrient cycling, primary production.
4. Cultural: Aesthetics, cultural heritage, and sense of place (mana whenua), educational, recreational, spiritual, and religious.

Two scenarios are used in the assessment:

- **Maintain Status Quo Scenario** – Under this scenario environmental impacts have been assessed based on population growth without any specific Wellington Water intervention response other than continuing to meet regulatory requirements (i.e., policy implementation, meeting current consent conditions, implementing new consents and consent renewals) through maintenance of current three waters infrastructure
- **Strategic Intervention Scenario** – Under this scenario impacts of the three waters network on the receiving environment have been assessed assuming a level of intervention has been implemented to reduce significance of impacts.

The objective of the impact assessment is to identify the likely significance of impacts on the environment resulting from Wellington Waters response to population growth over the next 30 years in order to maintain three waters services to the Wellington region.

Impacts determined to be 'Moderate', 'High' or 'Very High' are deemed significant. Where impacts are determined to be significant then mitigation measures are required to reduce these impacts to an acceptable level i.e., 'Low' or 'Very Low'. Refer to Figure F-1 for further information.

		Magnitude				
		Very High	High	Moderate	Low	Negligible
Sensitivity	Very High	Very High	Very High	High	Moderate	Low
	High	Very High	High	Moderate	Low	Very Low
	Moderate	High	High	Moderate	Low	Very Low
	Low	Moderate	Low	Low	Low	Very Low
	Negligible	Low	Very Low	Very Low	Very Low	Very Low

Figure F-1: SEA Impact Matrix

F.2 Lower Hutt Case Study Summary

Table F-1, Figure F-1, Figure F-2 and Figure F-3 show the significance of the impact of growth n Lower Hutt on the effects of the three water network operations on specified receiving environment ecosystem services under the 'Maintain Status Quo' and 'Implement Strategic Interventions' scenarios. The catchments are:

- Wainuiomata & Orongorongo / Headwater / Wainuiomata Estuary
- Hutt River (Middle to Lower)/Hutt Estuary/Petone foreshore through to Eastbourne

Table F-1: Catchment and Impacts Summary

Catchment	Impacts
Wainuiomata & Orongorongo / Headwater / Wainuiomata Estuary	• It is anticipated that strategic interventions will reduce the significance of adverse impacts in this catchment but the impacts while reduced could still be considered significant (i.e., moderate, or above). • The effect of growth on the wastewater network impacts and stormwater impacts is most significant in the surface freshwater and estuary/CMA receiving environments in this catchment. Generally, impacts on groundwater are not considered to be significant. • The effect of growth on the water supply network impacts is most significant in the surface freshwater receiving environments for Lower Hutt in this catchment.
Hutt River (Middle to Lower)/Hutt Estuary/Petone foreshore through to Eastbou ne	• It is anticipated that strategic interventions will reduce the significance of adverse impacts but the impacts while reduced could still be considered significant (i.e., moderate, or above). • The effect of growth on the wastewater network impacts and stormwater impacts is most significant in the surface freshwater and estuary/CMA receiving environments in this catchment. In general impacts on groundwater are not considered to be significant. • The effect of growth on the water supply network impacts is most significant in the surface freshwater receiving environments for Lower Hutt in this catchment. The groundwater receiving environments is also impacted in the Hutt River catchment.

F.3 Wastewater network impacts arising from growth under the two SEA scenarios

The Wainuiomata & Orongorongo catchment moderate or above impacts arising from growth are anticipated on surface/freshwater and estuary/CMA ecosystem values. This arises primarily from the anticipated increase in frequency and magnitude of wastewater overflows plus increased loads discharged from the treatment plant that can affect ecological, cultural, and recreational based ecosystem services values.

With the consideration of strategic interventions these impacts could be reduced to generally moderate ratings. It is not expected that interventions could be undertaken to address all the impacts of growth within suitable timelines to keep pace with growth hence the significance is not reducing down to low or very low.

Within the middle to lower Hutt River catchment there was generally a higher rating of potential impact significance across all receiving environments and ecosystem services compared to the Wainuiomata and Orongorongo. In general, the impact significance dropped to moderate under a strategic intervention scenario.

In both of these catchments the fact that the impact significance does not drop to low or very low under the implement strategic interventions scenario highlights the risk that in areas with existing effects from their operations and where networks are under pressure "new" strategic interventions are not likely to occur in time to address all potential future impacts or may not be affordable to minimise effects totally. Strategic interventions refer to targeted policy, infrastructure and non-infrastructure solutions that make a positive step towards managing the impacts of growth.

This leads to a consideration within the adaptive planning approach to managing growth of whether it is better to seek that growth in certain areas be avoided or minimised if it is too challenging or costly to adapt to and the risk of adverse effects is too high.

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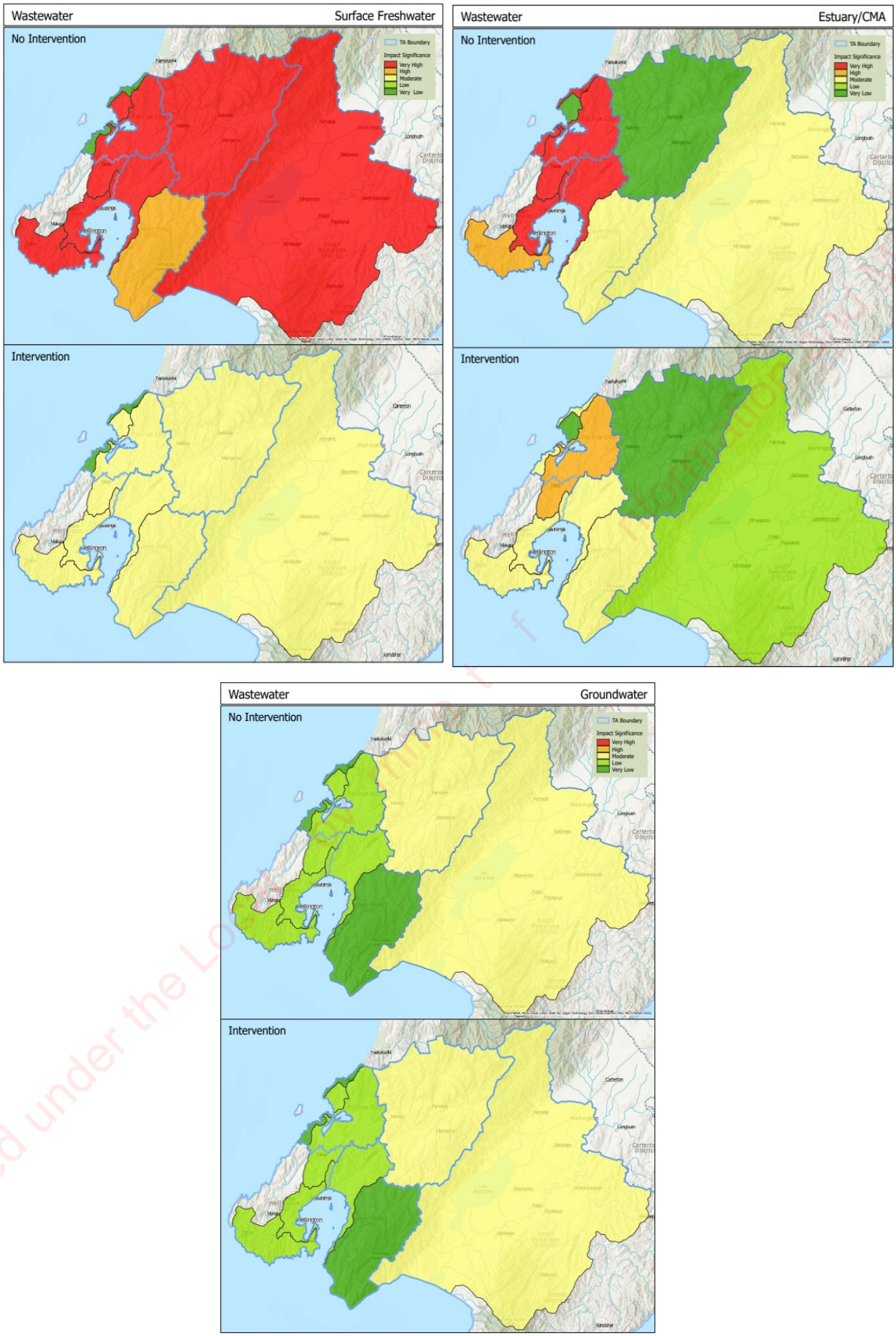

Figure F.2: SEA – Wastewater Growth Environmental Impact Assessment on Freshwater; Estuary/CMA; Groundwater

F.4 Stormwater network impacts arising from growth under the two SEA scenarios

The effect of growth on the impact of the stormwater network are anticipated to be significant in the surface freshwater and Estuary/CMA receiving environments for both the Hutt River and Wainuiomata & Orongorongo catchments with higher significance effects anticipated in the middle to lower Hutt River catchment than the Wainuiomata & Orongorongo catchment.

It is anticipated that with even with intervention (i.e., under the Strategic Intervention Scenario) some significant impacts would still occur – at best there could be reduced to "high" impacts in the Hutt River catchment and "moderate" impact in the Wainuiomata & Orongorongo catchment.

This is due to the values of the receiving environments but also the recognition that best practice stormwater interventions would not address all effects of growth. For example, new development may not fully implement water sensitive urban design especially where growth occurs as infill in existing areas and drains to existing networks that may not be modified. In addition, growth in population will likely grow vehicle numbers and with increased contaminant load through existing stormwater networks may increase.

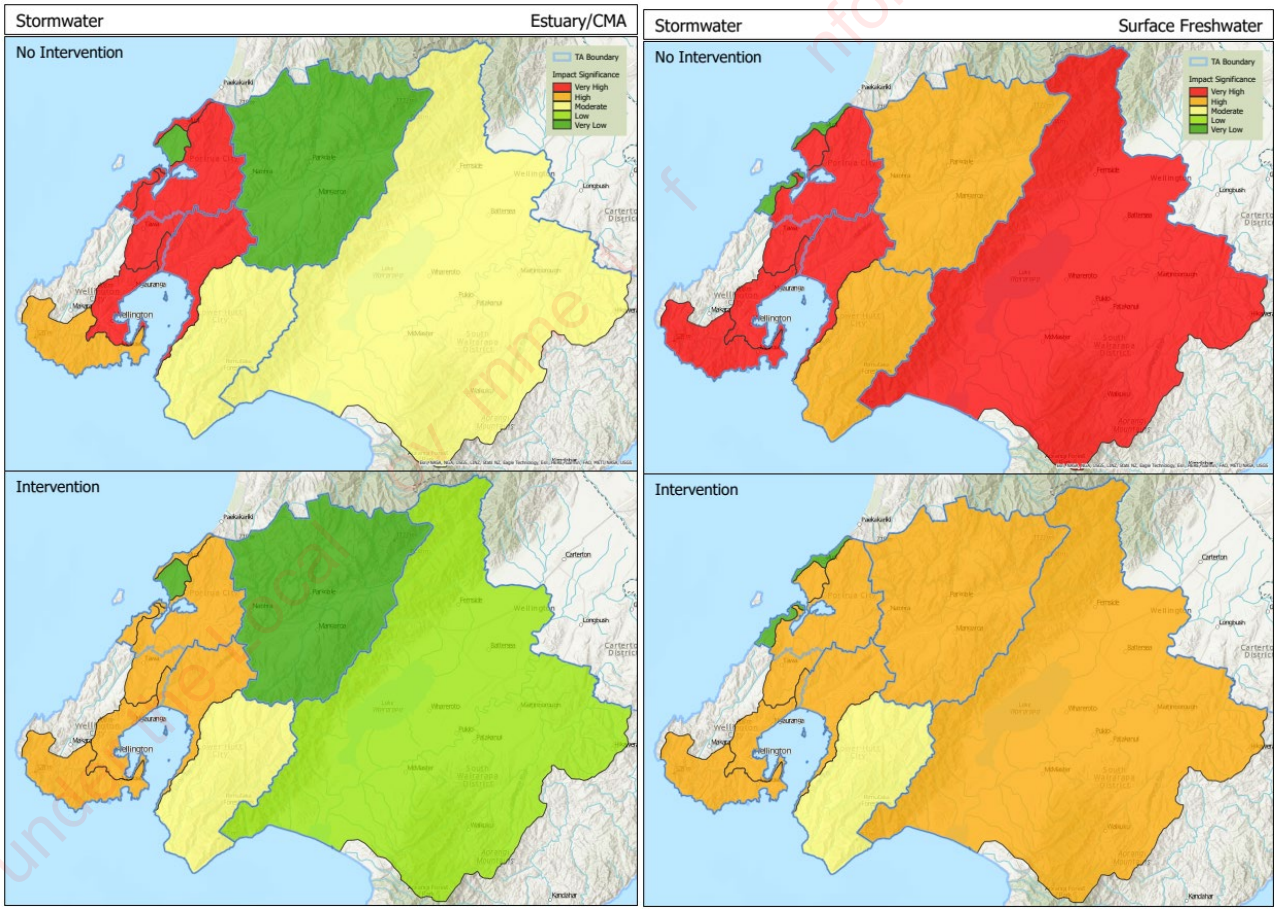

Figure F.3: Stormwater Growth Environmental Impact Assessment on Freshwater; Estuary/CMA

F.5 Water Supply impacts arising from growth under the two SEA scenarios

In Lower Hutt the impact of the water supply network operation is anticipated to be different for the two catchments. Within the Wainuiomata & Orongorongo catchment it is expected to be more significant on the surface freshwater receiving environment and, in the middle, to lower Hutt River more significant on groundwater. In both, it is anticipated that interventions will still result in some significant impacts.

Even with water demand control interventions and loss minimisation etc. there is likely to still be a requirement for more supply, therefore some impacts are still likely to occur as a result of taking more water.

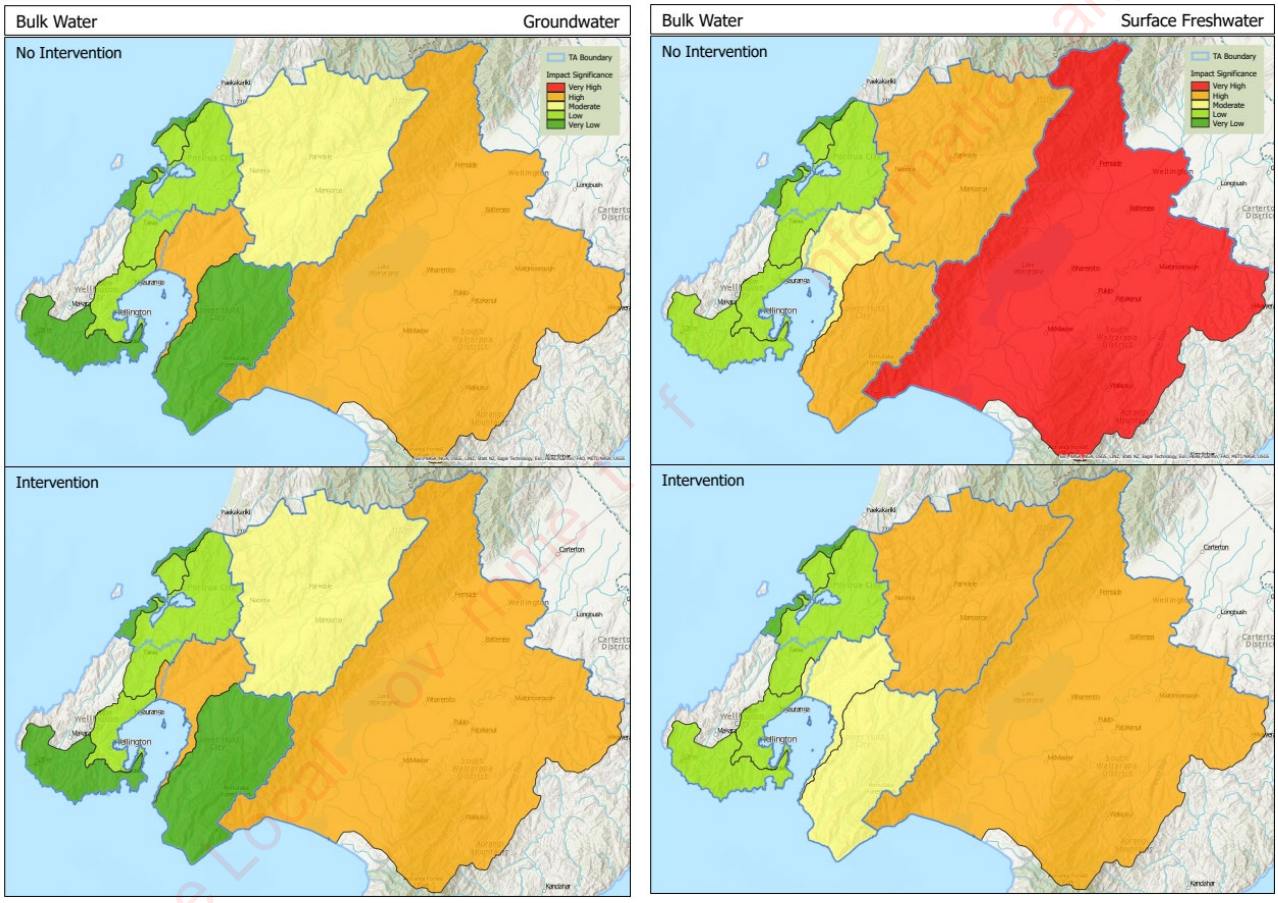

Figure F.4: Water Supply Growth Environmental Impact Assessment on Ground Water and Surface Water

APPENDIX G: FURTHER INVESTIGATIONS

Further investigations to be undertaken are included in the following table.

3.0	Investigations	
3.1	Undertake the following **water** investigations	
3.1.1	A preliminary investigation to confirm the location of the proposed Holborn Reservoir. The location of this reservoir impacts most other upgrades significantly. It is essential that is confirmed prior to starting any other capital works to service this area.	Wellington Water
3.1.2	A preliminary investigation to confirm the location of the proposed Delaney additional storage.	Wellington Water
3.1.3	Options to allow the Gracefield Reservoir to refill to at least 70% full without the Naenae Reservoir overfilling.	Wellington Water
3.1.4	Based on HCC growth plans and planning rules. Investigate the need for a new reservoir for Normandale and Tirohanga. Both Normandale and Tirohanga are unlikely to contain a site suitable for a new reservoir, but it is recommended that this is confirmed if growth is proposed in this area.	Wellington Water
3.1.5	Further investigation into the effects of reducing pressure on sprinkler systems, commercial water installations and internal multi-storey building water systems.	Wellington Water
3.2	Undertake the following high priority **wastewater** investigations/further analysis:	
3.2.1	Commence concept design of the new strategic wastewater upgrades required to service growth in Lower Hutt and expected general growth and in particular the RiverLink project. The proposed solution is a new gravity main draining to a pump station near the existing roundabout at Woburn Rd near Ewen Bridge to accommodate the expected general growth and in particular the RiverLink project. The rising main is proposed to cross the Hutt River at Ewen Bridge and connect to the existing trunk gravity line to Ava pump station, although an alternative route to Barber Grove should be considered as this would provide more resilience against earthquake risks. Confirmation on the impact of this additional flow on Ava pump station capacity and rising main is also to be confirmed.	Wellington Water
3.2.2	Develop designs for pipe upgrades in Alicetown at Railway Avenue and Herbert Street including a storage tank / large diameter pipe at Beaumont Avenue to mitigate the flooding issues in this area.	Wellington Water
3.2 3	Further investigations into I&I in Maungaraki catchment to reduce flooding risk at Holly and Maple Grove. Pipe upgrades and storage is proposed at Fleet Street and Seddon Street in Naenae, which includes a diversion of flows through a new line at Waddington Drive.	Wellington Water
3.2.4	Upgrades of the main sewer line at Stokes Valley Road (near Richard Grove / Glen Road intersection) as enabling work for other upgrades at Hawthorn Crescent and Milton Street. Additional asset investigation is recommended prior to further concept development.	Wellington Water
3.2.5	Complete the Seaview Wastewater Strategic Model to be able to support analysing upgrade options of the trunk system.	Wellington Water
3.3	Undertake the following **stormwater** investigations:	

3.3.1	Further investigation into capacity constraints in the network upstream of the Marsden Street pump station to determine the cause of flooding in Pharazyn Street.	Wellington Water
3.3.2	Investigate pump upgrade options for the Te Mome Pump Station	Wellington Water
3.3.3	Investigate upsizing the Nelson Street culvert, Regent Street stormwater main and John Street pump station.	Wellington Water
3.3.4	Consider storage or options to reduce and elongate peak runoff upstream of the Udy Street culvert.	Wellington Water

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Hutt City Council - Proposed District Plan

Noise and Vibration Review

Prepared For:

District Plan Policy Team
Hutt City Council

By:

MalcolmHuntAssociates
noise and environmental consultants
Telephone 04 472 5689 Fax 04 473 0456
mha@noise.co.nz www.noise.co.nz

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Hutt City Council

Proposed District Plan

Noise and Vibration Review

MalcolmHuntAssociates

noise and environmental consultants

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Document Prepared By:	**Malcolm Hunt - Acoustic Consultant** Bachelor of Science [B.Sc.] Master of Engineering[mechanical] Diploma in Public Health RSH Diploma Noise Control.

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Hutt City Council

Proposed District Plan

Noise and Vibration Review

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Hutt City Council

Proposed District Plan

Noise and Vibration Review

MalcolmHuntAssociates

noise and environmental consultants

1 Introduction

Hutt City Council ['Council'] is conducting a review of its current (operative) District Plan, including the noise and vibration provisions contained therein with a view to developing a new Proposed District P an, in accordance with the relevant statutory requirements and processes.

Under the Resource Management Act 1991 (RMA) Council has an obligation (Section 31(1)(d)) to "*control the emission of noise and the mitigation of the effects of noise*" within its territory. In planning terms, the District is the key instrument Council uses to manage the effects of noise. Whilst the RMA defines "noise" as unwanted sound, this broad definition does not mean all sound can or should be controlled under RMA procedures. Some sound is acceptable and indeed, necessary, for communication purposes. Thresholds for "adverse effects" are usually set well above levels at which sound may be detected. Thus, the RMA does not provide support for regulating low levels of sound in the environment, sounds we may consider a normal part of our environment - unless it can be shown via assessment in accordance with relevant guidelines and Standards that received sound levels exceed a threshold where mitigation should be applied.

As described below, the operative Hutt City district plan sets out a reasonable approach to land use planning measures to deal with the potential adverse effects of environmental noise in the district, Council's review provides an opportunity to check and revise current District Plan approaches particularly with respect to their effectiveness and efficiency.

2 District Plan Review

Section 79(1)(c) of the RMA requires local authorities to commence a review of a provision of a district plan if the provision has not been a subject of a review or change in the previous 10 years. Section 79(4) provides scope for local authorities to commence a full review of a district plan. All sections and changes must be reviewed and then the plan be publicly notified (79(6)&(7)).

The review of district plan noise and vibration controls allows for adopting more up to date versions of the relevant New Zealand Standards. The review also provides an opportunity to include emerging issues not foreseen within the operative District Plan. As below, noise-related requirements of various statutes including a relevant National Environment Standard and National Planning Standards which need to be incorporated into the proposed plan.

An important development since the operative plan was developed is the National Planning Standards (NPS) which set out standards with which every district plan must comply. Chapter 7 of the NPS requires Local Authorities to either amend their plan or notify a proposed plan within 5 years of the planning standards coming into effect (April 2024). NPS implications for this review are further discussed in Section 7.4 below.

As a tier one territorial authority, Hutt City Council is required to give effect to the intensification provisions of the National Policy Statement on Urban Development (NPSUD) by notifying a proposed plan change no later than August 2022

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This review of District Plan noise and vibration provisions is intended to form and, in part, a section 32-type evaluation which is a process for evaluating alternatives, benefits and costs of any proposed district plan as specified by section 32 of the RMA. Undertaking a section 32 evaluation helps to determine why changes to existing Plan provisions may be needed and formalises a process for working out how best to deal with resource management issues.

This review of the noise provisions and recommendations for the development of the operative District Plan in to a Proposed District Plan aims to:

- Strengthen strategic noise policies.
- Reduce the need for 'unnecessary' resource consents.
- Improve the effectiveness of standards at achieving the outcome intended.
- Introduce some new standards to resolve issues that are new or have become more serious since the last Plan was developed.
- Improve general Plan usability and clarity, including strengthening policies and Plan provisions to provide clearer guidance on the assessment of resource consent applications and the outcomes intended.

3 Supporting Documents

This acoustic review is not zero-based. The review has considered a number of existing background documents and supporting reviews including but not limited to the following list of background publications;

- Existing Operative Hutt City District Plan including maps;
- *Guidelines for Community Noise* edited by Birgitta Berglund, Thomas Lindvall, Dietrich H Schwela. World Health Organization 1999
- *Environmental noise in Europe — 2020,* European Environment Agency. EEA Report No 22/2019
- *Guidelines for Night Noise Guidelines for Europe* [NNGfE]. World Health Organization Regional Europe Office. World Health Organization Regional Europe Office 2009
- *Annoyance from transportation noise: relationships with exposure metrics DNL and DENL and their confidence intervals*, Miedema, H. M. and Oudshoorn, C. G., 2001. Environmental Health Perspectives 109(4), pp. 409-416.
- World Health Organization *Burden Of Disease From Environmental Noise - Quantification Of Healthy Life Years Lost In Europe*. 2011 World Health Organisation.
- *Noise Exposure and Public Health* Willy Passchier-Vermeer and Wim F. Passchier, Environmental Health Perspectives, Vol 108, Supplement l, March 2000;
- *Noise Exposure And Public Health* Passchier-Vermeer W, Passchier WF [2000]. Environ. Health Perspect. 108 Suppl 1: 123–31;
- *Exposure-response relationships for transportation noise* Miedema HM, Vos H. J Acoust Soc Am. 1998 Dec;104[6]:3432–3445;
- *Noise sensitivity as a factor influencing human reaction to noise*. Job RF Soames. Noise & Health. 1999;1[3]:57–68;
- Standards New Zealand – Acoustic standards [various, as discussed further below].

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Our review has also considered the content of the following relevant documents;

- National Policy Statement on Urban Development (NPS-UD)
- National Policy Statement on Electricity Transmission (NPS-ET)
- National Policy Statement on Renewable Energy Generation (NPS-REG)
- National Environmental Standard on Telecommunication Facilities
- National Environmental Standards on Electricity Transmission Activities
- HCC Officer Report - Urban Form and Development – Intensification Areas. Report to District Plan Review Subcommittee 23 April 2021. File: (21/649) Report no: DPRS2021/2/107.
- HCC Officer Report – Transport – Report to District Plan Review Subcommittee. 27 April 2021. File: (21/50) Report no: DPRS2021/2/111

4 Limitations

This review is based on information set out within related documents, standards and guidelines referred to, and on best practice examples from other Council's, case law and professional experience of Council's officers with the existing District Plan.

This review does not include the results of any specific consultation or communications with any stakeholder party or potential submitter. This review does not intend to replace the input provided by others, including other technical experts within the planning process once the public submission process commences. This review presents recommendations for HCC to consider in terms of concepts and approaches, thus detailed wording of policies or rules is not provided.

This report sets out the results of a review of the existing District Plan noise provisions, specifically assessing whether existing approaches are still valid for supporting the District's social, economic and environmental vision, and to ensure that adverse impacts are avoided, or appropriately mitigated. This includes seeking to minimise impacts on parties potentially affected by noise and those who may be indirectly affected by people's reaction to noise [reverse sensitivity effects].

We understand this noise and vibration review is being undertaken within the context of Council's statutory responsibilities which includes stewardship and protection of the environmental, social, economic and cultural wellbeing of present and future generations within the District, with statutory responsibilities to have regard to the Treaty of Waitangi and effects on tāngata whenua.

Under the RMA Council has the powers to control noise effects through non-district plan methods such methods as;

- Conditions attached to resource consents;
- Enforcement proceedings including: Abatement notices, enforcement orders and; excessive noise direction notices.

5 The Operative District Plan

Chapter 14C of the operative District Plan sets out environmental noise requirements in terms of policies, objectives and rules. The key players in the management of noise under the District are:

- Noise producers;
- Regulatory authorities, in this case Hutt City Council;
- The noise receivers;

All areas of the City are currently zoned. Within each zone, activities are managed on the basis of the effects of those activities. Chapter 14C of the operative district plan sets out limitations noise emissions from permitted land use activities. The focus of the policies and objectives set out in Chapter 14C.1.1 is on maintaining or enhancing

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health and amenity values. The Operative Hutt City District provides for zoning of land use activities within 'activity areas' summarised as follows;

Residential Activity Areas
- General Residential Activity Area
- Medium Density Residential Activity Area
- Special Residential Activity Area
- Historic Residential Activity Area
- Hill Residential Activity Area

Commercial Activity Areas
- Central Commercial Activity Area
- Petone Commercial Activity Area
- Suburban Commercial Activity Area
- Special Commercial Activity Area
- Suburban Mixed Use Activity Area

Business Activity Areas
- General Business Activity Area
- Special Business Activity Area
- Avalon Business Activity Area
- Extraction Activity Area

Recreation Activity Areas
- General Recreation Activity Area
- Special Recreation Activity Area
- River Recreation Activity Area
- Passive Recreation Activity Area

Rural Activity Areas
- Rural Residential Activity Area
- General Rural Activity Area

The results of our review of the noise and vibration provisions of the operative district plan is set out in Section 10 and 11 below. The review covers noise matters set out in Chapter 14C of the plan in addition to reverse sensitivity noise and vibration matters covered within the acoustic insulation requirements of Chapter 5 (5A Central Commercial Activity Area, and 5B Petone Commercial Activity Area) and within Standard 6 (Development within the State Highway and Railway Corridor Buffer Overlays) attached to Chapter 14A Transport.

The review, in summary, recommends;

- Replacing and updating references to relevant NZ Standards.
- Setting out the noise chapter in a more conventional format as per the requirements of the National Planning Standards which entails applying zone noise emission standards in each zone. This would remove any reference to 'Noise Areas' and site-specific noise limits currently referred to in the operative Plan.
- Strengthening reverse sensitivity measures to address noise impacts, including within more densely populated areas near transport corridors and within the city centre.
- Re-assessing whether it is necessary to include specific vibration performance standards in the district plan, as may require expert measurement and assessment, beyond what a Council staff member could be expected to undertake.
- Addressing technical differences in the way the district plan currently specifies acoustic insulation (where this is required in a rule to address reverse sensitivity noise effects). The operative plan refers to two different methods for prescribing acoustic insulation within Chapter 14A and Chapter 5. Recommendations to address this reflect the desire for a common, easily understood and used unified district plan approach to specifying acoustic insulation requirements with a focus on being transparent and user-friendly.

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6 Effects of Noise

6.1 Effects Summary

Research into the effects of environmental noise has focused on the annoyance such sound causes to humans, or the extent to which it disturbs various activities undertaken by people. This is because annoyance is the most commonly expressed reaction by those exposed to intrusive sound in the environment.

At a biological level, noise is considered a non-specific stressor that may cause adverse health effects on humans in the long term. Epidemiological studies suggest a higher risk of cardiovascular diseases, including high blood pressure and myocardial infarction [heart attacks], in people chronically exposed to high levels of road or air traffic noise[1]. In many cases noise occurring in the environment is simply intrusive, interfering with listening to television or radio or affecting the enjoyment of quiet outdoor areas around in the home or in parks or reserves.

The effects of environmental noise are usually expressed in terms of:

- Annoyance;
- Speech interference - high levels of noise can make normal speech difficult to hear
- Performance - some noises can make concentration difficult and interfere with tasks such as learning, checking fine details [such as any job with a large mathematical component or where the meaning of words is critical] or work where small, precise, movements or intense concentration is required;
- Mental health issues [including noise-induced stress-related effects];
- Sleep disturbance - in addition to fatigue and mental health effects, disrupted sleep patterns can leave people irritable, change their behaviour, and reduce their ability to work or perform tasks.

There is sufficient scientific evidence to reasonably demonstrate the linkage between exposure to environmental noise and hypertension and ischemic heart disease, annoyance, sleep disturbance, and decreased learning performance in the classroom. However for effects such as changes in the immune system and birth defects, the evidence is limited [WHO 1999].

There have been no new findings in respect of the threat that environmental noise poses to human health and welfare since the District Plan was first published. Most public health impacts of environmental noise were identified as far back as the 1960's with research in more recent times concentrating on the elucidation of the mechanisms underlying the known effects, such as noise induced cardiovascular disorders and the relationship of noise with annoyance and non- acoustical factors modifying health outcomes[2].

The Ministry of Health monitors protection of public health from environmental noise through reporting by *National Environmental Noise Service* [NENS] which it funds. NENS has been closely involved in developing and revising various New Zealand acoustic standards, including NZS 6802, a key Standard guiding on the assessment of noise referred to within the District Plan, and within the discussion below. Thus to reasonably provide for the protection of health and amenity, recommendations for managing environmental noise should adhere to the guidance set out within NZS6802.

6.2 Health Effects

Standards of acceptable levels of environmental noise are essentially derived from observations and studies on the effects of noise on "normal" or "average" populations. The participants of these investigations and studies are usually selected from the general population. Vulnerable groups of people are typically underrepresented in such studies [WHO 1999] including but not limited to;

- People with decreased personal abilities [old, ill, or depressed people];
- People with particular diseases or medical problems;
- People dealing with complex cognitive tasks, such as reading acquisition;

[1] *WHO Burden Of Disease From Environmental Noise - Quantification Of Healthy Life Years Lost In Europe.* World Health Organisation, Geneva, 2011.

[2] *Noise Exposure and Public Health* Willy Passchier-Vermeer and Wim F. Passchier, Environmental Health Perspectives, Vol 108, Supplement l, March 2000.

- Young children.

It is for this reason that noise rules and guidelines designed to protect against the adverse effects of noise on people should cater for both the young and old, as well as typical residences which are traditionally the places where people live, rest and relax. Hospitals, aged-care facilities, pre-schools, schools, universities and polytechs fall within the definition of noise sensitive land uses identified for protection within NZS6802:2008 *Acoustics – Assessment of Environmental Noise*.

6.3 Sleep Effects

The available evidence confirms disturbed sleep is associated with a number of health problems. Noise can disturb sleep by a number of direct and indirect pathways. It has been shown that awakening reactions are relatively rare, occurring at a much higher level than the physiological reactions.

WHO *Night Noise Guidelines For Europe* (2009) and EU Noise Directive (2002/49/EC) recommend Lnight,outside of 40 dB as a night noise guideline to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly. However, this is an aspirational goal which may or may not be achievable.

The issue of adjusting downwards [lowering] district-wide noise limits in order to cater for vulnerable subgroups in the general population have been investigated. In setting the balance for sustainable management of noise in the environment there is a need to focus on the average response to noise of the average person. To impose a restrictive standard in order that the most vulnerable groups are protected to a high standard will impose costs and restrictions on the community who would otherwise be adequately protected at levels suited to the majority of the population.

Night time noise limits in most New Zealand District Plans are based on the units;

- Energy average sound level - LAeq(15 min) and
- Single event LAFmax

The most common approach is for district plans to limit 15 minute average sound levels to LAeq 40 or 45 dB during night time hours. Setting noise limits at sensitive receiver sites below 40 dB would make compliance difficult to measure except during the quietest night time period. At the other end of the scale, there is insufficient evidence that the adverse effects would be observed during night time where noise from adjacent sites does not exceed 40 dB outside buildings housing noise sensitive activities. See Section 10.7 below regarding the inadvisability of setting of night time noise for daytime periods on Sundays.

7 New Zealand Standards

The current Operative District Plan makes reference to a number of acoustic standards for the assessment and measurement of general environmental noise. Such standards ensure a repeatable and reliable result when assessing compliance, and are key to Council's ability to monitor and enforce noise standards in the District Plan.

The recommendations below refer to adopting the most recent versions of the relevant acoustic Standards reflecting the requirements of Part 3 of the RMA which covers the incorporation of documents "by reference: in District Plans. This ensures all material correctly incorporated by reference into a plan, has legal effect as if it were part of that plan.

As below, the NZ National Planning Standard is that the most recent New Zealand acoustic standards be adopted as the basis of the noise provisions of the Proposed District Plan.

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7.1 Current New Zealand Acoustic Standards

The following eight New Zealand standards are considered to be most recent and technically appropriate standards for environmental acoustics in New Zealand:

NZS 6801:2008 Acoustics –Measurement of Environmental Sound NZS 6802:2008 Acoustics –Environmental Noise
NZS 6803:1999 Acoustics – Construction Noise
NZS 6805:1992 Airport Noise Management and Land Use Planning
NZS 6806:2010 Acoustics – Road Traffic Noise – New and Altered Roads
NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas
NZS 6808:2010 Acoustics –Wind Farm Noise
NZS 6809:1999 Acoustics – Port Noise Management and Land Use Planning

7.2 International Standards

Standards New Zealand represents New Zealand as members of the International Organization for Standardisation [ISO] and the International Electro Technical Commission [IEC]. Through New Zealand s membership of these organisations we are able to share our expertise and knowledge in a number of areas, and ensure that New Zealand interests are considered. Where possible, New Zealand standards are based on international standards. Utilising the current New Zealand acoustic standards for environmental noise takes account of relevant areas of international standards, that is international standards have been researched and where relevant included or referenced within current New Zealand acoustic standards.

7.3 National Environmental Standards

The proposed District Plan must give effect to, and cannot be inconsistent with, the provisions of a 'National Environmental Standard' [NES]. NES are specific regulations issued under Sections 43 and 44 of the RMA and apply nationally providing methodologies or requirements on environmental matters, although they may prescribe technical standards where appropriate.

An NES should not be confused with a 'New Zealand Standard' although at one level both provide a consistent approach and process throughout New Zealand – the key difference is that NES's have must be implemented and regional, city or district council must enforce the same standard without variation, whereas New Zealand Standards can be adopted in whole or in part, and can vary between regulators. In planning terms, a New Zealand Standard only has the force of law when it is referred to in a district plan.

At the time of preparation, there is only one NES relating to noise but in the specific context of telecommunications facilities. NZS 6801:2008 and NZS 6802:2008 are both cited in Clause 9[4] of the Resource Management Act [National Environmental Standards for Telecommunication Facilities] Regulations 2008. The Proposed Plan will be required to follow the NES when specifying limits on noise from telecommunication facilities.

7.4 National Planning Standards

The *National Planning Standards*[3] which sets out requirements for district plans to adopt standardised noise and vibration metrics. The stated purpose of the NPS is to improve the efficiency and effectiveness of the planning system by providing, among other things, nationally consistent noise and vibration metrics.
NPS Standard 15 states;

1. *Any plan rule to manage noise emissions must be in accordance with the mandatory noise measurement methods and symbols in the applicable New Zealand Standards incorporated by reference into the planning standards and listed below:*

   New Zealand Standard 6801:2008 *Acoustics – Measurement of environmental sound*
   New Zealand Standard 6802:2008 *Acoustics – Environmental noise*

[3] Ministry for the Environment. 2019. *National Planning Standards*. Wellington: Ministry for the Environment.

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New Zealand Standard 6803:1999 *Acoustics – Construction noise*
New Zealand Standard 6805:1992 *Airport noise management and land use planning* – measurement only.
New Zealand Standard 6806:2010 *Acoustics – Road-traffic noise – New and altered roads*
New Zealand Standard 6807:1994 – *Noise Management and Land Use Planning for Helicopter Landing Areas*- excluding 4.3 Averaging
New Zealand Standard 6808:2010 *Acoustics – Wind farm noise*
New Zealand Standard 6809:1999 *Acoustics – Port noise management and land use planning*

2. *Any plan rule to manage noise emissions must be consistent with the mandatory assessment methods in section 6 Rating Level and section 7 LAMAX of New Zealand Standard 6802:2008 Acoustics – Environmental Noise (incorporated by reference into the planning standards), provided the type of noise emitted is within the scope of New Zealand Standard 6802:2008.*
3. *Any plan rule to manage damage to structures from construction vibration must be consistent with the metrics for peak particle velocity (ppv) in ISO-4866:2010 – Mechanical vibration and shock, incorporated by reference into the planning standards*

Under the NPS, noise is to be handled as a stand-alone chapter under the heading of 'District Wide Matters'. The NPS stipulates he following requirements to be followed when deciding how the "noise Chapter' is to be set out and structured;

33. *If provisions for managing noise are addressed, they must be located in the Noise chapter. These provisions may include:*
    a. *noise provisions (including noise limits) for zones, receiving environments or other spatially defined area*
    b. *requirements for common significant noise generating activities*
    c. *sound insulation requirements for sensitive activities and limits to the location of those activities relative to noise generating activities.*
34. *Any noise-related metrics and noise measurement methods must be consistent with the 15. Noise and vibrations metrics Standard.*
35. *The Noise chapter must include cross-references to any relevant noise provisions under the Energy, infrastructure, and transport heading.*
37. *If provisions to manage temporary activities, buildings and events are addressed, they must be located in the Temporary activities chapter.*

NPS Standard 14 sets out the "Definitions" Standards. Local authorities must use the definition as defined in the *Definitions List* in district plans. There is a requirement that, where terms used in district plans are defined in the *Definitions List* of the Standard, that the term is used in the district plan must be in the same context as the definition. Compliance with the NZ National Planning Standard is mandatory – this will require adopting all relevant NZ acoustic standards listed above. This is a core recommendation of the current review and recommendations for the Proposed Plan.

8 2021 District Wide Noise Survey

RMA s35[2] requires the Council to monitor the state of the City's environment and to monitor the efficiency and effectiveness of policies, rules, or other methods in the District Plan. The monitoring summarised in this report sets out existing ambient noise levels, allowing for observations to be made around effectiveness of existing District Plan noise policies and rules (noting transport noise, being the most predominant noise source found in the district, is not subject to control via the district plan).

8.1 Survey Method & Equipment

The method of investigation has been to measure ambient sound levels at 19 selected sites in the district to gather daytime and night time sound level readings using automated monitoring equipment over at least a 24 hour

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periods, with the microphone located outdoors away from any obvious dominant noise source. The sound level meter was set to automatically log LAmax, LA10, LAeq and L_{95} values every 15 minutes. Data files from the sound level meter were downloaded into spreadsheets. The data for each site includes summary day/evening/night time, levels plus a graph of time-varying sound levels produced using the logged data.
Measurement set up for the two sound level meters were:

- A weighting (dBA), Fast response.
- Measurement periods: 15 minutes
- Measurement Metrics: L_{AI0}, L_{AMax}, L_{Aeq}, L_{A90}

Sound level monitoring was carried out in accordance with the procedures set down in the New Zealand Standard, NZS6801:2008 *Acoustics - Measurement of Environmental Sound*. This Standard provides guidance on the technical aspects of noise measurement. All measurements were carried out using a Type 1 Sound Level Meter - Acoustic Research Laboratory '*EL316 Environmental Data Logger*' Serial No. 16-707-005. Field calibration was checked before and after measurements.

Sites were selected to be representative of the following land use areas;

- Industrial
- Suburban Mixed
- Residential
- Rural
- CBD
- Railway Corridor

Measurements were conducted at the following sites;

	Industrial
1	93 Eastern Hutt Road, Taita
2	14 Marine Parade, Petone
3	17 Wareham Place, Seaview (Treatment Plant)
	Suburban Mixed
4	794 High Street Boulcott (Brewery)
5	21 Rimu Street Eastbourne
6	362-364 Jackson Street, Petone (Ist floor balcony)
6A	Level 1, 1 Jackson Street Petone (1st floor deck)
	Residential
7	4-6 Heretaunga Street, Petone
8	63 Hay Street Naenae
9	57 Queens Grove, CBD
10	57A Cypress Drive Maungaraki
11	2/25B Norfolk Street Belmont
12	26A Kotari Road Days Bay
13	27 Bull Avenue, Wainuomata
14	177A Stokes Valley Road, Stokes Valley
14A	22 Harrison Grove, Avalon
	Rural
15	1090 Coast Road Wainuiomata
16	Upper Moores Valley Road
	CBD
17	Level 1, 21-23 Andrews Avenue, Central Hutt
	Railway Corridor
18	Ava Park, Adj. Water Treatment Plant
19	3/86 North Street, Ava, Petone
14B	86 Cambridge Terrace, Waterloo

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The measurement locations were generally away from any specific noise source, such as heat pumps. The selection of sites aimed to quantify typically expected ambient sound levels expected for that land use category. The exception is transportation noise. Three survey sites were selected to purposefully quantify rail transportation noise at residential sites adjacent to the Railway corridor.

In addition, results of measurements of 24 hour traffic noise at four selected sites carried out in 2020 in Lower Hutt (undertaken as part of the *RiverLink Project*[4]) have been included in the evaluation of the reverse sensitivity noise mitigation associated with the operative district plan's "*State Highway & Rail Corridor Buffer Overlay*" implemented via District Plan Transportation Standard 6 to Chapter 14A *Transportation*. Discussions and recommendation for transport noise overlays are discussed in Sections 10.11.3 and 11.5 below.

8.2 Summary Results

The focus has been on reporting measured average, minimum and maximum levels of outdoor sound quantified in a consistent manner for each site in units $L_{A!0}$, L_{AMax}, L_{Aeq}, L_{A90}..In addition, an overall summary 24 hour overall average sound level is provided for each site and average per land use category.

The existing noise environment is described in detail within the reported statistics for $L_{A!0}$, L_{AMax}, L_{Aeq}, LA90. Averages referred to generally are arithmetic averages, this is apart from logathrmic averaging required for (1) calculating the overall LAeq(24 hour) value for each site, and (2) the averaging within each 15 minute period inherent within the calculation of LAeq(15 min).

Data collected during periods of elevated winds or times of high rainfall have been excluded from the summary statistics reported below.

8.2.1 Day/Evening/Night Time LAeq(15 min) Results

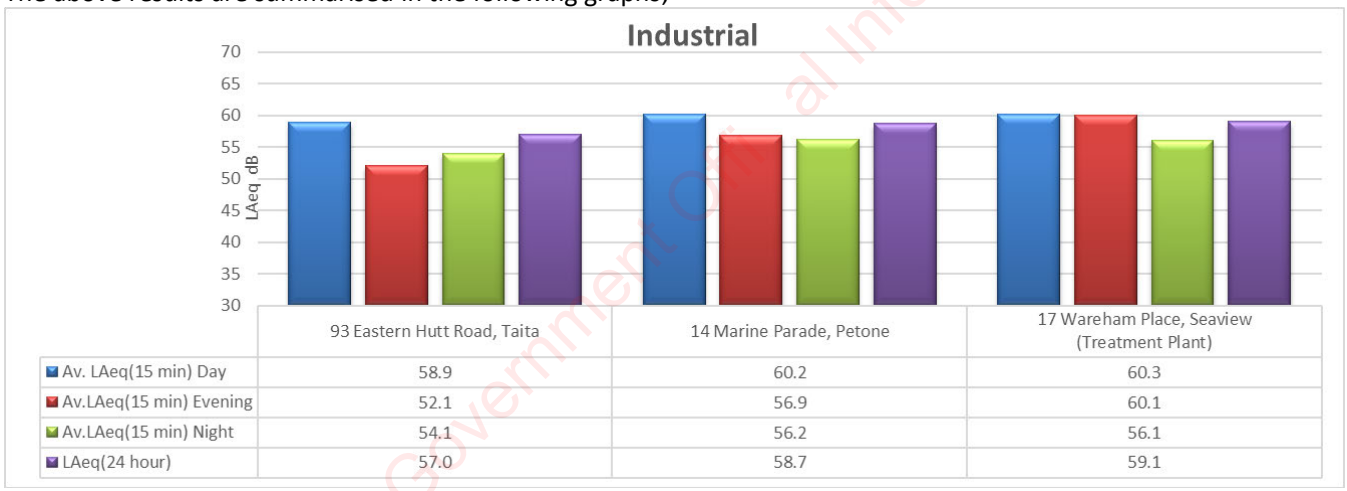
The following table and graphs provide summary statistics on daytime/evening/night time average LAeq(15min) levels, as well as overall LAeq(24 hour) average sound levels.

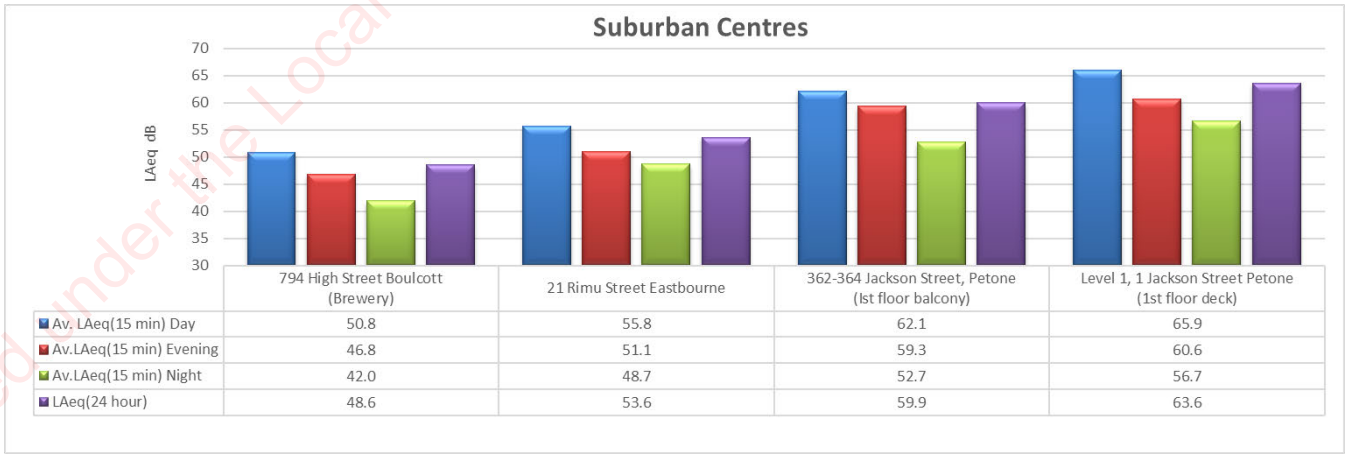
	Industrial		**LAeq Av. Day**	**LAeq Av. Evening**	**LAeq Av.Night**
1	93 Eastern Hutt Road, Taita		58.9	52.1	54.1
2	14 Marine Parade, Petone		60.2	56.9	56.2
3	17 Wareham Place, Seaview (Treatment Plant)		60.3	60.1	56.1
		Average	59.8	56.3	55.5
	Suburban Centres				
4	794 High Street Boulcott (Brewery)		50.8	46.8	42.0
5	21 Rimu Street Eastbourne		55.8	51.1	48.7
6	362-364 Jackson Street, Petone (Ist floor balcony)		62.1	59.3	52.7
6A	Level 1, 1 Jackson Street Petone (1st floor deck)		65.9	60.6	56.7
		Average	58.6	54.5	50.0
	Residential		**LAeq Av. Day**	**LAeq Av. Evening**	**LAeq Av.Night**
7	4-6 Heretaunga Street, Petone		46.6	44.0	39.5
8	63 Hay Street Naenae		55.0	49.4	42.3
9	57 Queens Grove, CBD		48.3	44.4	40.2

[4] *RiverLink* is a partnership between Hutt City Council, Greater Wellington Regional Council (Greater Wellington) and Waka Kotahi NZ Transport Agency (Waka Kotahi) with Mana Whenua to deliver three separate but interdependent projects: Flood protection, the Making Places Urban Development Plan, and Melling transport improvements.

10	57A Cypress Drive Maungaraki		45.4	43.0	34.0
11	2/25B Norfolk Street Belmont		55.0	49.8	42.3
12	26A Kotari Road Days Bay		56.4	47.6	32.3
13	27 Bull Avenue, Wainuomata		51.0	45.0	33.9
14	177A Stokes Valley Road, Stokes Valley		51.9	43.9	38.6
14A	22 Harrison Grove, Avalon		47.9	43.9	39.1
		Average	50.8	45.6	38.0
	CBD				
17	Level 1, 21-23 Andrews Avenue, Central Hutt		54.8	47.7	40.5
	Raiway Corridor				
14B	86 Cambridge Terrace, Waterloo		60.2	55.1	50.6
18	Ava Park, Adj. Water Treatment Plant		62.3	51.7	46.3
19	3/86 North Street, Ava, Petone		54.0	49.2	45.7
		Average	58.8	52.0	47.5

The above results are summarised in the following graphs;





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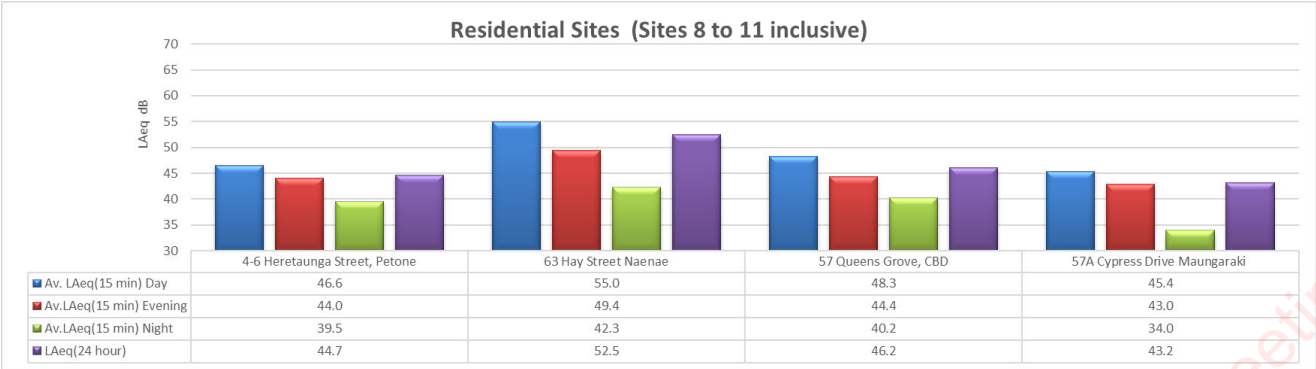
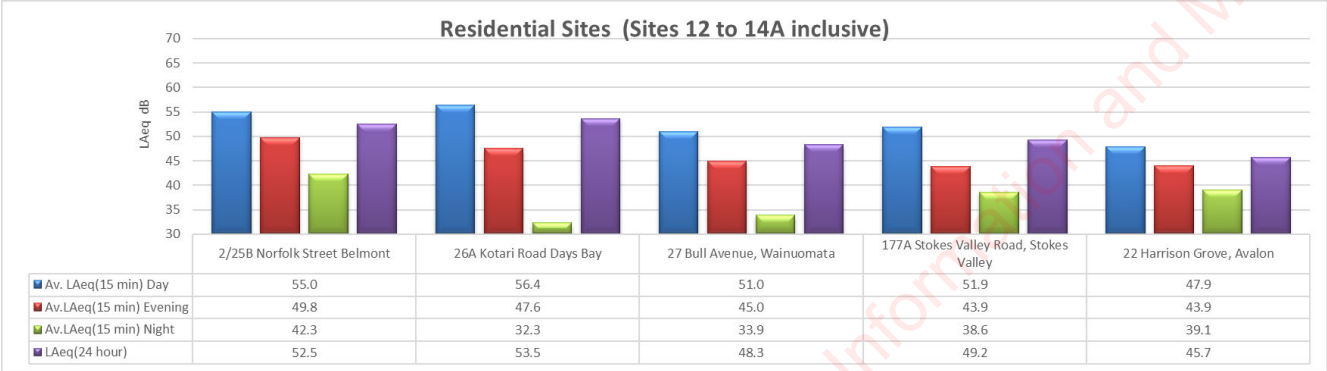
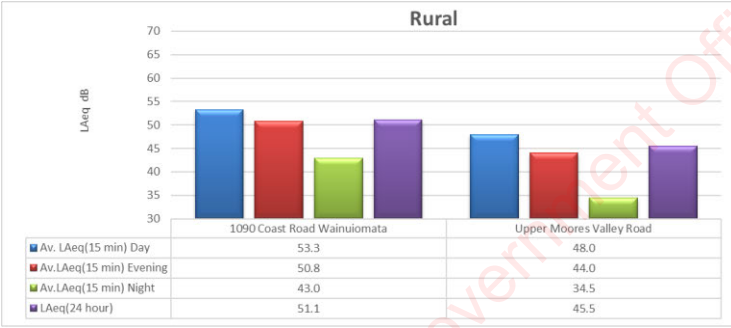


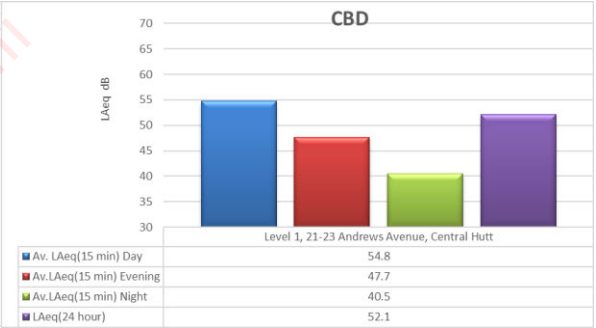
	4-6 Heretaunga Street, Petone	63 Hay Street Naenae	57 Queens Grove, CBD	57A Cypress Drive Maungaraki
Av. LAeq(15 min) Day	46.6	55.0	48.3	45.4
Av.LAeq(15 min) Evening	44.0	49.4	44.4	43.0
Av.LAeq(15 min) Night	39.5	42.3	40.2	34.0
LAeq(24 hour)	44.7	52.5	46.2	43.2



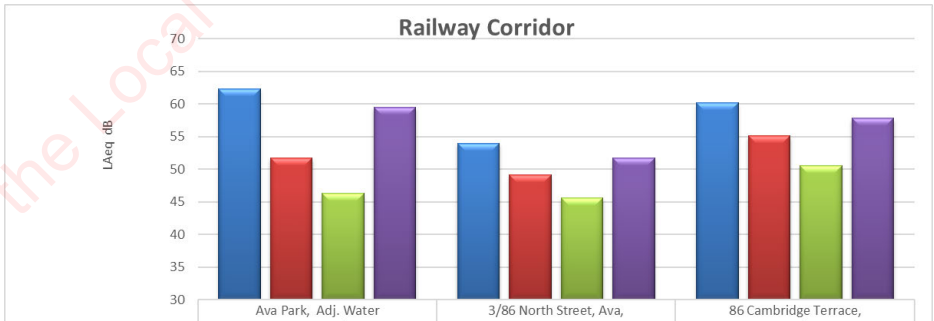
	2/25B Norfolk Street Belmont	26A Kotari Road Days Bay	27 Bull Avenue, Wainuomata	177A Stokes Valley Road, Stokes Valley	22 Harrison Grove, Avalon
Av. LAeq(15 min) Day	55.0	56.4	51.0	51.9	47.9
Av.LAeq(15 min) Evening	49.8	47.6	45.0	43.9	43.9
Av.LAeq(15 min) Night	42.3	32.3	33.9	38.6	39.1
LAeq(24 hour)	52.5	53.5	48.3	49.2	45.7



	1090 Coast Road Wainuiomata	Upper Moores Valley Road
Av. LAeq(15 min) Day	53.3	48.0
Av.LAeq(15 min) Evening	50.8	44.0
Av.LAeq(15 min) Night	43.0	34.5
LAeq(24 hour)	51.1	45.5



	Level 1, 21-23 Andrews Avenue, Central Hutt
Av. LAeq(15 min) Day	54.8
Av.LAeq(15 min) Evening	47.7
Av.LAeq(15 min) Night	40.5
LAeq(24 hour)	52.1



	Ava Park, Adj. Water Treatment Plant	3/86 North Street, Ava, Petone	86 Cambridge Terrace, Waterloo
Av. LAeq(15 min) Day	62.3	54.0	60.2
Av.LAeq(15 min) Evening	51.7	49.2	55.1
Av.LAeq(15 min) Night	46.3	45.7	50.6
LAeq(24 hour)	59.5	51.7	57.8

8.2.2 Results By Land Use Category

As a general observation, ambient levels were found to lower within residentially zoned areas, with lower night

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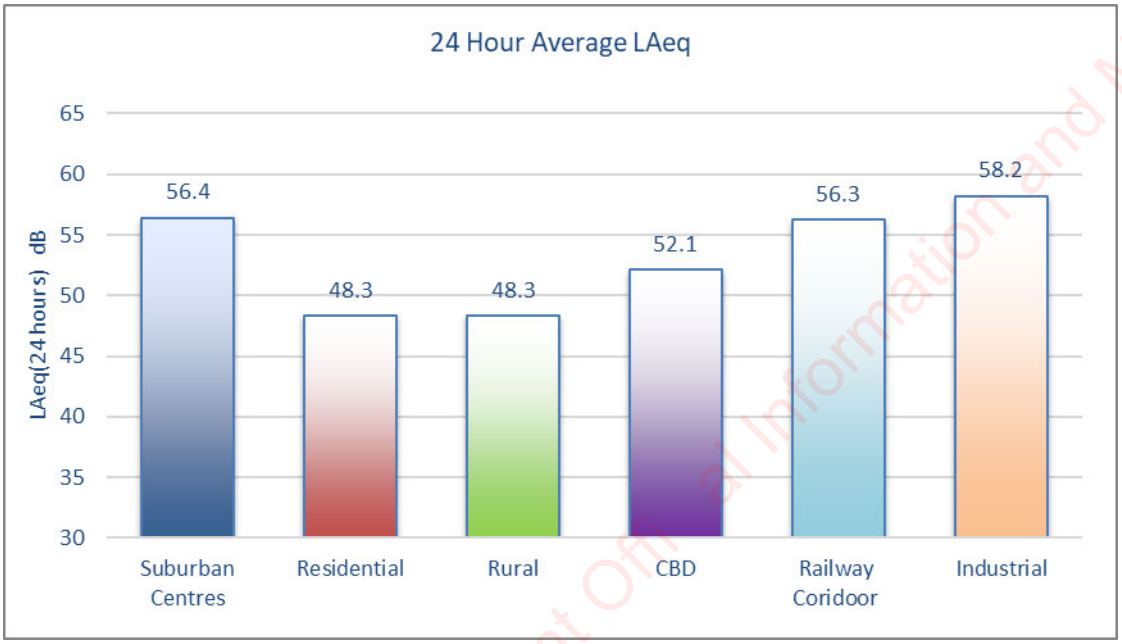
time noise levels in particular – around 90% of residential sites measured at less than 40 dB average LAeq(15min) between 10pm and 7am, with the results also showing minimum average 15 minute sound levels at night time often as low as 35 dB or less. Low ambient sound levels were also measured at the two rural sites, although passing traffic and cicada noise affected some readings. Higher ambient sound levels are naturally expected Industrial, Suburban Centres and Railway Corridor areas.

A comparison between the sampled land use categories is provided in the graph below of average daily (LAeq(24 hour) sound levels. The results show as averages for individual sites sharing the same land use classification. Noise levels are quantified using LAeq(24 hr) which represents daily average sound levels;



This above comparison reflects the expected picture whereby commercial and business areas exhibit elevated average sound levels due to the intensity of activity taking place in these areas. Sites at which residential or rural activities take place have been found to measure at lower levels and will correspondingly represent areas with higher amenity values.

According to the measurements taken, and the above criteria, ambient environmental noise is being received within sensitive receiving environments in Lower Hutt are generally suitable for residential use. Situations where sensitive uses establish within areas experiencing ambient sound levels above guideline values are addressed within this review of the operative plan, principally via improved acoustic insulation (and associate ventilation) recommendations (as set out in Sections 10 & 11 below) which is the widely accepted method for district plans to address potential reverse sensitivity noise effects.

8.2.3 Results By Time Of Day

The average LAeq(15 min) sound levels measured within each land use category across different periods of the day (daytime 7am to 7pm, evening 7pm to 10pm and night time 10pm to 7am) are set out as follows;

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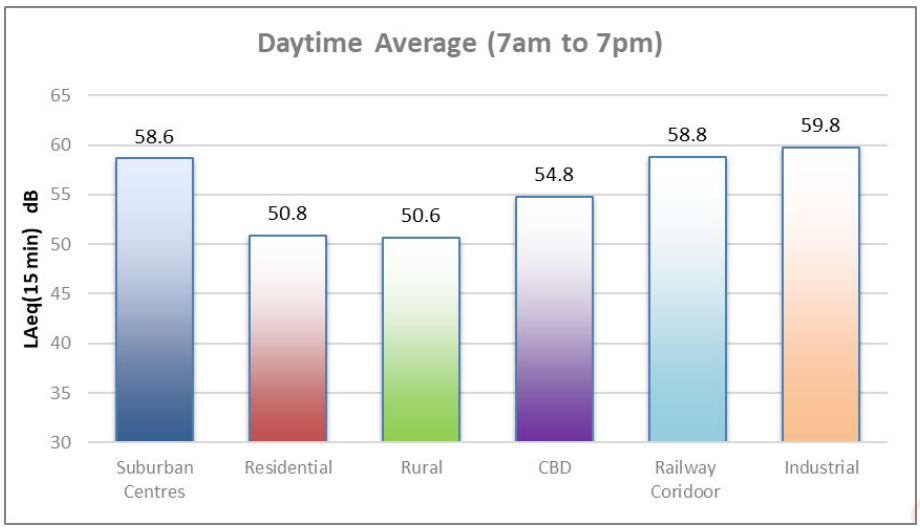
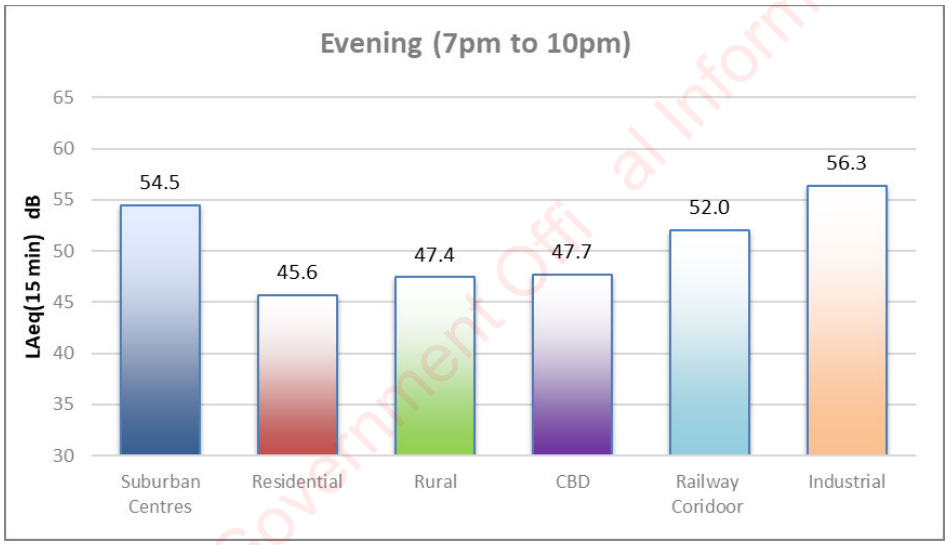
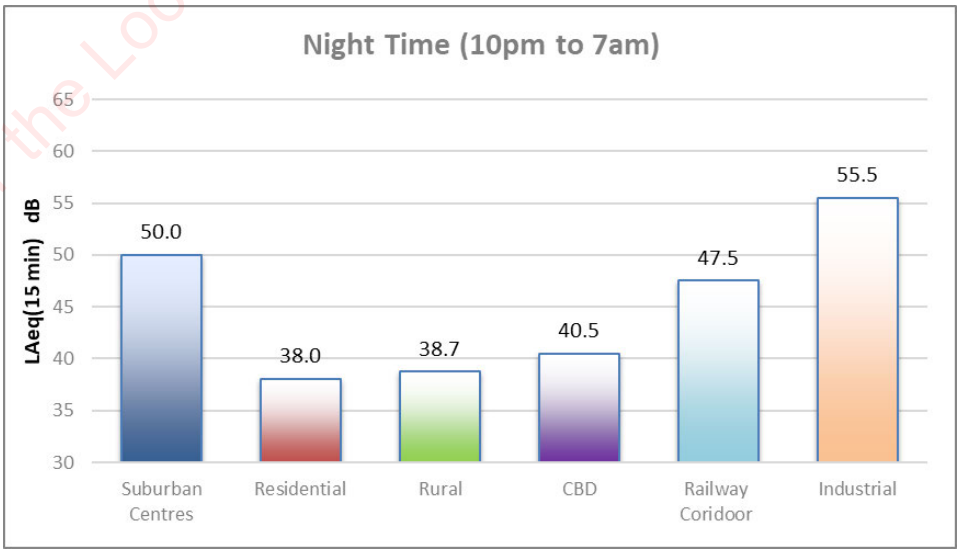


Ambient sound levels measured during the evening time (7pm to 10pm) exhibit a similar pattern to average daytime time levels, but with the readings reduced across all sites by 3 to 7 dB.



Reasonably low average ambient levels during night time (10pm to 7am), as shown in the following graph;



Night time average LAeq levels measured at rural and residential sites did not, on average, measure above 40 dB signalling the suitability of these areas of the existing night time environment for noise sensitive activities. This

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compares favourably with *European Night Noise Guidelines*[5] which set out that outdoor levels averaging 40 dB or less meets or exceeds the precautions necessary to protect the public, including most of the vulnerable groups such as children, the chronically ill and the elderly, from the adverse health effects of night noise.

Under these European guidelines, it is interesting to note measures to control outdoor noise levels to LAeq 55 dB is only recommended as an interim target for the countries where the 40 dB target cannot be achieved.

Due to increased activity during daytime hours, outdoor ambient sound levels measure at levels significantly above typical evening and night time noise levels. This is consistent with known patterns of environmental noise variations throughout the day.

Regarding the range of daytime measured noise levels shown above, daytime average sound levels mostly measure below LAeq 55 dB during daytime in noise-sensitive areas such as rural and residentially zoned sites. Business, commercial and rail-noise affected sites receive, on average, ambient sound levels above LAeq 55 dB.

The 1999 World Health Organisation guidelines in Chapter 4 "Guideline Values"[6] recommend average daytime outdoor sound levels measuring 55 dB LAeq or less would be sufficient to protect the majority of people from being highly annoyed during the daytime.

The above results to confirm that measured outdoor ambient sound levels measure 48 to 58 dB LAeq(24 hr), a level generally compatible with residential and noise sensitive activities as shown within this summary of WHO recommended indoor and outdoor noise levels[7] in areas where activities sensitive to noise take place;

Specific Environment	Critical health effect(s)	dB L_{Aeq}
Outdoor living area	Serious annoyance, daytime & evening.	55
	Moderate annoyance, daytime & evening.	50
Dwellings, indoors Inside bedrooms	Speech Intelligibility and moderate annoyance, daytime & evening.	35
	Sleep disturbance, night-time.	30
Outside bedrooms	Sleep disturbance, window open (outdoor values) night-time.	45

The presence of outdoor sound levels above 55 dB signals a need for the district plan to promote acoustic insulation requirements to protect sound levels experienced indoors within new and altered habitable rooms in affected areas. The measures to address reverse sensitivity recommended in Sections 10 and 11 below are aimed at ensuring the proposed district plan implements suitable acoustic insulation (and associated ventilation requirements) as a means of managing reverse sensitivity noise effects in commercial, business and industrial areas, also within transport-noise affected corridors alongside the state highway and rail tracks that pass through the district

9 Noise Complaints

Apart from managing the effects of environmental noise via noise emission limits within the District Plan (or within conditions attached to resource consents), Council also manages the effects of environmental noise via staff or contractor investigations following complaints received, including operating an all-hours noise control service call-out service to investigate after hours noise complaints.

[5] *Night Noise Guidelines For Europe* World Health Organization 2009. ISBN 978 92 890 4173 7
[6] World Health Organisation 'Community Noise Guidelines" 1999 https://www.who.int/docstore/peh/noise/Comnoise-4.pdf
[7] WHO 1999 Community Noise Criteria

Generally there two 'types' of noise complaints are received and acted upon by Council, being a temporary 'excessive' noise situation requiring action or complaints of 'unreasonable' noise which often involve commercial or industrial activities on sites bear to noise sensitive areas.

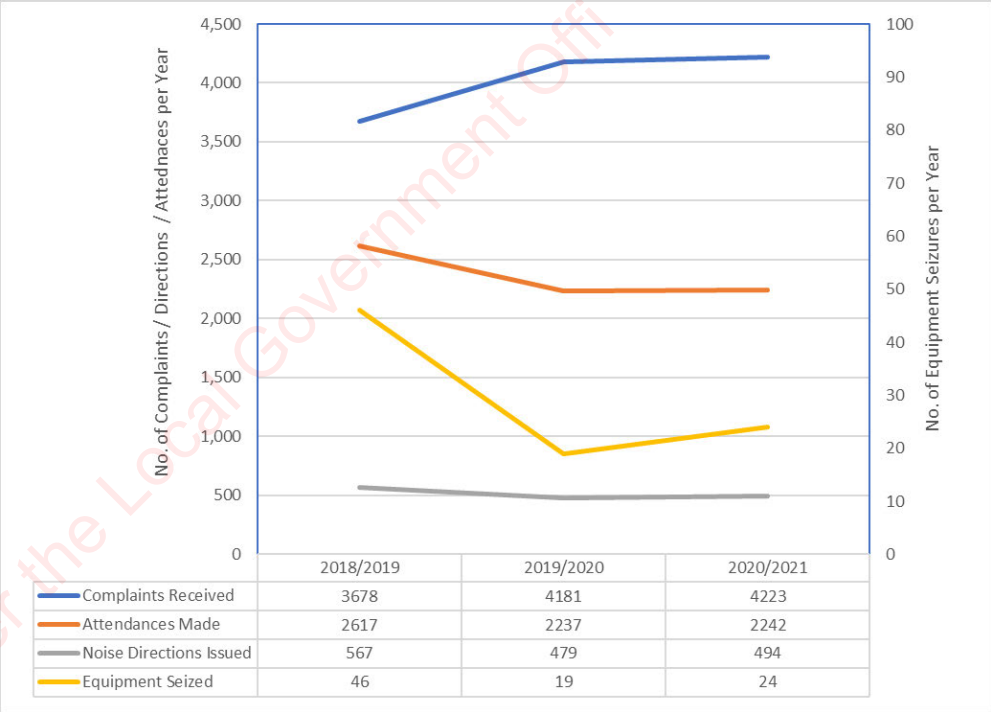
9.1 Excessive Noise

Complaints of 'excessive' noise, often during night time, made by members of the public to Council frequently due to amplified sound associated with house parties or noisy activities undertaken at commercial premises. The term "excessive noise" is defined as noise that unreasonably interferes with the peace, comfort and convenience of other people.

Complaints 'excessive noise' are typically received on the afterhours call line. Once the validity of the complaint is established (often requiring a call-back) a delegated officer may visit the premises where the sound is emanating to investigate. They key decision for the officer is whether the noise is excessive under the circumstances. No sound level measurements are needed as this is a subjective assessment made at the time. It is therefore quite often found that sound deemed "excessive" in one situation can be acceptable at other times of the day and in other circumstances.

If necessary, the delegated Council officer may issue an "Excessive Noise Direction Notice" to require the immediate abatement of the noise nuisance. Furthermore, under some circumstances where repeat warnings are ignored, the officer may confiscate the offending sound system or controller.

Council records[8] of investigations into complaints from residents of the district complaining of excessive noise over the period to 30th June 2018 to 30th June 2021 reveal Council receives around 70 noise complaints per week. A breakdown of the numbers of complaints received and complaints requiring further action are summarised in the following graph



	2018/2019	2019/2020	2020/2021
Complaints Received	3678	4181	4223
Attendances Made	2617	2237	2242
Noise Directions Issued	567	479	494
Equipment Seized	46	19	24

Although the many complaints received in this 2018 to 2021 sample are related to activities taking place in Business or Commercial areas, the majority of complaints of excessive noise arise from residentially zoned sites.

9.2 Investigations of 'Unreasonable' Noise

This is where the noise complained of is frequently experienced, possibly due to a residence causing persistent noise emissions or possible a commercial operation or venue. Often the effects are aggravated during night time hours when ambient sound levels in the receiving environment reduce, and where people generally become more

[8] Council's Environmental Health Manager *pers comm*

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noise-sensitive (e.g. after 10 pm). A list of historical investigations into complaints of "unreasonable noise" carried out by Council since 2010, their location, type of noise and 'outcome' comments are attached as APPENDIX B.

Investigating complaints of unreasonable noise requires Council's environmental officers to visit and investigate the issue, often requiring a technical solution to ensure mitigation sufficient to resolve the problem complained of. The investigations may involve noise measurements to determine compliance with district plan permitted activity standards, or other guidelines.

In some situations enforcement action using abatement notices and enforcement orders is necessary to abate the noise effects, where these are tangible and on-going. Such mechanisms are intended to allow sufficient time to carry out measures to mitigate or remedy the noise problem, whereas excessive noise provisions of the Act are intended to deal with situations where immediate mitigation is both necessary and feasible.

As an enforcement tool, abatement notices are sometimes issued by Hutt City Council under s322 of the Act to enforce noise control measures where necessary. Abatement notices require certain noise control actions to be taken (including requiring the noisemaker to obtain technical advice) within specified time frames and are enforceable at the Environmental Court. We understand there are about twenty noise-related abatement notices in force at present (July 2021). Typically, abatement notices are issued to residential properties regarding frequent emissions of loud amplified sound although fixed plant such as heat pumps are commonly involved.

Council records of noise complaints received show some growth in complaints received but not necessarily growth in the enforcement actions such as issuing of notices or equipment seizure needing to take place.

There are a wide range of factors that affect whether or not a person lodges a noise complaint[9]. Compared to 'unreasonable' noise, complaints of excessive noise occur more frequently within the historical noise complaint record. Steps taken by Council to address excessive noise may have effectively addressed the source at the time however, to reduce complaint numbers in the future to any large degree will require sociological and societal changes not readily apparent, possibly involving a more tolerable community.

While most complaints received are related to 'excessive' noise, District Plan noise provisions are important within the steps taken by Council to address and mitigate environmental noise causing complaints. The district plan establishes permissible noise levels often referred to within abatement notices and enforcements orders, these being among the more forceful tools available to Council to address adverse effects of environmental noise in the district.

10 Review Of Operative Plan Noise Provisions

10.1 Chapter 14C

Chapter 14C 1.1 sets out the noise policies of the district plan which are;

a) To recognise that background noise levels are markedly different throughout the City.
b) To recognise that acceptable noise levels will vary according to the nature of the principal activities occurring within activity areas.
c) To ensure that residential activity areas are protected by establishing appropriate noise levels at the interface between residential activity areas and non-residential activity areas.
d) That maximum noise levels are established within each activity area to ensure that amenity values are protected.
e) To make provision for those situations where there has already been considerable history to the establishment of specified noise conditions.
f) To recognise that noise levels may be different through a construction phase.

[9] Nivison, M.E., Endresen, I.M. *An analysis of relationships among environmental noise, annoyance and sensitivity to noise, and the consequences for health and sleep.* J Behav Med 16, 257–276 (1993).

g) To recognise that Noise Management Plans may be appropriate to manage matters beyond those addressed in this District Plan.

Chapter 14C sets out permitted activity noise standards within the following noise rules;

District Plan Rule	Noise Limits For Specified Activity Areas
14C 2.1.1	All Residential Activity Areas Noise Areas 1 Noise Areas 2 Noise Areas 3 Noise Areas 4 Noise from specific sites: Bellevue Hotel Oxford Terrace/Waterloo Road (Ambulance Station) Stokes Valley Bus Depot Wainuiomata Bus Depot Waterloo Bus Depot
14C 2.1.2	Central Commercial Activity Area & Petone Commercial Activity Areas 1 & 2
14C 2.1.3	Suburban Commercial Activity Area and Suburban Mixed Use Activity Area
14C 2.1.4	Special Commercial Activity Area
14C 2.1.5	General Business Activity Area
14C 2.1.6	Special Business Activity Area
14C 2.1.7	Avalon Business Activity Area
14C 2.1.8	Extraction Activity Area
14C 2.1.9	Rural Residential Activity Area
14C 2.1.10	General Rural Activity Area
14C 2.1.11	Community Health Activity Area
14C 2.1.12	Community Iwi Activity Area 1 - Marae
14C 2.1.13	Community Iwi Activity Area 3 - Kokiri Centres

The following observations and recommendations have arisen from our review of the noise provisions of the Operative District Plan;

10.2 Noise Chapter Structure

As the structure of the noise chapter of the Proposed District Plan will need to conform with the format required by the Part 4 of the National Planning Standards (discussed at section 6.7 above). Part 7 of the National Planning Standard sets out that noise matters will need to be addressed as a "District Wide Matter". The Standard requires that, if provisions for managing noise are to be addressed (which is the case recommended by this review) then they must be located in the Noise chapter and include:

a) noise provisions (including noise limits) for zones, receiving environments or other spatially defined area
b) requirements for common significant noise generating activities
c) sound insulation requirements for sensitive activities and limits to the location of those activities relative to noise generating activities.

To conform with the National Planning Standard it will be necessary to revise the number of "Activity Areas" of the operative plan with adjustment to the number of different noise rules currently set out within Rules 14C2.1.1 to 14C2.1.13.

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Recommendation:
It is recommended the Proposed Plan noise provisions be included as a standalone chapter, with contents and structure to be in accordance with National Planning Standards for district plans.

10.3 Noise Maps

The Operative District Plan adopts a rather novel approach to describe the decibel noise limits. For residential areas the operative District Plan sets out "Noise Areas" independently from land zoning. There is a complex relationship between zoning maps and the mapped areas within which different noise limits apply. There are 63 separate site/activity specific noise rules making the noise chapter quite complex and difficult to navigate.

Although the site specific noise limits and related noise maps are designed to achieve a sustainable noise environment compatible with the policies and objectives of the District Plan, we do not consider the existing complex approach offers any significant advantage to using typical "Zone Rules" to demarcate areas where different noise limits should apply. We see the "Noise Maps" approach as potentially working against establishing a strong linkage between the Plan policies and objectives and the control over noise effects where there are geographical differences between the zoning maps and the maps depicting where the different noise limits are to apply.

Recommendation:
It is recommended the Proposed Plan noise provisions be based on noise rules applying within each zoned (mapped) area in accordance with National Planning Standards for district plans, as opposed to the operative plan approach whereby noise rules rely on a separate series of maps or site-specific noise limits.

10.4 NZ Standards

Chapter 14C sets out the basis of the Operative District Plan noise limits and controls. Rule states that noise within the District Plan is intended to be measured and assessed in accordance with New Zealand Standard 6801:1991 *Measurement of Sound*, New Zealand Standard 6802:1991 Assessment *of Environmental Sound*. Both these 1991 Standards have been superseded and should be replaced with reference to the latest (2008) versions.

Recommendation:
As required by National Planning Standards (discussed at section 6.7 above) it is recommended the Proposed District Plan include reference to the latest versions of the relevant NZ Standards that deal with noise-related matters.

10.5 Sound Level Descriptors L_{Aeq} and L_{AFmax}

One of the main consequences of updating NZS 6801 and NZS 6802 to 2008 standards is a change in measurement descriptors or noise metrics. Background sound level [previously L_{A95}] was changed to L_{A90} in the 1999 version. The change was an update consistent with international usage in BS4142:1997[10] and ISO 1996-2:2007. The 1999 revision replaced the LA10 descriptor with L_{Aeq}, technically referred to in the 1999 and 2008 versions as the 'time average sound level', being denoted as $L_{Aeq[t]]}$. What is vital about the $L_{Aeq[t]}$ is the measurement or assessment period [t] is required by both the 1999 and 2008 versions to be stated.

The current LA10 descriptor was originally adopted as it was demonstrated to have a reasonably good correlation with the degree of annoyance experienced by a typical person and was easy to calculate. Furthermore LA10 could be determined from analogue sound level meters by the visual mean maxima estimation method acceptable at the time.

[10] BS 4142:1997 -- Method for rating industrial noise affecting mixed residential and industrial areas

The introduction of L_{Aeq} in the 1999 and now 2008 standard is considered to be on a 'firmer foundation' and appropriate as international research had shown that the L_{Aeq} descriptor has a greater degree of correlation to noise annoyance than LA10, and for this reason was widely accepted as being the preferred noise descriptor for use in environmental noise standards and noise limits. Furthermore the L_{Aeq} level, being unrelated to the statistical variation in sound levels, is more readily predicted, which is a considerable advantage over L_{A10}. As noted above, by its very nature, L_{Aeq}, is related to a specific time interval and will only provide a valid description of a sound environment if the measurements cover the range and variability of that sound environment.

It is generally accepted that this difference is typically be 2-3 dB for "common" sounds but may be larger for some specific situations. In the case of simple constant sound sources with a fixed spectrum, such as mechanical plant, all descriptors would measure at the same level, that is LA10 = LAeq = LA90 = LAmax. For more complex variable sound sources such as noise from passing road traffic, the difference between L_{Aeq} and L_{A90} for the same reference time interval is typically around 2.5 dB at receiver locations.

The 2008 version of NZS6802:2008 standardises the reference time interval of 15 minutes. This allows limited averaging over 15 minutes. This allows a slight relaxation in allowable levels for sounds that are only present in for short periods. In addition to 15 minute L_{Aeq} sound levels, for night time NZS6802:2008 recommends District Plan noise limits include a "single event" noise control in the form of a limit measured L_{Amax} sound levels received at sensitive sites. This is denoted as L_{Amax} which is the maximum A-frequency weighted, Fast-time weighted, sound pressure level in decibels. L_{AFmax} criteria is set for night-time hours only as it is used to protect sleep from disturbance, which needs to be in place over periods such as 9 hours so as to protect during both the onset of sleep and to protect awakening during the night.

L_{Amax} limits should not be applied through rules or performance standards to sounds received at sensitive receiver sites during day time. The typical sound environment experienced in sensitive residential settings for example, during daytime will typically exceed L_{AFmax} criteria adopted for sleep protection, mostly without any adverse effect.

Recommendation:
Adopt L_{Aeq} and L_{Amax} as the main noise descriptors of the Proposed District Plan.
Adopt recommended convention when stating noise limits – this being 'value-unit-descriptor' e.g. **55 dB $L_{Aeq[15\ min]}$, 45 dB $L_{Aeq[15\ min]}$** and **70 dB L_{AFmax}.**

10.6 Time of day

District Plan noise limits are usually set lower for a defined 'night time' period reflecting people's increased sensitivity to noise during these hours. Whereas the operative plan applies noise limits separately for daytime (7am to 10pm) and night time (10pm to 7am), it is a recommendation of NZS6802:2008 to consider the application of a 'evening' noise limit to cover a period of time when activity and outdoor noise levels are lowering (increasing the intrusive of noise that annoys) yet the increase in sensitivity is limited compared to night time (after 10pm) when most people would go to bed. Applying a limit set mid-way between the daytime and night time noise limits is considered best practice as it matches the control of adverse noise effects in a manner that takes account of the environment occurring at the time. It is interesting to note the results of recent (2021) ambient sound level monitoring in the district indicated sound levels do typically taper off after early evening peaks and reduce towards 10pm in the evening. Thus recommendations are made below for future noise rules to be formatted so that there are separate noise limits for daytime (7am to 7pm), <u>evening</u> (7pm to 10pm) and night time (10pm to 7am).

Recommendation:
We recommend separate daytime/shoulder/ night time noise limits, adopting a widely adopted definitions as daytime (7am to 7pm), evening (7pm to 10pm) and night time (10pm to 7am).

10.7 Day Of Week

Current District Plan noise limits are for night time generally apply between 10pm and 7am (with some exceptions). However, Rule 14C 2.1(d) states that the lower night time apply "….*between the commencement of the lower level on a Saturday evening and Monday morning, and Public Holidays*". Thus, the operative plan

requires the lower, more restrictive 'night time' noise limits to apply during Daytime on Sundays (and during daytime on public holidays). This attempt to provide for 'quiet Sundays' is not a recommendation of any Standard or guideline, but rather is seen as an artefact of a desire to achieve quieter living conditions for religious or cultural reasons. Typical daytime sound levels measured on Sundays within residential areas in the Hutt district are not noticeably quieter than other days of the week. A series of recent traffic noise readings taken in 2020 in Lower Hutt (see Section 10.9.1 below) indicates 24 hour average traffic noise levels are remarkably consistent at each site across different days of the week. Sundays measured only 1 to 2 dB below noise levels found on other days of the week.

In our experience, there are difficulties with applying a night time noise limit to control noise from activities taking place during daytime on Sundays and statutory holidays. Often it is not possible to monitor compliance with this artificially low noise limit due to elevated ambient noise levels during daytime on these days.

From our research we find there are no policies or guidelines that recommend applying night time noise limits during the daytime on Sundays and public holidays in New Zealand.

The relevant NZ Standard (NZS6802:2008) recommends that if a Sunday daytime noise limit is necessary, this be set as a 'daytime' limit and does not recommend using night time limits for assessing daytime noise on Sundays. As the results of noise monitoring carried out in 2021 in the Hutt district did not show evidence of lower ambient sound levels on Sundays during daytime at residential sites, recommendations below set out noise limits that apply equally across all days of the week.

Recommendation:
We recommend separate daytime/shoulder/ night time noise limits be apply consistently across all days of the week.

10.8 Noise Assessment Location

There is some inconsistency with <u>where</u> compliance with the stated noise limits within the Operative Plan are to be determined. For example, Rule 14C 2.1.10 (Noise limits For General Rural Activity Area) limits noise received for all neighbouring sites:

> *All non-residential activities must not exceed the conditions as specified<u>, measured anywhere beyond the site on which the activity takes place</u> -*
>
> *Maximum 50dBA 7.00am - 10.00pm*
>
> *Maximum 40dBA 10.00pm - 7.00am*
>
> [*Emphasis added*]

In addition, Rule 14C 2.1 8 governing noise from activities within defined Extraction Activity Areas applies site boundary noise limits to quarrying activities.

The approach of Rules 14C 2.1.10 and 14C 2.1.18 means that noise due to rural and quarry activities are controlled to the stated noise limits measured anywhere within another site, even at sites remote from any dwelling. While Chapter 8 of the operative plan seeks to control effects of activities which be detrimental to the existing rural character and amenity values of the zone, the key policy in this regard (Policy 8A 1.1.1(b)) is only concerned with rural character and amenity values in relation to rural residential sites. This seems inconsistent with rules requiring activities to meet residential type noise limits at any point within rural lots which can be quite large with dwellings not normally located near to site boundaries. The assessment location for assessing compliance with noise limits in the rural zone specified by Rule 14C 2.1.10 can cause compliance difficulties as the site boundary can be some distance from the dwelling in rural areas, meaning that noise levels complying at the site boundary may be needlessly protect areas of vacant land. In addition, noise non-compliance at the site boundary may cause planning complications[11] yet noise experienced around the dwelling could be quite acceptable.

[11] An activity may be assessed as non-compliant with site boundary noise limits but, due to the distances involved, would have a *di minimis* effect in terms of noise experienced at or around the dwelling.

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Best practice in terms of noise compliance assessment locations for use in rural areas (and the approach adopted within NZS6802:2008) is to apply limits on noise received within any parts of sites zoned residential (to ensure the whole site is adequately protected) however in the Rural zones noise compliance with 'residential' type noise limits are best assessed within the 'notional boundary'[12] to any existing dwelling on any other rurally zoned site, or at any location within any site zoned for residential purposes. If site boundary noise limits are contemplated in rural zones, it is considered more reasonable to set a higher noise limit (say 60 dB).

Clause 8.4.6 of NZ Standard NZS6802:2008 makes it clear that unless special planning reasons exist to justify using the site boundary approach *"…. the appropriate location for assessment of noise in rural character areas with large lot sizes, should be 'at any point within the notional boundary of a dwelling' and this may include some rural-residential areas"*.

Although the recommendations of NZ Standard NZS6802:2008 do not rule out the 'site boundary' approach in noise rules, the notional boundary approach to noise management in rural zones is widely adopted within district plans in New Zealand and is considered best practice. The operative plan 'site boundary' approach could be difficult to justify as an effects-based approach to managing noise in the rural zone where policies dealing with rural amenity are based around amenity experienced around rural residential sites, which appears to be the focus of the operative plan.

Recommendation:
We recommend adopting the notional boundary approach to the control of noise in rural areas. This should be defined consistent with the National Planning Standards which defines the notional boundary as recommends "*a line 20 metres from any side of a residential unit or other building used for a noise sensitive activity, or the legal boundary where this is closer to such a building*". The applicable noise limits recommended to apply at these locations is discussed in Section 11.2 below.

10.9 Noise Character

Reference to NZS6802:1991 in the operative plan ensures the operative plan appropriately assesses sounds containing "special audible characteristics" when assessing compliance with noise limits. This approach suitably deals with added annoyance such sounds may cause - sounds such as those that are highly tonal or impulsive sounds.

Like its 1999 predecessor, NZS6802:2008 also implies that the intrusiveness of a sound is not just a function of its sound level but is also affected by its character such as tonality or impulsiveness. The procedures of NZS6802:2008 require that, if justified, received LAeq sound levels are adjusted upwards (penalised) to account for the additionally annoying character of the sound. The penalty is applied by adding 5 dB to the measured sound level before determining compliance with the stated noise limit.

The recommendation is to adopt NZS6802:2008 reflecting the generally held position that such penalties should continue to be applied (where justified) to protect against effects of sound possessing special audible characteristics in all parts of the district.

Recommendation:
We recommend the full provisions of NZS6802:2008 across the whole district. This means ensuring each rule stipulating decibel limits are accompanied by words to the effect "Sound levels shall be measured in accordance with NZS6801:2008 *Acoustics - Measurement of Environmental Sound* and assessed in accordance with NZS6802:2008 *Acoustics – Environmental Noise*. "

[12] The notional boundary is defined within NZS6802:2008 however we recommend the slightly nuanced wording required to be adopted by the National Planning Standards which recommends "*a line 20 metres from any side of a residential unit or other building used for a noise sensitive activity, or the legal boundary where this is closer to such a building*".

10.10 Noise From Coastal Activities

10.10.1 Coastal Areas

The Hutt district has a significant length of coastline. Responsibility for managing the effects of noise under the RMA apply to all activities located on the landward side of 'mean high water springs' located along the coast. Our review has found no major adjustments to operative District Plan noise controls are necessary to control noise effects likely to be experienced within the Coastal Marine Area (CMA) which is the area between mean high water springs and a line nautical twelve miles out to sea.

Noise received on land from noise sources located within the CMA are managed by the Wellington Regional Council which has responsibility for noise received on land, from sources located in the CMA. This is achieved by the Wellington Regional Plan which sets out rules to limit the emission of noise from permitted activities[13] taking place in the CMA. For the purposes of noise control, the Regional Plan has noise limit controls for noise emitted from within 'Commercial Port Areas' separately applying alternative noise limits for noise sources located in all other coastal areas.

The Seaview Wharf and pipeline in Lower Hutt operated by CentrePort Limited Group enables over 1 million litres per year of petrol, diesel and jet fuel to be bought ashore from ships to holding tanks to be stored and distributed from the Seaview industrial area. Significant investment has recently been made to improve earthquake resilience of this system[14].

Rule 5.7.2(q) is a coastal management 'general condition' which limits noise from activities taking place within the Commercial Port Area (as shown below) to comply with the following noise limits when measured at any point 'on' the nearest Residential Area boundary;

Time (any day) Limits	*LAeq*	*LAmax*
7am – 11pm	***60 dB***	-
11pm – 7am	*45 dB*	*75 dB*

This rule limits noise from activities within the port. A companion rule (Rule 5.7.2(p)) applies to noise generated by activities in the CMA but are located outside the port operational area shown in 'Map 34'. This rule limits noise measured at any point on the nearest Residential Area boundary;

Time (any day) Limits	*LAeq*	*LAmax*
7am – 11pm	***55 dB***	-
11pm – 7am	*45 dB*	*75 dB*

[emphasis added].

[13] Proposed *Natural Resources Plan For The Wellington Region* - Appeals Version (2019)

[14] https://www.stuff.co.nz/national/125558087/80m-quakeresilience-upgrade-for-lower-north-islands-fuel-supply-line-in-lower-hutt

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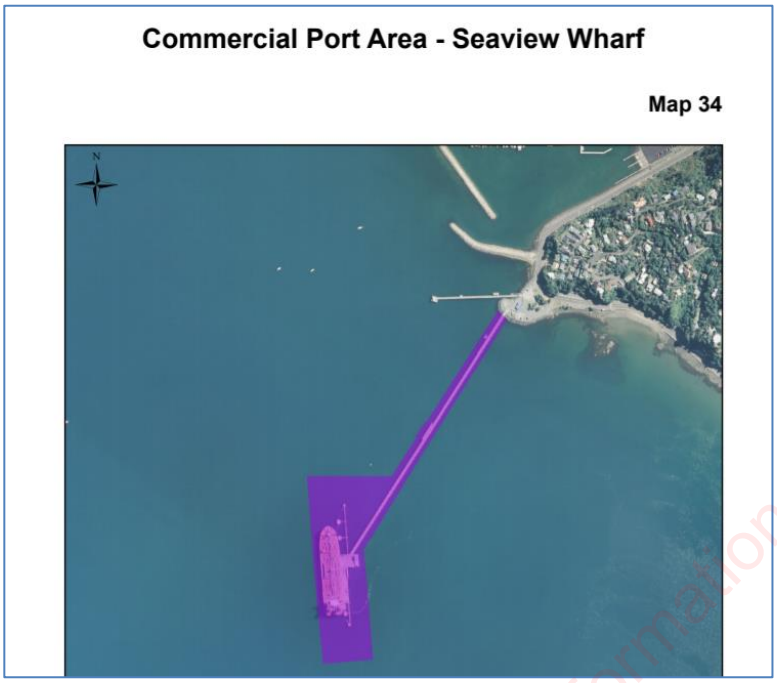


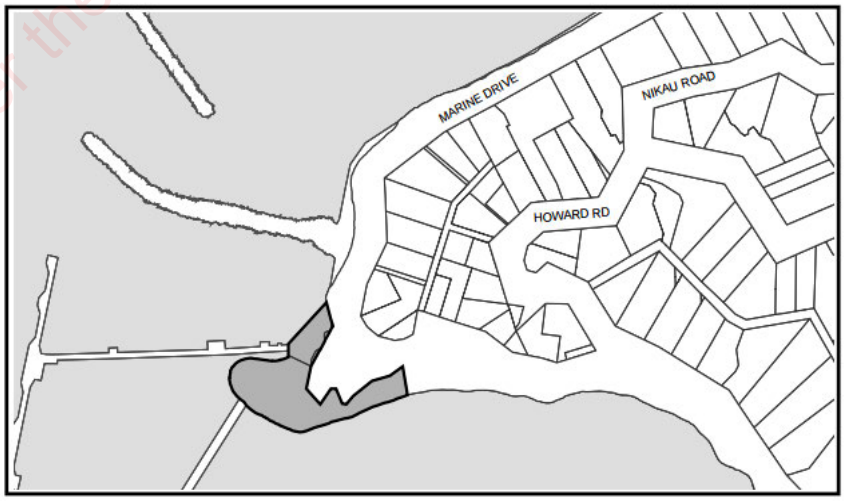
Both of the above rule requirements;

- Exempt noise generated by navigational aids, safety signals, warning devices, or in emergency circumstances.
- Compliance to be based on measurements taken in accordance with NZS6801:2008 with results assessed in accordance with NZS6802:2008.

Recommendation
Noise from activities taking place within the CMA, adjacent to the Hutt district boundary, is considered to be reasonably controlled under Wellington Regional Plan requirements. Council has no jurisdiction to control nosie generated by activities taking place in CMA. In any event, it would not be appropriate for the Proposed District Plan to include a second set of limits on noise from port or other activities taking place in the CMA.

10.10.2 Point Howard Business Activity Area

Assessing the effectiveness of noise provisions applying to activities taking place on the Seaview wharf needs to also consider the noise standards requirements of district plan Chapter 14C 2.1.5 (b) 31 which apply to activities taking place within the General Business Activity Area shown below which lies on the landward side of mean high water springs.



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Limits on noise due to activities taking place in the General Business Activity Area received within any site zoned residential or recreation activity area, are summarised as

LA10 60 dB	7.00am - 11.00pm
LA10 45 dB	11.00pm - 7.00am
LAMax 75 dB	10pm to 7am

A daytime noise limit of LA10 60 dB exceeds the generally accepted maximum recommended outdoor noise levels for adequate protection of residential sites (LAeq 55 dB as per NZS6802:2008) by 2 to 3 dB taking into account differences in LA10 and LAeq units.

Recommendation
Regardless of the change in noise unit (LA10 to LAeq) setting noise limits within the Proposed Plan may, in places, require noise limits to be justified which exceed available guidance on maximum daytime noise received within residential sites (e.g. LAeq 57 or 58 dB).

10.11 Managing Reverse Sensitivity Effects

Reverse sensitivity is the vulnerability of an established land use to complaint from a new land use. In practice such complaints can compromise the established land use. The operative district plan includes

The use of acoustic insulation as a means of managing reverse sensitivity noise effects in district plans is supported because;

a) Given what is known of elevated daytime and night time ambient noise levels in some parts of the Hutt district (and their expected growth over time) and what is known of typical reductions in external sound achieved within typical NZ dwellings, requiring acoustic insulation for new buildings housing noise-sensitive activities in business and commercial areas will protect the health and well being of the future residents, as well as providing a measure to reduce reverse sensitivity for commercial operators of noisy activities.

b) It is not difficult or expensive to reduce the level of exterior noise entering a building. The costs of incorporating the acoustic insulation methods adopted in 2004 into the Wellington City District Plan was found to be 5% to 8% of the capital cost of the dwelling. For inner city apartments this a lower figure was found as there are proportionately less external wall areas and roof areas requiring treatment.

c) There are no legal barriers as the High Court has indicated *(Building Industry Authority and Christchurch International Airport v Christchurch City Council AP 78/96*) that it is within the powers of Local Authorities under the Resource Management Act to specify a certain level of acoustic insulation in plan rules and consent conditions, and that doing so would not conflict with the Building Act.

A discussion of matters relevant to the development of district plan rules requiring acoustic insulation of buildings housing noise sensitive activities within specified noisy areas are set out as follows;

10.11.1 Noise Sensitive Activities

The term "Noise Sensitive Activity" defines those activities to which reverse sensitivity actions are addressed in the Plan. Activities sensitive to noise need to be specifically provided for within rules and performance standards of the Proposed Plan to ensure land use compatibility and to enhance sustainable communities.

The operative District Plan currently defines this term as;

Noise Sensitive Activity means any:

- *residential activity;*
- *visitor accommodation, boarding house or other premises where residential accommodation for five or more travellers is offered at a daily tariff or other specified time; or*
- *childcare facility.*

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This definition is considered too narrow as it does not include sensitive uses such as schools or marae, both of which include rooms with what could be termed 'critical listening environments'[15].

It is recommended to re-examine and broaden this definition to ensure the effectiveness of the Plan's reverse sensitivity provisions. It is noted that no definition of "noise sensitive activity" is provided within the NZ National Planning Standard however the proposed definition below is based on the recommendations of NZS6806:2010 *Acoustics - Traffic Noise – New & Altered Roads*.

Recommendation
To preserve and enhance the effectiveness of the reverse sensitivity provisions of the proposed District Plan we recommend re-defining the term Noise Sensitive Activity more broadly as follows;

Noise Sensitive Activity means any activity sensitive to the effects of noise and vibration carried out within any:

- residential dwelling
- buildings used for visitor accommodation
- residential care facilities
- education and childcare facilities
- hospitals and healthcare facilities
- marae

10.11.2 Managing Effects on Noise Sensitive Activities

The operative District Plan applies a noise limit of LA10 65 dB daytime and 60 dB night time between sites in the Central Commercial Activity Area & Petone Commercial Activity Areas 1 & 2. The operative District Plan sets out acoustic insulation requirements apply to new or altered buildings housing noise sensitive activities establishing in these activity areas.

However, other zones where operative Plan provisions allow for noise to be emitted exceeding 55 dBA daytime and 45 dBA night time. In these areas ambient sound levels are likely to be elevated to such an extent that these areas would, at times, be unsuitable for noise sensitive activities establishing in these areas. This is because;

i. A typical modern dwelling or apartment will reduce outdoor sound by 20 dBA, maybe up to 30 dBA, that is with windows closed. A reduction of 10 to 15 dBA occurs when windows are open. According to the readings taken, sensitive uses establishing in these area may receive outdoor sound levels of such magnitude that sound levels received within habitable rooms (windows closed) of up to LAeq 50 dB and LAmax 60 dB night time. This is with windows closed. Higher levels are likely indoors when windows are opened for ventilation purposes.

ii. Maximum acceptable levels of sound within habitable rooms due to external sources should not generally indoors at levels above 35 dB for adequate protection of sleep. According to the World Health Organization (WHO) recommend indoor noise levels at night of no more than LAeq 30 dB and LAmax 45 dB for the avoidance of sleep disturbance. Satisfactory and maximum values are also included in AS/NZ 2107:*2000 Acoustics - Recommended Design Sound Levels and Reverberation Times for Building Interiors*. The standard prescribes slightly higher levels of 30 to 40dBA LAeq (8-hr) for sleeping areas on 'major' roads compared with 30 to 35dBA LAeq (8-hr) in bedrooms near 'minor' roads.

Chapter 5 acoustic insulation requirements to deal with noise from commercial activities are required within the Central Commercial Activity Area and Petone Commercial Activity Area.

Chapter 5 Commercial Activity Area Rule 5A 2.2.2 (b) and Rule 5B 2.2.1.1 (g)) set out sound insulation requirements for habitable rooms in new or altered buildings housing noise sensitive activities establishing in these zones. Sound insulation (outdoor to indoor) is stipulated to achieve a certain rating (Dtr,2m, nTw) which is concerned with quantifying the sound transmission qualities of building elements to sound on the outside wall of the room, with the reported decibel rating being dependent upon the frequency content of sound received within the habitable room. Operative District Plan Residential Objectives, such as Objective 4F 2.2 which encourages medium

[15] As an example, the Queenstown Lakes District Plan defines 'critical listening environments' as any space that is regularly used for high quality listening or communication for example principle living areas, bedrooms and classrooms but excludes non-critical listening environments.

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density residential development within Suburban Mixed Use and Central Commercial Activity Areas close to the public transport network. Effective and efficient district Plan rules to protect habitable rooms housing noise sensitive activities from noise will be important going forward.

Acoustic isolation requirements of Chapter 5 require protection from noise from outside the building by ensuring the external sound insulation level of habitable room meets the requirement of Dtr,2m, nTw > 30 dB[16]. This type of rule requires the external building envelope to resist outdoor sound by a stated amount (in this case > 30 dB).

Acoustic insulation rules which specify the performance of the building envelope in this manner differ markedly to the alternative 'indoor noise limit' type insulation rules as they base compliance on achieving specified maximum indoor level of sound due to outdoor sources rather than the acoustic qualities of the building construction. Acoustic insulation against state highway and rail noise within specified noise-affected areas within Standard 6 of Chapter 14 A Transportation of the operative District Plan[17] is based on the 'indoor sound limit' approach. This approach has been found to be difficult for Council's to implement and monitor when adopted within district plan reverse sensitivity acoustic insulation rules and can lead to an inconsistent design approach as different designers may assume (unwittingly) differing levels of outdoor sound[18]. The following formula extracted the NZTA guidance on insulation against traffic noise indicates the complexity involved when attempting to establish the outdoor traffic noise level;

$$d = K \times AADT \times \underbrace{\left(V + 40 + \frac{500}{V}\right)^{3.3}}_{\text{Traffic speed}} \times \underbrace{\left[\left(1 - \frac{p}{100}\right) \times 10^{\left(\frac{R_c}{10}\right)} + \left(\frac{p}{100} + \frac{5p}{V}\right) \times 10^{\left(\frac{R_t}{10}\right)}\right]}_{\text{Road surface (and traffic speed and composition)}}$$

Where:

d	Distance (m)
K	Constant factor related to noise level (1.82×10^{-10} for buffer area, 9.13×10^{-10} for effects area)
AADT	Annual average daily traffic (vpd)[19, 20]
V	Traffic speed (km/h)
p	Percentage of heavy vehicles (percentage points, eg for 12 %HV, p = 12)[19, 20]
R_c	Surface correction[13] for cars (dB)
R_t	Surface correction[13] for trucks (dB)

Formula for calculation of outdoor traffic noise levels extracted from page 9 of NZTA reversed sensitivity guidelines.

As there can be major uncertainties in designing the necessary level of acoustic insulation based on incorrect assumptions when calculating outdoor sound levels against which the insulation needs to act (including the ineffectiveness with which "A Frequency weighted" indoor sound levels account for low frequency sound insulation rules based around 'external sound insulation level' (Dtr,2m, nTw) are preferred as not only are the above problems avoided, but post-construction compliance can be checked by conducting field tests in accordance with ISO 140-5:1998 and ISO 717-1: 2013 *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation*.

The most compelling evidence supporting the external sound insulation level (Dtr,2m, nTw) method is found within NZS6802:2008 *Acoustics – Environmental Noise*, Clause 8.6.9 which refers to acoustic insulation of buildings using methods verified using ISO 140-5:1998 and ISO 717.

Further evidence in support of adopting sound insulation rules based on the 'external sound insulation level' (Dtr,2m, nTw) method comes from NZS6806:2010 *Acoustics – Traffic Noise – Noise From New or Altered Roads.*

[16] Dtr,2m, nTw is the standardised level difference (outdoor to indoor) and is a measure of the airborne sound insulation provided by the external building envelope (including windows, walls, ceilings and floors where appropriate). It is calculated using Acoustic insulation must be assessed in accordance with ISO 717-1:2020 *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation*.

[17] Expert advice received Council received on this topic (Plan Change 39 Marshall Day Acoustics report to Council officers) recommended district plan reverse sensitivity acoustic insulation rules based around specifying building performance (i.e. the Dtr,2m, nTw method).

[18] *Managing Reverse Sensitivity Noise & Vibration Effects Of Rail and Road Transport in New Zealand*. New Zealand Acoustics - Journal of the NZ Acoustical Society, Vol. 28 / # 3, 2015.

This Standard recommends that where acoustic insulation against traffic noise is required as a mitigation measure under the Standard, clause 5.2.3.2 specifies that acoustic insulation performance of buildings be rated using the 'standardised level difference' method (Dtr,2m, nTw).

Recommendations

- Retain the existing approach of the Operative District Plan for stipulating sound insulation (outdoor to indoor) using the external sound insulation level method (Dtr,2m, nTw) in preference to insulation rules relying on 'indoor sound limits' measured suing dBA.
- Retain and enhance existing reverse sensitivity requirements set out within Chapter 5 of the Operative District Plan that require sound insulation for habitable rooms in new or altered buildings housing noise sensitive activities. We recommend that these existing acoustic insulation requirements be adopted for all sites within the Mixed Use, Commercial Activity areas and within Business type zones and any other activity areas where district plan permitted activity noise standards allow for noise levels to be received at levels exceeding 55 dB LAeq[15 min] daytime or night time limits exceeding 45 dB LAeq[15 min] .

10.11.3 Managing Effects on Sensitive Activities Along Transport Noise Corridors

With significant road, rail and sea port operations passing through and servicing the district, Hutt City is characterised by environmental noise 'corridors' reflective of the layout of the road and rail network.

The Hutt roading network (see diagram below) generally has a north-south grid structure parallel to the Hutt River. North-south corridors through the centre intersected by east-west road connections perpendicular to the river provide local access and connectivity to the state highway (SH2). This diagram classifies roads under the One Network Road Classification (ONRC) system described in the Central City Transformation Plan (February 2019) and are listed in Appendix Transport 3 of the District Plan.

In the operative District Plan, SH2 is classified a 'Regional Road' and is classified as making a major contribution to the social and economic wellbeing of a region and connect to regionally significant places, industries, ports and airports. NZTA Waka Kotahi are responsible for the state highway and have developed guidelines recommended to be included in district plans which seek to avoid reverse sensitivity noise and vibration effects within defined corridors alongside the highway[19].

There are no similar recommendations for protecting the local authority roading network from reverse sensitivity noise effects yet the importance of protecting infrastructure and facilities from inappropriate development on adjacent sites is signalled within existing provisions of the District Plan and within the recommendations of relevant NZ Standards for transport noise. HCC acted to strengthen reverse sensitivity measures related to transport noise and vibration effects within Plan Change 39 to the district plan[20].

Plan Change 39 (operative March 2018) introduced "Standard 6 - Development within the State Highway and Railway Corridor Buffer Overlays" into the plan as a means of managing potential reverse sensitivity effects from noise sensitive activities establishing near to the state highway or railway corridors. Standard 6 addresses reverse sensitivity effects of the state highway or rail network by defining 'noise effects' areas and applying district rules to require acoustic insulation within any new buildings proposed to contain noise sensitive activities, or where existing buildings are to be re-used for new noise sensitive activities .

Recommendations for the Hutt City Proposed District Plan below to manage reverse sensitivity noise effects of the state highway and rail corridor are set out below in Section 11. The recommendations to address potential reverse sensitivity effects are based our rail and road traffic noise readings recently measured in the district. Recommendations regarding setback distances and areas where acoustic insulation is required for new or altered buildings housing noise sensitive activities (sections 11.9.1 "Noise From Existing roads" and 11.10 "Noise From Rail Corridor") include expectations of future increased noise within these corridors.

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[19] *Guide to the management of effects on noise sensitive land use near to the state highway network.* NZ Transport Agency Waka Kotahi . Published September 2015

[20] *http://www.huttcity.govt.nz/district-plan-change-39.*

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Recommendations

- We recommend the proposed District Plan contain strong provisions that protect operators of the roading network and operators of the rail network due to potential adverse noise and vibration effects.
- We recommend this be achieved by requiring acoustic insulation of sensitive rooms in buildings located in corridors lying within proximal distance to the road or rail network and by non-acoustic methods including limitations on subdivision and development of land.
- We recommended the Hutt City District Plan use a single, technically appropriate acoustic insulation standard at all instances where this mitigation measure is stipulated in the plan.

11 Recommendations

This section sets out generic recommendations at ensuring the proposed District Plan noise provisions are in line with the current best practice. The focus is on noise rules being standardised within each zone, and providing noise provisions that are easy to interpret and implement for both Council and other users of the District Plan.

The recommendations are generic. We have not set out the final wording of the recommended noise rules at this stage. The recommendations below do not significantly depart from the overall approach of existing policies and rules, with recommendations based on conformance with the National Planning Standard whilst including technical enhancements based on the most appropriate national noise standards and best practice.

The recommendations below focus primarily on managing noise and vibration effect of activities to protect the health and safety of people and communities, and to effect vely manage the potential for reverse sensitivity noise and vibration effects created by inappropriate development of adjoining land.

11.1 New Zealand Standards and Related Noise Metrics

The recommendation is to place the most recent measurement and assessment Standards at the heart of the Proposed District Plan noise provisions – this is the 2008 versions of Standards NZS6801:2008 and NZS6802:2008. These standards are viewed as technically superior and robust being based on methods and procedures adopted internationally for noise measurement and assessment. NZS 6801 describes procedures for the consistent measurement of sound. This states that the methods and procedures for sound measurement are intended to be applicable to all forms of environmental sound, individually or in combination.

NZS6802 sets out procedures for the consistent assessment of noise, for example, when assessing compliance with stated noise limits. This standard is not intended to be applied for assessing noise within the scope of other NZ acoustic standards. In particular assessment of specific sources of sound including road or rail transport, flight operations of fixed or rotary winged aircraft associated with airports or helicopter landing areas, construction, port noise, wind turbine generators, and impulsive sound (such as gunfire and blasting), requires special techniques that generally are outside the scope of NZS6802:2008. Thus, separate recommendations are set out below for managing the environmental effects of these types of noise.

Recommendation:
Adopt NZS 6801:2008 *Acoustics –Measurement of Environmental Sound*
Adopt NZS 6802:2008 *Acoustics –Environmental Noise*

Remove any reference to superseded standards [including]:
NZS 6801:1991 *Measurement of Environmental Noise*
NZS 6802:1991 *Assessment of Environmental Noise*
New Zealand Standard 6801:1999 *Acoustics - Measurement of Environmental Sound*

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11.2 Recommendations For Activity Zones

New Zealand Standard NZS6802:2008 provides guidance on levels of outdoor environmental noise adequate to protect health for use in protecting noise sensitive sites from the adverse effects of environmental noise.
Recommended noise limits are provided in NZS6802:2008 as guideline residential upper noise limit values (L_{AFmax} and L_{Aeq}) to provide "reasonable" protection of health and amenity. A note of caution is signalled within NZS6802:2008 against setting low noise limits within existing modest or high ambient sound levels (compliance with which cannot be properly measured) [refer NZS6802:2008 clause 8.6.3].

The 2008 version of the standard introduced an evening assessment time frame with limits applicable to this evening period set between the day and night limits. This has emerged as best practice in NZ, ensuring the decibel limit recognises the likely ambient sound climate in residential areas over the evening period. The following is an extract of the general guidance provided by NZS6802:2008 on setting noise limits for residential areas (ref. Section 6 of NZS6802:2008);

> ***8.6.2*** *As a guideline for the reasonable protection of health and amenity associated with use of land for residential purposes, the noise limits in table 3 should generally not be exceeded at any point within the boundary of a residential site, for example, at any point within the notional boundary of a rural dwelling.*
>
> ***Guideline residential upper noise limits***
>
> | | |
> |---|---|
> | *Daytime(1)* | *55 dB LAeq(15 min)* |
> | *Evening(1,2)* | *50 dB LAeq(15 min)* |
> | *Night-time(1)* | *45 dB LAeq(15 min)* |
> | *Night-time(1)* | *75 dB LAFmax* |
>
> *NOTE–*
> *(1) The definition of times of day are a matter for the relevant local authority and should recognise that a period of not less than 8 hours needs to be provided for sleep to ensure at least the minimum acceptable degree of health protection.*
>
> *(2) Inclusion of an evening period and its hours of application are a matter for the relevant local authority.*
>
> *(3) This clause is not framed as a consent condition, rule or national environmental standard and should not be quoted for those purposes.*

Thus, for the protection of residential sites within residential zones (and other sensitive sites0 the general approach in New Zealand is to set limits on noise received during daytime at 50 to 55 dB $L_{Aeq[15\ min]}$ with night time and evening limits set to between 40 to 50 dB $L_{Aeq[15\ min]}$. In addition, between 10pm and 7am it is recommended single event noise at sensitive sites be controlled to 70 to 75 dB L_{AFmax}.

Apart explicitly stating noise limits, noise rules need to include suitable reference to NZS 6801:2008 *Acoustics – Measurement of Environmental Sound* and NZS 6802:2008 *Acoustics –Environmental Noise* as these are the environmental noise standards necessary to ensure noise rules remain objective, repeatable and can be enforced when necessary.

We have made no specific recommendation for noise limits within each zone at this stage. Instead we make the following generic recommendation regarding wording of noise rules applying to permitted activities in each zone;

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Recommendation:

The **Noise Emission Level** from any site shall not exceed the following levels when measured at any point within any residential site or at any point within the notional boundary of any residential unit or other building used for a noise sensitive activity located within a site in the Rural zone, other than any such building located on the same site, during the following time frames:

7am to 7pm.....w dB LAeq (15 min)
7pm to 10pm.....u dB LAeq (15 min)
10pm to 7am the following day.....y dB LAeq (15 min)
10pm to 7am the following day.....z dB LAFmax

'u', 'w', 'x', 'y', and 'z' are the numerical noise limits to be informed by the Operative plan LA10 and LAMax limits, in addition to a consideration of the policies and outcomes sought within the Proposed District Plan.

It is common practice to provide exemptions from district plan noise rules for certain types of noise sources which are either beyond the jurisdiction of a district plan (e.g. noise from rail or road vehicles travelling within defined (designated) transport corridors) or where it may be unreasonable to apply numerical noise limits (such as noise generated by normal residential activities such as mowing lawns or children playing outdoors). Noise arising from items of fixed plant operating on residential sites are generally not excluded from district plan control as it is feasible and practical for these sources to be designed, located or physically mitigated so that the noise effects can be controlled to acceptable levels. In addition, noise effects due to sports are usually temporary in nature and are a normal part of urban sound environment. The exemption would not be reasonable however to apply to events involving the use of amplified sound systems, motor vehicles, powered machinery, amplified music, o the use of firearms or explosives as these types of sound sources need to be controlled to reasonable levels to protect sensitive environments. Due to their function, it is not considered practical to require warning devices such as security alarms or fire station sirens to comply with district plan noise limits.

Finally, as compliance with district plan noise limits is based on assessment using NZS6802:2008 it is also not appropriate to apply this Standard to noise sources beyond the scope of this Standard. Section 1.2 of NZS6802:2008 refers to the scope of this this Standard and states it cannot be applied to the assessment of sound where the source is within the scope of, and subject to, the application of other New Zealand acoustical Standards. In particular, assessment of specific sources of sound including road or rail transport, flight operations of fixed or rotary winged aircraft associated with airports or helicopter landing areas, construction, port noise, wind turbine generators, and impulsive sound (such as gunfire and blasting), requires special techniques that generally are outside the scope of this Standard.

Recommendation:

The "Definitions" section of the Proposed District Plan should define **Noise Emission Level** as meaning:

Noise Emission Level means a sound level measured in accordance with NZS *6801:2008 Acoustics – Measurement of environmental sound* and assessed in accordance with the provisions of NZS 6802:2008 *Acoustics – Environmental noise* excluding;

1. Noise generated as part of normal residential activities, apart from noise arising from items of fixed plant.
2. Sports events not involving the use of amplified sound systems, motor vehicles, powered machinery, amplified music, use of firearms or explosives.
3. Vehicles operating on public roads or trains on rail lines (including at railway yards, railway sidings or stations and level crossing warning devices).
4. Any warning device used by emergency services for emergency purposes.
5. Any noise source identified in Section 1.2 of NZS6802:2008 as outside the scope of that Standard which includes;
   - Aircraft noise

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- Noise associated with port activities outside the district boundary
- Noise from helicopters in the vicinity of a helicopter landing area
- Construction noise
- Wind turbine noise except noise due to small scale domestic wind turbines.

11.3 Two Teir Night Time LAeq(15 min) Limits For Residential Sites

The 2021 ambient noise survey reveals that night time noise levels at sites in the vicinity of the Wairarapa Railway corridor or arterial or regional roads measured at higher levels than readings taken at more distant sites. Elevated levels of ambient sound present in an area will affect the 'intrusiveness' of new noise or noise being complained of. In addition, elevated levels of ambient sound will affect the ease with which noise readings taken outdoors to confirm compliance with stated night time noise limits.

In response to these two artefacts of elevated ambient noise typically found within 50 metres of any arterial route or regional road, it is recommended that where a night time noise limit of LAeq(15 min) 40 dB apply to noise received at any residential site (or at any point within the notional boundary of any residential unit or other building used for a noise sensitive activity located within a site in the Rural zone, other than any building located on the same site) the compliance limit be raised to 45 dB LAeq(15 min). A night time limit of 45 dB remains within available guidelines regarding limits on outdoor noise levels requisite to protect health and amenity at residential sites, but within sites experiencing night time noise from roads would be more reasonable and practical to enforce compared to 40 dB LAeq(15 min). A similar recommendation for night time noise limits applying within residential areas adjacent to the Wairarapa Railway line which passes though the Hutt district is not recommend owing to the relatively few trains using the line between 10pm and 7am (and hence lack of elevated night time noise in these areas).

Recommendation:

In consideration of the policies and outcomes sought within the Proposed District Plan it is recommended night time (10pm to 7am) noise emission limits applying to noise from land use activities received within any residential site (or at any point within the notional boundary of any residential unit or other building used for a noise sensitive activity located within a site in the Rural zone, other than any such building located on the same site) are recommended to be set at **40 dB** LAeq(15 min) unless the residential noise assessment position is located not less than 50 metres from any arterial route or regional road in which case the recommended night time noise limit should be **45 dB** LAeq(15 min).

11.4 Noise From Fixed Plant

"Fixed Plant" is defined as equipment such as heat pumps, air handling systems, water pumps which are common sources of ambient sound, particularly in urban area. Being fixed noise sources, these sources of sound are amenable to being appropriately located, enclosed or otherwise treated to achieve a higher standard of noise control compared to mobile sound sources (e.g. delivery vehicles on site).

Mobile sound sources operating on a site naturally have lesser ability to accommodate noise control measures but are nonetheless required to achieve compliance with slightly higher noise limits (unless exempted under the rules)

The recommendation is for the proposed District Plan to regulate noise emissions from fixed plant located in residential and commercial/business areas as follows;

Recommendation
Within all mixed use, commercial, industrial and business zones, night time LAeq(15 min) performance standards for noise due to "Fixed Plant" received within any residentially zoned site should be set at a limit 5 dB below the night time limit applying to all other sources (but not less than 40 dB LAeq(15 min); and

Within Residential Activity Areas, avoid rules that place any limits on noise generated as part of normal residential

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activities, however the applicable rules should impose a limit for noise from fixed plant at levels not more than 40 dB LAeq(15 min) when measured within any other residential site.

11.5 Acoustic Insulation Of Habitable Spaces

New or altered habitable rooms accommodating Noise Sensitivity Activities located within most busy urban centres or within commercial areas or within areas affected by noise from existing roads or rail lines in New Zealand are required by the relevant District Plan provisions to be acoustically insulated.

Because the effective reduction of sound within habitable rooms relies on keeping windows closed, there is also a requirement for ventilation to be provided so that the minimum requirements of the Building Code (G4) for natural ventilation are achieved.

As discussed in Section 10.11.2 above, the recommendation is to unify the type of district plan methods currently adopted for specifying acoustic insulation – currently there is the 'indoor sound level' approach of Chapter 14A Standard 6 and the 'standardised level difference' method (Dtr,2m, nTw) of Chapter 5. As above, the recommendation is to adopt only the Dtr,2m, nTw method due to the advantages in ease of design, verifying and checking compliance that of this type of insulation rule.

Based on best practice (and the approach of the operative Plan) it is recommended TWO possible pathways be offered within the proposed Plan for achieving compliance, as follows;

a) Use of a "Minimum Construction Schedule" as a default minimum construction that, if followed, would result in the habitable room receiving the requite minimum level of acoustic insulation (e.g. Dtr,2m, nTw > 30). If necessary, conformance with this schedule can be verified when building plans are submitted to Council for building consent; OR
b) An expert report is submitted to Council in the form of an acoustic design certificate signed by a suitably qualified acoustic engineer stating the design of the habitable room as proposed will achieve compliance with the stated performance standard.

This the current approach of the operative District Plan in relation to;

- Insulation requirements of Chapter 5 Commercial Activity Area Rule 5A 2.2.2 (b) and Rule 5B 2.2.1.1 (g)) which specifies minimum construction standards in "*Appendix Central Commercial 7 – Noise insulation Construction Schedule*"
- Insulation requirements of Chapter 14A Transportation – Standard 6 which specifies compliance with "*Appendix Transport 4 - Noise and Vibration Construction Schedule*".

This 'two option' method for achieving compliance with district plan acoustic insulation requirements is recommended to be continued as it allows for buildings of simple design, using common materials, to be easily assessed as meeting the necessary acoustic insulation standard.

Acoustic insulation rules for habitable rooms are almost always accompanied by a companion ventilation requirement, it being necessary to keep windows closed to enjoy the benefits of an acoustically insulated habitable room. It is worth noting that the ventilation standard accompanying the Chapter 5 insulation requirement is based on (a) Ventilation is only being required in bedrooms, not other types of habitable rooms (b) the supplementary source of air is to achieve a minimum of 7.5 litres per second per person. This contrasts with the insulation requirements of Chapter 14A – Appendix Standard 6 which requires (a) ventilation to be provided to ALL qualifying habitable rooms and (b) the amount of ventilation must fully meet clause G4 of the Building Code (Schedule 1 of the Building Regulations 1992) which requires a considerable sized ventilation system. Given that habitable rooms required to be acoustically insulated are mostly fitted with openable windows sufficient to ventilate the room to G4 standards, it seems inefficient to require artificial ventilation to achieve the high flow volume ventilation requirements of G4. It is considered that, on balance, the purpose and principles of the RMA may be achieved more efficiently within the proposed District Plan by adopting the requirements for ventilation from the Chapter 5 requirements of the operative District Plan (ventilation provided to bedrooms only, at a minimum flow rate of 7.5 litres per second per person).

The sound experienced within the habitable room due to the operation of the ventilation system is a matter

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referred to in the Standard 6 ventilation requirements but not the Chapter 5 ventilation requirements. These rules state sound due to operation of the ventilation system must not exceed 30dB LAeq(30s) when measured 1m away from any internal grille or diffuser. This requirement for low-noise ventilation into habitable rooms is supported on an effects basis and is recommended to be incorporated into the proposed District Plan.

Recommendation:
To unify methods to specify acoustic insulation in the district plan. Adopt only the Dtr,2m, nTw method due to the advantages in ease of design, verifying and checking compliance that of this type of insulation rule.

Require the rules to provide TWO options for demonstrating compliance with the Dtr,2m, nTw > 30 requirement, this being either;

a) An acoustic design certificate signed by a suitably qualified acoustic engineer stating that the design as proposed will achieve compliance with the minimum performance standard: or
b) Compliance is demonstrated within the plans submitted for building consent indicating habitable rooms are designed and constructed in a manner that accords with the following **minimum schedule of building construction**.

Insulation requirements should be accompanied by a companion ventilation requirement so that openable windows are not needed to be used for thermal comfort reasons. It is recommended that ventilation be required in the form of a positive supplementary source of fresh air ducted from outside for any bedroom or any room intended to be used for sleeping. The supplementary source of air is to achieve a minimum of 7.5 litres per second per person. Sound due to operation of the ventilation system must not exceed 30dB LAeq(30s) when measured 1m away from any internal grille or diffuser.

11.6 Construction Noise

Chapter 14C of the district plan at standard 2.1(f) which states all construction, demolition, and maintenance work shall comply with NZS 6803P *Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work*.

NZS 6803:1999 *Acoustics – Construction Noise* is the current and most technically appropriate standard for construction noise assessment. This standard uses L_{Aeq} noise descriptors. The scope of NZS 6803 does not apply to vibration or blasting, noise induced hearing loss, or effects of noise upon wildlife, stock, or domestic animals. NZS 6803 also does not apply to 'emergency works' as defined in the Resource Management Act 1991.

Recommendation:
Adopt NZS 6803:1999 *Acoustics – Construction Noise* for the assessment of construction noise
Remove any reference to superseded standards New Zealand Standard 6803 P:1984 *The Measurement and Assessment of Noise from Construction, Maintenance and Demolition Work*.

11.7 Vibration

It is noted that the RMA defines noise as including vibration. Vibration effects are controlled in the operative District Plan using rules such as Rule 4A 4.1.10(a) for Residential Activity Areas which requires activities that cause vibration are permitted activities provided "*the activity is managed and controlled in such a way that no vibration from the activity is discernible beyond the boundary of the site".* An accompanying rule states that activities that do not meet the above permitted development standard are restricted discretionary activities with discretion restricted to "effects on the amenity of the surrounding area". This approach is also taken within permitted activity standards applying in Chapter 6 (Business), Chapter 8 (Rual) and Chapter 9 (Community Health).

The National Planning Standards does not require numerical vibration limits to be stated in district plans. The NZPS only refers to managing damage to structures from construction vibration. No other vibration sources are covered. The NZPS states that if rules of this nature are to be included in district plans, rules must be consistent with the metrics for peak particle velocity (ppv) in ISO-4866:2010 – *Mechanical vibration and shock*.

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It is noted there are no relevant NZ Standards setting out suitable vibration criteria or measurement or compliance assessment methods for assessing ground vibration as an environmental effect.

On the basis of the above, the recommendation for the proposed District Plan is to continue to adopt policies and rules around limiting discernible vibration occurring on adjacent sites. This is considered consistent with the NZPS and would address concerns that applying numerical limits on vibration within permitted activity site standards would place a duty on Council to monitor vibration levels at receiver sites to determine compliance – a highly specialised and technically challenging procedure.

Recommendation:
Rules to address vibration effects should continue to be based around "that no vibration from the activity is discernible beyond the boundary of the site". Consideration should be given to confining the scope of any such rules to vibration received within any residential site (or at any point within the notional boundary of any residential unit or other building used for a noise sensitive activity located within a site in the Rural zone, other than any such building located on the same site). This would be more consistent with the approach taken to managing the effects of noise in sensitive areas.

Road and Rail Vibration Reverse Sensitivity Measures:
Effective control of vibration effects can only sensibly be carried out by addressing the vibration at source.

Chapter 14A – Standard 6 sets out to manage reverse sensitivity vibration effects based around requiring the owner of new buildings establishing within road or rail buffer areas to design and construction any buildings housing sensitive activities to comply with class C of Norwegian Standard 8176 E:2005 (*Vibration and Shock - Measurement of Vibration in Buildings from Land based Transport and Guidance to Evaluation of Its Effect on Human Beings*). We do not recommend adopting reverse sensitivity vibration rule because;

- It is not feasible to design buildings to reduce vibration from road or rail sources.
- The Norwegian Standard referred to is intended to be used as a means of assessing vibration performance of new roads, not as a reverse sensitivity measure.

Should there be evidence of adverse vibration effects which require the building to mitigate the effect, we consider the purpose and principles of the RMA are better met by control at source in accordance with s.16 RMA whether or not the design of the proposed building would play a role in transmitting or amplifying ground vibrations. We recommend the reverse sensitivity effects of road or rail vibration be dealt with via the use of setbacks for new or altered buildings housing sensitive activities

11.8 Noise from Temporary Military Training

The nature and diversity of military training exercises mean these activities will not always be able to comply with noise limits for permitted activities set out in the District Plan. These activities are usually short lived on any site. Although the organisers of temporary military training (NZ Defence) need to make the case concerning benefits of allowing activities in the Hutt district that would temporarily breach the noise rules, these activities are exempted in NZ many district plans from complying with the normally applied district plan noise emission limits.

A simple approach is to exempt the noise generated by temporary military training where this takes place on a site for 72 hours or less. Noise effects over such constrained time periods are not likely to give rise to serious adverse effects, although annoyance and complaints may arise.

An alternative approach would be to exempt noise generated by temporary military training where the noise arises from sites suitably remote from sensitive sites. It is believed NZ Defence are developing draft rules based on setback distances sufficient to ensure noise effects are reduced to negligible levels at sensitive receiver sites.

Recommendation:
Adopt a flexible approach to controlling noise generated by temporary military training by either ;

1. Noise from military training activities conducted on any site for not more than 72 hours within any six month

period are exempt from the permitted activity noise standards for each zone. Military training activities taking place on any site for longer time periods are required to comply with District Plan requirements for temporary activities; OR

2. Consider rules that permit noise generated by temporary military training where this noise is generated on sites sufficiently remote from sensitive receiver sites to ensure negligible effects on people and communities.

11.9 Traffic Noise

The operative District Plan focuses on ensuring the efficiency and safety of the transportation system. Rules in this section set out standards for parking, manoeuvring and loading vehicles, and for vehicle access. In addition, rules in the Transport chapter (14A) include "Standard 6 - Development within the State Highway and Railway Corridor Buffer Overlays" to manage potential reverse sensitivity effects from sensitive activities establishing near to the state highway or railway corridors. The district plan does not appear to place any requirements on road controlling authorities to assess or control noise from new or altered roads.

Noise from the existing network is best addressed as a Reverse Sensitivity issue within the District Plan, whereas noise from new or altered roads may be addressed using a relevant NZ Standard.

11.9.1 Noise From Existing roads

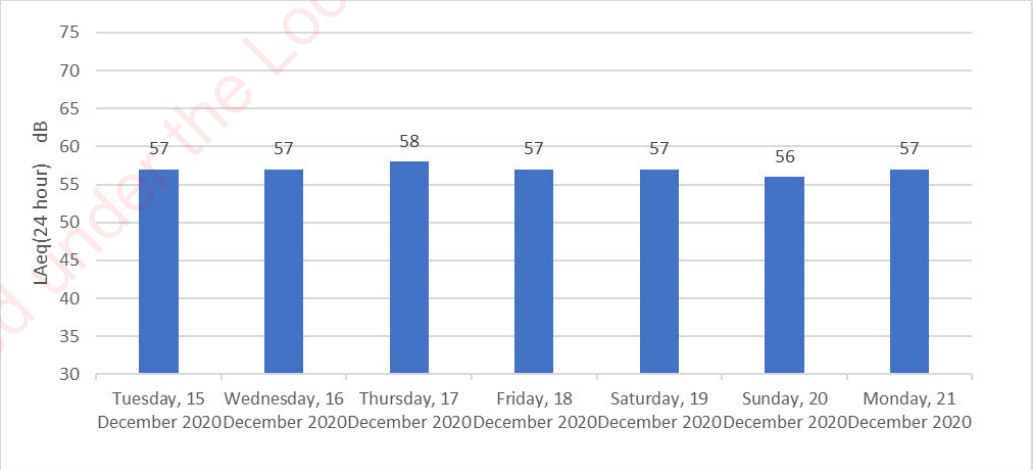
The operative plan sets out at Standard 6 of Chapter 14A methods to manage noise from the state highway which seeks to balance providing for a safe and efficient roading highway network with the need to provide for a reasonable quality of life and amenity values where noise sensitive land use activities establish near the highway.

Standard 6 requires that all new buildings containing noise sensitive activities, or existing buildings with new noise sensitive activities located within the 40-metre wide state highway 'Buffer Overlay' must be designed, constructed and maintained so that traffic noise within habitable rooms does not exceed 45dB LAeq(24h).

APPENDIX C (attached) sets out the results of 24 hour measurements taken at four sites as part of the RiverLink Project. These results have been made available to this review. Daily measured LAeq(24 hour) results are summarised for each site as follows;

17 Tirohanga Road

40 metres From State Highway 2 (100 km/hr) **57 dB $L_{Aeq(24h)}$**



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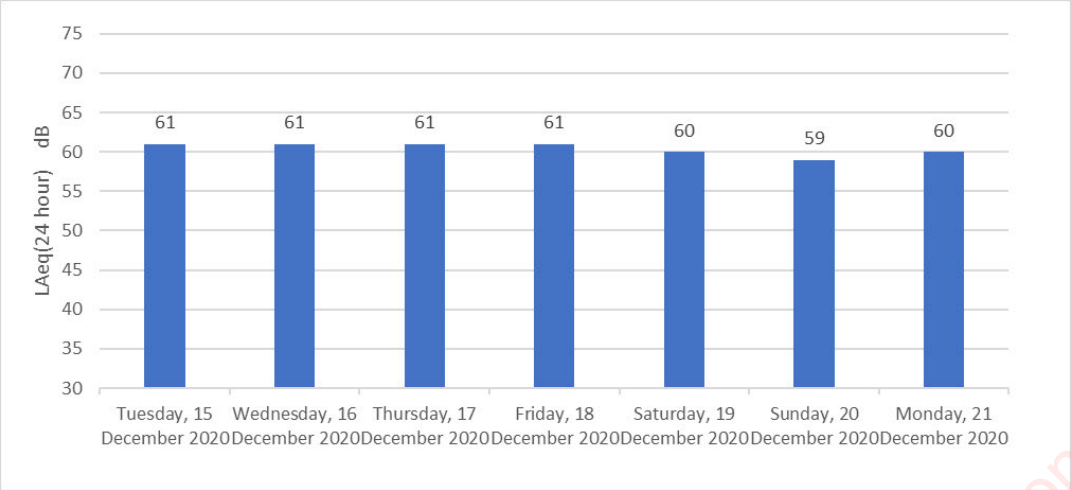
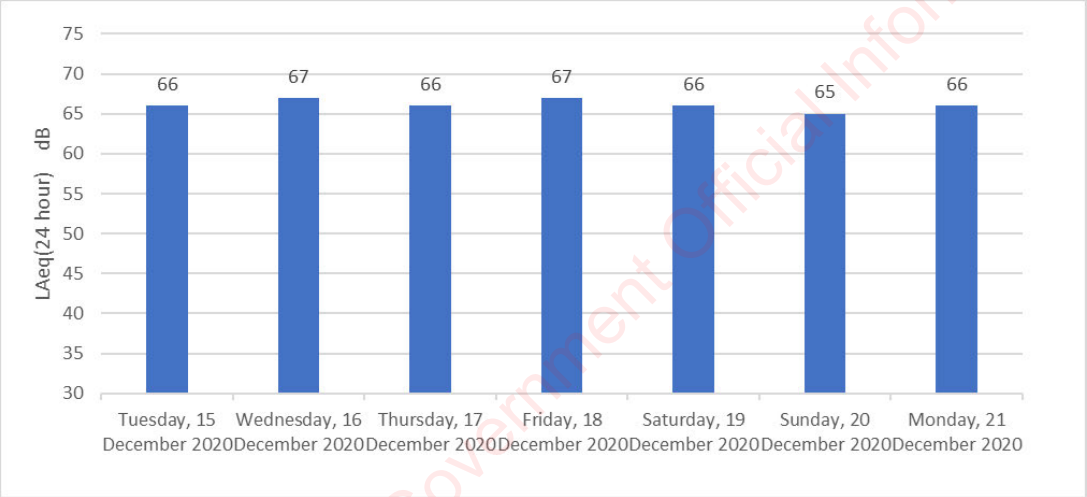
7 Harbour View Road

75 metres from State Highway 2 (100 km/hr) **61 dB $L_{Aeq(24h)}$**



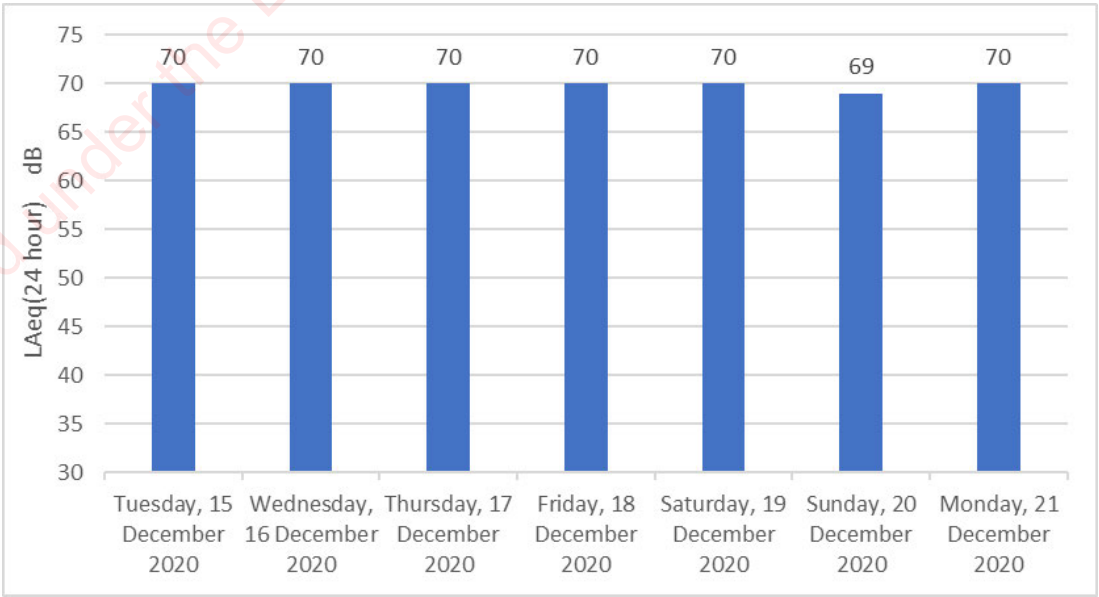
28 Rutherford Street

2 metres from Arterial Road **66 dB $L_{Aeq(24h)}$**



2 Pomare Road

30 metres from State Highway **70 dB $L_{Aeq(24h)}$**



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The above results are summarised in the following table;

Address	Measured LAeq(24hr) dB	Location of Microphone	Shielded?	Barrier Effect (dB)	"True" Traffic Noise Level LAeq(24hr)
2 Pomare Road	70	38 metres From State Highway 2 (100 km/hr)	N	-	70
28 Rutherford Street	66	2 m from an arterial road (50 km/hr)	N	-	66
17 Tirohanga Road	57	40 metres From State Highway 2 (100 km/hr)	Y	10	67
7 Harbour View Road	61	3 metres to local street (50 km/hr) & 75 metres from State Highway 2 (100 km/hr)	Y	5	66

We have examined these traffic noise levels recently measured in the Hutt district. We have excluded the results measured at Harbourview Road as these noise levels were due to both traffic on a local street as well as the distant state highway. The remainder of the results indicate traffic noise levels measured within 40 metres of SH2 measure at or below 70 dB LAeq(24 hr).

Based on outdoor traffic noise levels measuring up to 70 dB LAeq(24 hr) within 40 metres of the state highway, the application of the proposal to insulate habitable rooms within the noise corridor to a achieve Dtr,2m, nTw >30 dB would result in an internal noise level of LAeq(24 hr) 40 dB. This is an acceptable indoor noise standard as, due to diurnal distribution of traffic flow, noise levels during the critical time period would measure 10 dB below the 24 hour average (i.e. 30 dB). It is noted that this outcome would be a 5 dB improvement compared to the 45 dBA indoor noise standard stipulated for habitable rooms located within the 40-metre wide State Highway and Railway Corridor Buffer Overlay under Chapter 14C – Appendix Standard 6.

Recommendation;
It is recommended that the proposed District Plan require any new or altered habitable room within buildings housing *Noise Sensitive Activities* that lie within 40 metres of a state highway designation boundary be insulated as per the recommendations of Section 11.5 above (achieve a minimum External Sound Insulation Level of the building envelope of Dtr,2m, nTw >30 dB) with an accompanying requirement for fresh air ventilation to be provided into the room. Certain exemptions to this requirement can justified as follows;

a. Where acoustic screening (such as provided by a solid barrier or fence) is present so that noise levels at the location of the building do not exceed LAeq(24 hour) 55 dB (measured outdoors) when assessed in accordance with NZS6806:2010. Council shall be provided with an acoustic design report by an appropriately experienced and qualified expert confirming this.
b. Where habitable rooms located further than 40 metres from the edge of the highway designation.

11.9.2 Noise From New & Altered Roads

We recommend implementing NZS 6806:2010 *Acoustics - Traffic Noise – Noise From New or Altered Roads* to manage traffic noise from new and altered roads. The Standard provides guidance and consistency on methods and criteria to measure, assess, and control the effects of noise from new or altered roads. The standard only applies to new and altered roads of scale such as state highways and are not recommended in the Standard to apply to low volume roads.

This Standard does not address noise from existing roads except in relation to situations where new or altered roading projects interact with existing roads

NZS 6806:2010 is recommended as it provides a framework for assessing when noise from new or altered roads should be mitigated, based on taking into account health issues associated with noise, the effects of noise on people and communities, and the potential benefits of new and altered roads to people and communities. NZS6806 is identified in the NZPS as the appropriate Standard for the assessment of noise from 'new or altered roads'

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Recommendation:
Adopt *New Zealand Standard NZS6806:2010* for addressing noise from new and altered roads.

11.10 Noise From Rail Corridor

The Wairarapa Railway Line is a secondary railway line connecting Wellington with the Wairarapa district. The line ends at Woodville where it joins the Palmerston North - Gisborne Line.

The Wairarapa Line is a crucial part of the national rail network. There are possible reverse sensitivity issues regarding noise from rail traffic on the Wairarapa Line. It is important that the revised Plan recognise the importance of this key transport resource and ensure that its operation is not compromised through noise sensitive activities establishing in areas affected by high levels of rail noise.

Daily rail noise levels have also been recently measured at 3 sites in residential areas as part of the 2021 Ambient Noise Survey indicate moderate levels of noise measuring between LAeq(24 hr) 50 and 60 dB are experienced in residential areas alongside the Wairarapa Rail Line. Based on outdoor rail noise levels, it is recommended to require new or altered habitable rooms to be insulated within 40 metres of the rail corridor so that indoor sound levels in new habitable rooms are reduced by at least 30 dB (Dtr,2m, nTw > 30 dB), this is calculated to result in indoor rail noise levels of between LAeq(24 hr) 22 to 30 dB within treated rooms which is an acceptable level of indoor noise from rail transport.

The recommendation for the revised District Plan is to adopt an approach based on continuing the approach of operative District Plan for dealing with reverse sensitivity effects of rail noise.

Recommendation;

We recommend rules be developed that apply to new developments and new or altered habitable rooms within 40 metres of the Melling or Wairarapa rail corridor that require:

1. New or altered buildings housing noise sensitive activities shall achieve a minimum External Sound Insulation Level of Dtr,2m, nTw >30 dB of any habitable room within a building housing a Noise Sensitive activity.
2. An accompanying rule should be developed requiring fresh air ventilation be provided in the form of a positive supplementary source of fresh air ducted from outside for any bedroom or any room intended to be used for sleeping. The supplementary source of air should achieve a flow rate of a minimum of 7.5 litres per second per person based on normal room occupancy. The rule should stipulate sound due to operation of the ventilation system is not exceed 30dB LAeq(30s) when measured 1m away from any internal grille or diffuser.
3. The rule should be worded so that these requirements do not apply:
    a. Where an effective acoustic screen (such as a solid noise barrier fence) is in place so that noise levels at the location of the location of the new dwelling or building does not exceed LAeq(24 hour) 55 dB outdoors. In this case it would be appropriate for the rule to state that Council should be provided with an acoustic design report by an appropriately experienced and qualified expert to confirm this.
    b. For habitable rooms located further than 40 metres from the edge of the designation boundary or where the rail line does not yet exist.

11.11 Helicopter Landing Areas

NZS 6807:1994 *Helicopter Noise Management & Land Use Planning* provides guidance on control of noise from helicopter landing areas by way of Resource Consent or rules in District Plans under the RMA. The approach of NZS 6807:1994 is to assess helicopter noise on a 24 hour basis [using L_{dn}] with a separate consideration of the maximum levels due to any night time operations [using L_{AFmax}]. The standard allows for a relaxation of the limits by 5 dB where background sound levels [L_{95} under this standard] exceed threshold levels set in the standard, hence if this criteria is met a limit of 50 dB L_{dn} would be permitted to be relaxed by +5dB and becomes 55 dB $L_{dn.}$

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NZS6807:1994 is recommended to be adopted within the revised plan as this Standard represents best practice for the control or noise from helicopter landing areas. NZPS recommends where this Standard is referred to within district plans for the control of noise from helicopter landing areas, the refence to this Standard exclude reference to section 4.3 (Averaging) of the Standard. With this proviso, NZS6807 is considered the most technically appropriate standard for the assessment of noise from helicopter landing areas affecting sites on which noise sensitive activities are established.

Recommendation:
In rural areas, establishing helicopter landing areas can lead to rural efficiencies and safety benefits. For non-noise reasons, it may be appropriate to provide at some level for helicopter landing areas in the rural zone, however that question is beyond the scope of this review.

If helicopter noise provisions are included in the proposed District Plan they should refer to NZS 6807:1994 *Helicopter Noise Management & Land Use Planning.* It may be appropriate to provide for landing sites as controlled activities provided they are able to demonstrate compliance with, and will be controlled to comply with, the noise criteria set out within NZS 6807:1994 which are considered reasonable and workable.

Any rules referring to the use of NZS 6807:1994 *Helicopter Noise Management & Land Use Planning* should specifically make reference to excluding the provisions of Clause 4.3 Averaging.

11.12 Wind Farm Noise

NZS 6808:2010 Acoustics Wind Farm Noise was developed specifically for the measurement and assessment of sound from wind turbine generators and wind farms in New Zealand conditions. NZS 6808 provides details on prediction, measurement and assessment with the stated purpose being to aid both wind farm development and Local Authority planning procedures by providing a suitable method for the measurement and assessment of sound from wind turbine generators.

The standard includes Wind Turbine Generators located on land or sea [both horizontal and vertical]. The standard does not cover small wind turbines less than this size as these are covered under NZS 6801 and NZS 6802.

NZS6808 is the most current and technically appropriate standard for the assessment of wind turbine generator and wind farm noise. The use of this Standard is consistent with the NZPS where district plan set out to manage the noise effects of wind turbine or wind farms. It should be noted, this Standard would not be appropriate to apply to noise from small scale domestic turbines. Small scale domestic installations fall within the scope of NZS 6801 and NZS 6802.

Recommendation:
Adopt reference to NZS 6808:2010 *Acoustics – Wind Farm Noise*

11.13 Temporary Events Noise

Temporary activities or events frequently occur within public open space [reserves], road reserves, and at community facilities such as churches, schools, or community halls. Examples include competitions, festivals, galas, carnivals, market days, entertainment events, promotional events, and other events of similar nature. These events are open to the public to attend.

In some cases, these events may have effects on the surrounding environment such as noise, light, structures, parking, road closures, and may last for more than one day. Temporary activities or events may require the construction of structures to facilitate the activities which may have effects on the amenity values of the surrounding environment.

The operative District Plan deals with noise from “temporary activities” in Rule 14J 2.1.1 “Permitted Activities - Conditions for temporary activities in all activity areas” and requires that a noise limit of LA10 70 dB be complied with “within any other site in a Residential Activity Area and at any point within the notional boundary of any

dwelling in a Rural Activity Area" as well as at the boundary of any Commercial or Business Activity Area site other than the site of the temporary activity.

We recommend this type of reasonably liberal approach be taken to controlling temporary noise effects of Temporary Activities on the basis that the community can generally tolerate elevated noise levels. A key proviso is to limit the extent of noise from temporary activities during the more sensitive night time period from 10pm through the 7am.

Recommendation:
It is recommended a permitted activity standard apply to Temporary Events that allows elevated noise to occur for limited daytime, perhaps similar to the existing operative Plan provisions of noise from "temporary activities" in Rule 14J 2.1.1 but adapted to use the LAeq noise unit and refer to the 2008 versions of NZS6801 and NZS6802.

11.14 Telecommunications Equipment

Telecommunications systems consist of a core network for carrying signals between locations, and access networks linking the core to individual users and customers. As noted above a National Environmental Standard [NES] has been approved by the government to assist in the implementation of its telecommunication objectives. The NES includes controls over noise from telecommunications cabinets located in road reserves. This NES has been recommended to be included within the revised District Plan to ensure consistent standards are applied to these fixtures. Pursuant to s43B of the Resource Management Act 1991, no rule or resource consent shall be more stringent than the national environmental standards for telecommunications facilities.

It is mandatory to adopt the form of the noise rule consistent with the NES for telecommunications equipment within the proposed District Plan.

Recommendation:
Noise from telecommunications cabinets located in road reserves shall be a permitted activity provided that the noise emission levels comply with Clause 9 of the Resource Management [National Environmental Standards for Telecommunication Facilities] Regulations 2008**.**

12 Summary

The existing noise provisions of the operative Hutt City District Plan have been reviewed in light of the relevant noise Standards, published reports and based ambient sound level readings taken in the district in recent times. The aim has been to revise the existing District Plan noise provisions in a manner that supports rather than undermines the District's social, economic and environmental vision, and to enhance long term sustainability.

The key enhancements are the adoption of the more recent New Zealand Standards and enhancement of the existing District Plan noise provisions to cover the following additional matters;

- Clarify the definition of "Noise Sensitive Activities" to encompass a wider range of activities that are sensitive to the effects of noise.
- Standardise and where practical, simplify the specification of acoustic insulation of new or altered habitable rooms housing noise sensitive activities. In particular, unify wording of rules requiring acoustic insulation of habitable rooms in areas moderately to highly affected by noise due to transportation sources and/or land use activities.
- Improving acoustic insulation provisions within areas currently defined within *State Highway and Railway Corridor Buffer Overlays.*
- Enhance policies and rules around using 'discernible vibration' as a means of controlling potential effects

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occurring on adjacent sites.

- Incorporating methods to deal with noise from new or altered roads, wind farms, helicopter landing areas
- Update the rules applying to noise from Temporary Events
- Ensure the NPS Standards for nosie are complied with, including NZ Standards referenced and definitions employed in the proposed District Plan.
- Add noise controls for Telecommunications Equipment as required by statute.

Implementing the above recommendations within provisions of the proposed District Plan will enhance the protection of the environmental, social, economic and cultural wellbeing of present and future generations living in Lower Hutt.

Malcolm Hunt
B.Sc., M.Eng(mech)
RSH Dip. Public Health, RSH Dip. Noise Control

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APPENDIX A

2021 Ambient Noise Survey

Site Readings and Summary Results

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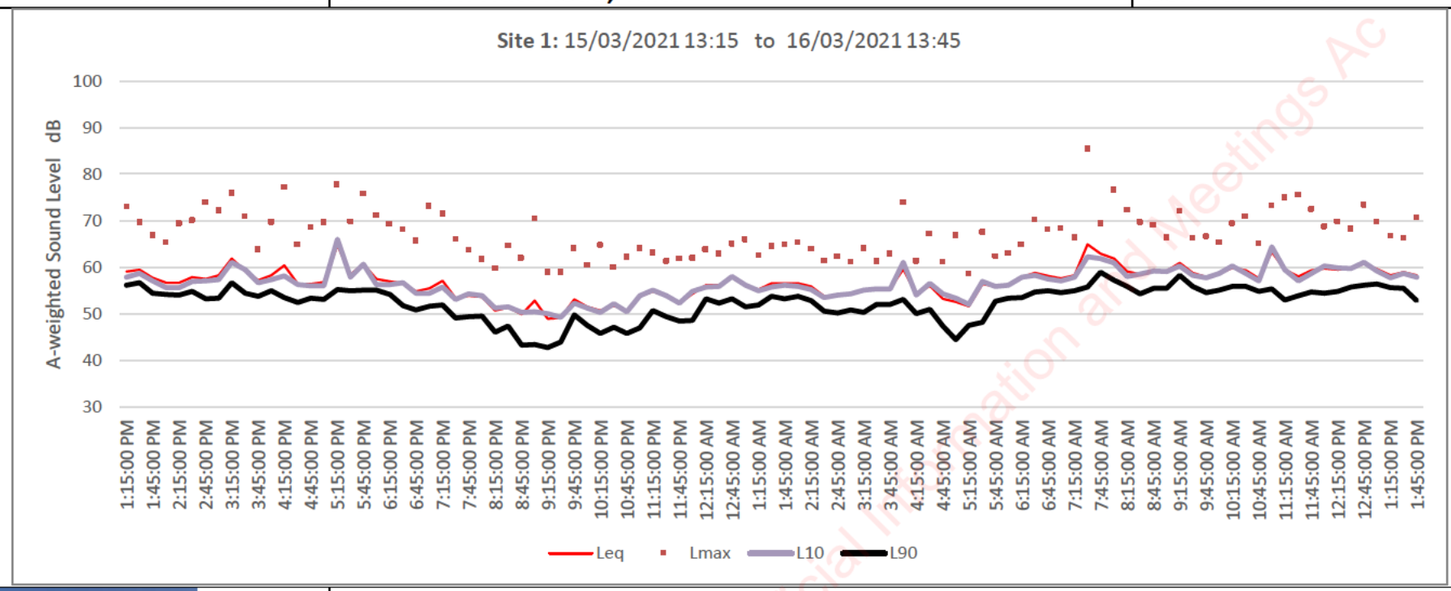
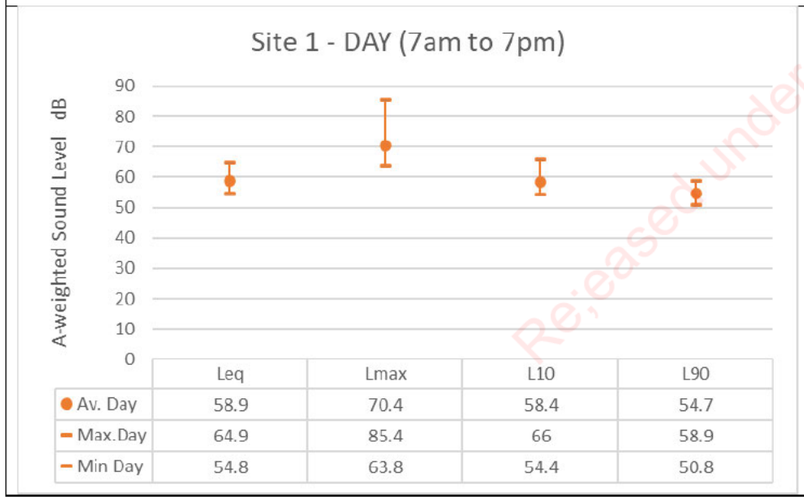
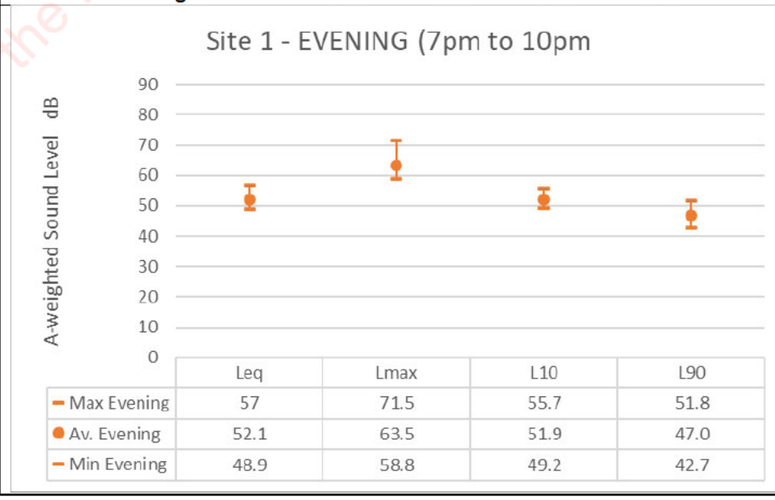
Site Number: 1	93 Eastern Hutt Road, Taita	General Business

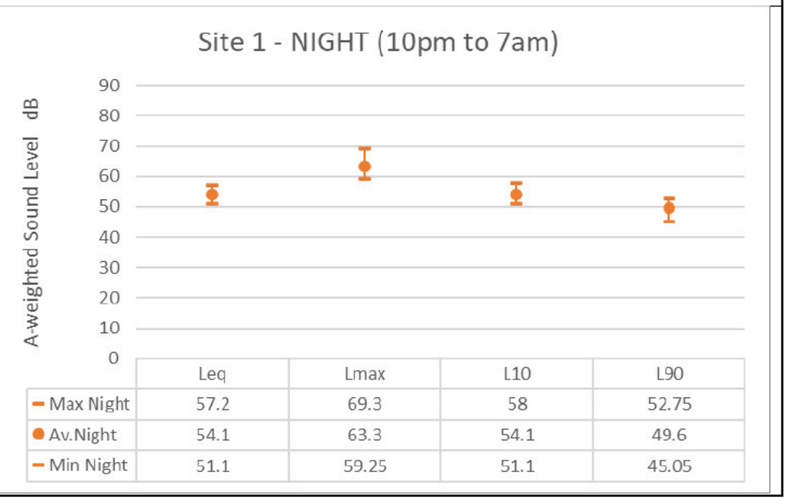


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	64.9	85.4	66	58.9
	Min Day	54 8	63.8	54.4	50.8
	Av. Day	58.9	70.4	58.4	54.7
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	57	71.5	55.7	51.8
	Min Evening	48.9	58.8	49.2	42.7
	Av. Evening	52.1	63.5	51.9	47.0
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	57.2	69.3	58	52.75
	Min Night	51.1	59.25	51.1	45.05
	Av.Night	54.1	63.3	54.1	49.6







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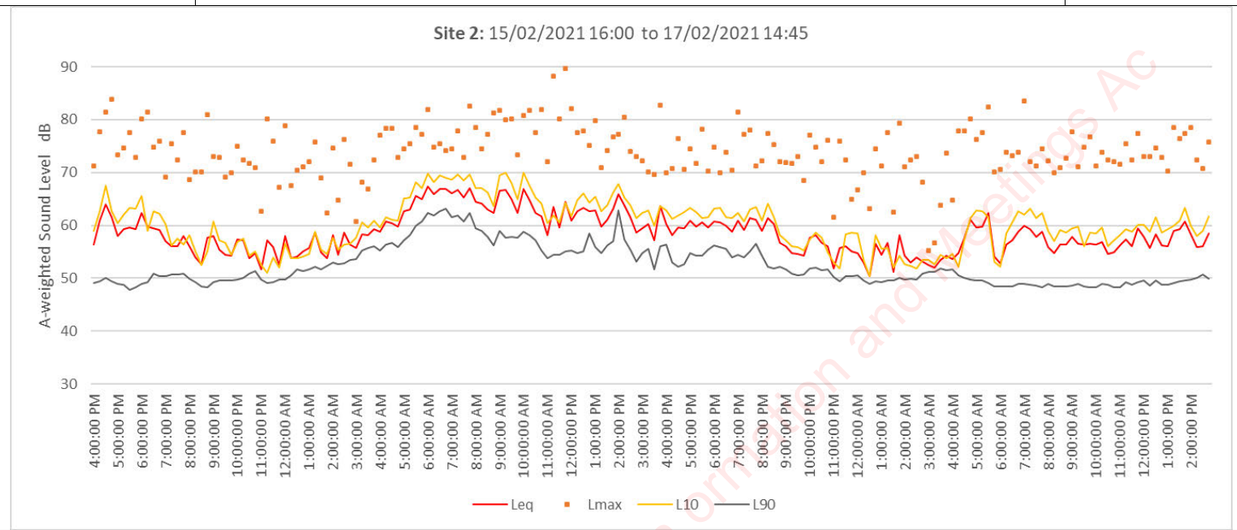
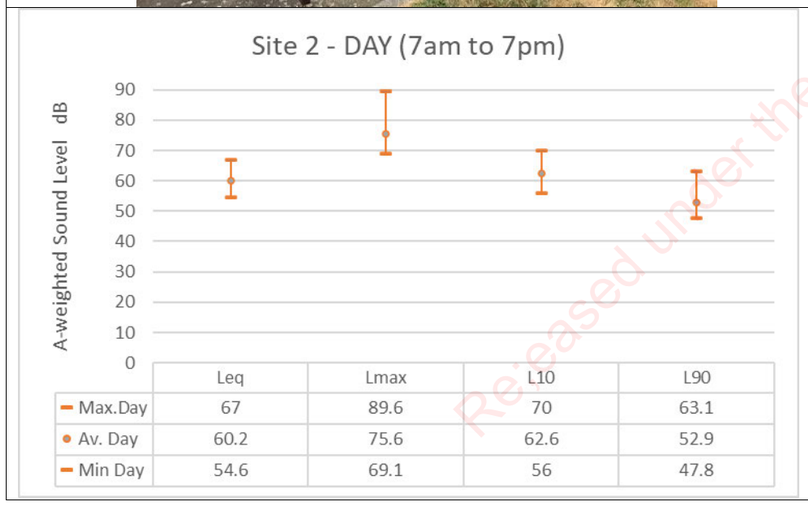
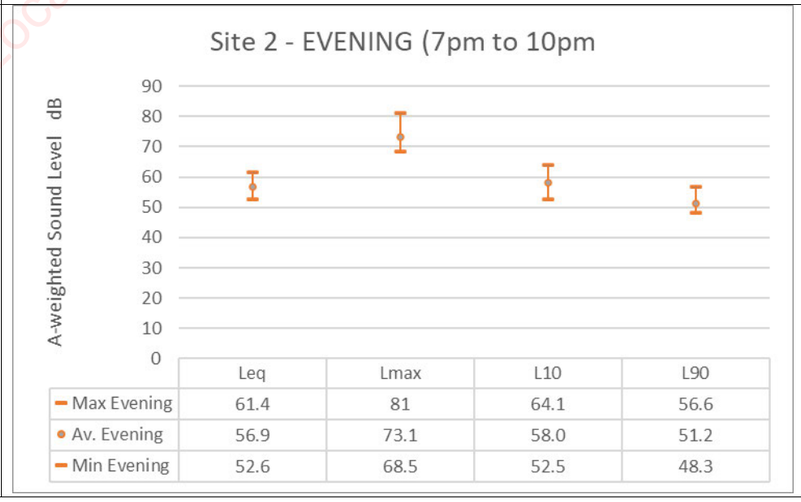
Site Number: 2	14 Marine Parade, Petone	General Business

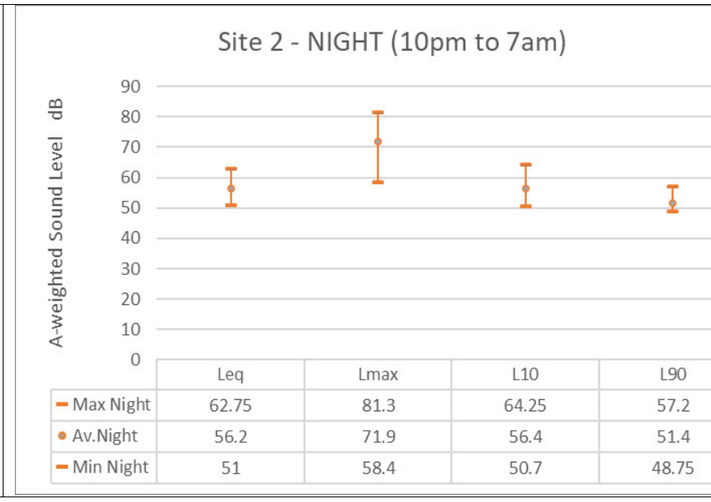


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	67	89.6	70	63.1
	Min Day	54.6	69.1	56	47.8
	Av. Day	**60.2**	**75.6**	**62.6**	**52.9**
EVENING	Max Evening	61.4	81	64.1	56.6
	Min Evening	52.6	68.5	52.5	48.3
	Av. Evening	**56.9**	**73.1**	**58.0**	**51.2**
NIGHT	Max Night	62.75	81.3	64.25	57.2
	Min Night	51	58.4	50.7	48.75
	Av.Night	**56.2**	**71.9**	**56.4**	**51.4**







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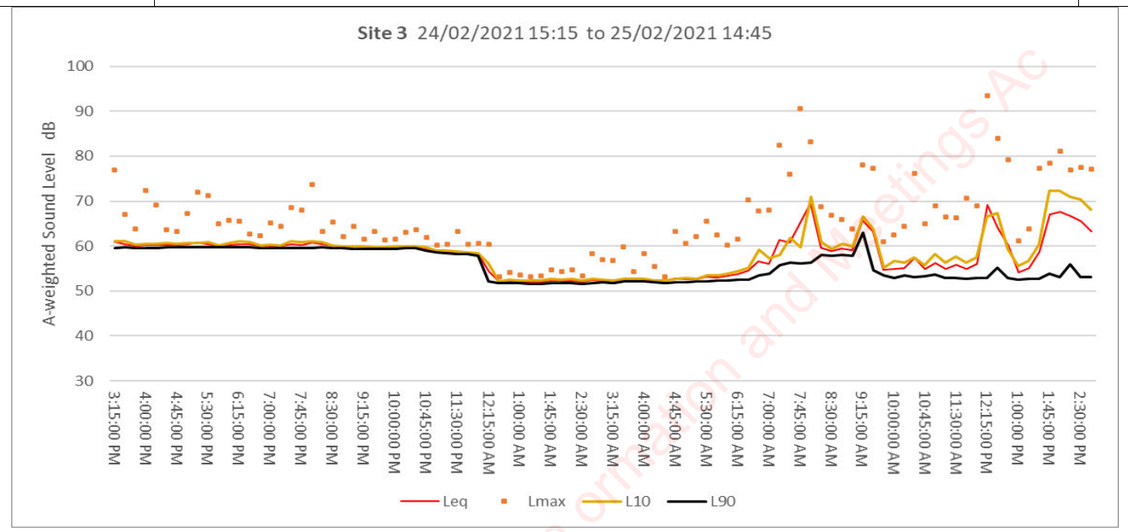
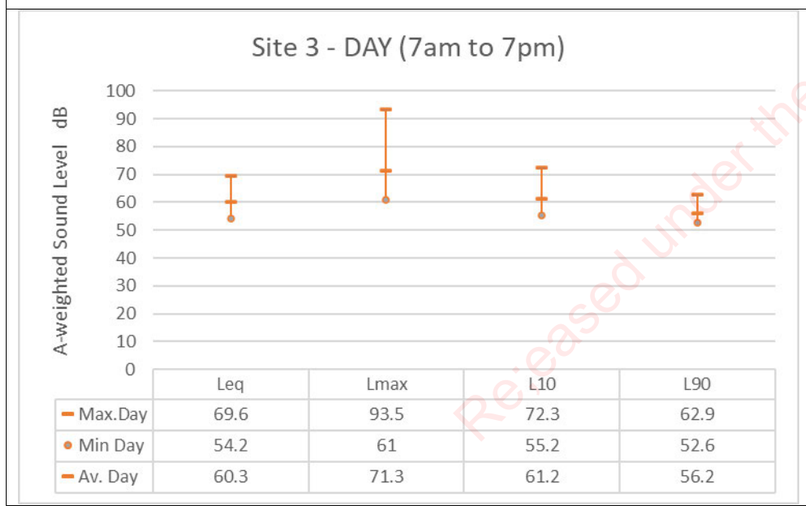
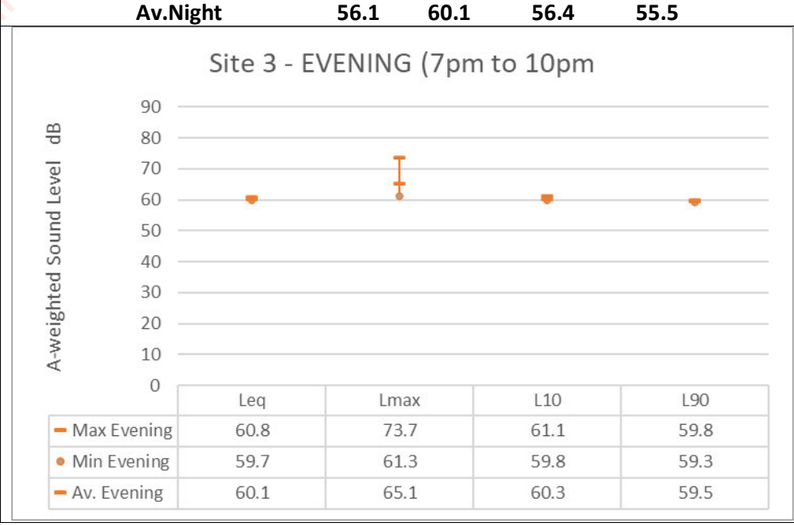
Site Number: 3	17 Wareham Place, Seaview (wastewater Treatment Plant)	Special Business

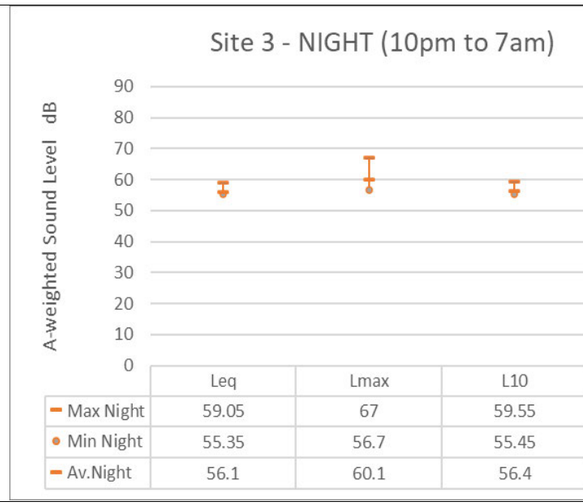


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	69.6	93.5	72.3	62.9
	Min Day	54.2	61	55.2	52.6
	Av. Day	**60.3**	**71.3**	**61.2**	**56.2**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	60.8	73.7	61.1	59.8
	Min Evening	59.7	61.3	59.8	59.3
	Av. Evening	**60.1**	**65.1**	**60.3**	**59.5**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	59.05	67	59.55	58.65
	Min Night	55.35	56.7	55.45	54.95
	Av.Night	**56.1**	**60.1**	**56.4**	**55.5**







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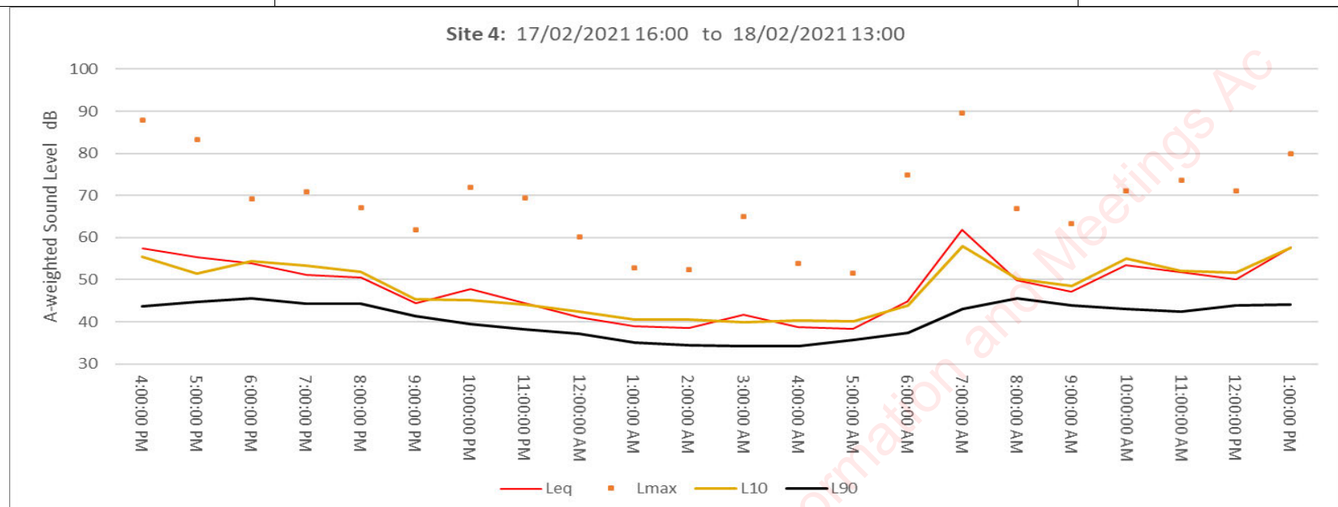
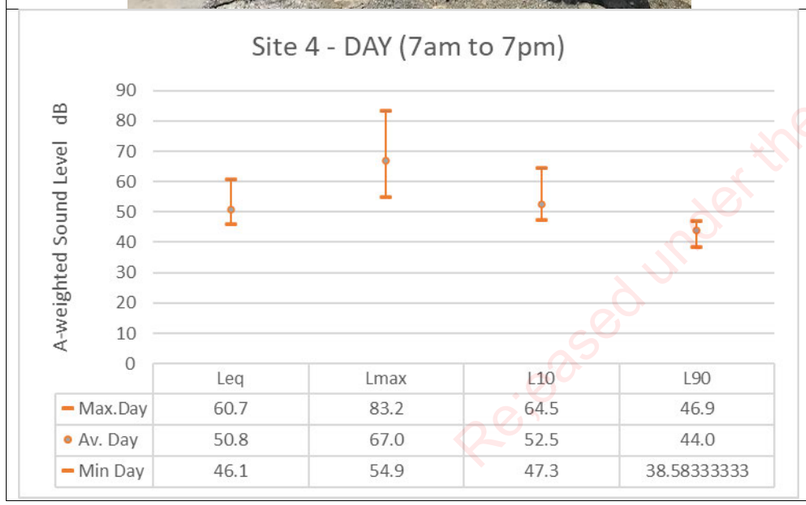
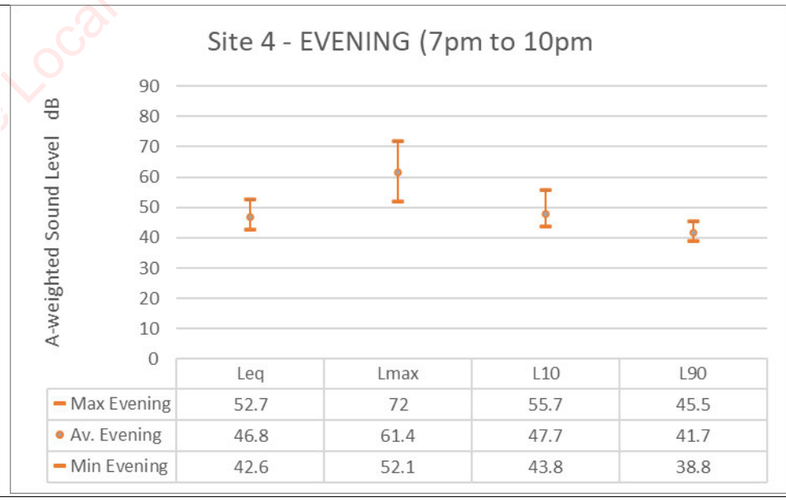
Site Number: 4	794 High Street Boulcott, (Brewery)	Suburban Mixed

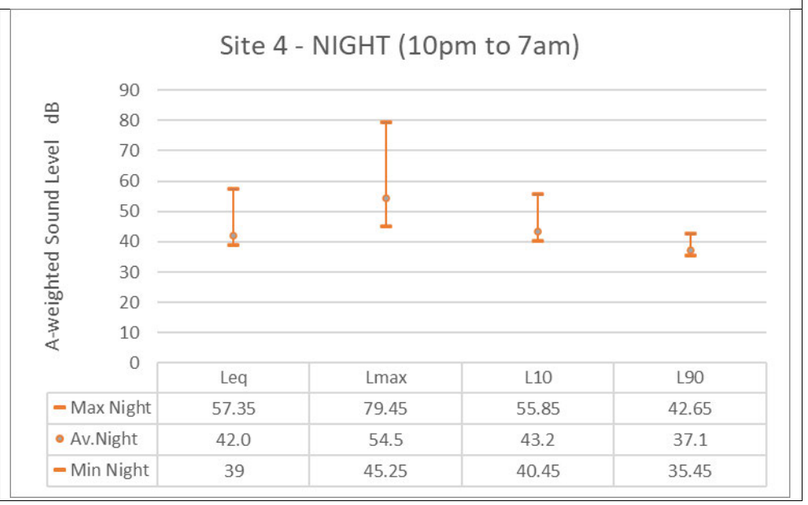


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	60.7	83.2	64.5	46.9
	Min Day	46.1	54.9	47.3	38.5
	Av. Day	**50.8**	**67.0**	**52.5**	**44.0**
EVENING	Max Evening	52.7	72	55.7	45.5
	Min Evening	42.6	52.1	43.8	38.8
	Av. Evening	**46.8**	**61.4**	**47.7**	**41.7**
NIGHT	Max Night	57.4	79.5	55.9	42.7
	Min Night	39.0	45.3	40.5	35.5
	Av.Night	**42.0**	**54.5**	**43.2**	**37.1**







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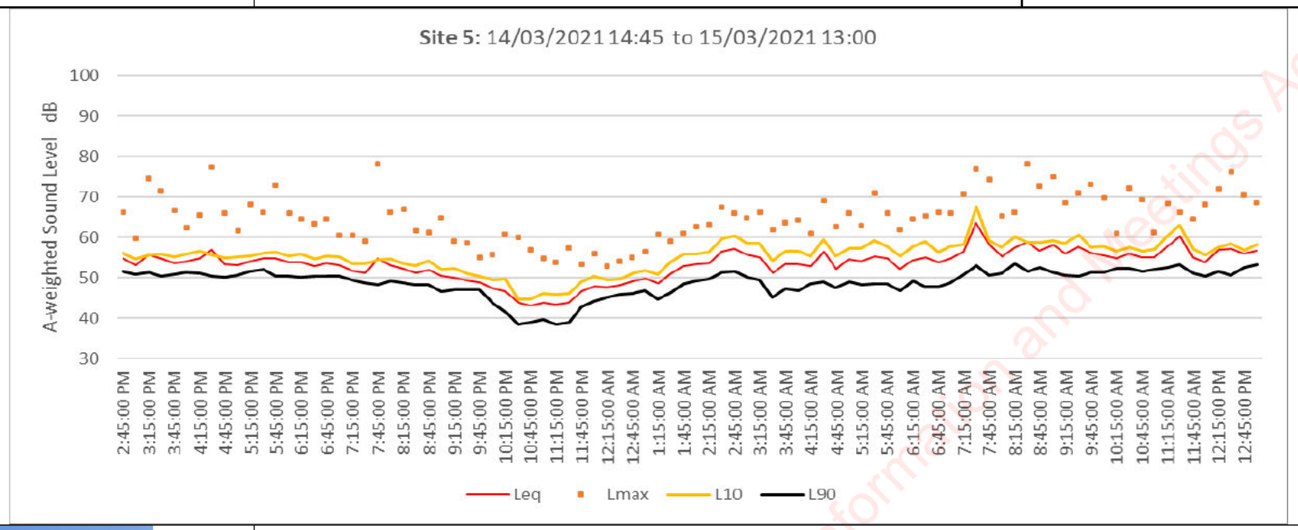
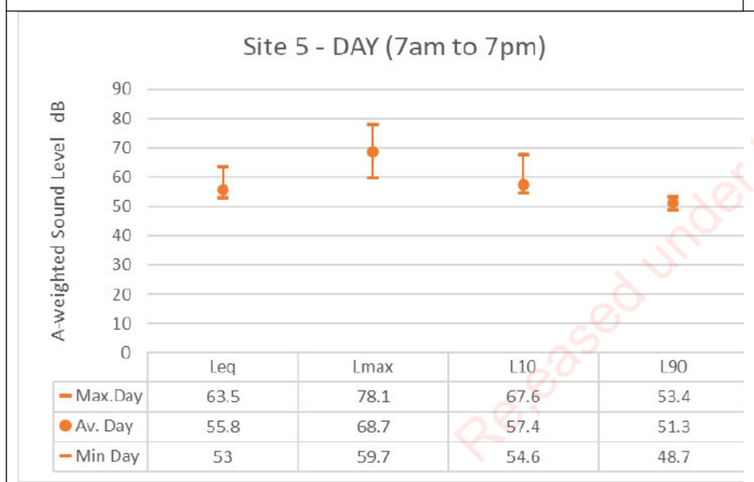
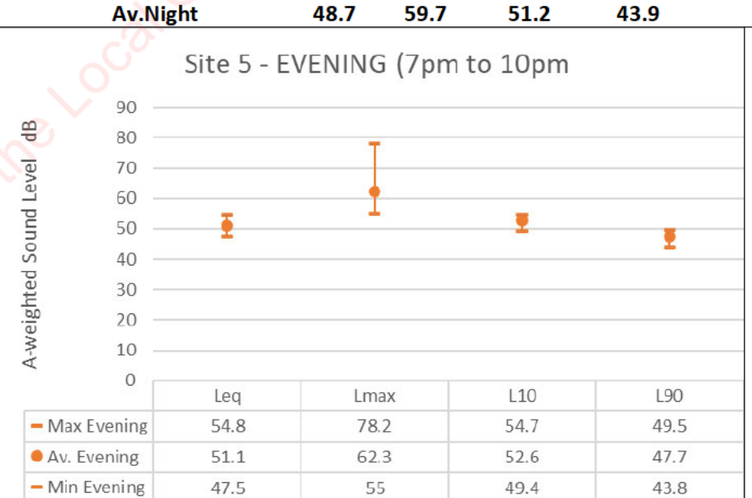
Site Number: 5	21 Rimu Street Eastbourne	Suburban Mixed

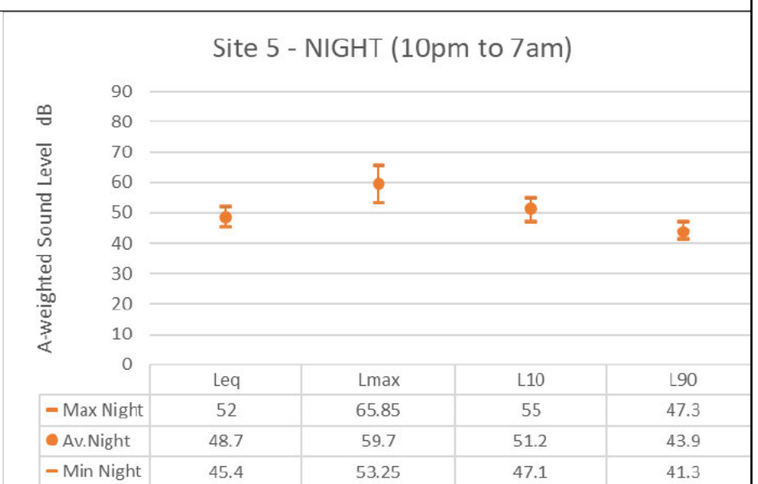


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	63.5	78.1	67.6	53.4
	Min Day	53	59 7	54.6	48.7
	Av. Day	**55.8**	**68.7**	**57.4**	**51.3**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	54.8	78.2	54.7	49.5
	Min Evening	47.5	55	49.4	43.8
	Av. Evening	**51.1**	**62.3**	**52.6**	**47.7**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	52	65.8	55	47.3
	Min Night	45.4	53.25	47.1	41.3
	Av.Night	**48.7**	**59.7**	**51.2**	**43.9**







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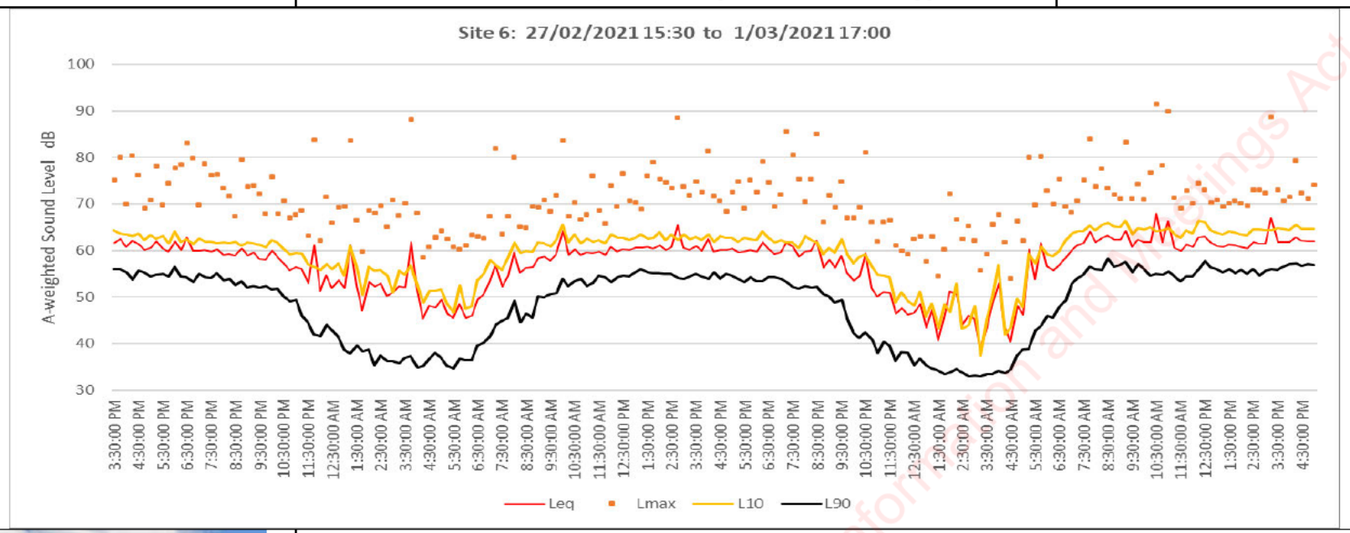
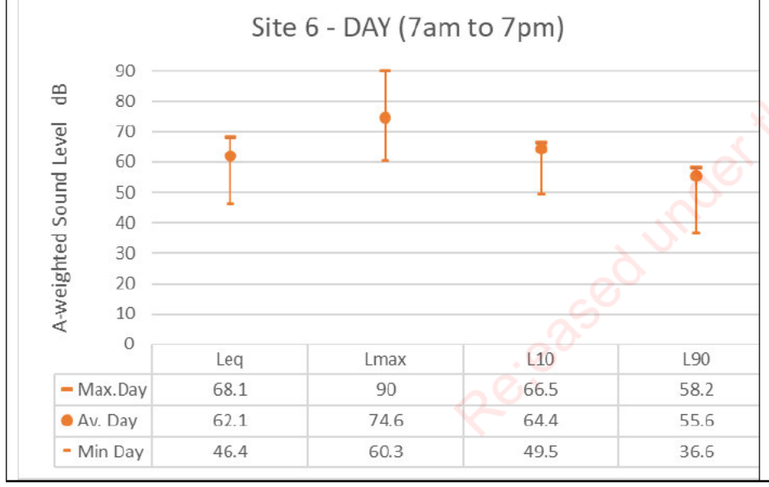
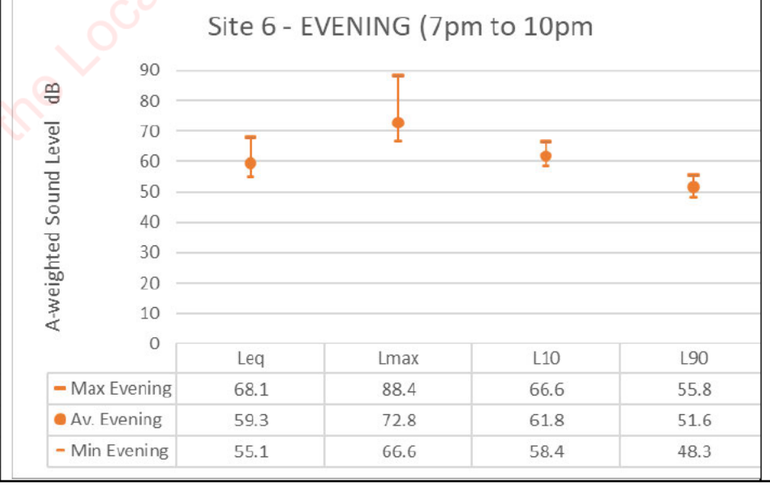
Site Number: 6	362-364 Jackson Street, Petone (Ist floor balcony)	Petone Commercial

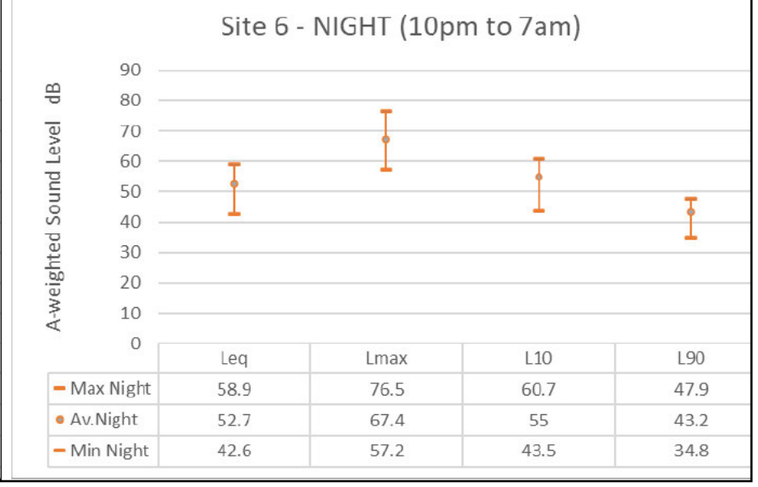


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	68.1	90	66.5	58.2
	Min Day	46.4	60 3	49.5	36.6
	Av. Day	62.1	74.6	64.4	55.6
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	68.1	88.4	66.6	55.8
	Min Evening	55.1	66.6	58.4	48.3
	Av. Evening	59.3	72.8	61.8	51.6
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	58.9	76.5	60.7	47.9
	Min Night	42.6	57.2	43.5	34.8
	Av.Night	52.7	67.4	55	43.2







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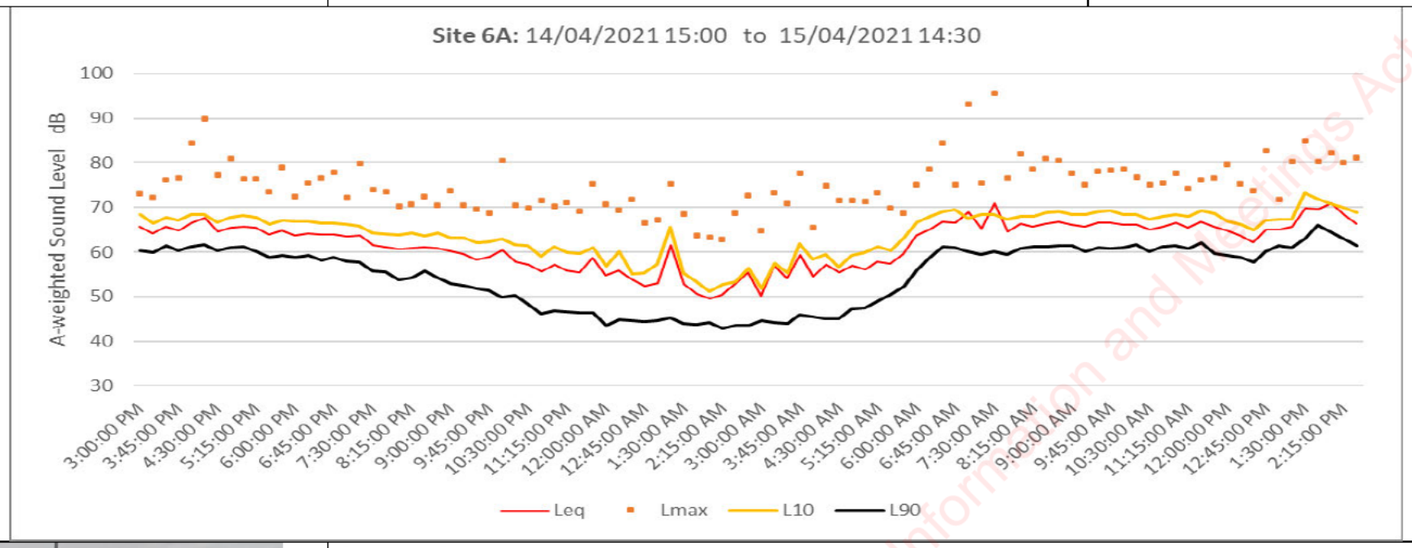
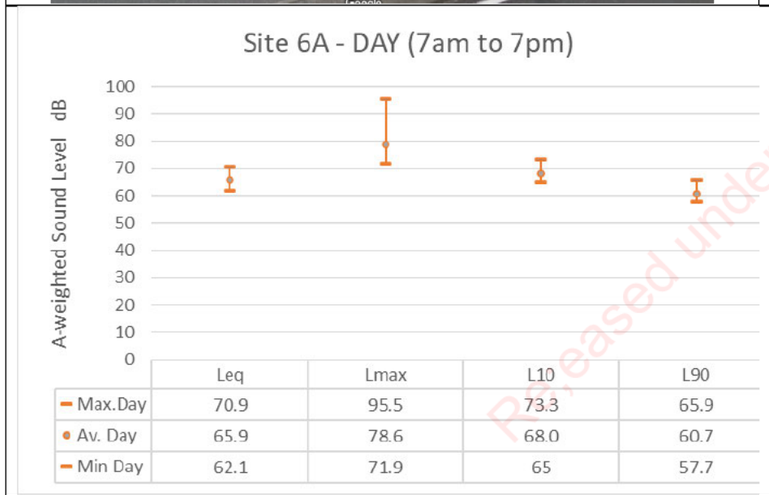
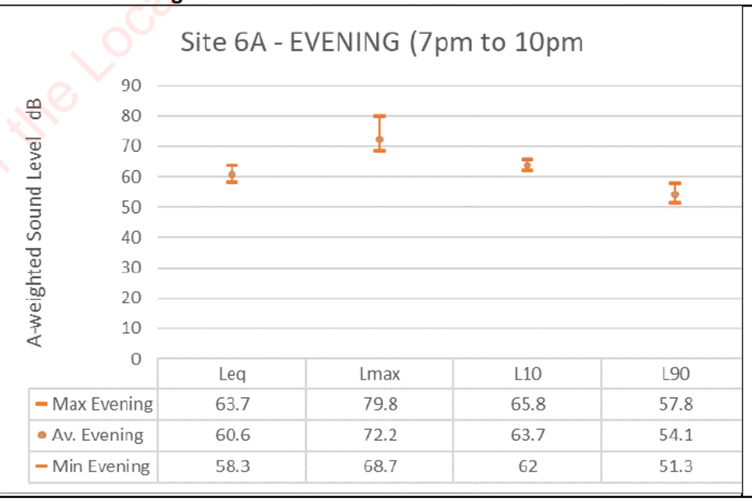
Site Number: 6A	Level 1, 1 Jackson Street Petone (1st floor deck)	Petone Commercial

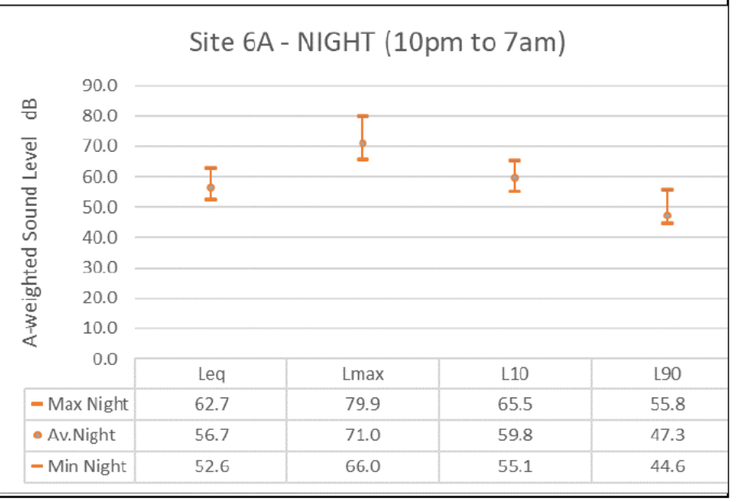


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	70.9	95.5	73.3	65.9
	Min Day	62.1	71 9	65	57.7
	Av. Day	**65.9**	**78.6**	**68.0**	**60.7**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	63.7	79.8	65.8	57.8
	Min Evening	58.3	68.7	62	51.3
	Av. Evening	**60.6**	**72.2**	**63.7**	**54.1**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	62.7	79.9	65.5	55.8
	Min Night	52.6	66.0	55.1	44.6
	Av Night	**56.7**	**71.0**	**59.8**	**47.3**







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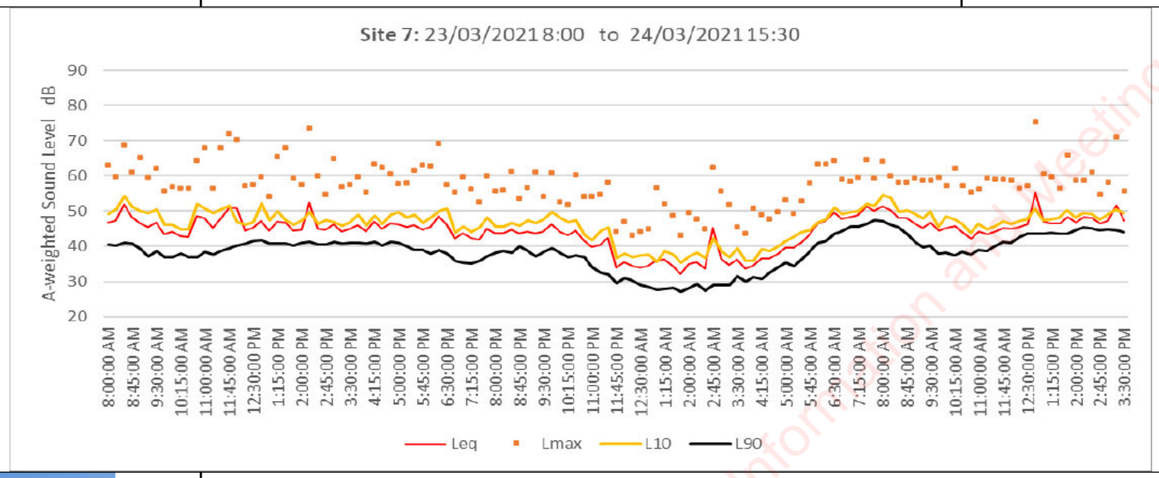
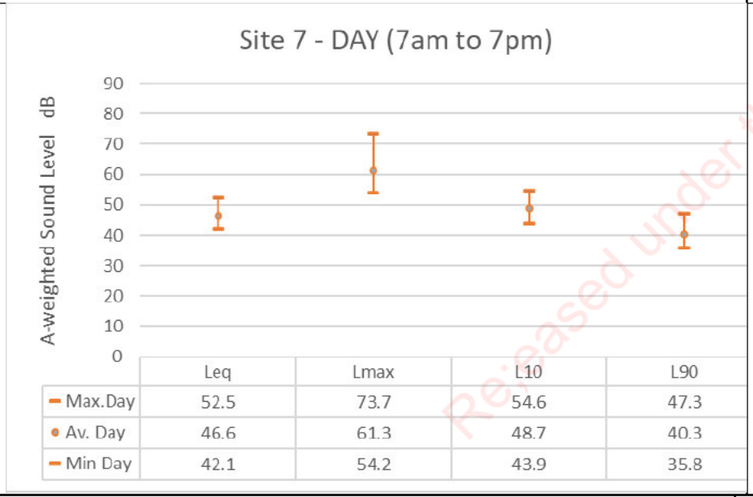
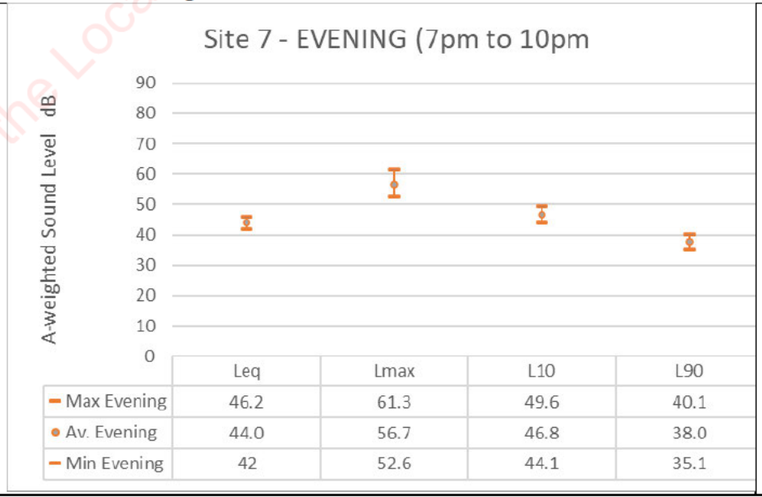
Site Number: 7	4-6 Heretaunga Street, Petone	Medium Density

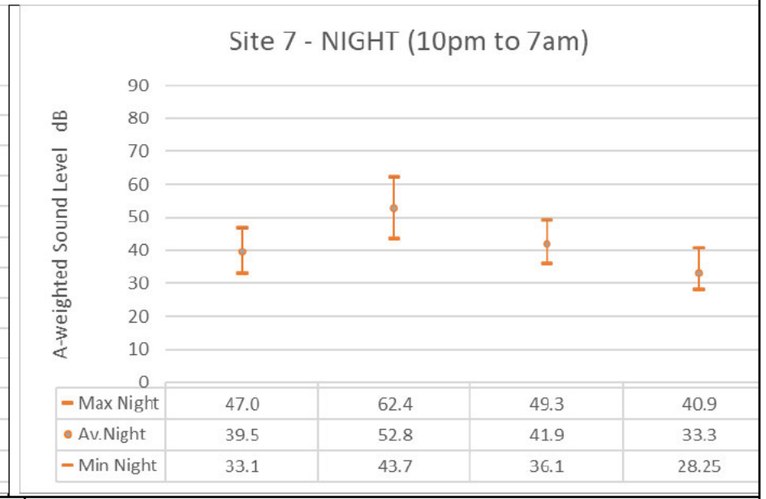


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	52.5	73 7	54.6	47.3
	Min Day	42.1	54.2	43.9	35.8
	Av. Day	**46.6**	**61.3**	**48.7**	**40.3**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	46.2	61.3	49.6	40.1
	Min Evening	42	52.6	44.1	35.1
	Av. Evening	**44.0**	**56.7**	**46.8**	**38.0**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	47.0	62.4	49.3	40.9
	Min Night	33.1	43.7	36.1	28.2
	Av.Night	**39.5**	**52.8**	**41.9**	**33.3**







Site Number: 8	63 Hay Street Naenae	General Residential

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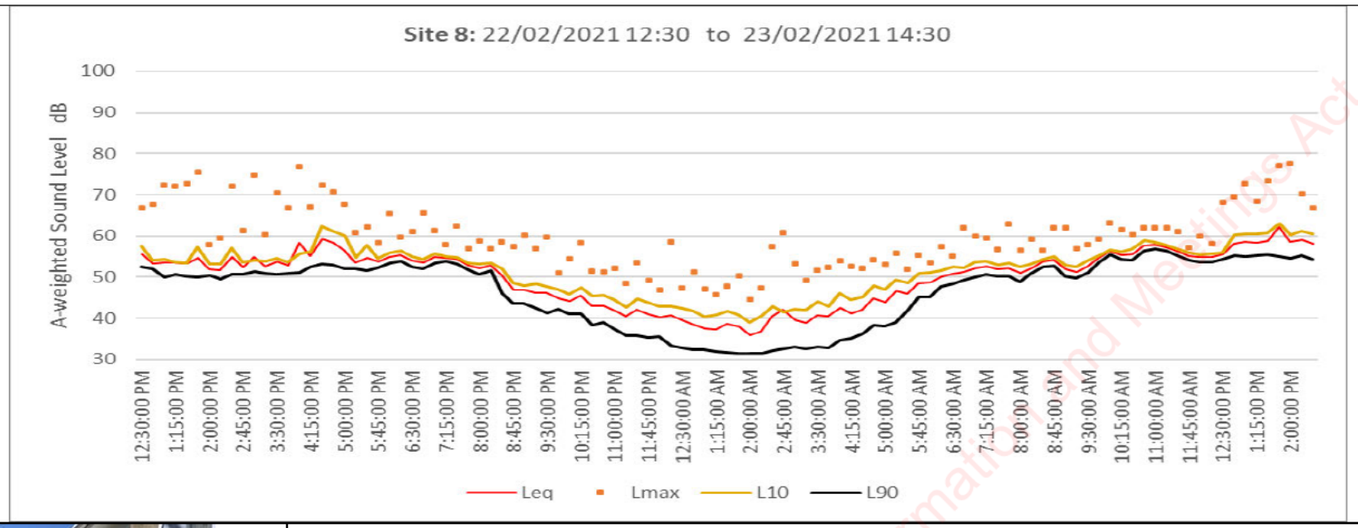
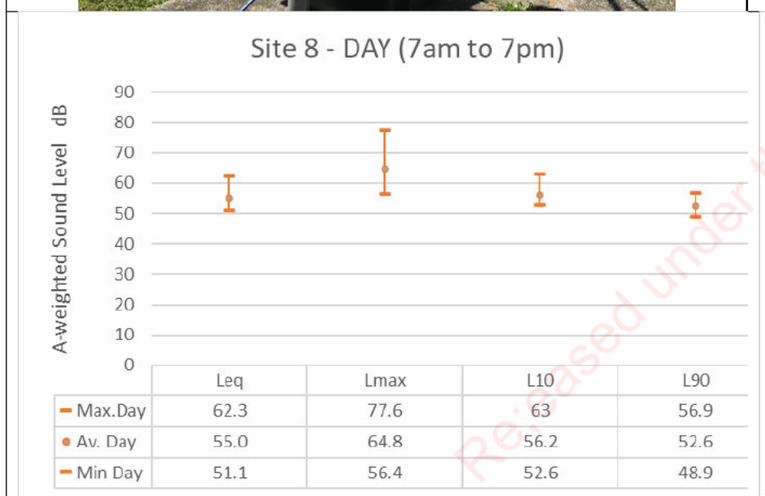
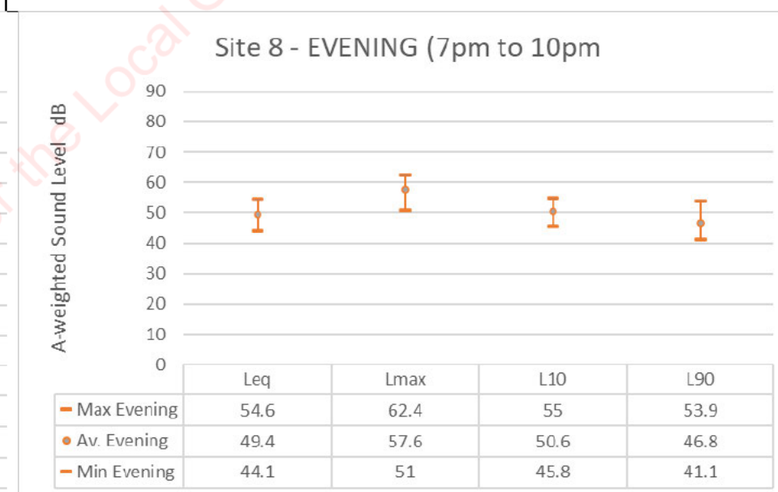
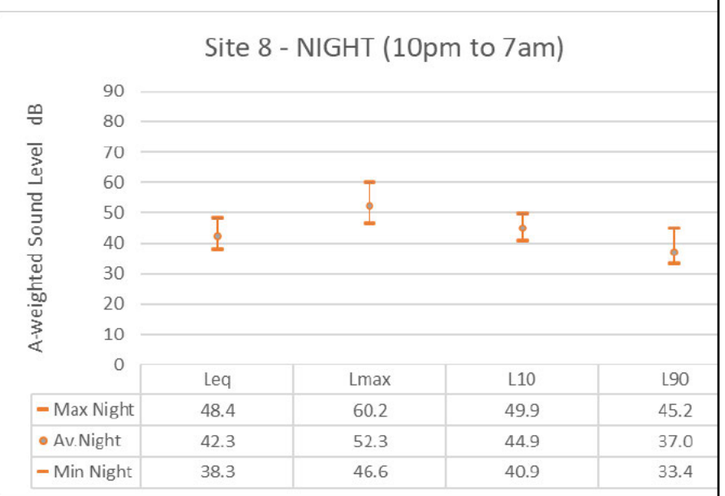


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	62.3	77.6	63	56.9
	Min Day	51.1	56.4	52.6	48.9
	Av. Day	**55.0**	**64.8**	**56.2**	**52.6**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	54.6	62.4	55	53.9
	Min Evening	44.1	51	45.8	41.1
	Av. Evening	**49.4**	**57.6**	**50.6**	**46.8**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	48.4	60.2	49.9	45.2
	Min Night	38.3	46.6	40.9	33.4
	Av.Night	**42.3**	**52.3**	**44.9**	**37.0**







Site Number: 9 | **57 Queens Grove, CBD** | **General Residential**

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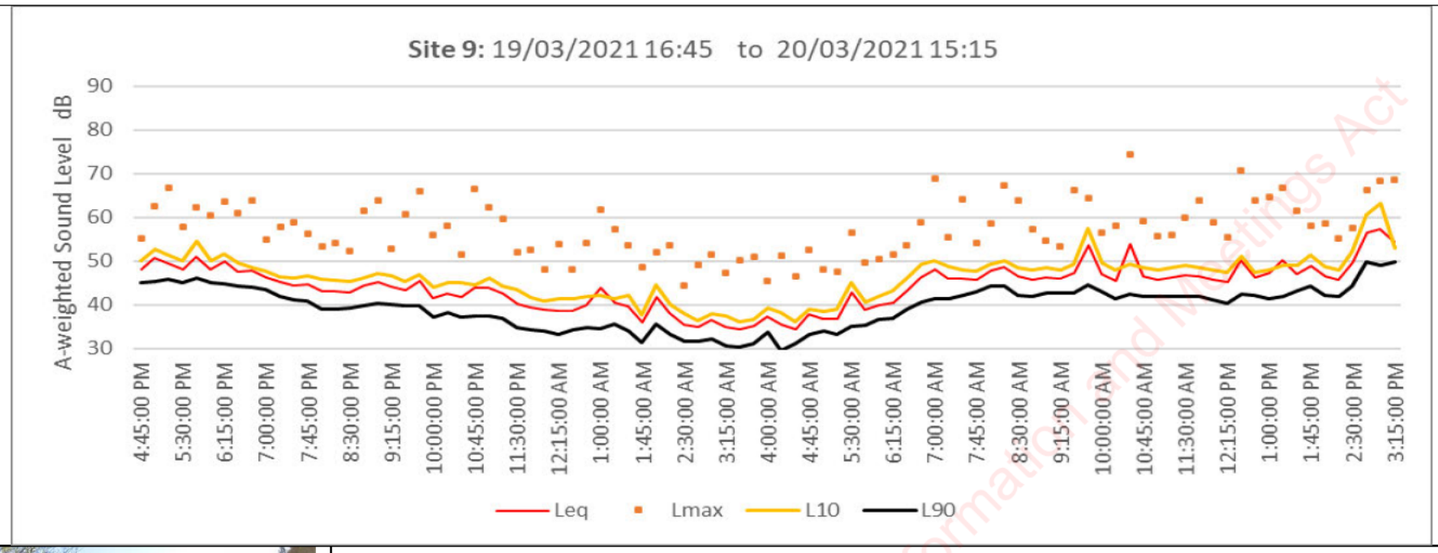
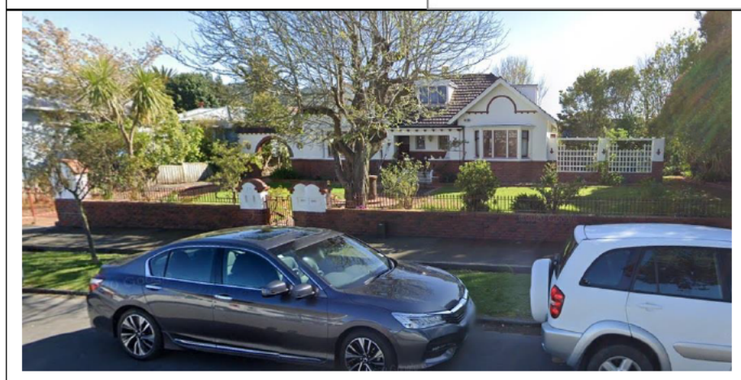
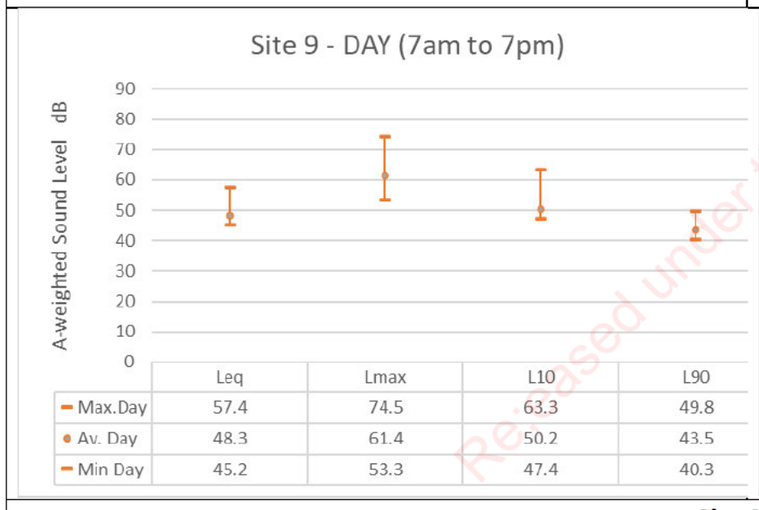
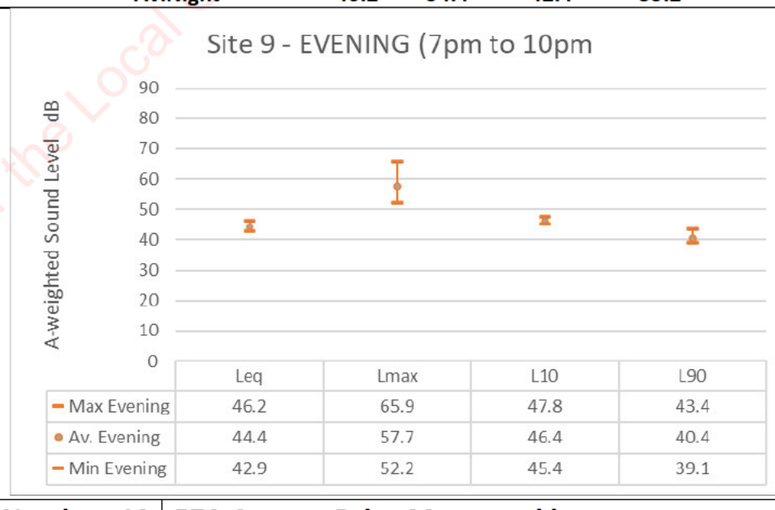


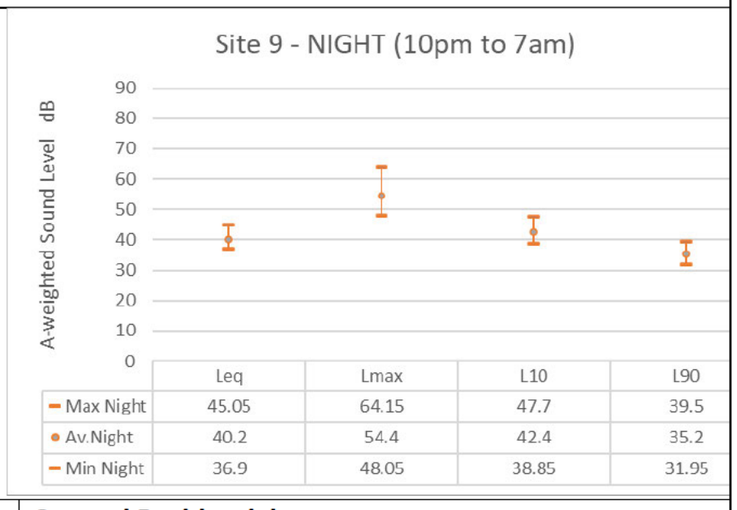


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	57.4	74.5	63.3	49.8
	Min Day	45.2	53.3	47.4	40.3
	Av. Day	**48.3**	**61.4**	**50.2**	**43.5**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	46.2	65.9	47.8	43.4
	Min Evening	42.9	52.2	45.4	39.1
	Av. Evening	**44.4**	**57.7**	**46.4**	**40.4**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	45.05	64.15	47.7	39.5
	Min Night	36.9	48.05	38.85	31.95
	Av.Night	**40.2**	**54.4**	**42.4**	**35.2**







Site Number: 10 | **57A Cypress Drive Maungaraki** | **General Residential**

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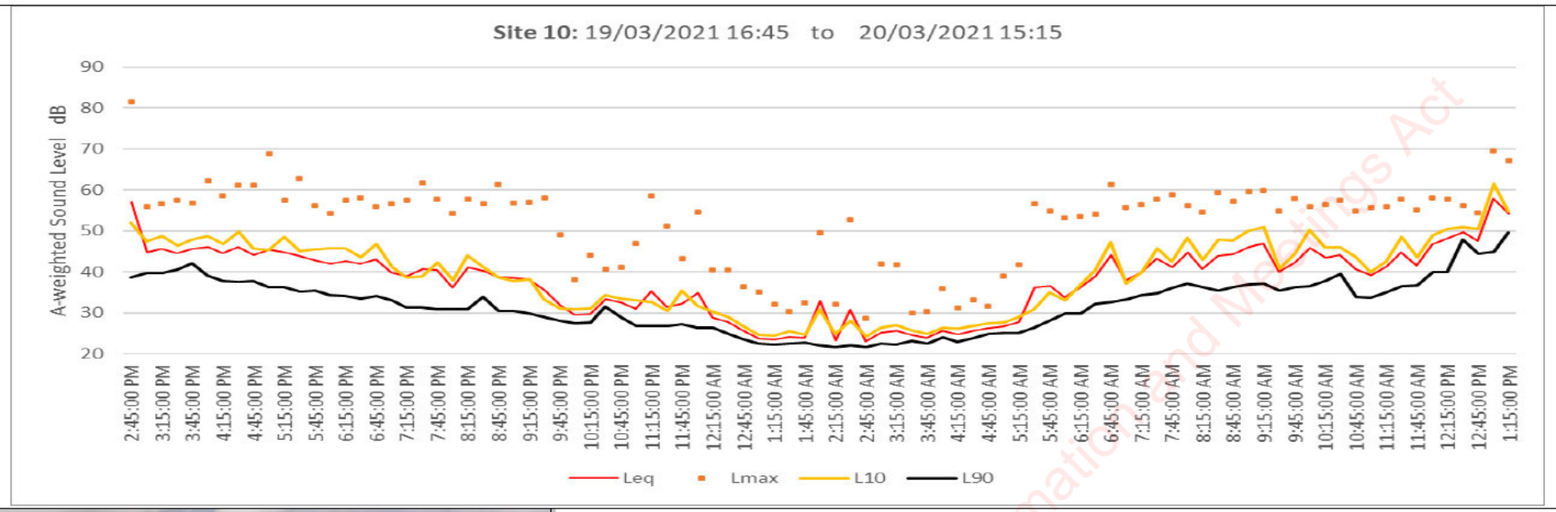
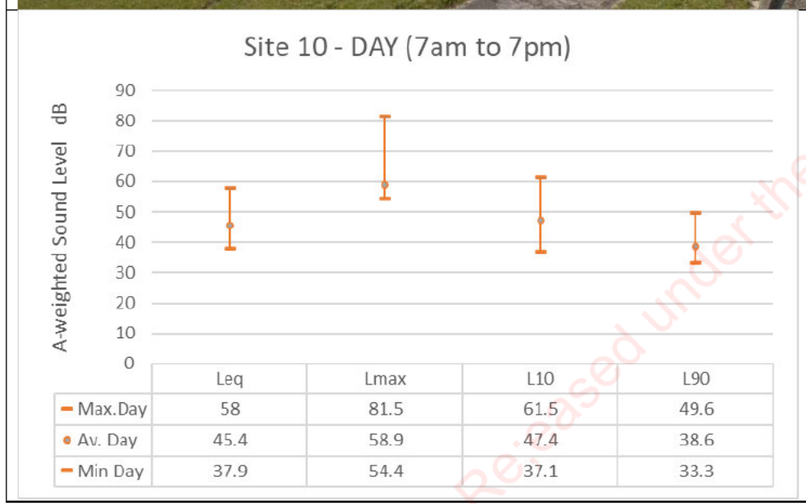
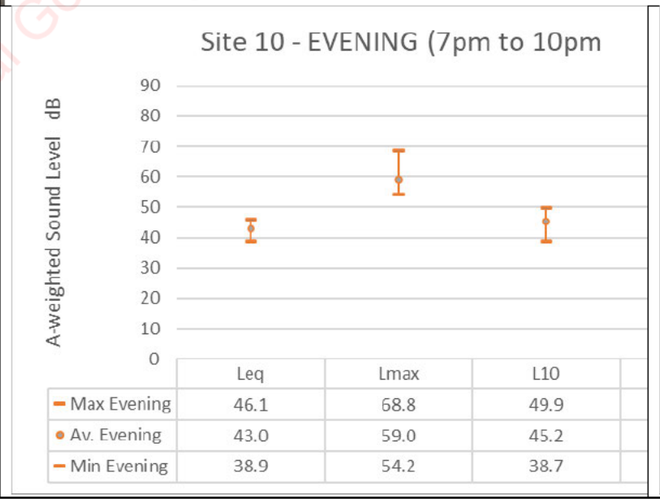
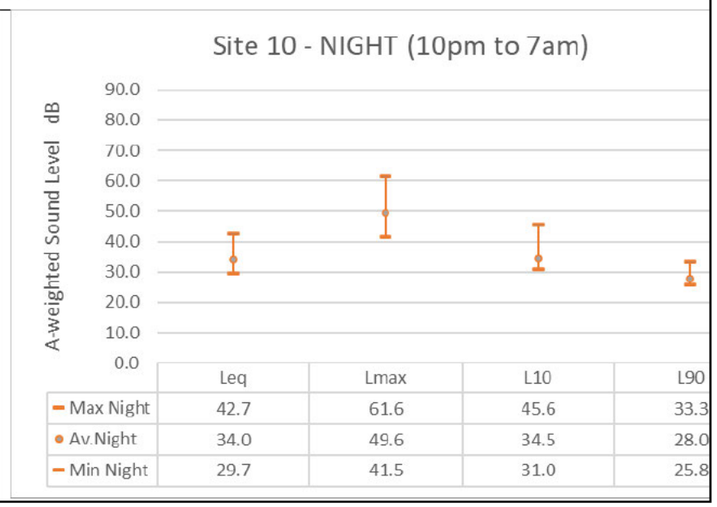


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	58	81.5	61.5	49.6
	Min Day	37.9	54.4	37.1	33.3
	Av. Day	**45.4**	**58.9**	**47.4**	**38.6**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	46.1	68.8	49.9	37.7
	Min Evening	38.9	54.2	38.7	31.4
	Av. Evening	**43.0**	**59.0**	**45.2**	**35.0**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	42.7	61.6	45.6	33.3
	Min Night	29.7	41.5	31.0	25.8
	Av.Night	**34.0**	**49.6**	**34.5**	**28.0**







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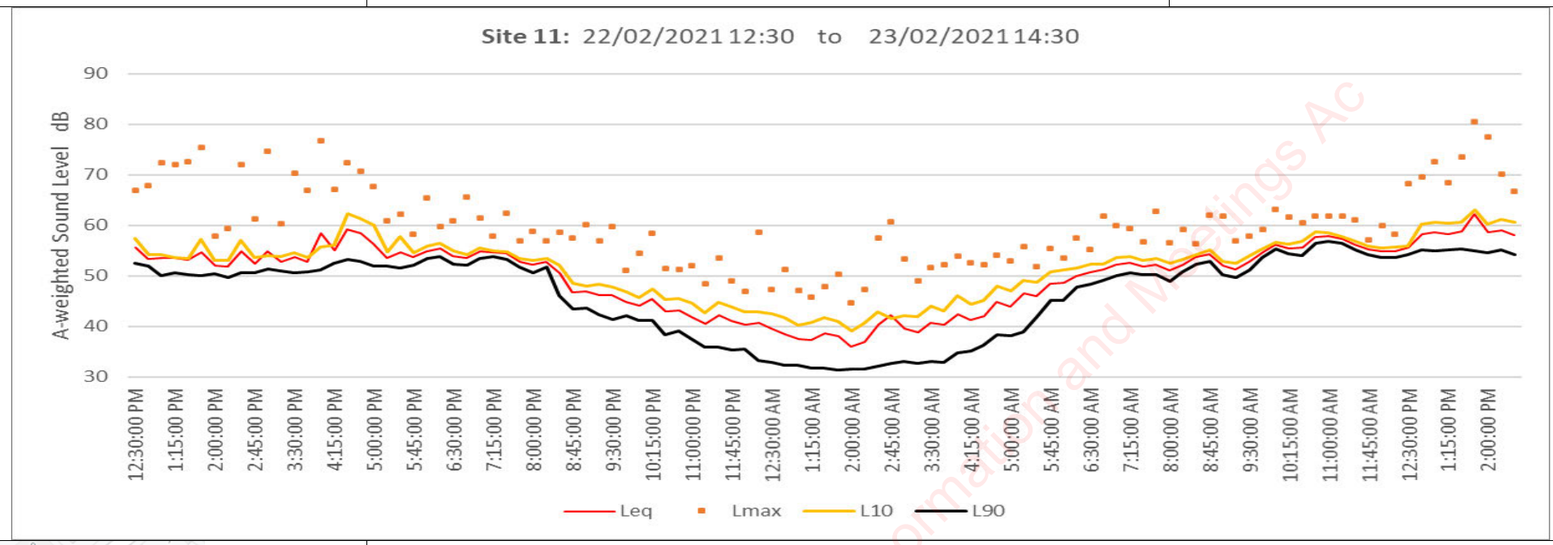
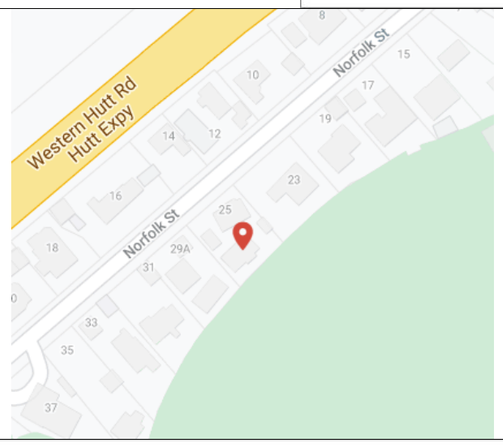
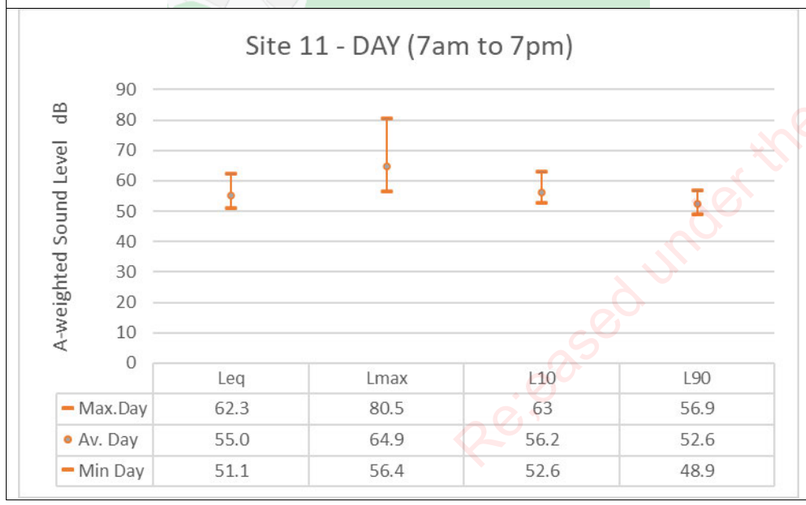
Site Number: 11	2/25B Norfolk Street Belmont	General Residential

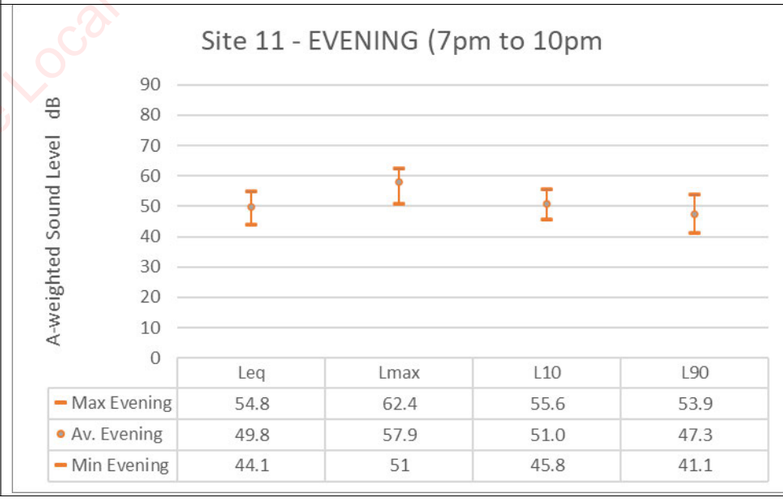


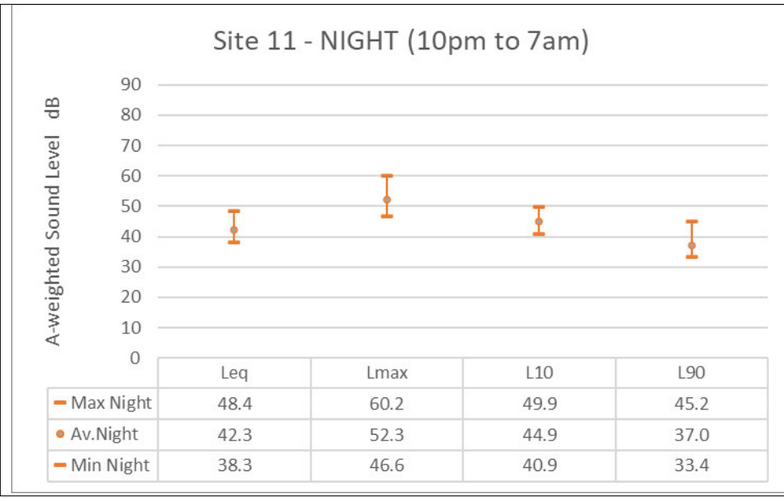


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	62.3	80.5	63	56.9
	Min Day	51.1	56.4	52.6	48.9
	Av. Day	**55 0**	**64.9**	**56.2**	**52.6**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	54.8	62.4	55.6	53.9
	Min Evening	44.1	51	45.8	41.1
	Av. Evening	**49.8**	**57.9**	**51.0**	**47.3**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	48.4	60.2	49.9	45.2
	Min Night	38.3	46.6	40.9	33.4
	Av.Night	**42.3**	**52.3**	**44.9**	**37.0**







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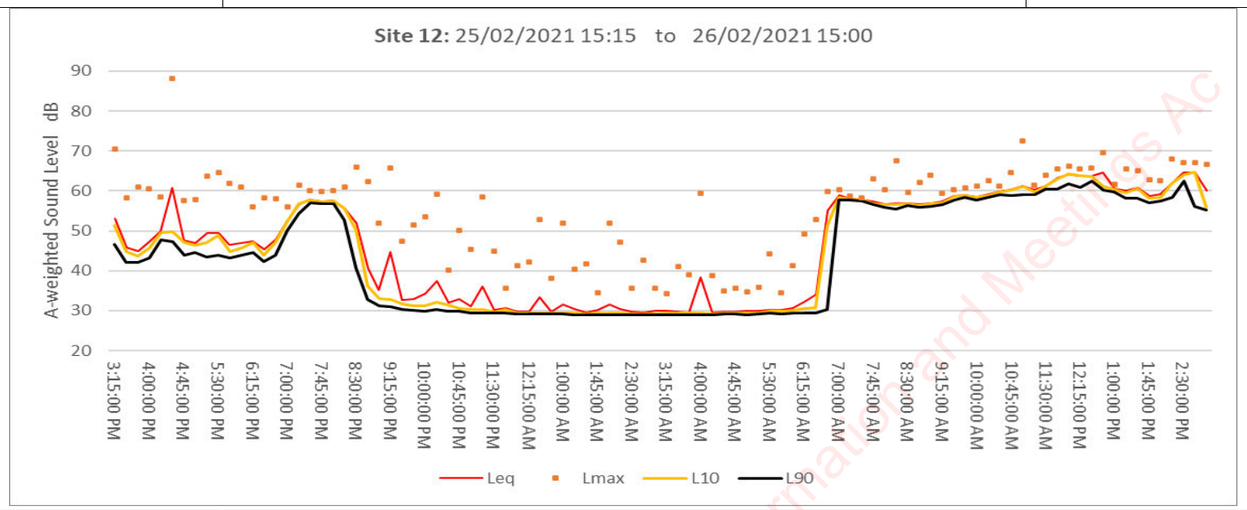
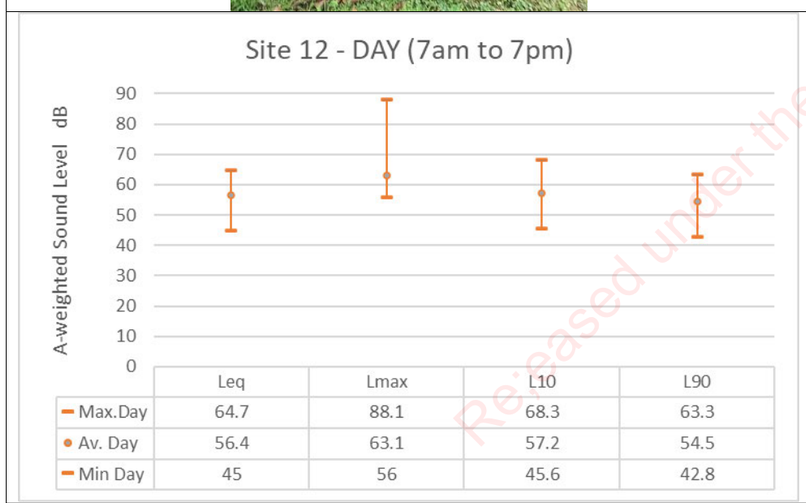
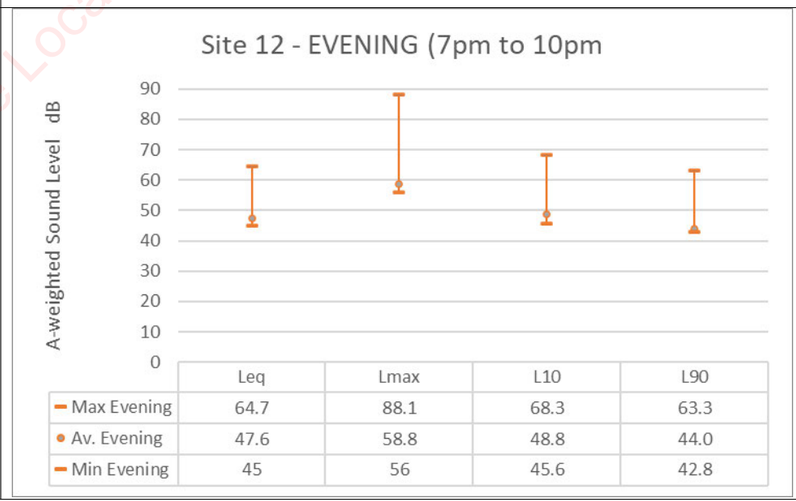
Site Number: 12	26A Kotari Road Days Bay	General Residential

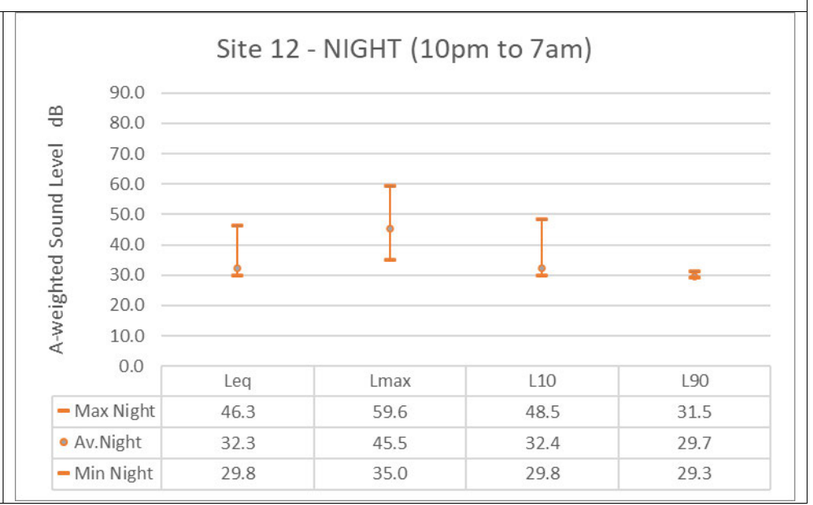


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	64.7	88.1	68.3	63.3
	Min Day	45	56	45.6	42.8
	Av. Day	**56.4**	**63.1**	**57.2**	**54.5**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	64.7	88.1	68.3	63.3
	Min Evening	45	56	45.6	42.8
	Av. Evening	**47.6**	**58.8**	**48.8**	**44.0**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	46.3	59.6	48.5	31.5
	Min Night	29.8	35.0	29.8	29.3
	Av.Night	**32.3**	**45.5**	**32.4**	**29.7**







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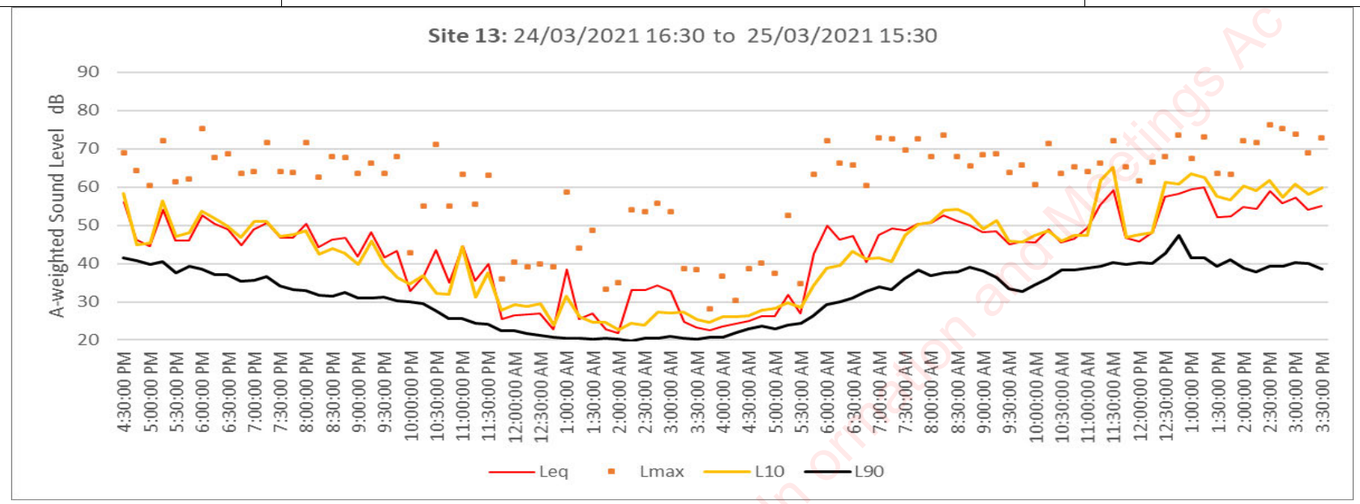
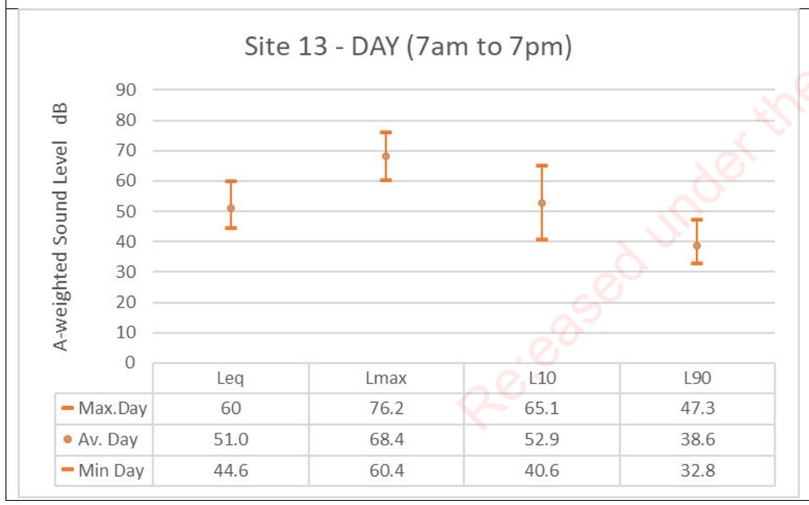
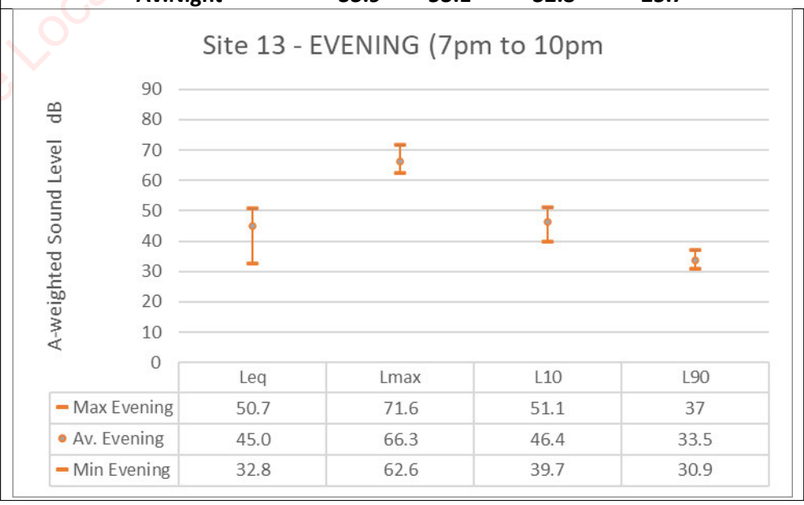
Site Number: 13	27 Bull Avenue, Wainuomata	General Residential

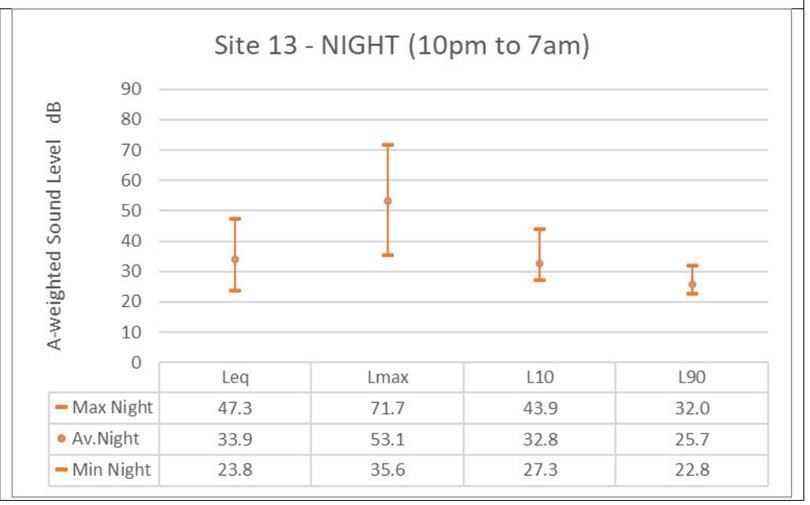


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	60	76.2	65.1	47.3
	Min Day	44.6	60.4	40.6	32.8
	Av. Day	**51.0**	**68.4**	**52.9**	**38.6**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	50.7	71.6	51.1	37
	Min Evening	32.8	62.6	39.7	30.9
	Av. Evening	**45.0**	**66.3**	**46.4**	**33.5**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	47.3	71.7	43.9	32.0
	Min Night	23.8	35.6	27.3	22.8
	Av.Night	**33.9**	**53.1**	**32.8**	**25.7**







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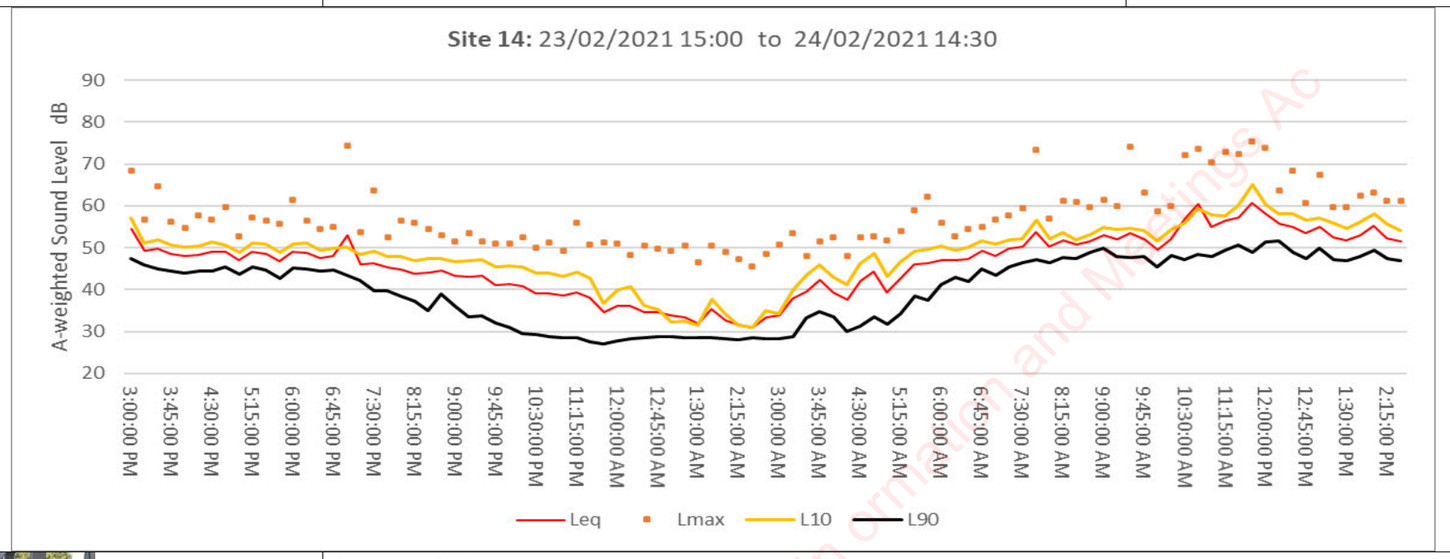
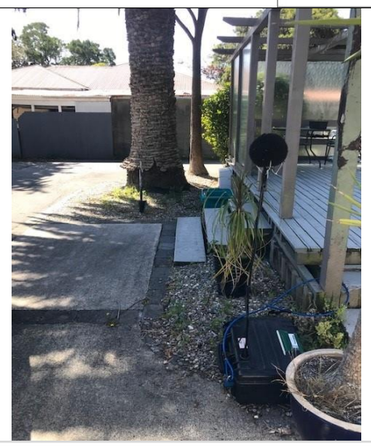
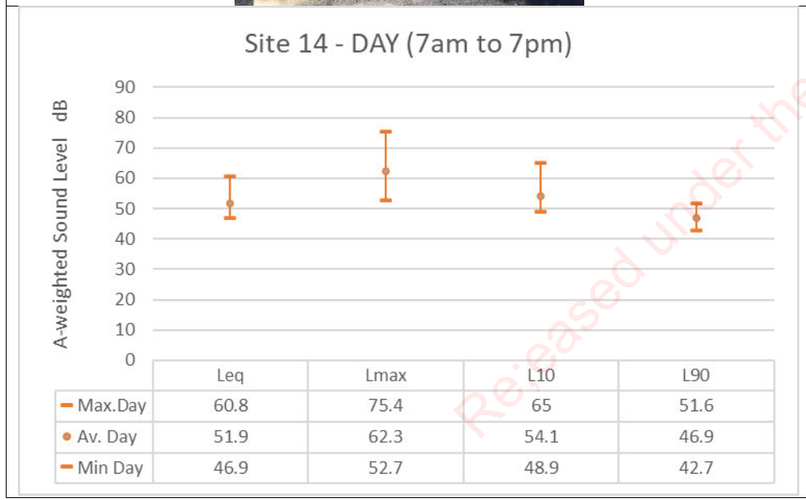
Site Number: 14	177A Stokes Valley Road, Stokes Valley	General Residential

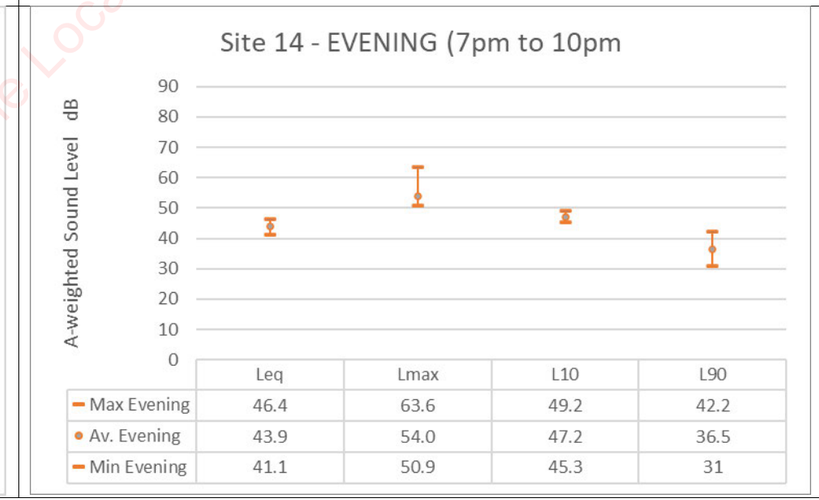


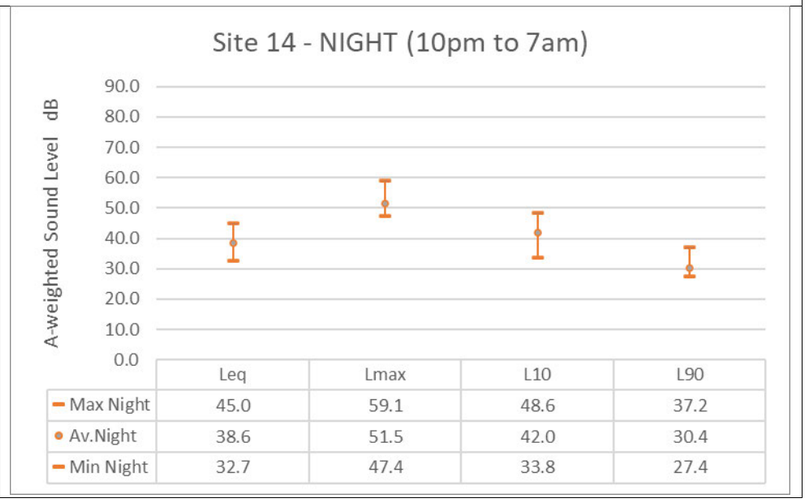


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	60.8	75.4	65	51.6
	Min Day	46.9	52.7	48.9	42.7
	Av. Day	**51.9**	**62.3**	**54.1**	**46.9**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	46.4	63.6	49.2	42.2
	Min Evening	41.1	50.9	45.3	31
	Av. Evening	**43.9**	**54.0**	**47.2**	**36.5**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	45.0	59.1	48.6	37.2
	Min Night	32.7	47.4	33.8	27.4
	Av.Night	**38.6**	**51.5**	**42.0**	**30.4**







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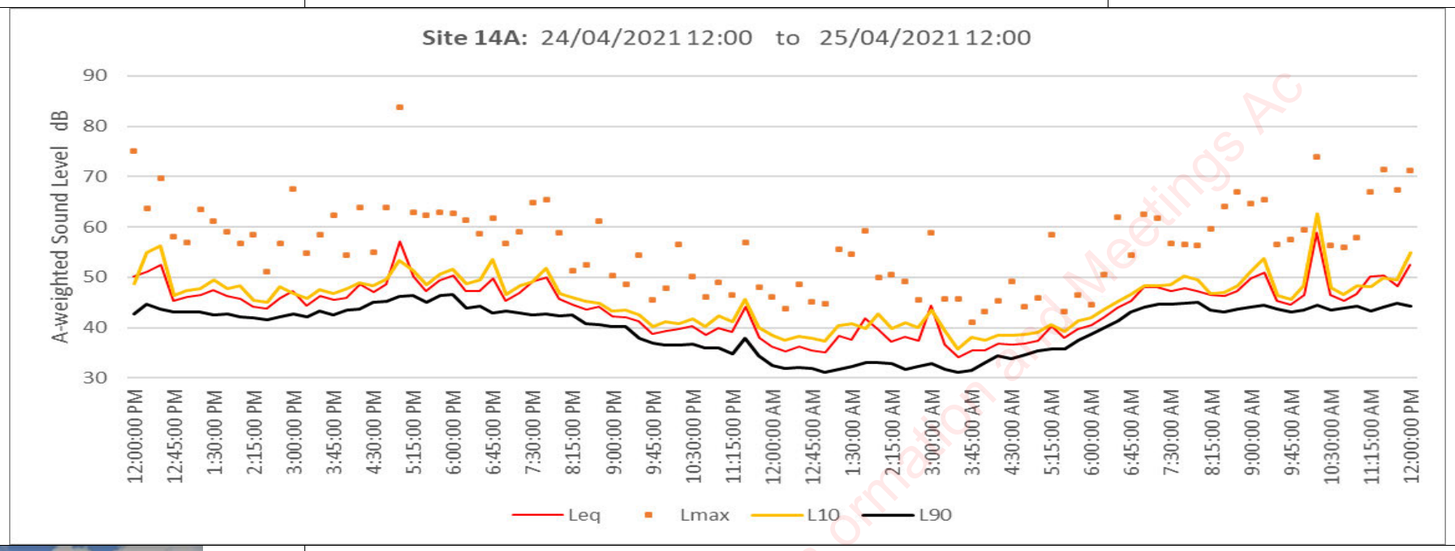
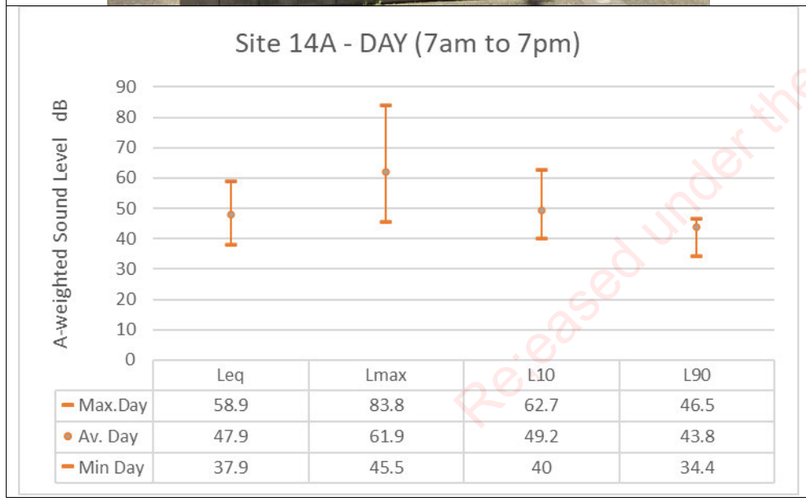
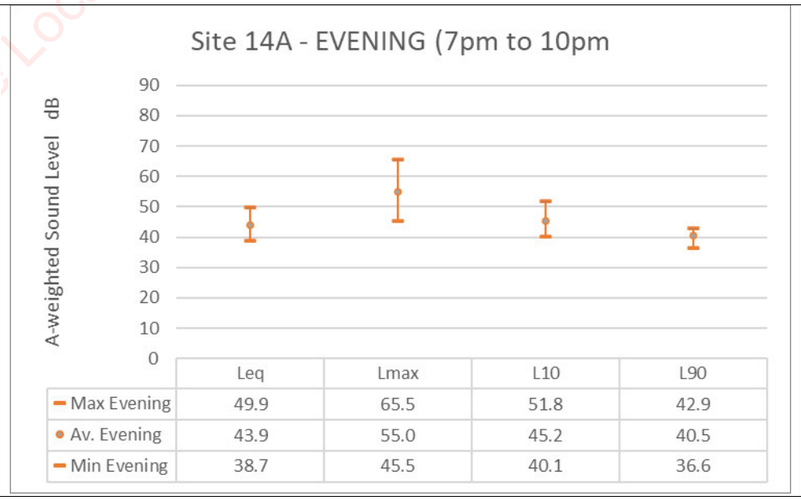
Site Number: 14A	20 Harrison Grove, Avalon	General Residential

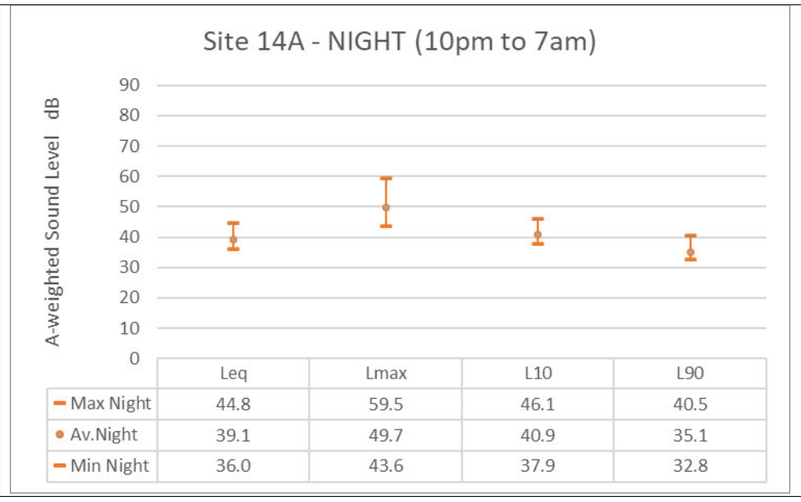


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	58.9	83 8	62.7	46.5
	Min Day	37.9	45.5	40	34.4
	Av. Day	**47.9**	**61.9**	**49.2**	**43.8**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	49.9	65.5	51.8	42.9
	Min Evening	38.7	45.5	40.1	36.6
	Av. Evening	**43.9**	**55.0**	**45.2**	**40.5**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	44.8	59.5	46.1	40.5
	Min Night	36.0	43.6	37.9	32.8
	Av.Night	**39.1**	**49.7**	**40.9**	**35.1**







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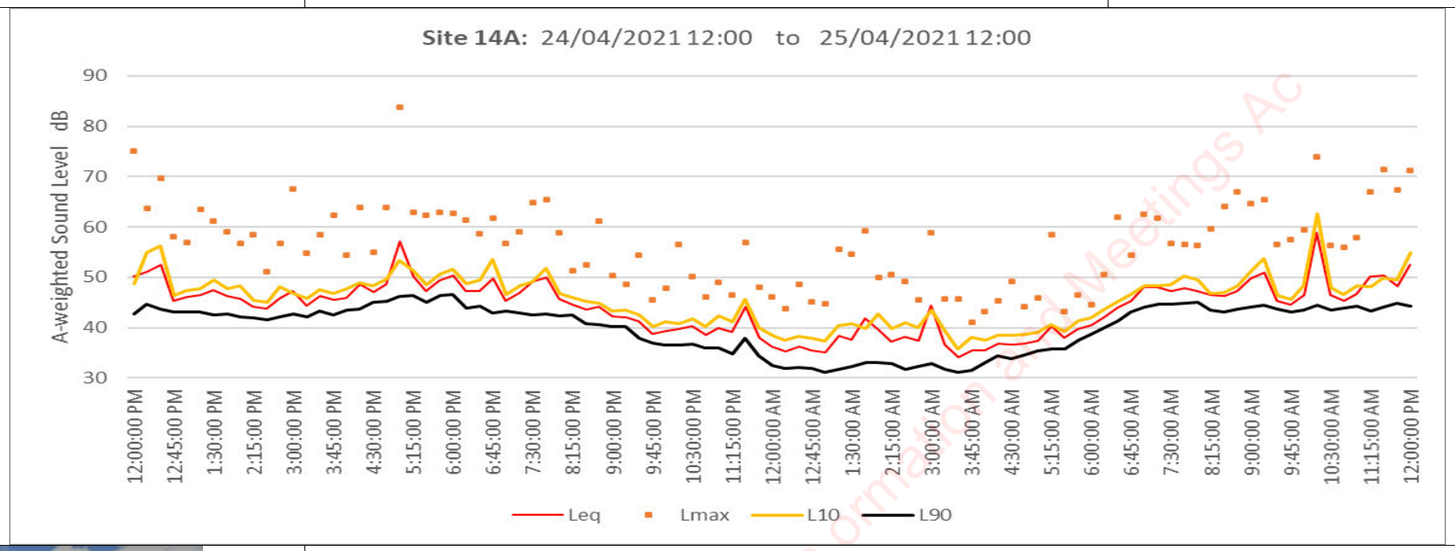
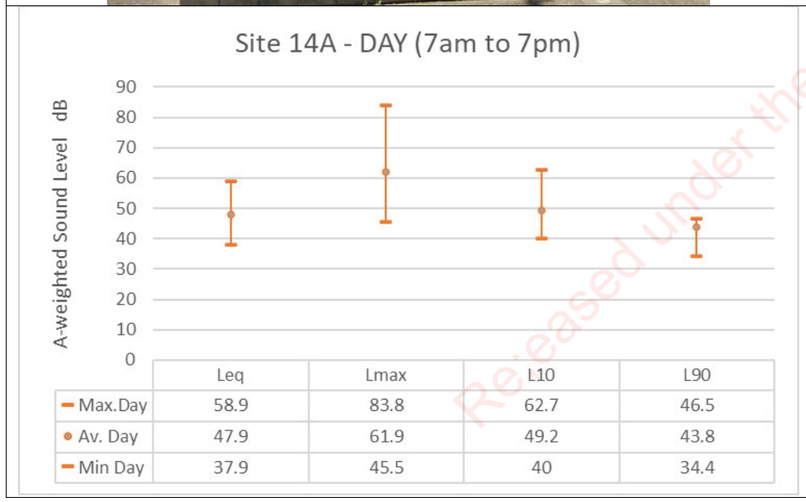
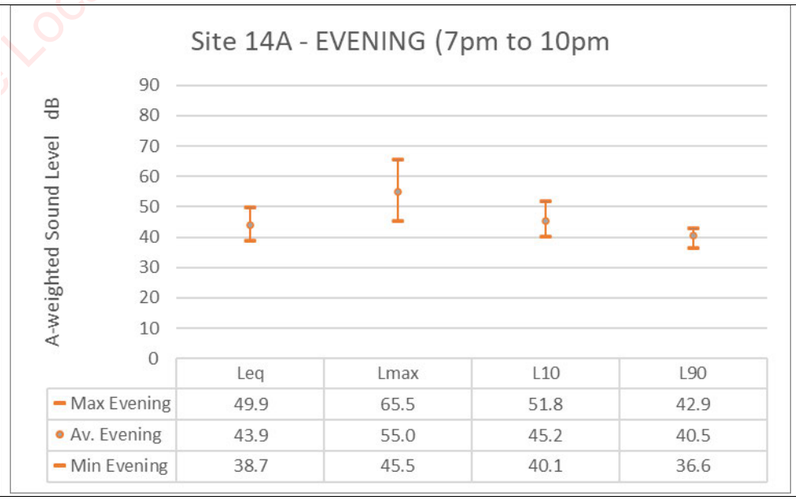
Site Number: 14A	20 Harrison Grove, Avalon	General Residential

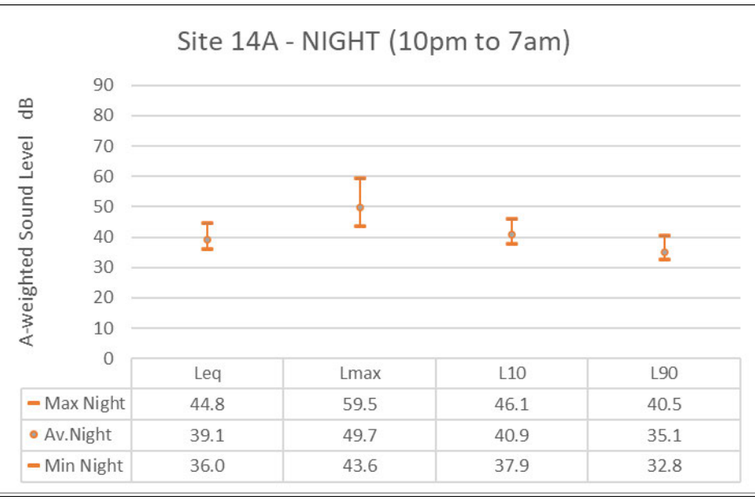


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	58.9	83 8	62.7	46.5
	Min Day	37.9	45.5	40	34.4
	Av. Day	**47.9**	**61.9**	**49.2**	**43.8**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	49.9	65.5	51.8	42.9
	Min Evening	38.7	45.5	40.1	36.6
	Av. Evening	**43.9**	**55.0**	**45.2**	**40.5**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	44.8	59.5	46.1	40.5
	Min Night	36.0	43.6	37.9	32.8
	Av.Night	**39.1**	**49.7**	**40.9**	**35.1**

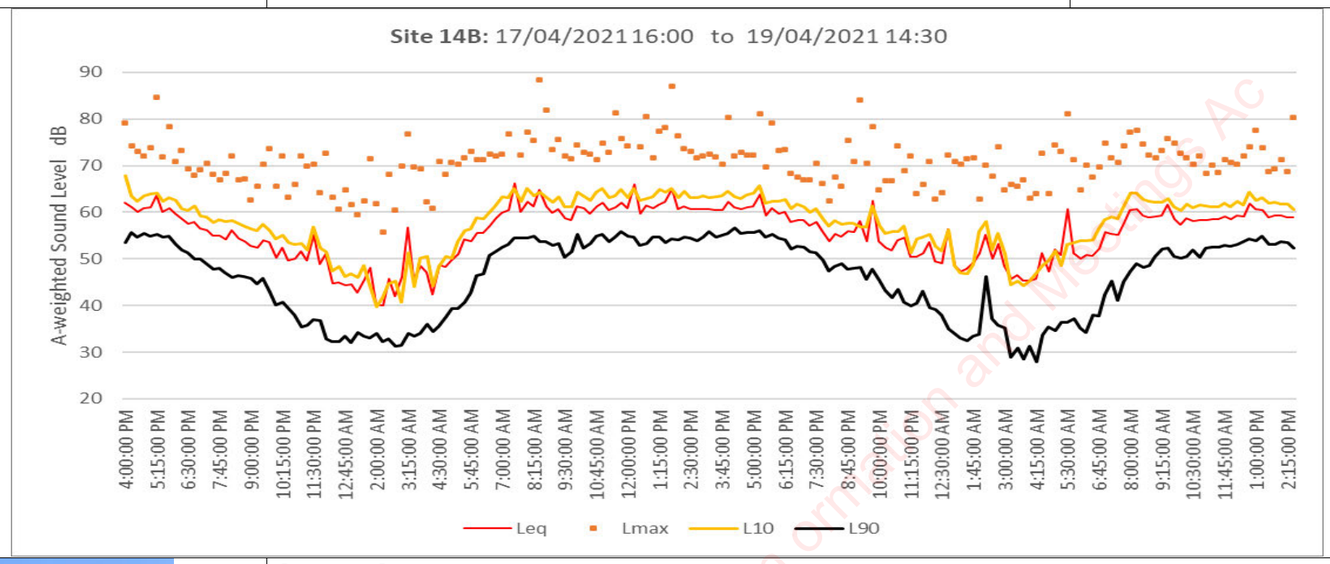






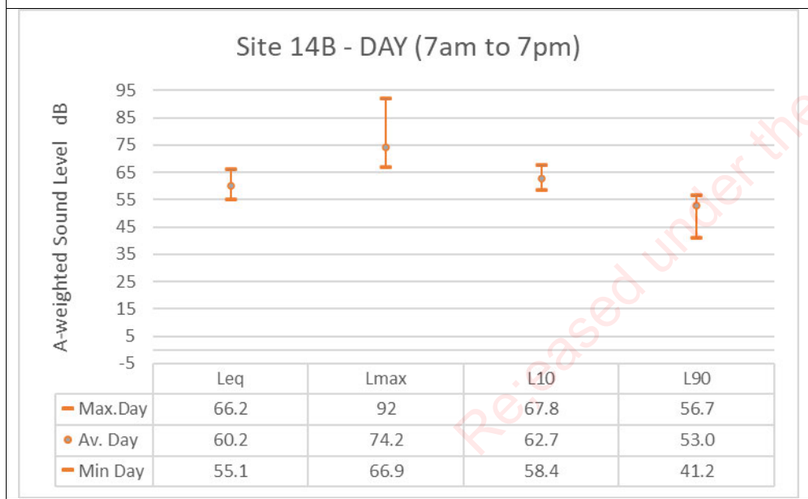
Released under the Local Government Official Information and Meetings Act

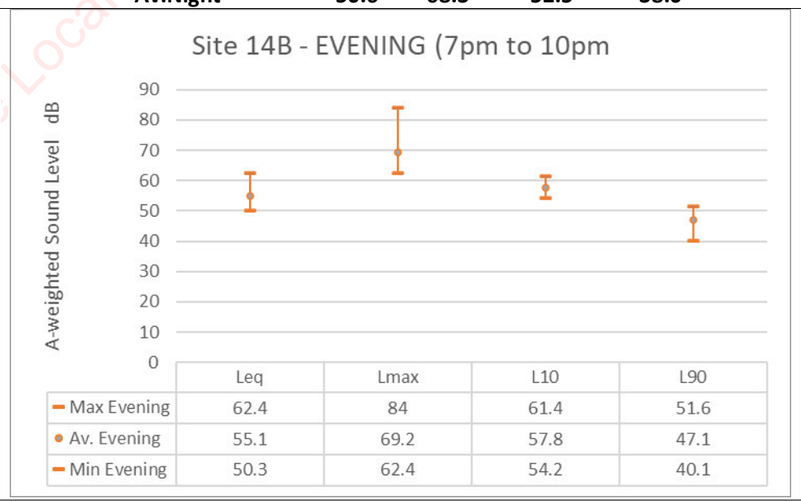
Site Number: 14B	86 Cambridge Terrace, Waterloo	General Residential

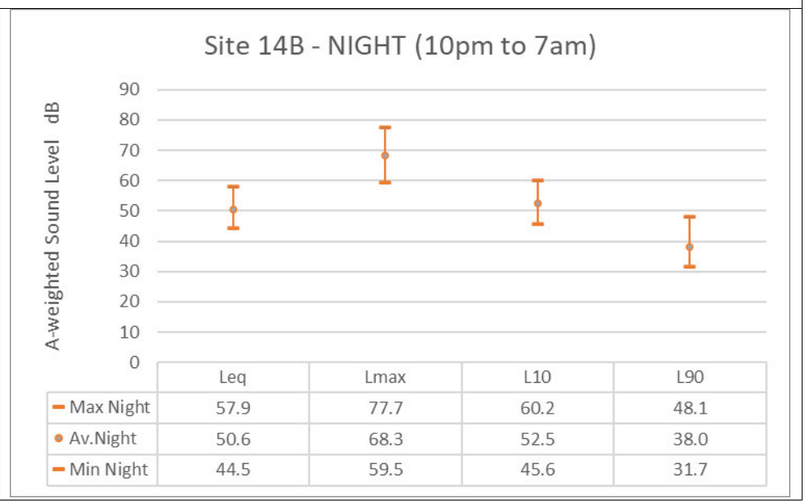


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	66.2	92	67.8	56.7
	Min Day	55.1	66.9	58.4	41.2
	Av. Day	**60.2**	**74.2**	**62.7**	**53.0**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	62.4	84	61.4	51.6
	Min Evening	50.3	62.4	54.2	40.1
	Av. Evening	**55.1**	**69.2**	**57.8**	**47.1**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	57.9	77.7	60.2	48.1
	Min Night	44.5	59.5	45.6	31.7
	Av.Night	**50.6**	**68.3**	**52.5**	**38.0**







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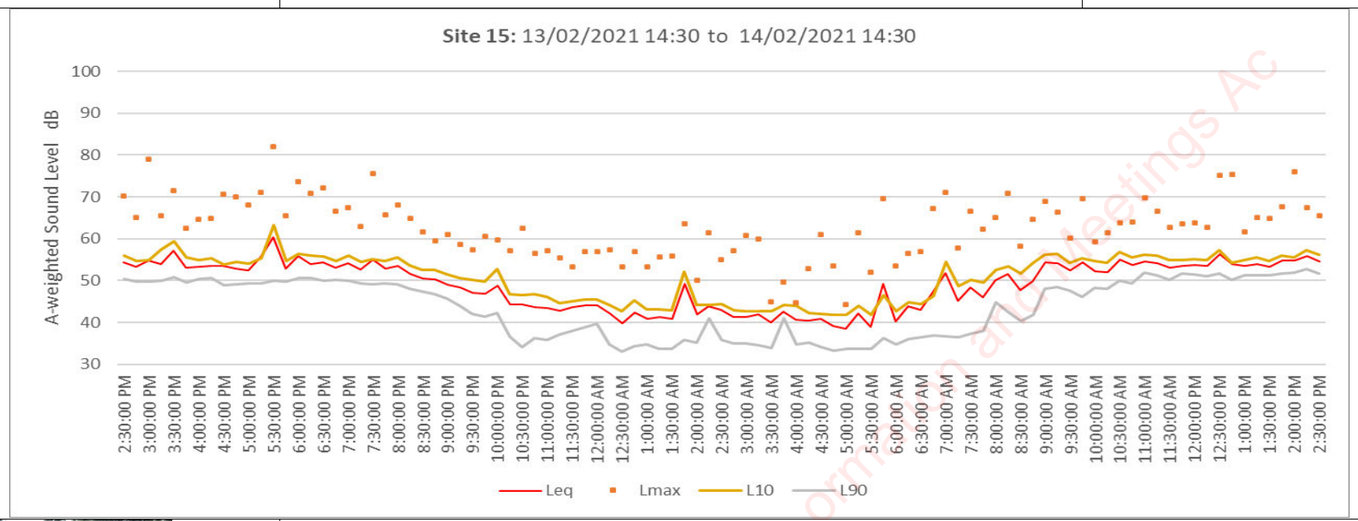
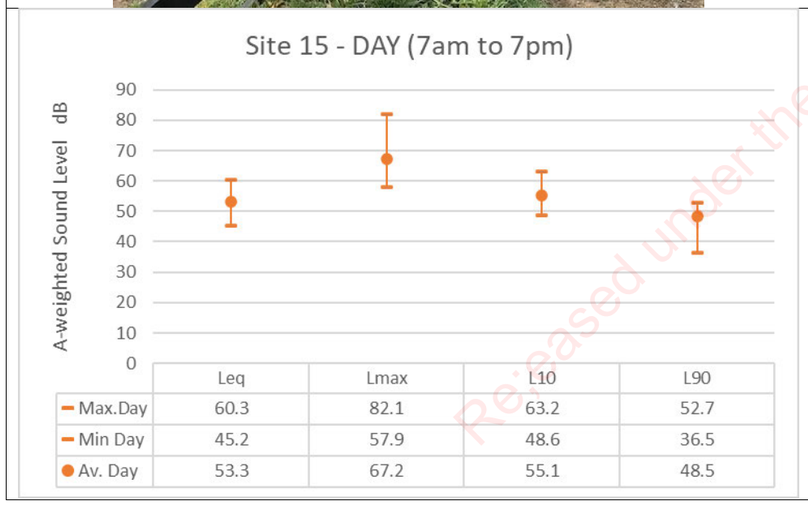
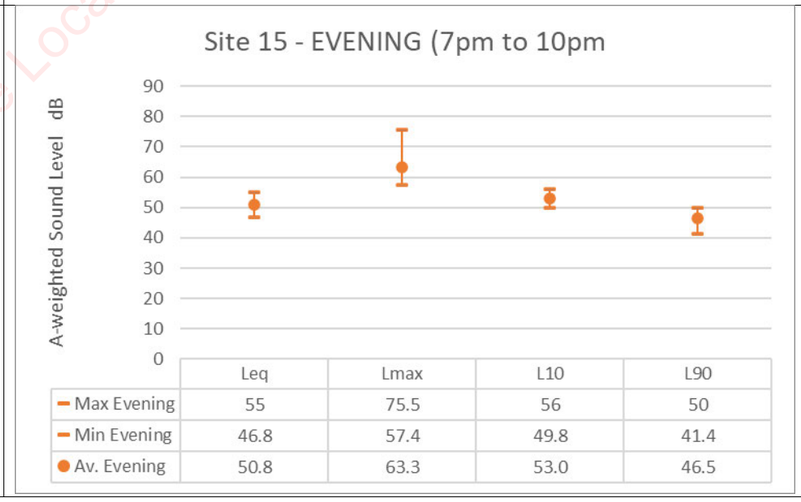
Site Number: 15	1090 Coast Road Wainuiomata	Rural

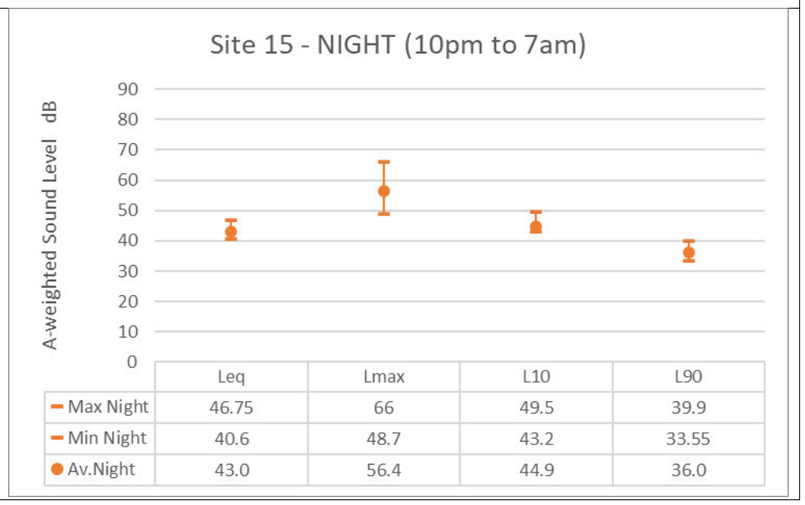


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	60.3	82 1	63.2	52.7
	Min Day	45.2	57.9	48.6	36.5
	Av. Day	**53.3**	**67.2**	**55.1**	**48.5**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	55	75.5	56	50
	Min Evening	46.8	57.4	49.8	41.4
	Av. Evening	**50.8**	**63.3**	**53.0**	**46.5**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	46.75	66	49.5	39.9
	Min Night	40.6	48.7	43.2	33.55
	Av.Night	**43.0**	**56.4**	**44.9**	**36.0**







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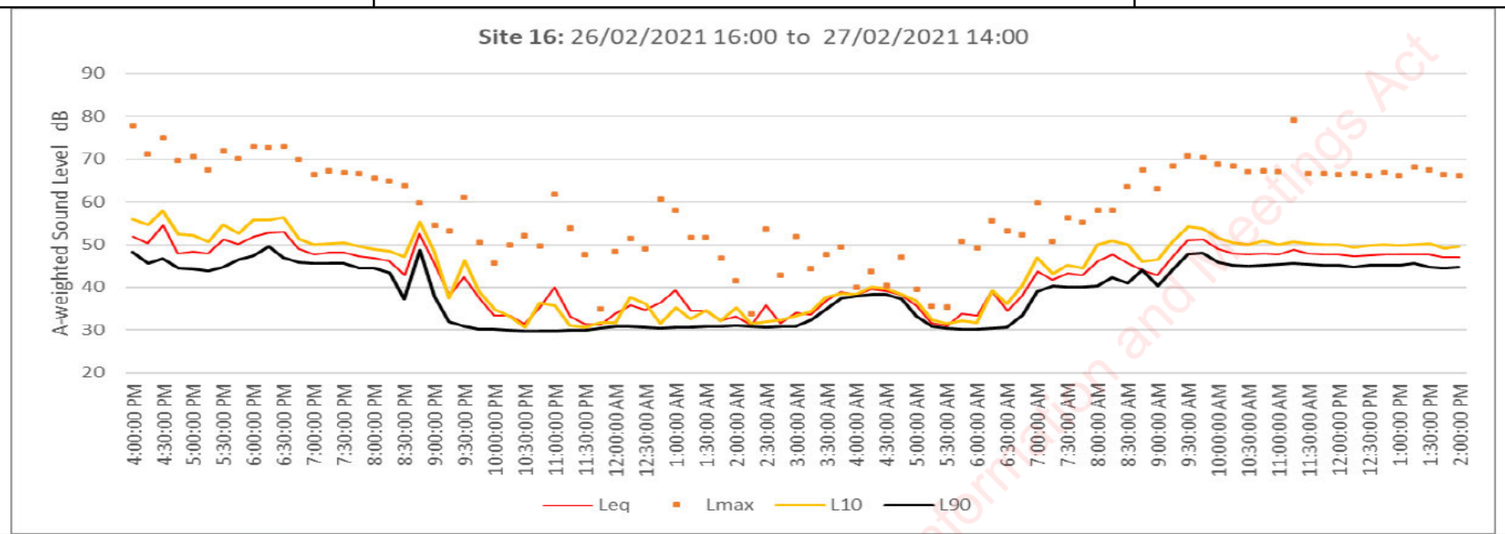
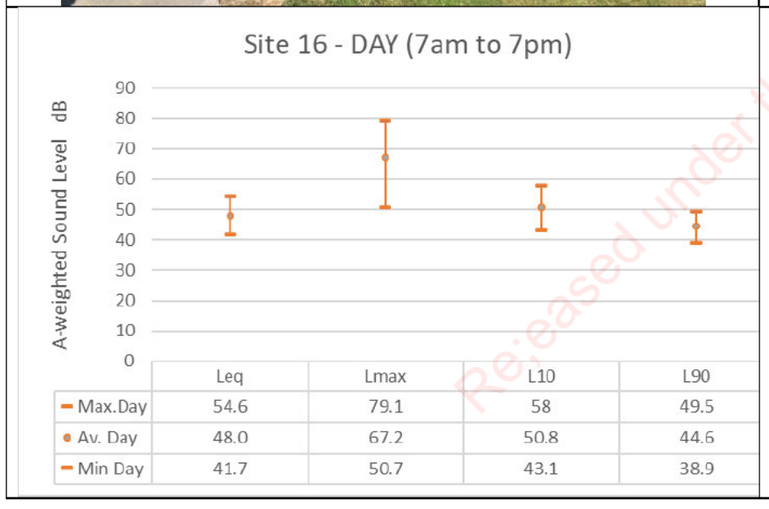
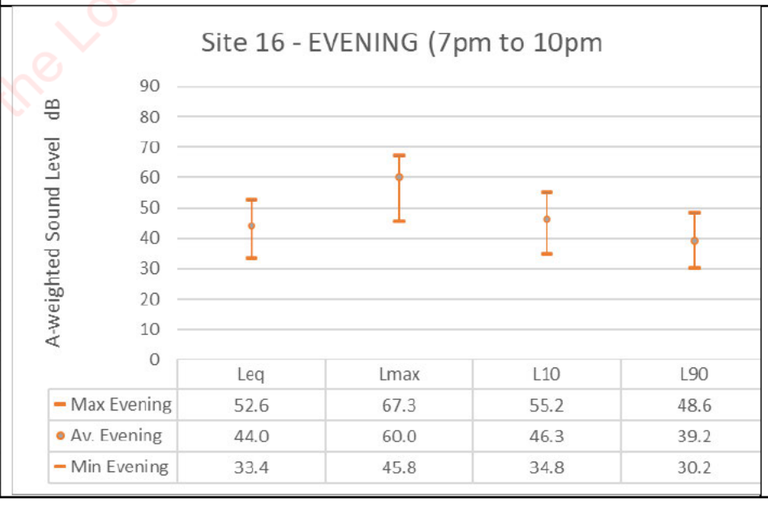
Site Number: 16	Upper Moores Valley Road	Rural

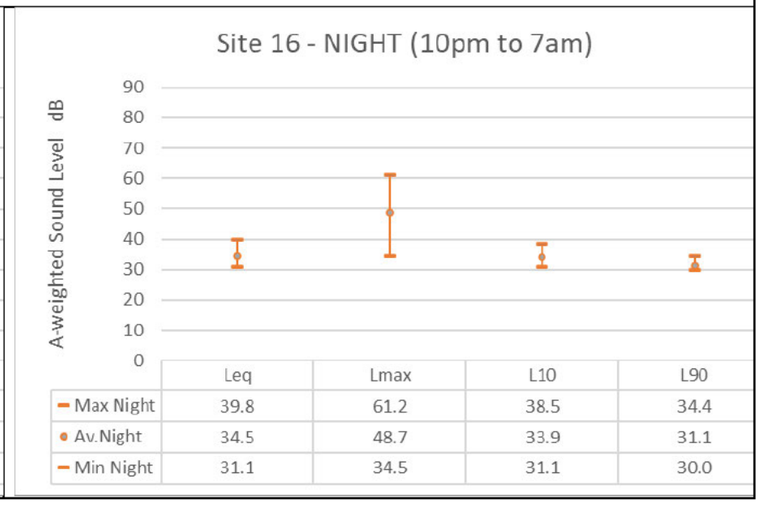


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	54.6	79.1	58	49.5
	Min Day	41.7	50.7	43.1	38.9
	Av. Day	**48.0**	**67.2**	**50.8**	**44.6**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	52.6	67.3	55.2	48.6
	Min Evening	33.4	45.8	34.8	30.2
	Av. Evening	**44.0**	**60.0**	**46.3**	**39.2**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	39.8	61.2	38.5	34.4
	Min Night	31.1	34.5	31.1	30.0
	Av.Night	**34.5**	**48.7**	**33.9**	**31.1**







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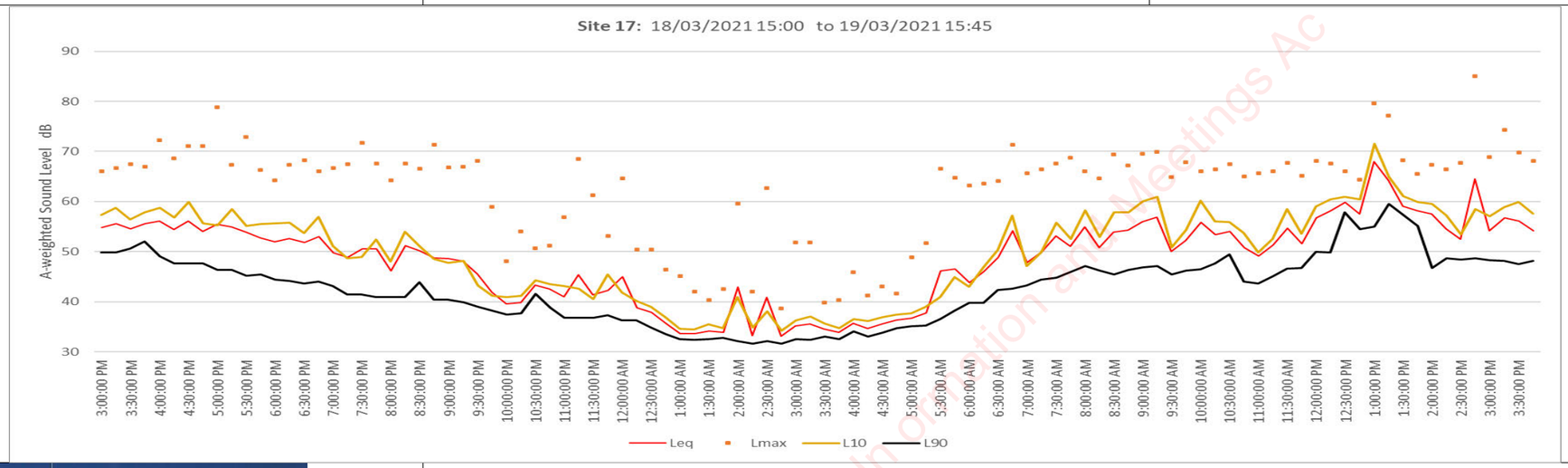
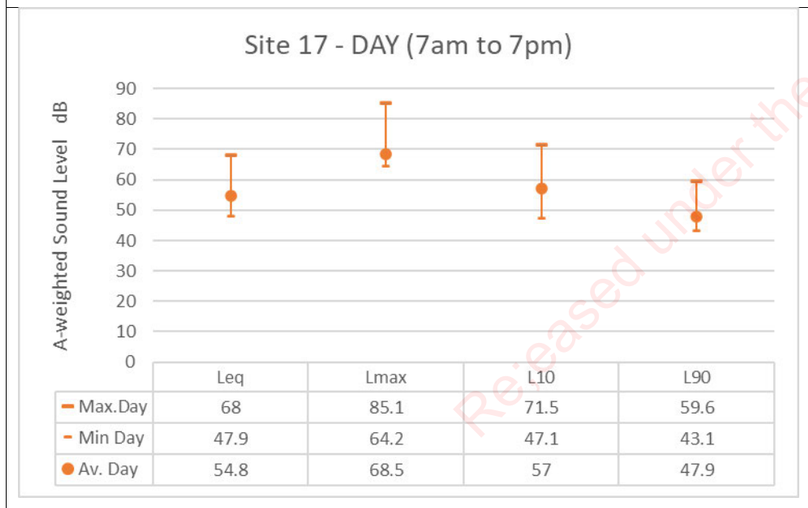
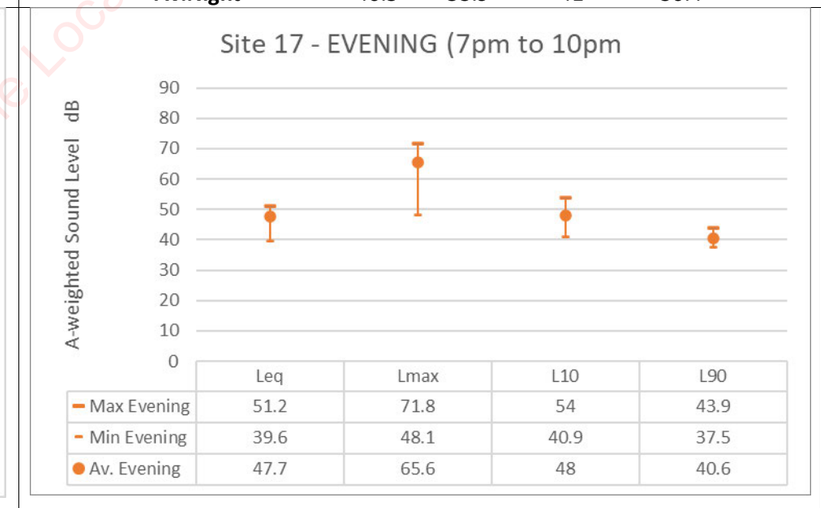
Site Number: 17	Level 1, 21-23 Andrews Avenue, Central Hutt	CBD

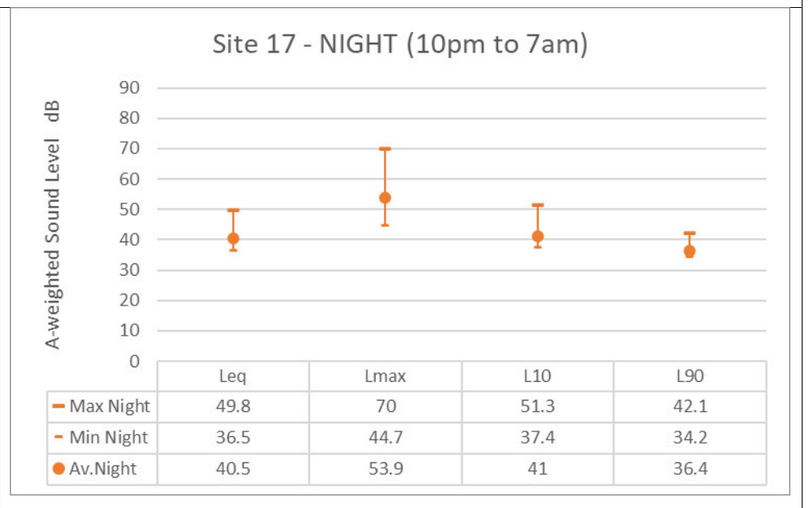


Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	68	85.1	71.5	59.6
	Min Day	47.9	64.2	47.1	43.1
	Av. Day	54.8	68.5	57	47.9
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	51.2	71.8	54	43.9
	Min Evening	39.6	48.1	40.9	37.5
	Av. Evening	47.7	65.6	48	40.6
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	49.8	70	51.3	42.1
	Min Night	36.5	44.7	37.4	34.2
	Av.Night	40.5	53.9	41	36.4







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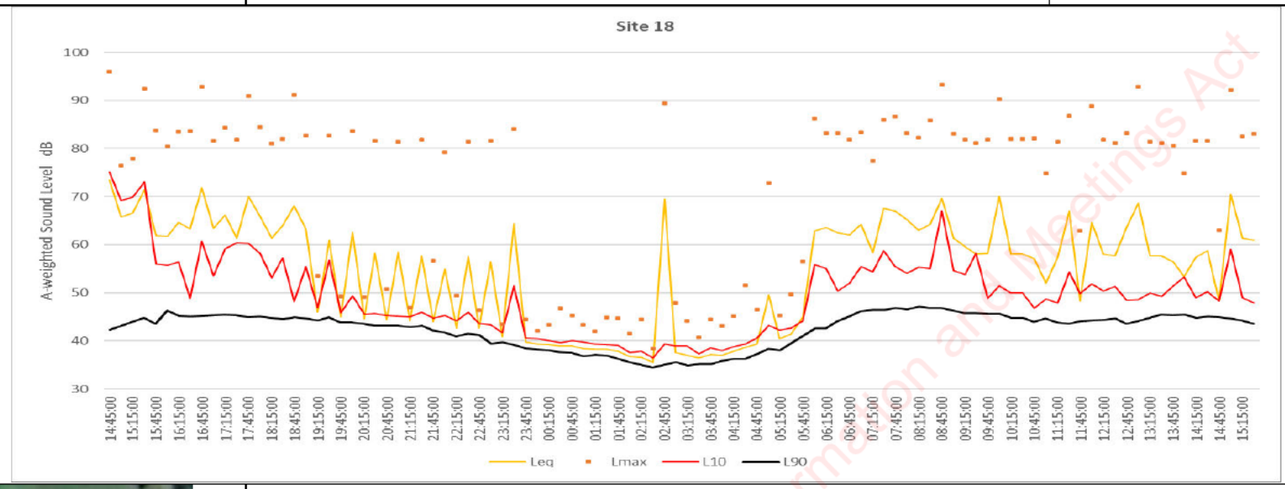
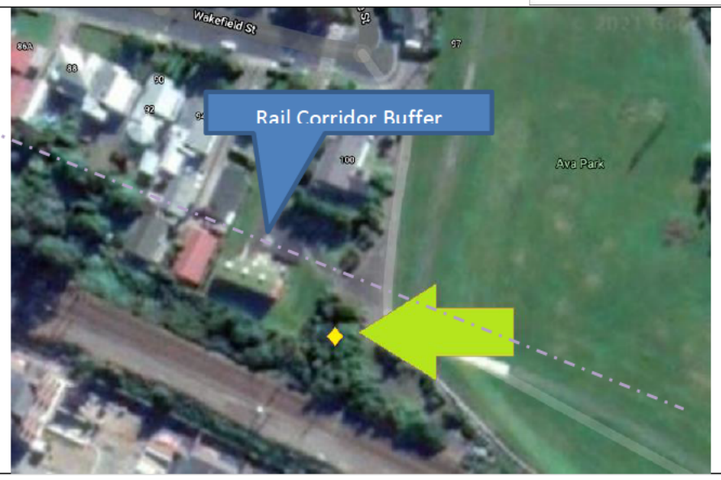
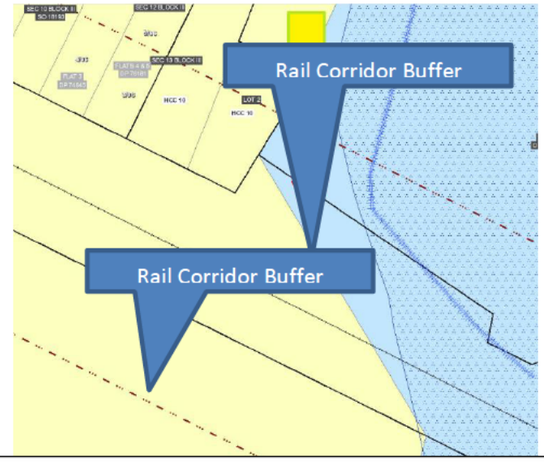
Site Number: 18	Ava Park, 10m from Rail Designation Boundary	Rail Corridor

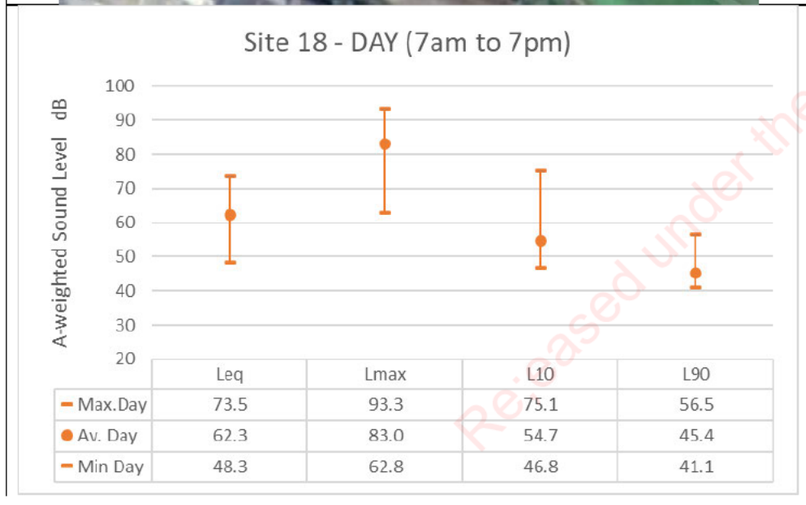


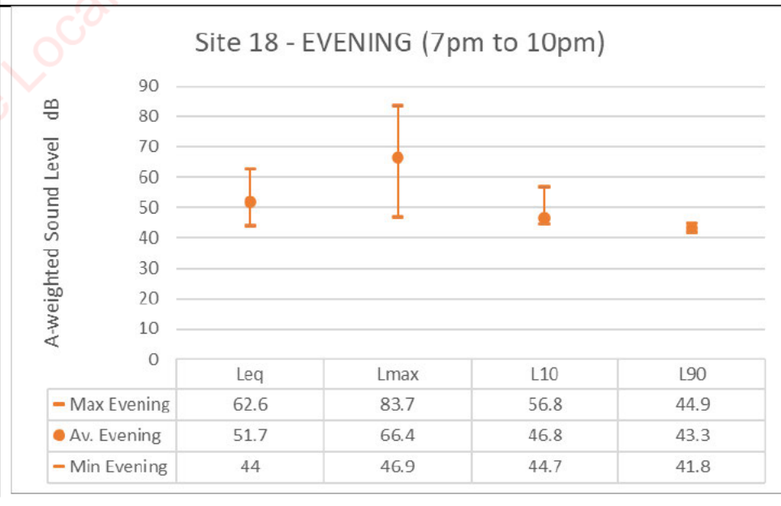


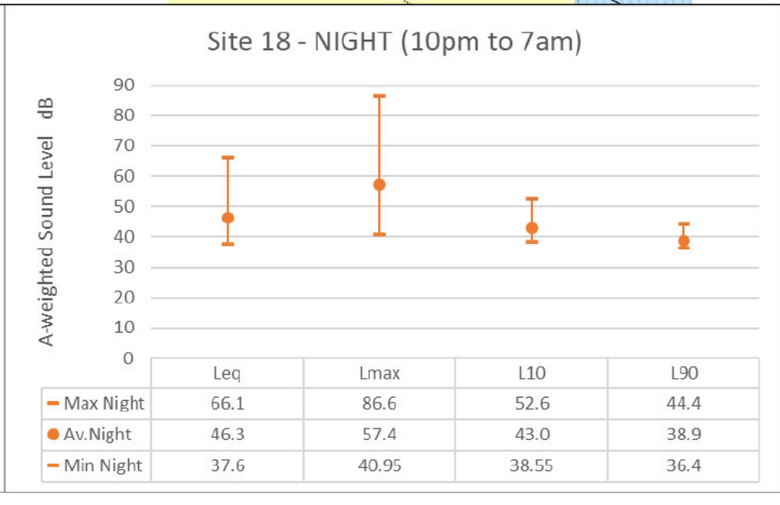
Summary Stats:

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	73.5	93.3	75.1	56.5
	Min Day	48.3	62.8	46.8	41.1
	Av. Day	**62.3**	**83.0**	**54.7**	**45.4**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	62.6	83.7	56.8	44.9
	Min Evening	44	46.9	44.7	41.8
	Av. Evening	**51.7**	**66.4**	**46.8**	**43.3**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	66.1	86.6	52.6	44.4
	Min Night	37.6	40.95	38.55	36.4
	Av.Night	**46.3**	**57.4**	**43.0**	**38.9**









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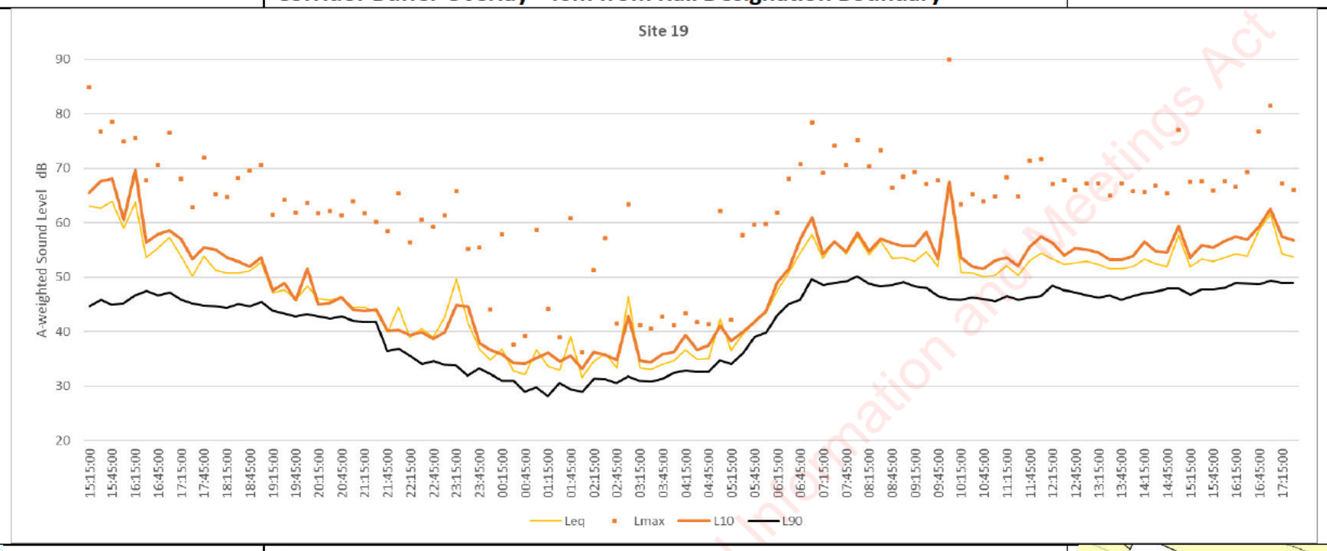
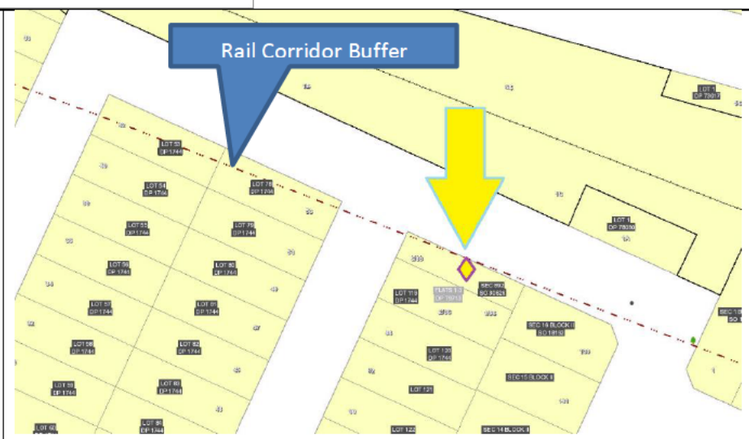
Site Number: 19	3/86 North Street, Ava, Petone. Located Just Outside "Rail Corridor Buffer Overlay" 40m from Rail Designation Boundary	Rail Corridor

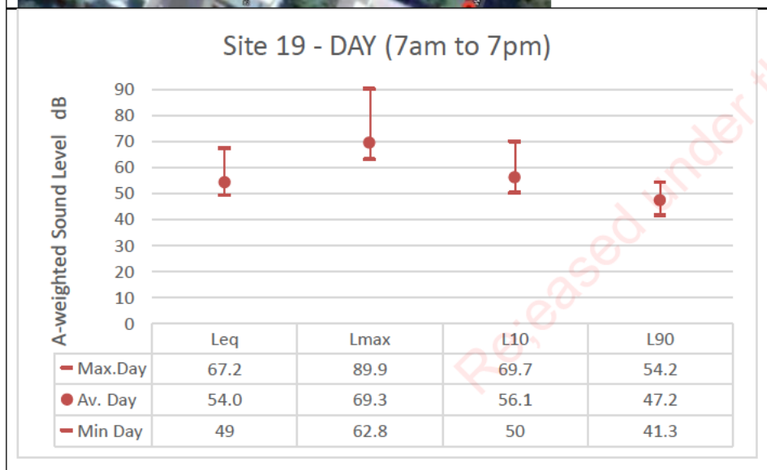


Released under the Local Government Official Information and Meetings Act

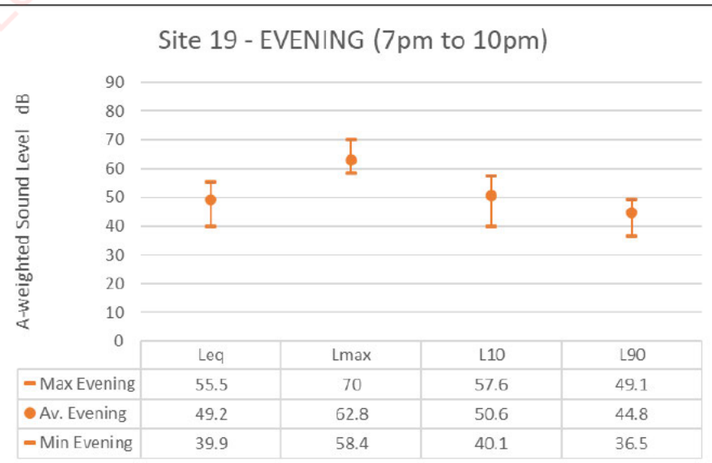
Summary stats

		LAeq	LAmax	LA10	LA90
DAY	Max.Day	67.2	89.9	67.5	50.2
	Min Day	31.5	36.2	33.2	28.1
	Av. Day	**44.1**	**58.4**	**45.0**	**38.5**
		LAeq	LAmax	LA10	LA90
EVENING	Max Evening	54.4	71.7	57.4	48.4
	Min Evening	51.5	65	53.1	45.9
	Av. Evening	**52.6**	**67.4**	**55.0**	**46.9**
		LAeq	LAmax	LA10	LA90
NIGHT	Max Night	58.6	73.2	63.0	48.0
	Min Night	45.4	60.9	46.45	41.15
	Av.Night	**52.1**	**67.4**	**54.0**	**45.7**

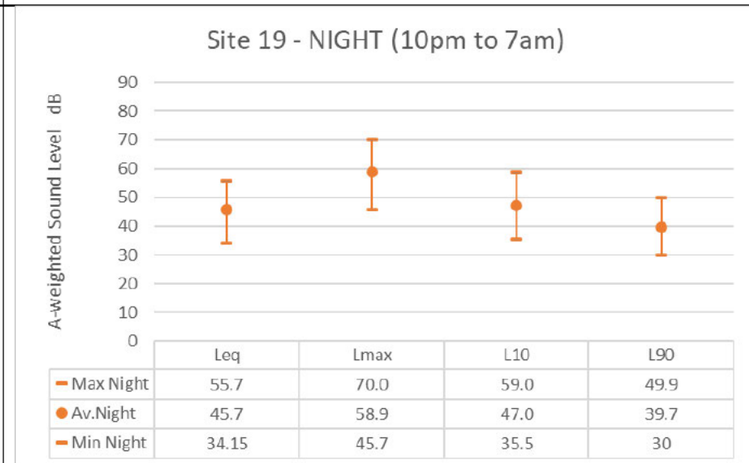




	Leq	Lmax	L10	L90
Max.Day	67.2	89.9	69.7	54.2
Av. Day	54.0	69.3	56.1	47.2
Min Day	49	62.8	50	41.3



	Leq	Lmax	L10	L90
Max Evening	55.5	70	57.6	49.1
Av. Evening	49.2	62.8	50.6	44.8
Min Evening	39.9	58.4	40.1	36.5



	Leq	Lmax	L10	L90
Max Night	55.7	70.0	59.0	49.9
Av.Night	45.7	58.9	47.0	39.7
Min Night	34.15	45.7	35.5	30

Re;eased under the Local Government Official In ormation and Meetings Ac

APPENDIX B

List of Council Investigations Into 'Unreasonable' Noise 2010 to 2021

Type of Noise, Location and Outcome Comments

e;eased under the Local Government Official In ormation and Meetings A

Date	Noise Source Address	Type of Noise	Outcome
Jan-20	Port Road/Meachen Street, Barnes Street Seaview	Sprint Car Event	Compliant with Temp Activities Noise Rule
Jan-20	Williams Park, 611B Marine Drive Days Bay	Music concert	Compliant with Resource Consent Noise Limit
Jan-20	Hutt Recreation Ground, 135 Woburn Road Hutt Central	Music Concert	Compliant with Resource Consent Noise Limit
Dec-19	Hillary Court, Naenae	Open air movie	Non-compliant with Temp Activity Noise Rule advice given prior to next event
Jul-19	State Highway 2, Belmont	Night Road works	Non-compliant - BPO adopted
Nov-18	Kaitangata Crescent Kelson	Roosters	Non-compliant - rooster numbers reduced
Aug-17	Brunswick Street Hutt Central	Compressor	Non-compliant - advised complainant who would work with VTNZ - did not wish further action from Council
Aug-17	Hutt Road Petone	Generator	Non compliant - remedial works undertaken and BPO adopted
Aug-17	Jackson Street Petone	Construction Work	Non-compliant - BPO adopted
Mar-17	Bell Road South Gracefield	Mechanical Plant (extraction system)	Borderline - difficult to assess and not sufficient to require more than BPO
Mar-17	Jackson Street Petone	Refrigerator Unit	Non compliant - BPO adopted
Feb-17	Seaview Road Seaview	Scrap Metal Loadout	Compliant and adopting BPO
Feb-17	Barnes Street Seaview	Scrap Metal Loadout	Technical Non Compliance but not enforceable (1.5dBA above limit)
Jan-17	Walter Nash Stadium	Music Concert	Compliant w th Temp Activities Noise Rule
Dec-16	Hutt Road Petone	Child Care Centre	Compliant
Dec-16	McEwan Park, Marine Parade, Petone	Music Concert	Too windy to obtain useful results, but appeared to be compliant with Temp Activities Rule
Jul-16	Westminster Road Wainuiomata	Wind Turbine Generator	Non-compliant
May-16	The Strand Wainuiomata	Band Noise	Non-compliant
Nov-15	Port Road Seaview	Port Road Drag Race Event	Compliant with Temp Activities Noise Rule
Oct-15	Port Road/Meachen Street, Barnes Street Seaview	Sprint Car Event	Compliant with Temp Activities Noise Rule
Oct-15	George Street Stokes Valley	Panelbeater's Compressor	Compliant
Jun-15	Taita Netball Courts	Netball siren	"Compliant" - no DP noise rule for recreational but noise level reasonable
Jun-15	Karimu Street Stokes Valley	Noise from School Hall	Compliant with Temp Activities Noise Rule
May-15	Page Grove Wingate	Rifle Range	Compliant
Dec-14	Hutt Road Alicetown	Bar Concert	Technical non -compliance 1.6 dBA above limit
Sep-14	Waterloo Road Waterloo	Dance Studio	Technically non compliant, however high background level makes enforcement difficult - s16 applied
May-14	Pilmuir Street Boulcott	Mechanical plant (refrigerator units)	Remedial works undertaken to achieve compliance.
Feb-14	Makaro Street Eastbourne	Fire Siren	Exempt - however work undertaken to reduce noise due to children's classroom being 8m away
Jul-13	Wainui Road Waiwhetu	Childcare Noise	Hammering activity by children non compliant - activity ceased
Apr-13	Wainui Road Waiwhetu	Internal Plant	Technical Non Compliance but not enforceable (1dBA above limit)
Mar-12	Victoria Street Alicetown	Compressor	Compliant
Aug-11	Brunswick Street Central Hutt	Commercial Fans	Non compliant - remedial works undertaken in order to comply
Jul-10	Sydney Street Petone	Commercial Fan	Survey indicated compliance
Historical	Seaview Wharf	Pumping fluids to tank farm	Complaints are very rare now.

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APPENDIX C

2020 Traffic Noise Measurements At Four sites In Lower Hutt

e;eased under the Local Government Official In ormation and Meetings A

7 Harbour View Road

Existing noise levels survey details

Parameter	Setting/source
Operator	Edmond Wu
Address	7 Harbour View Road
Equipment details	Convergence Type 1 SLM Serial Cnp2pt2S018dILnSy2DRND
Measurement dates	14 Monday to 22 Tuesday December 2020
Observation	Traffic noise on Harbour View Road being dominant source of noise in the area with audible vegetation noise in breaks of traffic

Summary of noise levels survey results – $L_{Aeq(15min)}$ and $L_{A10(15min)}$

Time	Existing Noise Levels		
	Range	dB $L_{Aeq(15min)}$	dB $L_{A10(15min)}$
Daytime 7:00am – 10:00pm	Lowest	50	50
	Average	62	66
	Highest	69	72
Night-time 10:00pm – 7:00am	Lowest	39	40
	Average	54	55
	Highest	65	66

Summary of noise levels survey results – $L_{Aeq(24h)}$

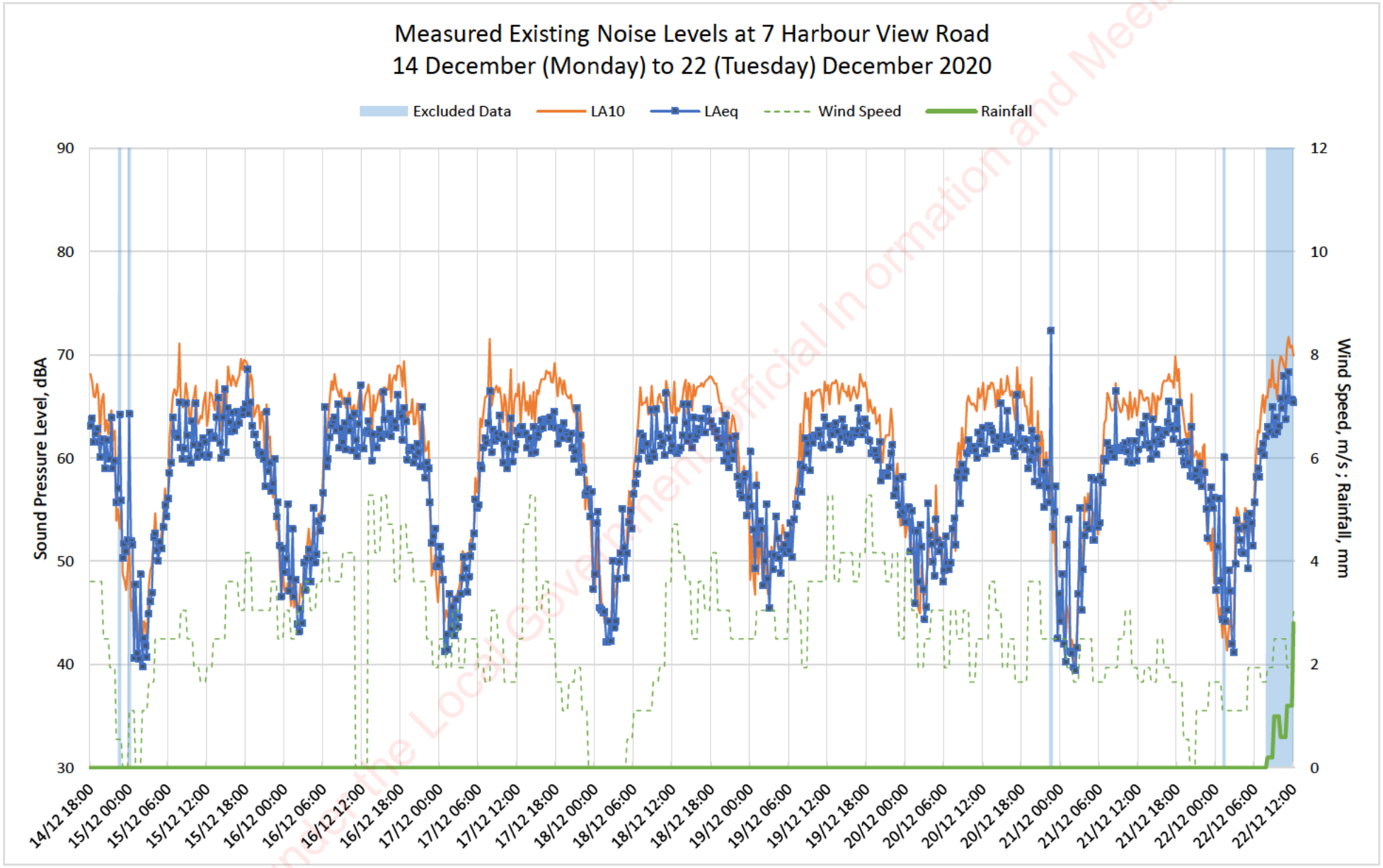
Date	dB $L_{Aeq(24h)}$
15 December 2020	61
16 December 2020	61
17 December 2020	61
18 December 2020	61
19 December 2020	60
20 December 2020	59
21 December 2020	60
Average	61

e;eased under the Local Government Official Information and Meetings A

Noise levels survey location

Photographs of noise levels survey position

Government Official Information and Meetings Act



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Note: Anomalous and weather affected measurement results have been excluded in the determination of the acoustic parameters

17 Tirohanga Road

Existing noise levels survey details

Parameter	Setting/source
Operator	Edmond Wu
Address	17 Tirohanga Road
Equipment details	Convergence Type 1 SLM Serial CNNer30Qed81KDvAawrRPD
Measurement dates	14 Monday to 22 Tuesday December 2020
Observation	Traffic noise on State Highway 2 being dominant source of noise in the area with occasional traffic noise on Tirohanga Road

Summary of noise levels survey results – $L_{Aeq(15min)}$ and $L_{A10(15min)}$

Time	Existing Noise Levels		
	Range	dB $L_{Aeq(15min)}$	dB $L_{A10(15min)}$
Daytime 7:00am – 10:00pm	Lowest	53	56
	Average	58	61
	Highest	63	66
Night-time 10:00pm – 7:00am	Lowest	43	45
	Average	53	56
	Highest	61	63

Summary of noise levels survey results – $L_{Aeq(24h)}$

Date	dB $L_{Aeq(24h)}$
15 December 2020	57
16 December 2020	57
17 December 2020	58
18 December 2020	57
19 December 2020	57
20 December 2020	56
21 December 2020	57
Average	57

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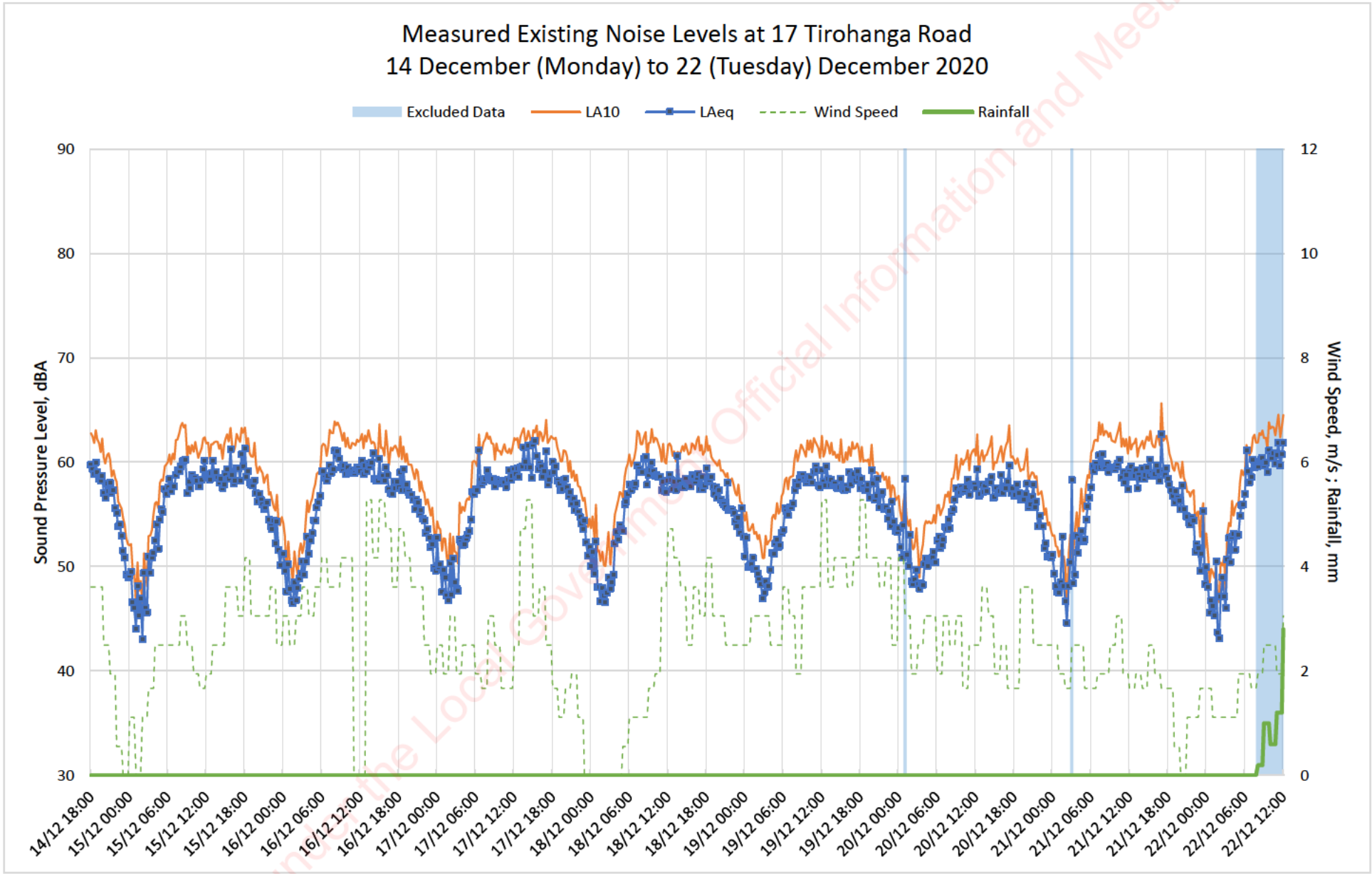
Noise levels survey location

Photographs of noise levels survey position

Government Official Information and Meetings Act



Note: Anomalous and weather affected measurement results have been excluded in the determination of the acoustic parameters

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28 Rutherford Street

Existing noise levels survey details

Parameter	Setting/source
Operator	Edmond Wu
Address	28 Rutherford Street
Equipment details	Convergence Type 1 SLM Serial Atj0pvUa0f23Chtw60p5vD
Measurement dates	14 Monday to 22 Tuesday December 2020
Observation	Traffic noise on Melling Link and Rutherford Street being dominant source of noise in the area

Summary of noise levels survey results – $L_{Aeq(15min)}$ and $L_{A10(15min)}$

Time	Existing Noise Levels[1]		
	Range	dB $L_{Aeq(15min)}$	dB $L_{A10(15min)}$
Daytime 7:00am – 10:00pm	Lowest	58	62
	Average	68	70
	Highest	72	73
Night-time 10:00pm – 7:00am	Lowest	45	44
	Average	60	63
	Highest	69	71

Summary of noise levels survey results – $L_{Aeq(24h)}$

Date	dB $L_{Aeq(24h)}$[1]
15 December 2020	66
16 December 2020	67
17 December 2020	66
18 December 2020	67
19 December 2020	66
20 December 2020	65
21 December 2020	66
Average	66

1. Noise levels survey results presented as free-field noise levels by applying a façade correction of -2.5dB to the measured noise levels in accordance with NZS 6806.

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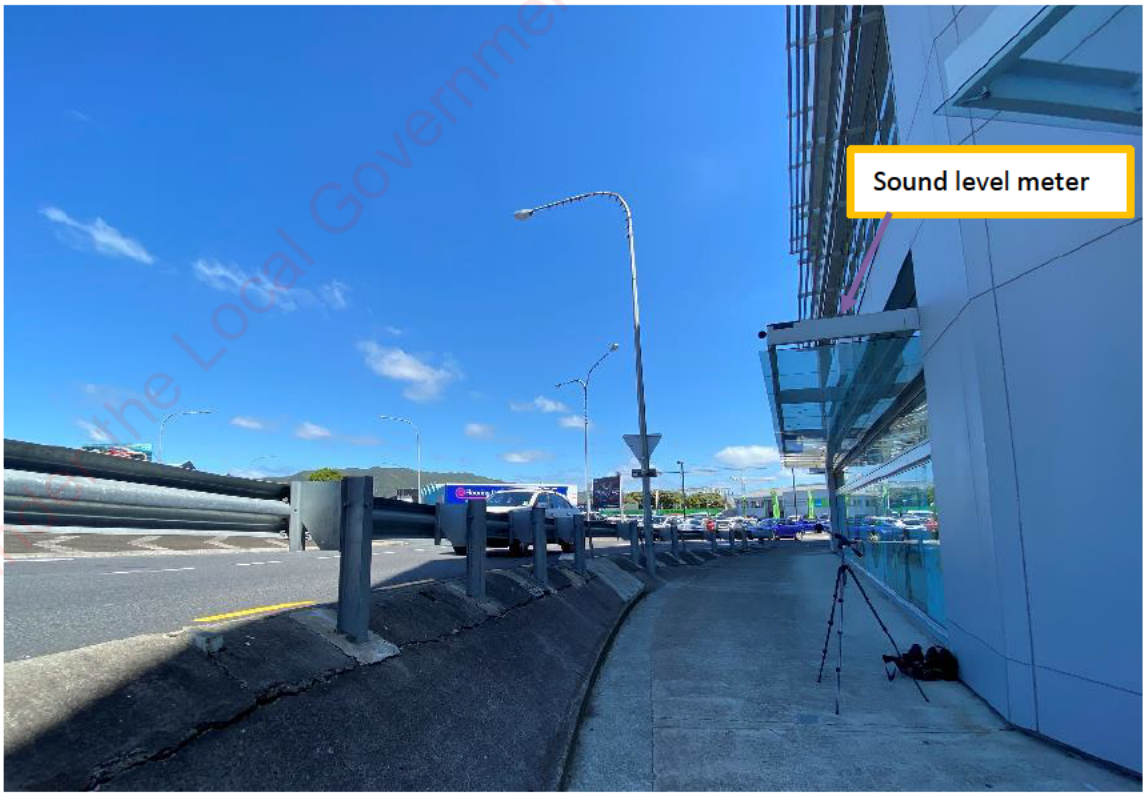
Noise levels survey location

Photographs of noise levels survey position



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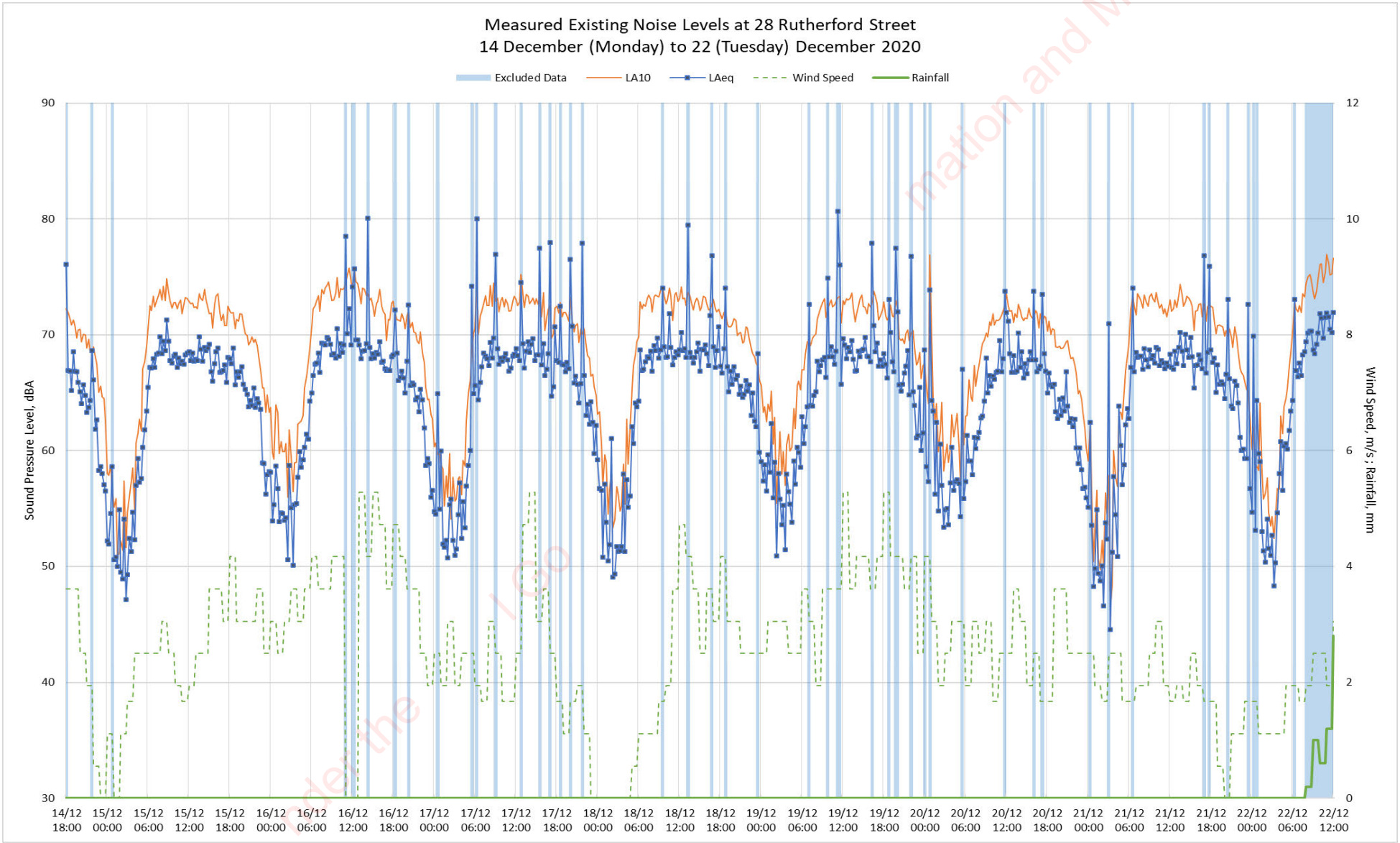

Note: Anomalous and weather affected measurement results have been excluded in the determination of the acoustic parameters

2 Pomare Road

Existing noise levels survey details

Parameter	Setting/source
Operator	Edmond Wu
Address	2 Pomare Road
Equipment details	Convergence Type 1 SLM Serial CFNUJ30aed2XIDtgS0pZND
Measurement dates	14 Monday to 22 Tuesday December 2020
Observation	Traffic noise on State Highway 2 being dominant source of noise in the area with occasional traffic noise on Pomare Road and Wairere Road

Summary of noise levels survey results – $L_{Aeq(15min)}$ and $L_{A10(15min)}$

Time	Existing Noise Levels		
	Range	dB $L_{Aeq(15min)}$	dB $L_{A10(15min)}$
Daytime 7:00am – 10:00pm	Lowest	64	66
	Average	71	74
	Highest	74	77
Night-time 10:00pm – 7:00am	Lowest	55	47
	Average	66	70
	Highest	72	75

Summary of noise levels survey results – $L_{Aeq(24h)}$

Date	dB $L_{Aeq(24h)}$
15 December 2020	70
16 December 2020	70
17 December 2020	70
18 December 2020	70
19 December 2020	70
20 December 2020	69
21 December 2020	70
Average	70

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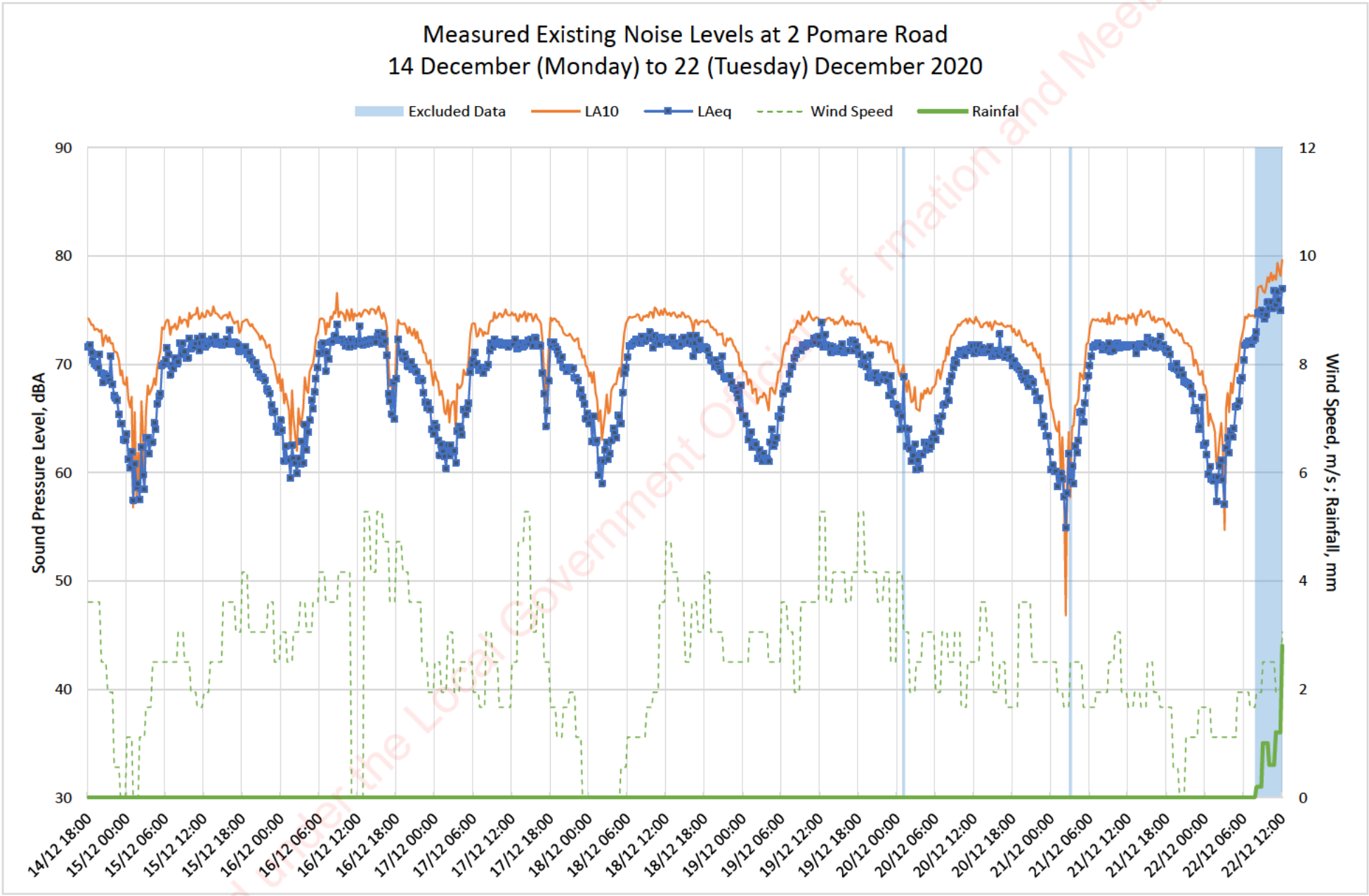
Noise levels survey location

Photographs of noise levels survey position



Note: Anomalous and weather affected measurement results have been excluded in the determination of the acoustic parameters

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Private Bag 31912
Lower Hutt 5040
New Zealand
www.huttcity.govt.nz
T 04 570 6666
F 04 569 4290

22 March 2022

Wolfbrook Property Group Limited
C/- Urban Edge Planning Ltd
PO Box 39071, Lower Hutt 5045
Attn: Sebastian Barrett

Peter McDonald
Environmental Consents
T 04 570 6745
peter.mcdonald@huttcity.govt.nz
Our reference:RM210061

Dear Sebastian,

Approval of resource consent application at 28 Raukawa Street, Stokes Valley (RM210061)

I am pleased to advise that, acting under delegated authority from Hutt City Council, I have granted a resource consent for the proposal at the above property (Part Lot 124 DP 597 and Part Lot 124 DP 597).

As you know, the council considered it necessary to notify affected persons. By the end of the notification period, the council had received four submissions. As of 1 February 2022, each of the submitters had either withdrawn their submission, or advised that they did not wish to be heard in support of their submission. As such it was considered unnecessary to require a hearing to determine the consent application.

The reasons for granting the application have been set out in the report below and reference should be had to the assessment below for specific details and reasoning.

It is important to take note that this decision is subject to conditions which must be adhered to when giving effect to this consent, these are located in section 7 of this decision report.

1. PROPOSAL

Land use and subdivision consent is sought for the comprehensive residential development at 28 Raukawa Street, Stokes Valley. The proposal will establish 22 terraced dwellings, followed by freehold subdivision around the new buildings and common access area, resulting in the creation of 23 allotments.

The application was lodged on 1 March 2021, and was limited notified to persons at four adjacent properties on 4 November 2021, for which four submissions in objection to the proposal were received prior to the submissions close period. The applicant subsequently partially amended the proposal in response to these submissions, with revised plans and proffered conditions submitted to Council by 16 February 2022. The changes did not relate to the size, number or arrangement of proposed dwellings, but rather the details of the design of boundary treatments, outdoor living areas and the provision of Juliet balconies.

In response to these changes each of the submitters either withdrew their submission, or their right to be heard in support of their submission.

The application is detailed as follows;

The proposal seeks to establish three one-bedroom dwelling units (Units 2 – 4) and 19 two-bedroom units. These dwellings will be arranged into seven separate building blocks, with the proposed site layout shown in **Figure 1** below. All dwellings are proposed to be two-storeys in height.

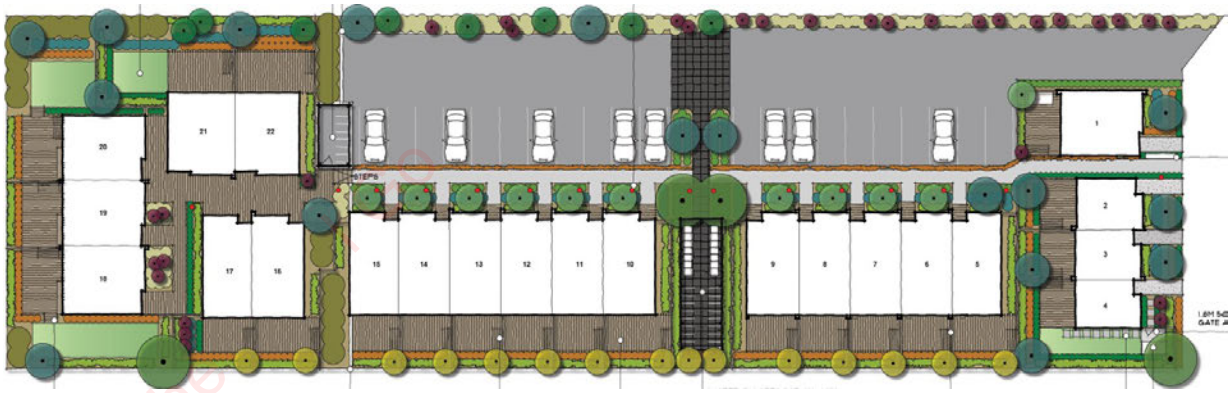

Figure 1: Proposed site layout.

21 parking spaces are proposed to be provided onsite, arranged in a linear form as shown above. Access to the site is proposed via a newly established vehicle driveway along the eastern boundary of the site, which is generally 5.832m in width, but narrowing to 5.0m. A separate 1.2m width pedestrian path running north to south centrally through the site will also provide direct access to Raukawa Street.

The proposed allotments and dwellings forming the proposal have been summarised by the applicant as follows:

LOT	AREA	BUILDING COVERAGE		IMPERVIOUS COVERAGE		LANDSCAPE AREA	
Lot 1	115.12	41.35	35.92%	72.07	62.6%	44.89	38.99%
Lot 2	64.24	26.32	40.97%	29.06	45.24%	36.52	56.85%
Lot 3	60.64	25.35	41.8%	27.38	45.15%	34.15	56.32%
Lot 4	109.30	25.07	22.94%	27.06	24.76%	82.53	75.51%
Lot 5	91.45	38.85	42.48%	41.54	45.42%	49.90	54.57%
Lot 6	67.22	39.01	58.03%	40.61	60.41%	26.62	39.6%
Lot 7	67.22	38.99	58%	40.58	60.37%	26.64	39.63%
Lot 8	67.22	39.02	58.05%	40.51	60.26%	26.71	39.74%
Lot 9	88.24	39.12	44.33%	41.28	46.78%	46.93	53.18%
Lot 10	88.60	39.15	44.19%	41.25	46.56%	47.38	53.48%
Lot 11	67.22	39.00	58.02%	40.59	60.38%	26.64	39.63%
Lot 12	67.22	38.99	58%	40.59	60.38%	26.64	39.63%
Lot 13	67.22	39.00	58.02%	40.58	60.37%	26.65	39.65%
Lot 14	67.22	39.00	58.02%	40.58	60.37%	26.66	39.66%
Lot 15	100.92	38.59	38.24%	41.21	40.83%	59.70	59.16%
Lot 16	99.02	39.47	39.86%	42.32	42.74%	56.71	57.27%
Lot 17	96.28	38.59	40.08%	42.50	44.14%	53.77	55.85%
Lot 18	146.48	41.42	28.28%	45.21	30.86%	101.28	69.14%
Lot 19	78.91	41.05	52.02%	44.10	55.89%	35.15	44.54%
Lot 20	151.13	40.67	26.91%	45.19	29.9%	105.95	70.11%
Lot 21	131.97	41.41	31.38%	45.98	34.84%	86.00	65.17%
Lot 22	107.74	40.70	37.78%	44.88	41.66%	62.85	58.33%
Lot 23	1,043.09	0.00	0%	818.67	78.49%	372.50	35.71%
	3,043.67 m^2	830.12 m^2	27.27%	1,733.74 m^2	56.96%	1,462.77 m^2	48.06%

Lots 1-22 are residential allotments and will each contain one of the proposed dwellings. Proposed lot 23 will contain the communal access spaces and the 21 car parking spaces. The applicant has advised that parking spaces will be associated with individual residential allotments through subsequent land covenants.

The above table is taken from the architectural site plan, and it is noted that lot areas vary slightly from those shown on the subdivision scheme plan (which is taken as accurate). However these variances do not result in any additional non-compliances.

The proposal involves undertaking earthworks with a cut volume of 280m^3 and fill volume of 174m^3 over an area of 2,161m^2 for the purpose of establishing suitable building platforms and access areas. Maximum cut and fill depths will be 1.0m and 1.2m respectively.

Onsite landscaping is proposed, with a landscaping plan having been submitted in support of the application which provides a range of hard and soft landscaping treatments across the site. A communal waste storage and collection area is proposed centrally on the site, adjacent to the proposed communal onsite bike storage area.

It is proposed to connect all residential allotments to three waters infrastructure via existing and proposed drainage and sewage infrastructure. Appropriate easements have been provided to facilitate connections to the proposed services infrastructure and to allow for the conveyance of an onsite wastewater main.

2. SITE DESCRIPTION

The application site is located at 28 Raukawa Street, Stokes Valley. The site is legally described as Part Lot 124 DP 597 and Part Lot 124 DP 597, contained within Record of Title 508152. The title is subject to the following interests:

- Fencing covenant
- Subject to Conservation Act 1987 Part IVA
- Subject to Section 11 Crown Minerals Act 1991
- Caveat by Fix My Property Ltd 11970199.2

The above interests do not affect the processing of this decision or the proposed scheme.

The site is largely rectangular in shape with a length of approximately 104m and a width of approximately 30m. The site currently contains a residential dwelling with separated sheds, garage, swimming pool and paved driveway and footpath. The site is sloping from south to north and it is clear of any protected or scheduled vegetation. **Figure 2** below shows the site viewed aerially. As visible in this image, the northern third of the application site is currently segregated from the main portion of the site by fencing, and is used as a vacant grassed area as an informal reserve space. The proposal seeks to utilise this portion of the site.

Figure 2: Application site.

Vehicle access to the site is provided via existing vehicle crossing and accessway located along the eastern boundary, off Raukawa Street. A smaller secondary crossing is also located closer to the western boundary of the site.

Adjoining land uses are residential in all areas, with the surrounding environment characterised by low density detached dwellings to the west, south and east. Development to the north, at Poppy Watts Grove, is slightly higher density housing; however the vast majority of dwellings on this street remain single-storey detached dwellings.

The subject sites are in close proximity to public stormwater, wastewater and water supply service connections. The site has an existing private wastewater lateral connection to the public wastewater main which traverses the rear of the site, as shown below. In terms of stormwater, public stormwater pipes and manhole is located to the south of the site. Water supply will be fed from the existing connection and is located south of the site.

Figure 3: Wastewater main traversing the northern rear of the application site.

The site is located within the General Residential activity area of the District Plan. There are no District Plan notations of relevance to this site. The site is not identified as contaminated under the GWRC Selected Land Use Register (SLUR). Wellington Water has provided modelling for the site which indicates that a significant overland flow path traverses the site, particularly toward the rear. This modelling is shown in **Figure 4** below, demonstrating that much of the site, particularly toward the north, is subject to flood hazard risk.

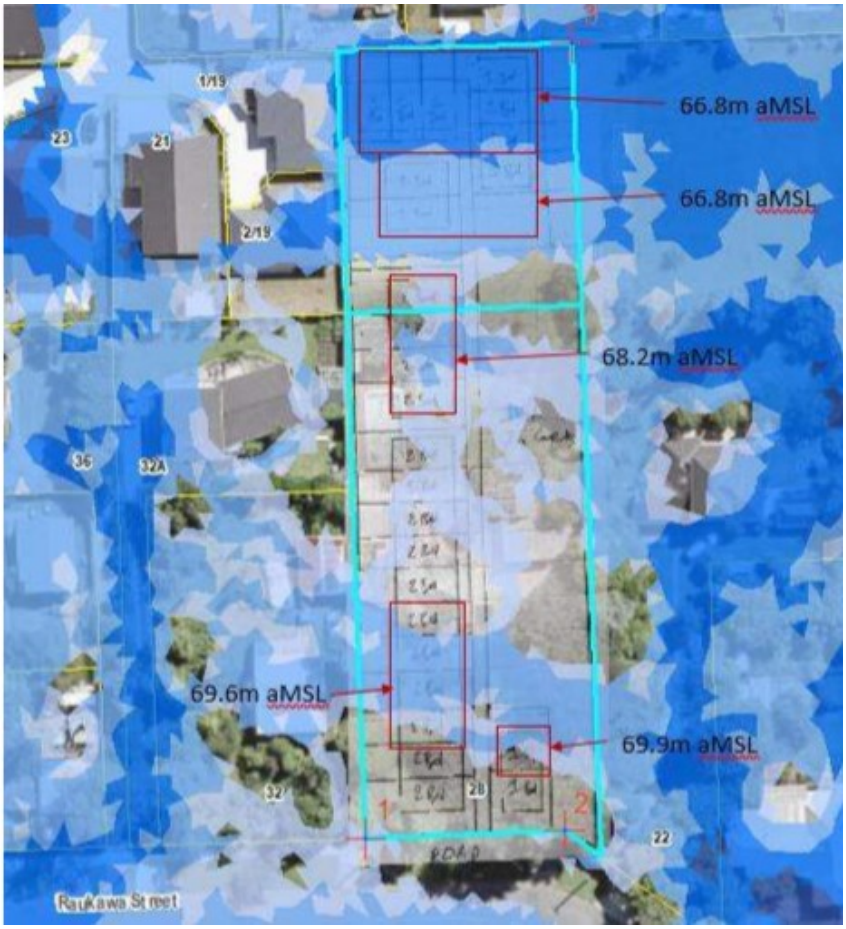

Figure 4: Flood hazard modelling of application site.

A statutory acknowledgement site is also mapped as traversing the application site, as shown by the orange line in **Figure 5** below. Due to there being no watercourse onsite, it is considered that this line may represent a historical watercourse onsite.

Figure 5: Statutory acknowledgement site, orange line.

In an email dated 26th October 2021 the applicant also confirmed that the application site shall include the property at 13 Poppy Watts Grove, legally described as Lot 6 DP 464313. This site contains a single residential dwelling and is owned by the applicant. The site is zoned General Residential and is not subject to any interests or notations within the District Plan. This site will be traversed by the stormwater main proposed to service the development at 28 Raukawa

Street. This site is shown below in Figure 6. There are no changes proposed to 13 Poppy Watts Grove other installing the proposed stormwater main.

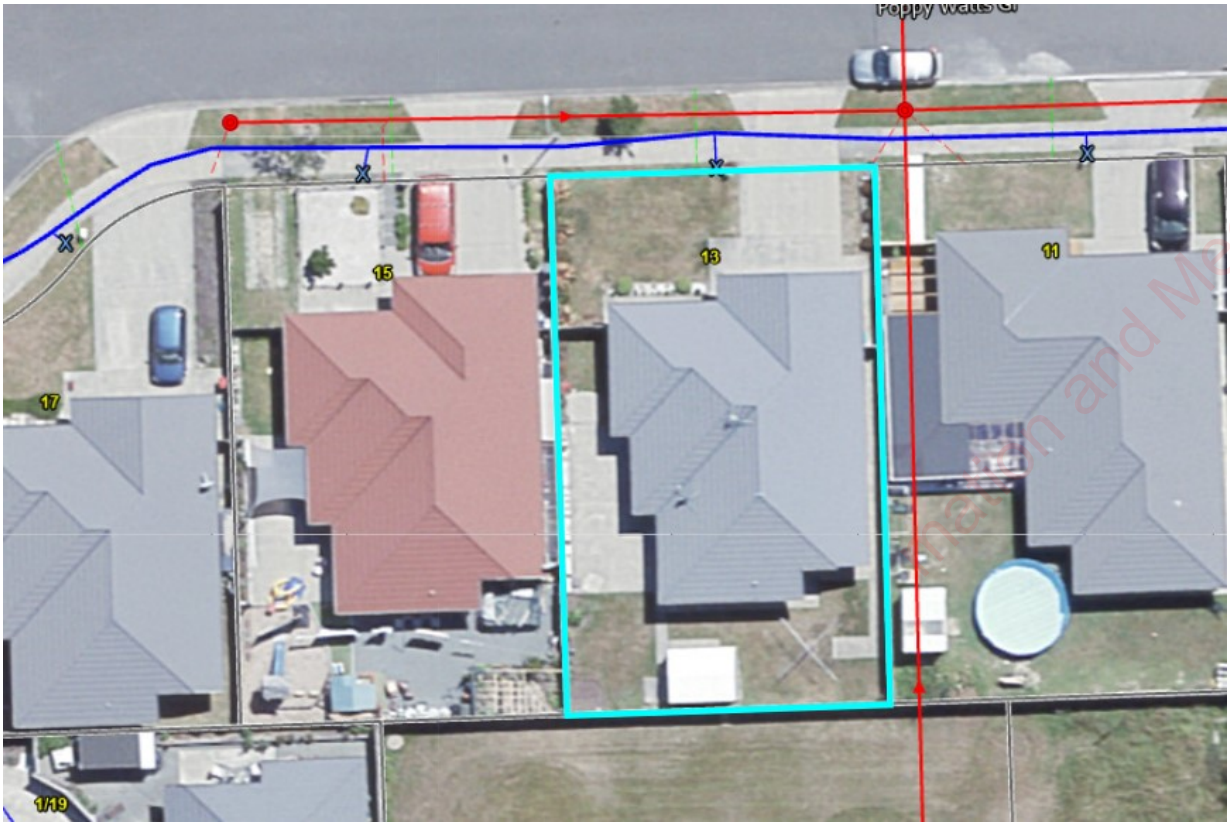

Figure 6: Site at 13 Poppy Watts Grove.

3. RELEVANT PLANNING RULES AND REGULATIONS

District Plan

The District Plan is the appropriate planning instrument with which to assess the proposal. Rules relating to the General Residential activity area, which this proposal falls within, are contained in chapters 4A (General Residential), 11 (Subdivision), and 14 (General).

The proposal requires resource consent for the following District Plan non-compliances:

Land use consent

- *Rule 4A 4.1.10(a): Activities that would cause vibration are permitted if the activity is managed and controlled in such a way that no vibration from the activity is discernible beyond the boundary of the site.*
  The applicant has failed to demonstrate that vibration effects from construction works will be indiscernible beyond the boundary of the site.

- *Rule 4A 4.2.10(a): Comprehensive Residential Developments are restricted discretionary activities if they comply with development standards (i) – (vii).*
  The proposal is eligible for consideration as a Comprehensive Residential Development (CRD) on the basis that the application site exceeds 1,400m^2, and the site has been designed in an integrated manner.

The proposal is ineligible for assessment as a restricted discretionary activity due to non-compliance with the following development standards:

- Standard (iii): Unit 4 breaches the height recession plane envelope by up to 0.15m on the western site boundary.
- Standard (v): Units 2, 3, 6 – 8, & 11 – 14 do not provide for a private outdoor living area with a minimum area of 20m^2 and a minimum 3m dimension. These outdoor spaces provided spans between 17 – 18.5m^2.

- *Rule 14A 5.1(a): Any activity is permitted if it complies with the standards listed in Appendix Transport 1 and is not a high trip generator.*
  The proposal cannot meet Standard 1(c) due to not meeting the site access requirement, which would require an access leg be formed to span 5.7m plus two 1.5m pedestrian paths on either side servicing the site (in accordance with NZS 4404:2010). As the access spans only 5m at its narrowest point, with one detached 1.2m pedestrian access path between units 1 and 2, this standard is not met. The proposal also does not comply with the requirement for a provision for a turning head under the same standard.
  The proposal is also non-compliant with Transport Standard 2(c), due to insufficient manoeuvring space being provided for users visitors.
  Finally, the proposal also breaches Transport Standard 5(c) due to no provision being made for a loading zone for onsite rubbish collection as required for a development including 20 or more dwellings. The applicant also fails to demonstrate tracking for a small right truck, to be used for onsite rubbish collection.

- *Rule 14I 2.1(a): Earthworks in all activity areas are permitted up to 50m^3 in volume and 1.2m vertical alteration per site in the General Residential activity area.*
  The proposal seeks to undertake earthworks with a cut volume of 280m^3 and fill volume of 174m^3 over an area of 2,161m^2. This is to a permitted maximum vertical depths of 1m (cut) and 1.2m (fill).

I consider the land use component of the proposal to be a discretionary activity under rule 4A 4.2.10(b), and a restricted discretionary activity under Rules 4A 4.1.10(b), 14A 5.1(b) and 14I 2.2(a). The overall activity of the land use consent is discretionary. I revisit bundling, below.

Subdivision consent

- *Rule 11.2.2(a): All subdivision in the General Residential activity area is a controlled activity where all relevant standards and terms are complied with.*
  The proposed subdivision, seeking to create 23 freehold allotments around 22 proposed dwellings and a common access area, is non-compliant with Standard 11.2.2.1(a) relating to allotment design. The application proposes 22 allotments of less than 400m^2, and has failed to demonstrate that permitted dwellings could be constructed on any allotment. None of the allotments comply with the minimum 15m x 10m shape factor requirement.

The proposed subdivision is also non-compliant with Standard 11.2.2.1(b) due to a number of anticipated transport standard non-compliances, which are identified in the land use assessment above.

The proposed subdivision is non-compliant with Standard 11.2.2.1(e) relating to earthworks. The proposal seeks to undertake earthworks with a cut volume of 280m^3 and fill volume of 174m^3 over an area of 2,161m^2. This is to a permitted maximum vertical depth (cut) of 1m.

I consider the subdivision component of the proposal to be a restricted discretionary activity under Rule 11.2.3(a) and a discretionary activity under Rule 11.2.4(i). The overall activity status of the subdivision consent is discretionary.

Bundling

It is considered that the subdivision and land use components of the proposal are not mutually exclusive. It is therefore appropriate to bundle the subdivision and land use consents for the purpose of this decision. When bundled, the overall activity status of the proposal is **discretionary**.

National Environmental Standards
The proposal does not require assessment under any National Environmental Standards, including the NESCS as the site is not located on SLUR.

4. PERMITTED BASELINE

The permitted baseline allows a consent authority to disregard adverse environmental effects that are the same as could arise from a permitted development on the subject site.

The permitted baseline in regards to subdivision for the application site includes minor boundary adjustments, provided that the permitted activity conditions can be met and no additional allotments are created. This subdivision creates new residential allotments and so cannot be considered a minor boundary adjustment. This permitted baseline is not relevant for assessing the effects of the proposed subdivision.

The permitted baseline in regards to built form onsite includes two 8m high dwellings per existing site, given Rule 4A 4.2.1(a) permits up to two dwellings per site provided they meet the relevant permitted activity conditions and development standards of the General Residential Activity Area and General Rules chapters of the District Plan. The dwellings would need to comply with 40% total site coverage, 8m height limit, be located within recession planes of 2.5m and 45 degrees, be located at least 1m from side and rear boundaries and be located 3m from the front boundary. Each dwelling would also need to have at least 50m^2 each of private outdoor space with a dimension of at least 4m. 30% of the site would also need to be of a permeable surface. It is noted that there is no minimum car parking requirements whereby no on-site parking is required by the District Plan.

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Construction of an accessory building is also a permitted activity provided it complies with the development standards for site coverage, building height, recession planes, yards and permeable surfaces.

The applicant has provided a modelled 'permitted baseline' plan for the subject site, as shown below. This plan features 2 two-storey dwellings per site, with adequate area for shared access and onsite manoeuvring. Compliant outdoor living areas are also provided. I consider this plan to be non-fanciful and hence can be considered as a credible permitted baseline to be used in assessing effects from the proposal.

Figure 7: Permitted baseline scenario submitted by the applicant with the Raukawa Street frontage on the right.

The applicant also requested via email dated 06/10/2021 that an additional component to this permitted baseline scenario be considered. This addition would comprise a 54m^2 accessory building that is two-storeys in height located adjacent to the boundary with 1/19 and 2/19 Poppy Watts Grove. No plans were provided in support of this additional scenario, however the applicant noted an example of an accessory garage with a second story space. I agree that this accessory building represents a non-fanciful scenario for this site and hence have adopted it for consideration as part of this notification report. Council records for this structure at 1 Buick Street for this structure depict it as spanning 6m x 9m with a ground floor garage and loft space above, constructed to an A-frame. There are no windows in this particular structure overlooking the adjoining property. These features will be adopted for the purposes of this decision, and will be assessed as located onsite as per below.

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Figure 8: Location of accessory building requested to be considered as forming the permitted baseline scenario for the site, as per email 06/10/2021.

Earthworks of up to a maximum volume of 100m^3 (50m^3 per 'site' for 28 Raukawa Street and 13 Poppy Watts Grove) and 1.2m measured vertically from natural ground level are permitted. The permitted baseline is somewhat relevant will be taken into account.

5. NOTIFICATION

A decision to limited notify this consent application was made on 27 October 2021. This notification decision report is held on file and should be read in conjunction with this substantive decision report. The application was limited notified on 4 November 2021. Notification packs were delivered to the owners and occupiers of the following properties, inviting them to provide a submission on the proposal.

- 32A Raukawa Street, Stokes Valley
- 1/19 Poppy Watts Grove, Stokes Valley
- 2/19 Poppy Watts Grove, Stokes Valley
- 15 Poppy Watts Grove, Stokes Valley

At the close of the submissions period on 7 December 2021, four submissions were received. The submission received for 2/19 Poppy Watts Grove was withdrawn on 28 January 2022. The remaining three submissions are summarised below.

Submission 1: 32A Raukawa Street
The submitter outlined that:

- They were generally opposed in all parts to the proposed development.
- They had concerns with the effects of shading on their outdoor living areas, which they note are frequently used, as well as on their hot house and vegetable growing areas.
- They had concerns with the effects of privacy on their outdoor living areas, and on the main bedroom and spare bedroom, citing the height of the proposed dwellings and the elevated decks.
- They had concern with the sufficiency of on-site parking to meet the parking demands of the site.

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- They had concern that a large number of refuse bins would be placed on the frontage.

Submission 2: 1/19 Poppy Watts Grove
The submitter outlined that:

- They "oppose certain aspects of the proposed development and wish for them to be considered for amending".
- They were not against residential development in principle, but are concerned with the intensity of having 22 dwellings on the site, and that this would stand out with respect to the surrounding area.
- They noted they were happy that proposed dwelling 18 has been set further back from their boundary[1].
- They were concerned that two large trees proposed to be located adjacent to the boundary will deposit large quantities of leaves onto their property.
- They noted a proposed boundary hedge is located over a manhole cover.
- They requested;
    - That the proposed dwellings be reduced to single storey;
    - That the proposed trees are not large, and are set back from the boundary fence.
    - To clarify if the drain in the corner is going to be removed for the hedge to be put in.

Submission 3: 15 Poppy Watts Grove
The submitter outlined that:

- Their opposition to parts of the proposed development.
- They were concerned with potential flooding resulting from increased permeable areas.
- They were concerned with privacy effects related to the raised dwelling and deck levels and proposed Juliet balconies.
- They were concerned that the proposed development would block the morning sun which helps dry the wet ground.
- They requested;
    - That the Juliet windows be "70% frosted" and "30%" openable.
    - That a privacy screen be installed on the edge of the deck.
    - That a surface water detention tank be provided to manage stormwater.

Following a pre-hearing meeting held on 20 January 2022, the applicant refined their proposal to address the concerns raised by the submitters. The revisions include the following:

[1] In the initial proposal plans submitted with the application, proposed dwelling 18 was located adjacent to the shared boundary setback approximately 1m. In revised proposal plans received in August 2021, dwelling 18 is setback 4.75m.

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- All outdoor decking adjacent to an external site boundary to be dropped in height by approximately 340mm (equivalent to two steps). However the applicant's architect has advised that the underside of the joists must be at least 150mm above the ground.
- All external fencing to be replaced to 2m in height, except in respect of that adjoining 32A Raukawa Street.
- That the upper level Juliet balconies are removed.
- The following proffered conditions;
    - A condition on the subdivision consent requiring the creation of a residents society to be responsible for the ongoing maintenance of communal outdoor areas and services.
    - Prior to construction commencing, an updated landscape plan must be prepared that amends proposed planting along the western boundary to evergreen species with a mature height of up to 2m.

Submitter 2 identified at the time of their submission that they did not wish to be heard in support of their submission. Submitters 1 and 3 withdrew their right to be heard on 28 January 2022 and 1 February respectively.

Section 100 of the Resource Management Act 1991 states:
A hearing need not be held in accordance with this Act in respect of an application for a resource consent… unless –

(a) The consent authority considers that a hearing is necessary; or
(b) Either the applicant or a person who made a submission in respect of that application has requested to be heard and has not subsequently advised that he or she does not wish to be heard.

As no submitters requested to be heard in support of their submission (and therefore removing the mandatory requirement for a hearing) it is considered that pursuant to s100(b) of the Resource Management Act 1991 a hearing is not necessary to determine the application.

6. DETERMINING THE APPLICATION

Section 104 requires, when considering a resource consent application, that, subject to Part II of the Resource Management Act 1991, the council must have regard to:

a. any actual and potential effects on the environment of allowing the activity; and
ab any measure proposed or by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and
b. any relevant provisions of-
i. a national environmental standard;
ii. other regulations;
iii. a national policy statement:
iv. a New Zealand coastal policy statement:
v. a regional policy statement or proposed regional policy statement:
vi. a plan or proposed plan; and

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c. *any other matter the consent authority considers relevant and reasonably necessary to determine the application*

Section 104B, which relates to discretionary activities, states:

> *After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority (a) may grant or refuse the application; and (b) if it grants the application, may impose conditions under section 108.*

I will deal with these matters in the report sections below.

6.1 – PERMITTED BASELINE (S104(2)) AND WRITTEN APPROVALS (S104(3)(A))

Permitted baseline

In accordance with section 104(2), when forming an opinion on section 104(1)(a), the council may disregard the adverse environmental effect of an activity if the District Plan or a regional plan, or national environmental standard permits an activity with that effect. I have identified the permitted baseline in section 4 of this report and consider it relevant to the determination of this application.

Written approvals

No written approvals were obtained in relation to this consent application.

6.2 – ASSESSMENT OF ACTUAL OR POTENTIAL EFFECTS ON THE ENVIRONMENT (S104(1)(A))

The following material has been relied on in informing the assessment of actual or potential effects:

- Proposal documents submitted by the applicant and subsequent information responses;
- Urban design assessment provided 9 September 2021, prepared by Alastair Upton, consultant urban planner, on behalf of Council. Mr Upton's assessment is relied on to inform the assessment of effects on residential character and streetscape, and amenity internal to the application site.
- Traffic assessment dated 6 October 2021, prepared by Harriet Fraser, consultant traffic engineer, on behalf of Council, and subsequent email advice provided by Ms Fraser. Ms Fraser's advice is relied on to inform the assessment of traffic effects.
- Email advice with regards to three waters infrastructure and flood hazard, dated 22 January 2021. Ms Zhou's advice is relied on to inform the assessment of three waters infrastructure capacity and natural hazard effects.
- Engineering memorandum from Council's subdivisions engineer Sylvio Leal, dated 11 November 2021. Mr Leal's advice is relied on to inform the assessment of the servicing of the proposed allotments.
- Notification decision made by Alicia Todd, Senior Resource Consents Planner, Hutt City Council, dated 27 October 2021.
- Properly made submissions objecting to the proposal either in full, or in part, as summarised in section 5 of this report.

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I consider the relevant environmental effects to be as follows:

- Residential amenity, streetscape and character effects;
- Bulk and amenity
- Shading effects
- Privacy effects
- Internal amenity
- Allotment design and layout
- Traffic effects
- Natural hazards
- Infrastructure capacity
- Engineering matters
- Earthworks
- Construction effects; and
- Positive effects.

Residential amenity, streetscape and character effects

This effects assessment is informed by the context of the relevant objectives and policies in the District Plan. In particular, the following Plan provisions have formed context for the subsequent effects assessment under s104:

- Objectives 4A 2.3, 2.4, 2.5 & 2.6
- Policies 4A 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.9, 3.10, 3.11, & 3.12

These provisions set useful context for the intent of the residential zoning, being to support residential activities of a low-to-medium development density, where these activities do not appear 'dominant' (Policy 4A 3.4) or result in unreasonable privacy and shading effects (Policy 4A 3.5).

It is noted that the Raukawa Street frontage is the sole location for site access, and will be the public environment which interacts with the proposed residential development most significantly.

Units 1 – 4 will be the most visibly prominent part of the site from the streetscape, due to directly fronting the street. These units are arranged into two building blocks, at two-storeys in height. The dwellings are slightly recessed from the street environment, and all comply with the minimum front yard requirement and are designed to address the street with front facing entrance doors, vegetated frontages and no fencing.

The site's integration with the surrounding streetscape was assessed by consultant urban designer Alastair Upton, who noted that the site both activates and "*relates well to the street*", with features such as landscaping, a limitation on the width of the vehicle access point, and streetscape orientation assisting in activating the street frontage. The application proposes no

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fencing at the street edge, instead opting to have a landscaped frontage to create positive interaction between the front site dwellings and the street environment, further softening the appearance of the site while adhering to appropriate crime prevention through environmental design (CPTED) principles. The vehicle access to the site is limited to the south-eastern corner of the site, provided access to a central parking area that is well screened by units 1 – 4 to avoid a car-centric frontage. Refuse collection for the rear units will be internal to the site, reducing amenity impacts from rubbish bins being located on the street frontage.

The building mass and bulk to be experienced within the streetscape, while substantially higher than that which is currently onsite, will have less than minor effects on the basis of proposed setbacks and landscaping, and what could be anticipated from a permitted baseline development. While it is acknowledged that a greater number of dwellings and physical building blocks are sited to the rear of these units, when viewed from the streetscape environment, these additional units will be largely screened or setback such that they will not represent a dominant feature of the site. I consider that character, while not consistent in form and grain of that surrounding the site, is appropriate as the development is clearly residential in nature and has been designed in accordance with the medium density design guide.

Overall, residential character, streetscape and amenity effects will be acceptable.

Bulk and amenity, shading and privacy effects

A comprehensive assessment of visual amenity (relating to building bulk), shading and privacy effects was undertaken as part of the notification decision for this application which I will not repeat in full in this section. The notification decision resulted in the persons at following properties being found affected due to effects being assessed as minor; 32A Raukawa Street (privacy effects), 15 Poppy Watts Grove (privacy effects), 1/19 Poppy Watts Grove (bulk and amenity, and shading effects) and 2/19 Poppy Watts Grove (bulk and amenity, shading and privacy effects). Submissions were received for each of these properties.

Subsequently the applicant sought to make changes to reduce the privacy and amenity effects in response to points raised in the submissions. To address privacy effects, the outdoor decks serving as the primary outdoor living spaces for each of the dwellings were lowered in height. With regards to the outdoor spaces for dwellings 5-15 facing the western boundary, raised decks were effectively replaced by patios placed at ground level. With regards to deck spaces for dwellings 16-17 facing the western boundary and dwellings 18-20 facing the northern boundary, these decks were reduced the height equivalent of one or two steps (up to 340mm). Fence heights on external boundaries were proposed to be raised to 2m in height (with the exception of the boundary shared with 2/19 Poppy Watts Grove due to the agreement reached with the owner of this property). As such boundary fencing will be more effective (when compared to the proposal assessed at the notification decision) in providing screening towards outdoor living areas. To mitigate overlooking from first floor spaces, the applicant revised the proposed design to remove Juliet balconies from first floor bedroom windows.

The applicant also provided an updated landscape plan to incorporate lower-height tree specimens along the external boundaries. Although the larger trees may have provided some

screening or softening towards the visual extent of the buildings, the changes are in response to concerns raised by the submitters with the potential deposition of leaves in their properties.

No changes are proposed the location or scale of the proposed dwellings, whereby shading effects are considered to be much the same as assessed in the notification decision.

It is noted that following these changes the submission for 2/19 Poppy Watts Grove was withdrawn.

In terms of the overall privacy, shading and amenity effects it is acknowledged that the site will present a change to neighbouring properties as buildings will be situated where there are currently none. The mitigations proffered by the applicant will reduce the extent that persons on neighbouring properties may be overlooked from ground floor indoor and outdoor living spaces. With regards to potential overlooking from first floor spaces, it is noted that all first floor windows on the northern and western elevation will be to either bedroom or bathroom spaces. The use of these spaces may be intermittent (as in the case for bathrooms) or focused to night-time hours (bedrooms), and particularly with the removal of Juliet balconies, the potential of overlooking from these spaces will be limited.

The permitted baseline concept presented by the applicant illustrates that a large two-storey dwelling could be situated adjacent to No 32A, whereby some adverse privacy effects similar to the proposal could be expected as a permitted activity. The applicant's permitted baseline concept does not include potential permitted dwellings adjacent to 15, 1/19 and 2/19 Poppy Watts Grove. In the case of No 15, it is noted that proposed dwelling 18 will be adjacent to a corner of the shared rear boundary, will comply with minimum yard and recession plane controls, with privacy effects mitigated through the reduced deck height, increased fence height and removal of the Juliet balcony. In the case of No 1/19, proposed dwelling 18 will be setback a minimum 4.7m, and in the case of 2/19 privacy effects will be mitigated by the proposed tinting of windows at the existing dwelling at this property.

With regards to shading effects, the notification decision assessed that 1/19 and 2/19 Poppy Watts Grove would receive an additional two hours of shade throughout the year. It is not considered that these would be reduced by any of the revisions to the proposal plans following the notification decision. The shading effects will be limited to the morning, with afternoon sunlight access to these properties not affected by the proposal. In the case of No 15, potential shading effects will be limited by the north position of this property relative to the application site. In the case of 32A Raukawa Street, the shading effects are considered comparable to what may expected in the applicant's permitted baseline concept.

With regards to visual amenity effects related to building bulk, it is noted the proposed dwellings incorporate modulation in bulk and roof forms, and variation in cladding and materials to promote visual interest. The revised landscaping, which although offering less screening towards the proposed buildings, has been negotiated to a level acceptable to persons at neighbouring properties. Although the proposed building bulk exceeds that which may be expected in a permitted activity, it is considered to be consistent with that anticipated by the District Plan, noting the extent of compliance with District Plan building bulk and location controls. With regards to amenity effects related to the concentration of outdoor living areas along external boundaries, the lowered deck height and raised fence height mitigations,

will provide more effective screening to activity within these spaces. The small size of these spaces will limit the extent that they can accommodate noisy activities such as gatherings or children playing.

The notification decision concluded that effects on persons at other properties (other than those identified above) were less than minor. These conclusions remain valid and are adopted for the purpose of this s104 assessment.

Following the above assessment, and with consideration to the policy direction of the District Plan and National Policy Statement for Urban Development, I consider the potential adverse related to bulk and amenity, shading and privacy to be acceptable.

Internal amenity

Each of proposed units 2, 3, 6 – 8, & 11 – 14 will not comply with the development standard for outdoor living space. However the proposal has been assessed as meeting the expected outcomes of the *Medium Density Design Guide*, including in relation to the outdoor living and internal amenity (refer to section 6.3 of this report for details), with the assessment noting the orientation, minimum dimension and separation to boundary ensuring sunlight access, outlook and privacy for these spaces. The size of outdoor areas for the non-compliant units will range in size between 17-18.5m^2, which is not considered a significant quantum less than the minimum 20m^2 standard. Furthermore secondary private outdoor spaces are available at the front of these respective dwellings. Accordingly the provision of private outdoor living spaces are considered to be consistent with what is anticipated in the District Plan for comprehensive residential development. The proposal includes extensive proposed landscaping which will be of a high quality and will enhance the amenity of the site. The applicant has proffered a condition for the creation of a residents' society responsible for maintaining the communal areas of the development. It is considered this will help avoid future potential conflicts and will ensure the amenity values of the site are maintained. For the above reasons potential adverse effects related to internal amenity are considered to be acceptable.

Allotment design and layout

Each of the proposed residential allotments 1-22 do not comply with the allotment design standards for size and shape. However each of the proposed allotments is considered to be of a suitable size and shape to contain their respective dwellings and private outdoor space. Although there will be some non-compliances with General Residential development standards associated with the proposed dwellings, the potential adverse effects on amenity both internally and on adjacent sites have been assessed above as being acceptable. There is suitable provision for vehicle and pedestrian access to Raukawa Street via proposed lot 23. Accordingly the proposed allotments are considered to be suitable for their intended use, and adverse effects related to allotment design non-compliances are considered to be acceptable.

Traffic effects

The proposed layout has been designed on an iterative basis informed by feedback from Council's consultant traffic engineer Harriet Fraser. Following this process the final design did not comply with District Plan transport non-compliances for site access, on-site manoeuvring and on-site rubbish collection. Ms Fraser has reviewed the proposal and considers it acceptable subject to conditions of consent requiring;

- Entrance signage stating the access is for residents cars only and there is no on-site turning.
- Provision of secure gates to ensure the security of the proposed bike storage.

There is sufficient provision for residents accessing car parking spaces. As there is not provision for a turning head, the signage will ensure visitors are aware of limited available manoeuvring for visitors.

With respect to access width, although non-compliant with the District Plan a minimum 5m width will be maintained to enable two-way movement for the full length of the driveway. Footpath access will be provided separately.

With regards to on-site rubbish collection, an internal collection area has been provided however it does not provide for on-site turning for a collection vehicle. However noting the sightlines at the Raukawa Street vehicle crossing, Ms Fraser considers a truck would be able to suitably reverse into the site to access the collection point.

Following the above assessment, the potential adverse traffic effects are considered to be acceptable.

Natural hazards and infrastructure capacity

Wellington Water has advised that the site is located within a modelled flood hazard area. The applicant has designed the site to position dwellings above modelled flood depths, and has also undertaken additional modelling which confirms natural hazard effects related to displaced floodwaters will be less than minor.

It is noted that flooding / stormwater runoff was a particular matter raised in the submission for 15 Poppy Watts Grove. The proposed development is designed to be stormwater neutral such that peak post-development flows will not exceed pre-development levels. Sub-soil drains will be provided at the base of retaining walls to avoid seepage to adjacent sites. All manholes sumps will be located in accessible areas, and the proposed residents' society will ensure these will be maintained. For the above reasons potential adverse effects related to flooding, and stormwater runoff and ponding will be acceptable. The site is not known as being particularly prone to any other natural hazards.

With regards to the capacity of the wastewater and water supply networks, onsite wastewater mitigation is not required, in accordance with recommendations from Wellington Water. There is sufficient capacity within the existing network to provide for water supply requirements onsite.

With regards to the capacity of land transport infrastructure, there are no known limitations in the capacity of the local road network to absorb the additional transport demand from the development. Bus routes on Stokes Valley Road may encourage public transport use.

Accordingly potential adverse effects on the capacity of three waters and land transport infrastructure will be acceptable.

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Engineering matters

The application has been reviewed by Council's subdivisions engineer who has concluded it can meet the District Plan's engineering standards subject to adherence to conditions. I concur with this assessment and have included the engineer's recommended conditions with this consent.

Earthworks effects

Proposed earthworks to level the site for building platforms and access areas total 454m^3 (280m^3 cut, 174m^3 fill), to a maximum cut and fill depths of 1m and 1.2m respectively. This is a compliant vertical alteration, but exceeds the maximum allowable volume for a site by 404m^3 The applicant notes the following in respect of earthworks proposed:

All areas exposed by earthworks will be built over, paved or subject to landscaping upon completion, ensuring that visual amenity effects will be less than minor. As the site does not contain any distinct or significant natural or topographical features any associated effects will be less than minor, and the modest depth and integration with existing ground levels will ensure long term site stability. Thus, any adverse earthworks effects are considered to be less than minor.

I agree with the above statement and adopt it for the purpose of this assessment. The applicant has advised that silt and sediment control measures will be implemented in accordance with the, Erosion and Sediment Control Plan (ESCP), Earthworks Management Plan (EMP) and Sediment Control Management Plan (SCMP) submitted by the applicant in support of their application. Vibration effects will be managed via adherence to the vibration control measures detailed by the applicant. The applicant has also proffered a condition of consent that a Construction Management Plan (CMP) be developed for the site and approved by Council. This CMP will detail comprehensively the erosion, sediment and earthworks control measures to be installed and maintained for the duration of site works. The applicant has also confirmed a number of conditions which form part of their application relating to the management of potential earthworks 'nuisance' effects, such as dust and sedimentation.

As previously noted, potential adverse effects related to displaced floodwaters have been modelled and found to be acceptable. The site is not subject to any natural hazard risk nor is it the site of any natural, cultural or archaeological sites of significance. The proposed earthworks will only marginally alter the natural site topography by undertaking a combination of cut and fill across various pockets of the site to ensure a uniform ground level, however the key topographic feature in that the site is flat and sloped to the rear will be retained. Overall, earthworks effects will be acceptable.

Construction effects

Construction effects from the proposal include those relating to earthworks, construction traffic, noise and other general amenity effects. Earthworks effects will be managed through adherence to the EMP and SCMP submitted by the applicant in support of their application. Vibration effects will be managed via adherence to the vibration control measures detailed by the applicant. Additional construction effects (such as noise and traffic) will be managed via adherence to a Construction Management Plan (CMP) which the applicant has confirmed is a condition forming a part of their application. This CMP will address measures to ensure compliance with the New Zealand standards relating to construction noise, as well as

stipulating hours of work and traffic management processes. Furthermore the effects resulting from construction will be temporary in nature, limited to certain hours and days and will cease following completion of the site works. All construction vehicles are to be parked onsite for the duration of works, which the applicant has confirmed is a condition forming a part of their application. Overall, considering the above measures and the effects from a permitted baseline development, the construction effects will be acceptable.

Positive effects

The supply of 22 new (21 additional) dwellings will increase housing supply, quality, and variety and will provide for economic well-being, which are considered to be positive effects.

6.3 - ASSESSMENT OF THE RELEVANT PROVISIONS OF THE DISTRICT PLAN UNDER S104(1)(B)

Design guide assessment

The applicant's assessment of environmental effects includes an assessment of the proposal against Council's *Medium Density Design Guide*. Alastair Upton, Council's consultant urban design advisor, has provided a final peer review assessment on 9 September 2021. The applicant's and Mr Upton's assessment should be read in conjunction with this report.

Mr Upton's assessment is summarised as follows:

Design guide principles

- *Consolidate activities addressing the street* – four dwellings will face the street, and the driveway width will be relatively minor as a proportion of the frontage width. A consolidated bin storage area is provided within the development, avoiding large concentrations of bins on the street.
- *Respond to the environment* – the front dwellings have kitchen and bedroom windows providing passive surveillance of the street. The common parking area will be similarly overlooked by the internal units. The units are arranged such that related outdoor areas will have sunlight access The concentration of outdoor living spaces along the western boundary may impact the amenity of adjacent sites.
- *Create a sense of place* – the development is logically laid out and revolves around the common areas on the eastern side of the site. The main common areas are utilitarian in nature and lacking in character, however the landscape plan will go some way in enhancing the amenity of these areas.
- *Integrate with the street and neighbourhood* – the development provides walking connections to the street edge to the greatest extent which may be expected. Units 1-4 relate well to the street.
- *Provide diversity and interest* – the arrangement of the proposed units is relatively homogenous however will contribute to an efficient land use. The development provides some interest by way of separated unit blocks, good quality landscaping and the juxtaposition in arrangement of the rear unit block.

Conclusions

Mr Upton concluded "*Overall, the proposal is of a good standard and as such I provide urban design support for a Council decision to grant resource consent for the proposal*".

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Following Mr Upton's assessment, the proposal was revised to address concerns raised by submitters. Changes of relevance to the urban design assessment include the removal of Juliet balconies, the reduction in deck heights, the increase in height of boundary fencing, and the replacement of boundary specimen trees with lower height plantings.

With regards to the quality of outdoor living spaces, it is noted that the Juliet balconies were small supplementary spaces accessed from bedrooms. The outlook from these bedrooms will be maintained despite the loss of the balconies. The decrease in height of the decks will be equivalent to two steps down from the height of the internal living areas. It is not considered this will adversely impact the quality or function of these spaces. The step-down on the threshold between indoor and outdoor areas could function informally as a seating area. The increase in fence heights will not be of a extent to impact sunlight access to deck spaces and may enhance the perception of privacy for residents of the units. The proposed changes to specimen trees is considered a small change in the context of the overall landscaping plan, and will result in lower maintenance specimens.

Following Mr Upton's assessment and the additional assessment of urban design outcomes in relation to the revised proposal, I consider the proposal to align with the expected outcomes of Council's *Medium Density Design Guide.*

Objectives and policies of the District Plan

I consider the proposal is consistent with the relevant District Plan objectives and policies identified below:

Chapter 4A – General Residential Activity Area

- *Objective 4A 2.1 – Residential Activities are the dominant activities in the General Residential Activity Area.*
- *Objective 4A 2.2 – Housing capacity and variety are increased.*
- *Objective 4A 2.3 – Built development is consistent with the planned low to medium density built environment and is compatible with the amenity levels associated with low to medium density residential development.*
- *Objective 4A 2.4 – Built development provides high quality on-site amenity for residents as well as high quality residential amenity for adjoining properties and the street.*
- *Objective 4A 2.5 – Built development is adequately serviced by network infrastructure or addresses any network infrastructure constraints on the site.*
- *Objective 4A 2.6 - Built development is located and designed to manage significant risk from natural hazards.*
    - *Policies 3.1-3.2, 3.4-3.12*

The proposed comprehensive residential development is consistent with the objective that residential activities are the dominant activities in the General Residential Activity Area and will provide for increased capacity and diversity in the city's housing stock. Although an extensive form of development, the proposed development will mostly comply with District Plan controls for building bulk and location, and will incorporate extensive landscaping, whereby the amenity outcomes are considered consistent with those anticipated by the District Plan for comprehensive residential development. The design provides for suitably

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sized and orientated and outdoor living spaces, to ensure high-quality on-site amenity for residents. The proposal can be suitably serviced by network infrastructure.

Chapter 11 – Subdivision

- *Objective 11.1.1 – Allotment standards – To ensure that land which is subdivided can be used for the proposed use or development.*
  - *Polices: (a)-(b)*
- *Objective 11.1.2 – Engineering standards – To ensure that utilities provided to service the subdivision protect the environment and that there are no adverse effects on the health and safety of residents and occupiers.*
  - *Policy: (a)*
- *Objective 11.1.3 – Natural hazards – To ensure that land subject to natural hazards is subdivided in a manner that the adverse effects are avoided, remedied or mitigated.*
  - *Policy: (b)*

The proposal will not comply with allotment design standards for size and shape, however the proposed residential development has been assessed as being consistent with the expectations of Council's Medium Density Design Guide for comprehensive residential development, with suitable provision for internal amenity. There is suitable provision for pedestrian and vehicle access to each of the proposed allotments. Accordingly the proposed allotments are considered to be suitable for their intended residential use. Each of the allotments can be serviced by network infrastructure. The proposed dwellings will have suitable floor levels to mitigate inundation risk.

Chapter 14A – Transport

- *Objectives: 14A 3.1, 3.3, 3.4 & 3.5*
  - *Policies: 14A 4.2, 4.3, 4.4, 4.6 & 4.7*

The proposed development has been suitably designed with consideration to the integration with the surrounding land transport network. It is considered vehicles and pedestrians will be able to safely access the site without unduly impacting the safety and operation of the land transport network or safe access to adjacent sites. It is considered the proposal will not result in additional reverse sensitivity effects on the adjacent transport infrastructure, noting the application site is within an established residential area, and is not subject to any transport infrastructure buffer areas identified within the District Plan. Although the proposal does not include an on-site loading facility and manoeuvring for refuse collection, it is consider that refuse collection vehicles will be able to safely access the site. The proposed activity is not considered a high trip generating activity (as defined by the District Plan), and it is considered that additional traffic generated from the proposed development should be able to be readily accommodated within the road network.

Chapter 14I - Earthworks

- *Objective 14I 1.1 – Natural character – To ensure that earthworks are designed to maintain the natural features that contribute to the City's landscape.*
  - *Policy: (a)*
- *Objective 14I 1.2 – Amenity, cultural and historical values – To ensure earthworks do not affect adversely the visual amenity values, cultural values or historical significance of an area, natural feature or site.*

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- *Policies: (a)-(b)*

The application site does not include any visually prominent hillsides or features which contribute significantly to the City's landscape. There are no known features of historical or cultural significance associated with the site. The earthworks are considered generally sympathetic to the site topography and will not undermine site stability. Earthwork face areas will be covered by works completion and temporary adverse amenity effects can be suitably controlled through adherence to a construction management plan required through a condition of consent.

14H – Natural Hazards

- *Objective 14H 1.1.1 – Risk associated with natural hazards – To avoid or reduce the risk to people and their property from natural hazards associated with seismic action, landslides, flooding and coastal hazards.*
  - *Policy: (a)-(e)*

The proposed dwellings will have been designed to achieve minimum floor levels recommended by Wellington Water to mitigate inundation risk. The proposed earthworks are low in form and are not expected to elevate flood risk on adjacent sites. The passage of the overland flow through for the site has been suitably accounted for whereby overland flows will not be displaced to any adjacent sites. The site is not known as being otherwise particularly prone to natural hazards such as seismic action, landslides or coastal hazards.

Conclusion

Due to the above assessment, and with regards to the assessments and conclusions provided in sections 5 and 6.1 of this report, I consider the proposal to be consistent with the relevant District Plan objectives and policies identified above.

6.4 - ASSESSMENT OF THE RELEVANT PROVISIONS OF OTHER STATUTORY PLANNING DOCUMENTS UNDER S104(1)(B)

National Policy Statement on Urban Development 2020 (NPS-UD)

The proposed development is considered to be generally in accordance with the National Policy Statement on Urban Development (NPS:UD). The NPS came into effect on 20 August 2020, replacing the previous National Policy Statement on Urban Development Capacity (NPS:UDC) The NPS:UD directs Councils to enable well-functioning urban environments that provide for the social, economic and cultural well-being of people. To do this consideration is required to allow change in urban environments over time, including through ensuring adequate supply of land for development, and by allowing flexibility in terms of building form and density to provide variation within the housing market and to encourage good accessibility and connectivity.

The proposal is for 22 residential units and related subdivision on a site zoned for residential development. The site is within an existing urbanised area that it is well serviced by infrastructure. It is considered the proposal is an efficient use of the site that will enable well-functioning urban environments and will increase the capacity and variety of housing supply in the city.

Regional Policy Statement for the Wellington Region (RPS)

The proposed development is considered to be consistent with the Regional Policy Statement for the Wellington region (RPS), including Objective 19 and Policy 51 as it is considered that conditions of approval requiring the engineer design and certification of earthworks and retaining walls will suitably minimise the risks and consequences related to natural hazards.

I consider that there are no other relevant provisions of national environmental standard, other regulations, national policy statement, New Zealand Coastal Policy Statement or regional policy statement or proposed regional policy statement that regard must be had.

6.5 – PURSUANT TO S104(1)(C) ARE THERE ANY OTHER MATTERS RELEVANT AND REASONABLY NECESSARY TO DETERMINE THE APPLICATION?

I consider there are no other matters relevant and reasonably necessary to determine the application.

6.6 - PART 2 OF THE RESOURCE MANAGEMENT ACT

Part 2 of the Act comprises Section 5: Purpose and Principles, Section 6: Matters of National Importance, Section 7: Other Matters and Section 8: Treaty of Waitangi.

For the reasons outlined throughout this report, the proposal is considered to be consistent with the sustainable management purpose of the Act Given the scale of the proposal, it is not deemed to relate to any matters of national importance.

Relevant other matters which have been considered include s7(b): the efficient use and development of natural and physical resources, s7(c): the maintenance and enhancement of amenity values and s7(f): the maintenance and enhancement of the quality of the environment. In making this determination, I have had particular regard to these matters.

Finally, the subject site is identified as containing a statutory acknowledgement area, which may represent a historical watercourse. Iwi representatives were contacted in relation to the statutory acknowledgement area and the proposal, however no responses were received. To the extent relevant to this proposal, I have had regard to the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

I consider the proposal meets Part 2 matters of the Resource Management Act 1991.

6.7 - IN ACCORDANCE WITH S106 A CONSENT AUTHORITY MAY REFUSE SUBDIVISION CONSENT IN CERTAIN CIRCUMSTANCES

A consent authority may refuse subdivision consent or may grant a subdivision consent subject to conditions if it considers that there is significant risk from natural hazards or sufficient provision has not been made for legal and physical access to each allotment to be created by the subdivision.

The proposed dwellings will have been designed to achieve minimum floor levels recommended by Wellington Water to mitigate inundation risk. The proposed earthworks are

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low in form and are not expected to elevate flood risk on adjacent sites. The passage of the overland flow through for the site has been suitably accounted for whereby overland flows will not be displaced to any adjacent sites. Earthworks fill will be engineer designed to ensure stability. The site is not known as being particularly prone to any other natural hazards.

Each allotment will have suitable legal and physical access to Raukawa Street.

I consider there is no reason to refuse subdivision consent under s106 of the RMA.

6.8 - SUBSTANTIVE DECISION

I have considered the proposal in accordance with section 104 of the Resource Management Act 1991 and find the environmental effects to be acceptable, subject to the conditions set out below.

I have had regard to submissions received following notification of the application. Sections 5 and 6 of this report summarise the matters raised by submitters, the principal issues arising from the proposal, the evidence considered in the assessment, and the key findings.

I consider the proposal to be consistent with the purpose and principles of Part II of the same act and generally consistent with the objectives and policies of the General Residential activity area chapters of the District Plan.

I therefore grant the consent under section 104B of the Resource Management Act 1991.

7. CONDITIONS OF RESOURCE CONSENT

In accordance with s108 and s220 of the Resource Management Act 1991, resource consent has been granted subject to the following conditions, which have been agreed to by the applicant:

Subdivision consent

1. That the proposal is carried out substantially in accordance with the information and approved plans submitted with the application and held on file at Council.

   Approved plans:

   - Subdivision scheme plans, prepared by envivo, Ref # 31932-SUR-00-XX-DR-G-131-IF-E, and -132-IF-E, both dated 21.03.22
   - Erosion and Sediment Control Plan prepared by Holmes Consulting, Ref # 141877.53 CSK-04 Rev 0, dated 29.01.2021
   - Retaining Structure Plan prepared by Holmes Consulting, Ref # 141877.53 C30-01 Rev A, dated 11.02.2021
   - Earthworks Cut and Fill plan prepared by Holmes Consulting, Ref # 141877.53 C21-01 Rev A, dated 11.02.2021
   - Earthworks Management Plan prepared by Coastal Digger Services Ltd, and submitted to Council 07.09.21.

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- Sediment Control Management Plan, submitted to Council 07.09.21.

2. That the consent holder advises Council (enforcement@huttcity.govt.nz or 04 560 1044) at least two working days before any work starts on site; and that the consent holder also supplies the name, phone number and address of the main contractor and, if applicable, the same details for the earthworks company.

   Important notes:

   - When given notice of a start date, a compliance officer will suggest an on-site meeting to run through a checklist of things to make sure the project runs as smoothly as possible. This service is included in the resource consent application fee. Using it could avoid difficulties later on. Please note that additional monitoring visits will be charged at $175 per hour.
   - Notification of work commencing is separate to arranging building inspections.
   - Work outside what the District Plan permits is not to commence until all conditions that are to be signed off before work commences are complied with

3. That the consent holder pays Council an engineering fee to meet the cost of work carried out by Council subdivision engineer in assessing, inspecting, testing and approving water, sewer and stormwater services, access or any other aspect of the proposal so assessed by the engineer or any representatives of the engineer (as distinct from work which must be monitored as a result of any building consent). The fee is charged at an hourly basis of $175 per hour for an engineer or $195.00 for a senior engineer. Payment is necessary before or at the time of applying for a section 224(c) certificate.

4. That the consent holder compacts all earthwork fill areas in accordance with the Code of Practice for Earth Fill for Residential Development (NZS4431:1989).

   Please note:

   - Before building any retaining walls subject to traffic loading (or other surcharge) or are more than 1 5 metres high, the consent holder must obtain a building consent. The consent holder must submit a design prepared by a chartered professional engineer with the building consent application, followed by a producer statement on completion of the walls.
   - Fill depths in excess of 0.6m below proposed buildings are outside the scope of foundation design under 'NZS 3604:Timber-Framed Buildings' and require specific engineering design by a suitably qualified professional engineer.
   - Retaining walls must be designed so that any pipes cross them perpendicularly, and so that the wall does not exert any force on the pipes. A design detail showing how the pipe goes through the wall is protected must be supplied at Engineering Approval stage.

5. That the consent holder engages a chartered professional engineer to supervise the earthworks and that, on completion of earthworks (or during earthworks if Council considers it necessary), the consent holder provides a report from a chartered

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professional engineer in accordance with Clause 2.6.1 of NZS4404:2010. This report shall include details of the specific site investigations, design work, testing and construction monitoring undertaken and shall include a statement of professional opinion as set out in Schedule 2A of NZS4404:2010. Where the report identifies development limitations, such as specific design for stability or foundation design or building setback distances, Council will register a consent notice regarding this on the certificates of title of any affected lots, as allowed for under section 221 of the Resource Management Act 1991.

Please note:

- The certification shall also address all earthworks undertaken within the common areas and subject to traffic loads.

6. That the consent holder installs subsoil drains behind all retaining walls and connects to an appropriate stormwater outlet.

Please note:

- The proposed subsoil drains and outlet connection locations shall be clearly shown on the engineering drawings submitted for approval and the as-built drawings. Subsoils shall discharge via a sump unless otherwise approved.
- The retaining wall design shall ensure no additional surcharge is imposed on the public sewer main, and a minimum separation of 1 5m shall be maintained to the outside of the pipe barrel.

7. That earthworks are undertaken in accordance with the approved Erosion and Sediment Control Plan, Earthworks Management Plan and Sediment Control Plan.

Please note:

- It is noted that the proposed area of earthworks may be over 3,000m^2 and trigger the requirement for a resource consent from the Regional Council which in turn may trigger the requirement for the installation of permanent stormwater treatment facilities. It is recommended that the consent holder contact GWRC at an early stage to discuss this matter.

8. That the consent holder paves, metals, re-grasses, hydro-seeds or plants all areas exposed by earthworks, trenching or building work as soon as possible after excavation or, at the latest, within a month of completing earthworks to the satisfaction of Council subdivision engineer; and that the consent holder repeats any seeding or planting that fails to become fully established within 12 months of the completion of earthworks.

9. That the consent holder ensures all development and construction work complies with the provisions of NZS 6803:1999 Acoustics - Construction noise. Machinery operating hours, including machinery start-up times, shall be limited to between 7.30am and 6pm Monday to Saturday, with no work on Sundays or public holidays, in accordance with the noise level restrictions in the table below. Some activity is permitted on construction sites on

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weekdays between 6.30am and 7.30am, however these shall be limited to preparation works and shall not include the operation of machinery.

Time Period	Weekdays			Saturdays			Sundays and Public Holidays		
Hours Between	L10	L95	Lmax	L10	L95	Lmax	L10	L95	Lmax
6:30am – 7:30am	60	45	70	*	*	*	*	*	*
7:30am – 6:00pm	75	60	90	75	60	90	*	*	*
6:00pm – 8:00pm	70	55	85	*	*	*	*	*	*
8:00pm – 6:30am	*	*	*	*	*	*	*	*	*

* *At these times the relevant provisions of NZS6802 shall apply. This may mean that no noisy work can take place during these hours.*

10. That the consent holder constructs the private way, including a heavy-duty vehicle crossing and necessary stormwater control in accordance with Council's codes and standards.

    Please note:

    - Before building any retaining walls subject to traffic loading (or other surcharge) or are more than 1.5 metres high, the consent holder must obtain a building consent. The consent holder must submit a design prepared by a chartered professional engineer with the building consent application, followed by a producer statement on completion of the walls.
    - If applicable, any exposed aggregate method is to be in accordance with the NZ Ready Mixed Concrete Association's Safe Environmental Guidelines - "On Site Management of Concrete Wash-water".

11. That the consent holder constructs the pedestrian pathway/right-of-way, including any necessary stormwater control, in accordance with Council's codes and standards.

12. That the consent holder removes the existing concrete vehicle crossing/s, reinstates the kerb, footpath and berm in accordance with Council's codes and standards.

13. That the consent holder installs the reticulation as necessary and connects separate minimum 100mm NB sewer and stormwater service leads to private or public mains for each residential lot (and adjust existing services where necessary) in accordance with Council's codes and standards.

    Please note:

    - All stormwater and sewer (and water) reticulation services shall be designed and constructed in accordance with the *'Regional Standard for Water Services'*, the *'Regional Specification for Water Services'* and the *'Approved Products Register'*, including all associated amendments. Copies of the latest version of these documents are available on the following website: https://wellingtonwater.co.nz/contractors/technical-information.

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- It is now Council policy that only existing sewer and stormwater laterals less than 25 years old can be utilised for a new dwelling or new vacant lot, otherwise they are to be renewed or sealed off at the mains if not replaced in the same location.
- In the case of a rear section, any new services are to be laid beyond a shared right-of-way section of the access leg and not just to the road boundary.
- The development of this site will require new drainage to be constructed through neighbouring private property/s in order to connect to the public stormwater network. The written permission of the owner(s) of any private property through which the new drain will pass is required to be obtained prior to submitting engineering plans for approval or prior to Building Consent.
- The proposed stormwater main through the neighbouring property at 13 Poppy Watts Gr, and along the rear of lots 18-20 (up to the eastern boundary), is to be vested as public and therefore shall be a minimum of 300mm dia (instead of 225mm as indicated). This will require proposed manholes to be full sized, and a manhole where the pipe transitions to the private pipe/smaller size.
- The manhole at the private/public juncture shall have a grated lid to manage any overland flow.
- The preference is for the proposed decks along the rear of lots 18-20 to be clear of the required easement in gross. As a minimum, no private connections shall be installed under the decks and the decks shall be constructed so these are easily removed and the piles/foundations maintain a minimum clearance of 1.0m from the outside of the pipe barrel.
- The preference is for the proposed decks to be clear of the required private drainage easements. As a minimum, no connections shall be installed under the decks, there must be rodding/inspection points outside the deck, the decks shall be constructed so they are easily removed, and the piles/foundations maintain a minimum clearance of 1.0m from the outside of the pipe barrel.
- A stormwater connection is to be provided to the boundary of the neighbouring property at 22 Raukawa Street.

14. That the consent holder renew the existing public sewer main through the site, from the western boundary to the existing public manhole within the site. Renewal of the existing public sewer will not be required if it is determined at the engineering approval stage that the pipe is in an acceptable condition, as determined by the HCC Subdivisions team upon receipt of a CCTV investigations sourced and paid for by the applicant.

15. That the consent holder ensures the development is designed to be stormwater neutral to avoid impact on the downstream network. Stormwater neutrality is required for both a 10 year and a 100 year rainfall event. The development must therefore be provided with a stormwater management system(s). The stormwater management design must be approved in writing by the Wellington Water Land Development Team and the following aspects must be met:

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i. The consent holder must construct an approved stormwater management system or systems in accordance with plans approved under the Resource or Building Consent and agreed with the Wellington Water Land Development Team.

ii. The stormwater management system(s) must be designed so that the total stormwater discharge post-development from the site in both a 10 year and a 100 year rainfall event is less than or equal to the stormwater runoff flows prior to the development.

iii. The consent holder must ensure that all connections to the system(s) are trapped to minimise debris entering the system.

iv. Following construction of the stormwater management system(s), an as-built plan and a maintenance schedule must be made available for future property owners. The plan and schedule must be approved by the Wellington Water Land Development Team.

v. The owner(s) of appropriate lots must follow the required operation, maintenance and renewal of the system(s), set out in the maintenance schedule, to ensure it is in full working order at all times.

vi. The owner(s) of appropriate lots cannot increase stormwater discharge, through an increase in non-permeable areas, without Council approval; as an increase in stormwater discharge may result in failure of the stormwater detention systems.

Council will register a consent notice, in accordance with section 221 of the Resource Management Act 1991, on the record of title of appropriate lots specifying the requirements (iv -vi) above.

Please note:

- The attenuation tank outlet/overflow pipe shall have enough capacity to cater for the 1%AEP discharge from the internal catchment.
- Adequate access shall be provided to the orifice/outlet pipe.
- Any un-attenuated discharge shall be account for on the detailed design/calculations.
- Revised calculations to be submitted at engineering approval detailing overall pre-development discharge, post-develop discharge (clearly indicating what's being attenuated any not).

16. That the consent holder supplies water reticulation as necessary and supplies separate minimum 20mm NB connections for each residential lot that meets Council's code for domestic supply and the fire-fighting capability required under the New Zealand Fire Service code of practice (SNZ PAS 4509:2008).

Please note:

- All water (and stormwater and sewer) reticulation services shall be designed and constructed in accordance with the *'Regional Standard for Water Services'*, the *'Regional Specification for Water Services'* and the *'Approved Products Register'*, including all associated amendments. Copies of the latest version of these documents are available on the following website: https://wellingtonwater.co.nz/contractors/technical-information.

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- It is now Council policy that only existing laterals of polyethylene material can be utilised for a new dwelling or new vacant lot. All existing non-polyethylene laterals, including the tobies, are to be renewed and sealed at the main if not replaced in the same position.
- The consent holder must apply for new water connections at the customer services counter of Council Building, 30 Laings Road, Lower Hutt. These applications are processed by Wellington Water Ltd., which is a Council-controlled company in charge of Council water and drainage assets. Their contact person is Chandra Koswatte (ph. 04 912 4534). Wellington Water Ltd. may impose special requirements or conditions for new connections depending on, among other things, the existing reticulation system's condition and layout, flow rates, pressure zones and proposed future work. It is important the consent holder makes an application early in the design or construction phase. Council recommends that the consent holder makes this application before submitting engineering plans to Council subdivision engineer.
- In the case of a rear section, any new services are to be laid beyond a shared right-of-way section of the access leg and not just to the road boundary.
- Note the building consent requirement "if buildings that contain multi-unit dwellings with more than two units are located remotely from the street boundaries of a property, pavements situated on the property and necessary to be used for vehicular access to a hard-standing within 75m of any point in any unit contained in the building except if there is a sprinkler system complying with NZS 4515 have a minimum width of 4m.
- Preliminary assessment indicated that a single feed supply 63mm OD reticulation may not be adequate to supply the development and a two-end-supply design may be required. The applicant is to provide flow and pressure results and calculations at the Engineering Approval stage to confirm this.
- The applicant shall take into consideration the minimum clearances required as per section **6.7.3 Minimum clearances from other utilities** from the Regional Specification for Water Services, and the alignment of the electrical and telecommunication service leads within the development shall be indicated on the engineering plan for approval so adequate service separation can be demonstrated.

17. That, where found to be necessary (upon applying for a water connection or other such circumstances), the consent holder arranges for a suitably qualified engineer to prepare a report containing details of any limitations on providing water reticulation to meet the above codes. This will include investigation of the available water supply, including existing condition, pressure and flow tests, provision of calculations and analysis and recommendations. Any limits in regard to height or distance from the existing or proposed reticulation for any lot are to be indicated on the submitted engineering drawings. Where the engineer finds such limitations, Council will register a consent notice, in accordance with section 221 of the Resource Management Act 1991, on the record of titles of affected lots advising future owners of limitations on water supply or of special facilities needed to achieve the code standards or where conditions cannot be met.

18. That the consent holder submits a copy of the approved water connection application form (signed by Wellington Water Ltd.) when applying for the section 224(c) certificate.

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19. That the consent holder arranges for a certifying drainlayer or engineer to investigate and plot the alignment of the existing sewer and stormwater pipework to the extent that the location of existing connections to the public main can be determined in order that they can be sealed at the mains if not replaced in the same location. This information is to be plotted on both the required engineering plan and subsequent as-built plan.

20. That the consent holder arranges for a certifying drainlayer or engineer to investigate, CCTV inspect and plot the alignment of the public sewer mains through the rear of proposed lot 21 and 22 in order that this information is plotted on both the required engineering plan and subsequent as-built plan and that appropriate easements can be created, and to verify the condition of the mains prior to construction works start and ensure that no damage is made to these pipes; and that if such damage happen, the consent holder repairs the pipe as necessary.

    Please note:

    - The CCTV footage shall be submitted to Council at the time of applying for engineering approval.
    - A second CCTV inspection shall be carried out after completion of construction works to verify the condition of the public sewer main and ensure no damage has been done. The CCTV footage is to be submitted to Council at the time of applying for 224(c) certificate.

21. That the consent holder severs all abandoned cross-boundary services, including any water, sewer and stormwater pipes. Abandoned pipes within the property are to be sealed at the junction with the “live” pipe and at all ends (including where the line is broken through). In addition, where abandoned pipes have the potential to act as a cross-boundary field drain they are to be sealed at the boundaries. Abandoned property laterals (connections from the main or kerb) are to be severed and sealed at the main or kerb.

    Please note:

    - **The position of sealing of abandoned lines is to be shown on the final as-built plan.**

22. That the consent holder submits engineering plans for the above construction work to Council subdivision engineer for approval; that the plans provide information on the materials to be used, including the size, type and class of pipes, as well as indicate pipe gradients; and that all this work is carried out in accordance with the approved plan.

    Please note:

    - This condition is necessary (even for minor works) as the engineering approval letter will list further engineering requirements in regard to Corridor Access Requests, pipe materials, inspections, as-built information, etc.
    - Engineering approval of the proposed services and access up to the individual lot boundaries is completely separate from any approval given under building consent and must be requested prior to installation, irrespective of any building consent being issued.

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- Please provide construction details and design levels of the proposed private way.
- **Please provide a trench cross section of the service locations demonstrating adherence to minimum clearance requirements in accordance with Wellington Water Regional Specification and other service authority requirements. The separation between sewer and water lines should be maximised.**
- The proposed timber decking/walk-way over the new sewer manhole shall be designed to ensure that the manhole remains accessible at all times. An easily removable access-hatch shall be provided directly over the new manhole.

23. That the consent holder appoints a representative to carry out the design and supervision of construction work, as well as certification upon completion, as provided for by clause 1.7.1 of NZS 4404:2010; and that the consent holder submits the name, contact details and experience of the representative to Council subdivision engineer for approval before or at the time of submitting engineering plans. The consent holder must document the representative's experience in a resume and show the relevance of that experience to the works and services required under this consent. The certification must include confirmation that the materials, installation and testing meet Council's codes and standards.

24. That the consent holder appoints a suitably qualified contractor or contractors to complete the works to the approved design; and that the consent holder submits to Council subdivision engineer for approval the name, contact details and experience of the contractor(s) at the time of submitting engineering plans for approval or at least a minimum of 7 days in advance of commencing the construction works. The approved contractor(s) must give a minimum of 48 hours' notice to Council subdivision engineer before starting work.

25. That the consent holder provides underground telephone and electrical services to each lot in accordance with the specifications and requirements of the relevant authority.

26. That the consent holder provides Council with written confirmation from Chorus (or the equivalent network supplier) and Wellington Electricity Lines Ltd that they are satisfied with the supply of their utilities to each lot.

27. That the consent holder provides Council with written confirmation from a surveyor or suitably qualified engineer that all existing services have been adjusted so they are contained within the lot (or are protected by an appropriate easement) and that the ends of all abandoned lines have been sealed in accordance with council requirements, or alternatively that the consent holder provides Council with written confirmation from a surveyor or suitably qualified engineer that no such adjustments and sealing are necessary.

28. That the consent holder provides appropriate easements for public and private services where necessary, with the easements shown as a memorandum of easement on the land transfer title plan. The consent holder must show easements for public services on a plan with a minimum three-metre width centred over the service, or twice the depth of the trench, whichever is greater for stormwater and wastewater, or 1.8m for 63mm water

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supply services; show Council as the grantee in gross; and engage a lawyer at the consent holder's expense to prepare easement documents. Please note that, in accordance with the Regional Standard for Water Services, the easement width shall be an increased where there is more than one service within that easement.

Please note:

- Council will not entertain taking over assets where appropriate easements in gross and clearance to other services are not provided.
- **It is noted that the position of the existing sewer main has been scaled and has not been confirmed by CCTV survey or potholing on site. Any required amendment to the subdivision scheme plan or any resource consent as a result of the sewer main not being in the correct location shall be the sole responsibility of the applicant.**
- The easement tables shall be reviewed to reflect the final servicing arrangement, noting that servicing easements are to be provided over the common access lot (lot 23) as applicable and appropriate drainage rights are to be provided in favour of lot 23 where the stormwater pipework serving this lot crosses other lots.
- The proposed decks over the private easements are not considered adequate.

29. That the consent holder provides appropriate easements of rights of way, shown as a memorandum of easements on the land transfer title plan; and that the consent holder engages a lawyer at the consent holder's expense to prepare easement documents.

Please note:

- Where a dwelling is constructed closer than one meter of the boundary, an easement for maintenance is to be registered on the record of title of the adjacent property to allow for reasonable access for maintenance.
- Where a dwelling shares a common wall which straddles a freehold boundary, a party wall easement is to be registered on the records of title accordingly.

30. That the consent holder moves all buildings clear of the new boundaries before applying for a section 224(c) certificate.

31. That, at the time of requesting a section 224(c) certificate, the consent holder provides a schedule of assets detailing each item to be transferred to Council ownership as part of the subdivision process; and that the consent holder supplies a full description of the item, material type, size, length, area, volume, et cetera, following the format set out in Council form RAS-FORM-014.

Please note that for this development, the following will apply:

- Ridermains of 63mm dia. and above, including valves and hydrants and individual laterals up to and including the tobies off the main only;
- Stormwater mains (of 300mm dia. and above) and manholes, **but not individual laterals, sumps and leads.**

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32. That the consent holder sets out the value of services to be taken over by Council to enable the creation of a buyer-created tax invoice, with the details provided to be in accordance with Council buyer-created tax invoice form RAS-FORM-015.

33. That, in accordance with section 221 of the Resource Management Act 1991, Council registers a consent notice on the record of title of the relevant lots to ensure future owners are aware that the properties share private sewer and stormwater drains, and stormwater attenuation systems as shown on the final as-built plans. Noting that it is anticipated this will apply as follow:

    - Lots 1 to 15 share a private sewer lateral to the public mains.
    - Lots 16-22 share a private sewer lateral to the public mains.
    - All lots share a private stormwater attenuation system and lateral system.

34. That, in accordance with section 221 of the Resource Management Act 1991, Council registers a consent notice on the record of title of each lot ensure any dwellings built on these lots have foundations designed by a chartered professional structural or geotechnical engineer; and that the design and details of these foundations are submitted as part of any building consent applied for on these lots.

35. That, in accordance with section 221 of the Resource Management Act 1991, Council registers a consent notice on the record of title of lots 18 to 22 ensure any dwellings built on these lots have foundations designed by a chartered professional structural engineer to comply with the requirements of the 'Regional Standard for Water Services' clause 4.4.14 - 'Pipes near Buildings'. The design and details of these foundations shall be submitted as part of any building consent applied for on these lots.

    Please note:

    - Any proposed retaining walls over the public mains shall be design to comply with the requirements of the 'Regional Standard for Water Services' clause 4.4.14 - 'Pipes near Buildings' and maintain a minimum separation of 1.0m between the outside of the pipe barrel and the outside of the retaining posts.
    - The foundations/piles shall maintain a minimum distance of 1.0m from the outside of the pipe barrel and shall be design in accordance with clause 4.4.14 Pipes near buildings of the Regional Standard for Water Services.

36 That, in accordance with section 221 of the Resource Management Act 1991, Council registers a consent notice on the record of title of each lot to ensure any dwellings built on these lots have a minimum under-floor level of RLs as listed below (Local Vertical Datum - Wellington 1953) to mitigate possible flooding. This level refers to the underside of timber floor joists or, in the case of a concrete slab, add 100mm to obtain the required finished floor level.

Lot Number	**Minimum Floor Level to Underside of Joists (m RL Local Vertical Datum – Wellington 1953)**

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1	70.2
2	70.1
3	70.0
4	69.8
5	69.3
6	69.3
7	69.2
8	69.0
9	68.9
10	68.6
11	68.5
12	68.4
13	68.3
14	68.2
15	68.1
Lot 16-17, 21-22	67.1
Lot 18-20	67.0

Please note:

- The consent notice shall stipulate that, unless otherwise approved by Council, any new dwellings on lots 16 to 22 inclusive shall be constructed on raised piles foundation and the areas under the dwelling, around the raised piles, shall not be filled in or closed in with solid cladding so as to minimize obstruction to overland flow.
- The proposed floor levels for lots 16 to 22 may need to be raised slightly to comply with the minimum floor level requirement.

37. That the consent holder provides a benchmark in the form of a new survey peg or other permanent mark so the site's minimum floor level can be easily determined; and that the consent holder records this benchmark and the known reduced level (Local Vertical Datum - Wellington 1953) on the as-built plans.

38. That the consent holder meets the cost of registering consent notices.

39. That the consent holder provides Council with the as-built plan, certified by a surveyor or engineer, showing, where applicable, the levels and alignment of all the mains and road work, and the location of all service connections (and, if applicable, new work within private property) relative to the lot boundaries.

Please note:

- **Existing sump adjacent to the north-western corner, at the bottom of the retaining wall, is to be recorded on the as-built plan.**

40. That, in accordance with section 221 of the Resource Management Act 1991, Council registers a consent notice on the record of title of each lot to ensure that future owners are aware that, due to the integrated nature of this development, the dwellings thereon must be built in accordance with condition (1) of the land use consent RM210061. This consent

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notice may not apply if all of the dwellings have been substantially constructed prior to 223/224 being issued.

41. The consent holder shall pay a contribution to Council's Reserves Purchases and Development Account at Council's standard rate of 6% of the value of the additional residential allotments or capped at $10,000 per allotment whichever is the lesser. The amounts required will be determined on the basis of a market value assessment from registered valuer. It is the consent holder's responsibility to instruct the valuer and supply Council with this assessment. The amount to be paid will be determined when the consent holder submits the qualified valuer's assessment.

42. That Lot 23 hereon (legal access) must be held as to 21 undivided 1/21 shares by the owners of Lots 1, 2 and 4-22 hereon as tenants in common in the said shares and individual Records of Title be issued in accordance therewith (see LINZ request # 1777477).

43. A Residents Society Incorporated shall be formed and maintained to administer shared responsibility of the management and maintenance of the common open space areas, private lanes, and all associated on-going costs. This includes all landscaping (hard and soft), furniture, lighting and stormwater drainage. At the time of subdivision of the site, the administration of the Residents Society Incorporated shall be the shared responsibility of all lot owners.

Land use consent

1. That the proposal is carried out substantially in accordance with the information and approved plans submitted with the application and held on file at Council.

   Approved plans:

   - Architectural plans prepared by Foley Group, 'Raukawa St Development', Sheets RC.02 – RC.20, all dated 21.02.22, and RC.22, not dated.
   - 'Landscape plan for consent – 28 Raukawa Street, Lower Hutt', prepared by Innate Landscape Architecture, Sheets 1 and 2 Rev 7, dated 08.03.22.
   - Erosion and Sediment Control Plan prepared by Holmes Consulting, Ref # 141877.53 CSK-04 Rev 0, dated 29.01.2021
   - Retaining Structure Plan prepared by Holmes Consulting, Ref # 141877.53 C30-01 Rev A, dated 11.02.2021
   - Earthworks Cut and Fill plan prepared by Holmes Consulting, Ref # 141877.53 C21-01 Rev A, dated 11.02.2021
   - Earthworks Management Plan prepared by Coastal Digger Services Ltd, and submitted to Council 07.09.21.
   - Sediment Control Management Plan, submitted to Council 07.09.21.

2. That the consent holder advises Council (enforcement@huttcity.govt.nz or 04 560 1044) at least two working days before any work starts on site; and that the consent holder also

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supplies the name, phone number and address of the main contractor and, if applicable, the same details for the earthworks company.

Important notes:

- When given notice of a start date, a compliance officer will suggest an on-site meeting to run through a checklist of things to make sure the project runs as smoothly as possible. This service is included in the resource consent application fee. Using it could avoid difficulties later on. Please note that additional monitoring visits will be charged at $175 per hour.
- Notification of work commencing is separate to arranging building inspections.
- Work outside what the District Plan permits is not to commence until all conditions that are to be signed off before work commences are complied with.

3. That conditions 4-5 of subdivision consent RM210061 are complied with prior to dwelling construction.

4. That earthworks are undertaken in accordance with the approved Earthworks Management Plan and Sediment Control Plan.

5. That the consent holder paves, metals, re-grasses, hydro-seeds or plants all areas exposed by earthworks, trenching or building work as soon as possible after excavation or, at the latest, within a month of completing earthworks to the satisfaction of Council subdivision engineer; and that the consent holder repeats any seeding or planting that fails to become fully established within 12 months of the completion of earthworks.

6. That the consent holder ensures all development and construction work complies with the provisions of NZS 6803:1999 Acoustics - Construction noise. Machinery operating hours, including machinery start-up times, shall be limited to between 7.30am and 6pm Monday to Saturday, with no work on Sundays or public holidays, in accordance with the noise level restrictions in the table below. Some activity is permitted on construction sites on weekdays between 6.30am and 7.30am, however these shall be limited to preparation works and shall not include the operation of machinery.

Time Period	Weekdays			Saturdays			Sundays and Public Holidays		
Hours Between	L10	L95	Lmax	L10	L95	Lmax	L10	L95	Lmax
6:30am – 7:30am	60	45	70	*	*	*	*	*	*
7:30am – 6:00pm	75	60	90	75	60	90	*	*	*
6:00pm – 8:00pm	70	55	85	*	*	*	*	*	*
8:00pm – 6:30am	*	*	*	*	*	*	*	*	*

* *At these times the relevant provisions of NZS6802 shall apply. This may mean that no noisy work can take place during these hours.*

7. Prior to the commencement of any works on site, the consent holder shall submit a Construction Management Plan to the Council for certification by the Team Leader Resource Consents. The plan must address, but is not limited to, the following matters:

- Detail construction hours;

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- Detail how any adverse effects arising from construction will be managed to avoid effects from dust, noise and construction traffic;
- Specify vibration mitigation measures, including those measures outlined in the information response of 07/09/21, to manage vibration from earthworks and foundations construction including duration, or any other process which may give rise to detectable vibration effects within adjacent residential buildings.
- Identify what sediment and erosion control measures will be installed on-site to ensure that dust is prevented from blowing beyond site boundaries and sediment prevented from entering any stream or waterway. Sediment and erosion control shall be undertaken in accordance with Greater Wellington Regional Council's erosion and sediment control guidelines issued in September 2002 and reprinted in June 2006.
- Details of how stormwater and surface water run-off will be controlled during site works to ensure they do not affect adjoining properties;
- Outline the process by which complaints will be managed, including contact details for the appropriate person to respond to such complaints.

All construction works (including associated activities such as earthworks) shall be undertaken in accordance with the certified Construction Management Plan. No construction works are to proceed until certification has been given by the Team Leader Resource Consents.

8. The consent holder installs landscaping and fencing treatments in accordance with the approved Landscape Plan. All plantings must be installed as soon as the seasons make practicable, but must be finished within six months of the completion of construction. Any plant which fails to establish or perishes must be re-planted within 12 months of the completion of construction. The fencing treatments must be installed prior to the occupation of the units.

9. That signage is provided at the site entrance advising that vehicle access is for residents only and that there is no provision for on-site turning.

10. That bike storage areas are to provided with secure gates to provide for security and reduce potential theft.

11. That the consent holder arranges for a final inspection with Council's monitoring and compliance officer (enforcement@huttcity.govt.nz or 04 560 1044), to determine reasonable compliance with the above land use conditions to the satisfaction, prior to the occupation of dwellings onsite.

Processing Planner:

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Peter McDonald
Senior Resource Consents Planner

Peer reviewer:

Charlie Hopkins
Principal Planner

Application lodged: 1 March 2021
Application approved: 25 March 2022
No of working days taken to process the application: 14

8. NOTES:

- The resource consent is subject to payment of a development contribution fee. Payment of this fee is required before receiving section 224(c) certification. The total payable charge is **$130,777.24.**

Dev. Con. Calc. | **Current Price Index:** 1294.53 | **GST rate:** 15.00% | RESET

		Residential	
		Fee per lot	Total fee
Number of additional lots	21		
Roading & Traffic	☑	344.04	7,224.93
Water Supply	☑	193.29	4,059.03
Wastewater	☑	3,789.39	79,577.13
Stormwater	☑	1,088.49	22,858.24
Total		**5,415.21**	**113,719.34**
Total fee			$113,719.34
GST			$17,057.90
Total contribution payable			**$130,777.24**

Catchment

- ○ Western Hills
- ○ Valley Floor
- ◉ Stokes Valley
- ○ Wainuiomata
- ○ Eastbourne
- ○ Rural

- In accordance with section 357 of the Resource Management Act 1991, the consent holder is able to object to the conditions of the consent. The consent holder must submit reasons in writing to Council within 15 working days of the date of this decision.

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- The consent lapses, in accordance with section 125 of the Resource Management Act 1991, if the proposal is not given effect to within five years, that is, by 25 March 2027.

- The consent applies to the application as approved by Council. The consent holder should notify Council if there are changes to any part of the plans. Council may require that the consent holder submits a new resource consent application.

- The proposal has been assessed against the requirements of the city's District Plan. Bylaws may apply to the proposal that may require separate approval from Council before starting any site works. See huttcity.govt.nz for a full list of bylaws.

- The proposal has not been checked for compliance with the Building Act 2004. No associated building work should start without first getting a building consent.

- The consent is not a licence to create adverse effects such as unwarranted dust, noise or disruption. It does not change the legal duty to avoid, remedy or minimise such effects. Council may enforce the provisions of the Resource Management Act 1991 if the consent holder fails to meet this obligation.

- Failure to comply with an abatement notice may result in Council imposing an infringement fine or initiating prosecution.

- Advice note from Heritage New Zealand: The property has, or is likely to have been occupied prior to 1900. Any disturbance of land or damage or destruction of any building or structure associated with human activity prior to 1900, may require an archaeological authority from Heritage New Zealand under the Heritage New Zealand Pouhere Taonga Act 2014. Please contact Heritage New Zealand for further information.

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Hutt City Council
30 Laings Road
Private Bag 31912
Lower Hutt 5040
New Zealand
www.huttcity.govt.nz
T 04 570 6666
F 04 569 4290

RM number: RM210455
Date: 6 April 2022
Applicant: Raukawa Street Developments Ltd
Agent: Spencer Holmes Limited
Address: PO Box 588, Wellington 6140
Attention: Christian Davy

Peter McDonald
Environmental Consents
T 04 570 6745
peter.mcdonald@huttcity.govt.nz
Our reference:RM210455

APPROVAL OF RESOURCE CONSENT FOR A 15-DWELLING COMPREHENSIVE RESIDENTIAL DEVELOPMENT, 28-LOT SUBDIVISION AND EARTHWORKS AT 71 – 73 RAUKAWA STREET, STOKES VALLEY (LOT 4 DP 55013, LOT 2 DP 543614)

Council granted consent for the following reasons:

- Everyone Council considers may be adversely affected by the proposal has given written approval to the application. (Council is therefore unable to consider any effects of the proposal on those who have given their written approval).
- With reference to the assessment and conclusions in sections 5.1 and 5.2 of this report the adverse effects on the environment and all persons are considered to be less than minor and overall the effects of the proposal are considered to be acceptable.
- Construction and demolition works will be undertaken in accordance with relevant plans to manage adverse effects associated with noise, earthworks, dust, and traffic to an acceptable extent.
- Council's urban design consultant has assessed the proposal and deemed it to be consistent with the provisions contained within the Medium Density Design Guide.
- A Council subdivision engineer assessed the proposal and concluded it can meet the necessary engineering standards, subject to the conditions in section 7 of this report.
- Conditions imposed on the consent under section 108 and 220 of the Resource Management Act 1991 will control, mitigate and remedy any environment effects caused by the subdivision.
- Council considers the proposal to be consistent with section 106 of the same act.
- The property does not appear on Greater Wellington Regional Council's selected land use register as a contaminated site or as having been the site of a verified hazardous activity. As a result, Council considers the likelihood of earthworks uncovering contamination at the site to be negligible.
- The proposal is consistent with the policies and objectives of the city's District Plan.

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- Council has given due regard to the New Zealand Coastal Policy Statement, any national, regional or proposed regional policy statement and any other regulations in reaching its decision. Council considers there are no other relevant matters that need to be dealt with.
- The proposal is consistent with the purposes and principles of Part II of the Resource Management Act 1991.

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1. PROPOSAL

Land use and subdivision consent is sought to undertake a Comprehensive Residential Development (CRD) to establish 15 new dwellings and undertake a 28-lot subdivision at 71 – 73 Raukawa Street, Stokes Valley.

The proposed units, arranged across three building blocks, will feature 7 two-bedroom units and 8 three-bedroom units. All units will be two-storeyed in height, with living areas situated on the ground floor and bedrooms situated on the first floor of all units. A central internal parking area will provide 13 carparks, with an additional parking pad provided at the street frontage for Lot 1. Individual units will be provided with private outdoor living areas. Two communal refuse areas are provided onsite. The proposed site layout is shown in **Figure 1** below.

Figure 1: Proposed site layout.

15 of the proposed allotments will contain residential dwellings. 12 allotments will be car parks. The remaining one allotment will be the common access allotment. **Table 1** below provides a description of each dwelling and corresponding allotment.

Table 1: Proposed allotment and dwelling descriptors.

Allotment number	Unit ID	Block	Allotment area m^2	Site coverage %	No. of bedrooms	Outdoor living area m^2
1	1	1	122	35.8	3	22.75
2	2	1	78	62.0	3	22.25
3	3	1	57	66.7	2	20.05
4	4	1	72	64.6	3	21.94
5	5	2	80	54.5	3	25.09
6	6	2	65	57.6	2	21.13
7	7	2	66	56.7	2	21.22
8	8	2	87	55.6	3	28.25
9	9	2	65	57.6	2	21.18
10	10	2	81	58.0	3	26.85
11	11	3	102	42.8	3	26.24
12	12	3	68	55.0	2	20.23
13	13	3	68	58.1	2	20.23

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Allotment number	Unit ID	Block	Allotment area m^2	Site coverage %	No. of bedrooms	Outdoor living area m^2
14	14	3	64	60.2	2	19.57
15	15	3	132	36.0	3	23.66
Common area (Access and outdoor lot 100)	N/A		2553	N/A – common access area and rear outdoor space		
16	Amalgamated with Lot 2		12	N/A – carpark		
17	Amalgamated with Lot 3					
18	Amalgamated with Lot 4					
19	Amalgamated with Lot 5					
20	Amalgamated with Lot 6					
21	Amalgamated with Lot 7					
22	Amalgamated with Lot 8					
23	Amalgamated with Lot 9					
24	Amalgamated with Lot 10					
25	Amalgamated with Lot 11					
26	Amalgamated with Lot 12					
27	Amalgamated with Lot 14		15			

To facilitate construction of the proposed dwellings, earthworks to a combined cut and fill volume of 843m^3 (745m^3 cut, 98m^3 fill), and maximum cut and fill depth of 3.2m and 1.4m respectively are proposed.

The site is proposed to be connected to existing and proposed three waters infrastructure. Onsite stormwater neutrality is proposed via stormwater attenuation tanks proposed to be located within the common access area.

Construction works are proposed to last a duration of 12 months.

2. SITE DESCRIPTION

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The applicant has provided the following site description which I adopt:

The site is known as 71 and 73 Raukawa Street, Stokes Valley. These two sites have been purchased by the applicant and make up the 'subject site' of this proposal.

The subject site has an area of 3922m^2 and is currently contains a range of sheds, garden areas, a garage and a standalone dwelling. The southern end of the site is covered in vegetation. Part of this site is located within a proposed Significant Natural Area.

The site slopes upwards from Raukawa Street to the south. The rear of the site begins to rise more significantly.

The neighbouring site to the east is 65 Raukawa Street which contains a single dwelling, while the neighbouring site to the west is a small garden centre area. To the rear of the site is covered in bush while Raukawa Street is to the north of the site.

The site is zoned General Residential within the District Plan. The site is adjoined by residential allotments to the north, east and west, and land zoned as Landscape Protection to the south. An aerial of the site and surrounding area is shown below.

Figure 2: Aerial image of application site.

71 Raukawa Street is legally described as Lot 4 DPD 55013, contained within Record of Title WN27A/585. There are no interests linked to this title which could affect the processing of this application.

73 Raukawa Street is legally described as Lot 2 DP 543614, contained within Record of Title 918829. This title is subject to a number of interests, including an easement to allow for the

conveyance of stormwater over part marked B (not affected by the proposal), and a consent notice 11659014.2. The consent notice relates to a requirement for stormwater detention tanks, and details relating to the design, maintenance, construction and information management for this stormwater system. The applicant has provided for this in their site design and will adhere to the requirements of this consent notice.

3. RELEVANT PLANNING RULES AND REGULATIONS

District Plan

The District Plan is the appropriate planning instrument with which to assess the proposal. Rules relating to the General Residential activity area, which this proposal falls within, are contained in chapters 4A (General Residential), 11 (Subdivision) and 14 (General).

The proposal requires resource consent for the following District Plan non-compliances:

Land use consent

The new rules introduced to Chapter 4A provide for comprehensive residential developments (CRD) to be established on the site as a restricted discretionary activity subject to compliance with the relevant development standards. The proposal is eligible for assessment as a CRD as it involves the development of more than three dwellings which have been designed and planned in an integrated manner on a site exceeding 1,400m^2. In this instance, the proposal does not comply with the following development standards for CRDs under the District Plan:

- *4A 4.2.10(a): Comprehensive Residential Developments are restricted discretionary activities if they comply with all relevant development standards listed as (i) – (vii).*

  The proposal is non-compliant with development standards (i), (iii) and (v), for reasons set out below.

  - Site coverage within proposed lots 2 (62.0%), 3 (66.7%), 4 (64.6%) and 14 (60.2%), will exceed the maximum 60% under standard (i). Overall site coverage will 18%.
  - The proposal cannot comply with standard (iii), which requires that all buildings fit within a recession plane envelope of 2.5m + 45 degrees from all side and rear boundaries. Proposed Unit 5 will breach this standard by 0.6m when measured vertically in respect of the eastern site boundary.
  - The screening enclosing the rubbish storage area will be 1.5m high and will not comply with the minimum 1m separation from external side boundaries under standard (iv) being located up to two external boundaries.
  - The proposal is also non-compliant with standard (v), which requires that all dwellings are provided a private outdoor living space with a minimum 20m^2 spanning a 3m dimension. Proposed Unit 14 is marginally undersized in respect of the minimum 20m^2, at 19.54m^2.

- *Rule 14A 5.1(a): Any activity is permitted if it complies with the standards listed in Appendix Transport 1 and does not exceed high trip generator thresholds.*

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The proposal is non-compliant with a number of transport standards, including Standards 1(c), 2(a), and 4(d) as per below:

- 1(c) – the minimum access width for a site servicing up to 20 units is 9m legal width with a 5.7m carriageway. The proposed driveway spans between 4.3 – 5.1m with no pedestrian footpath.
- 2(a) – the applicant has failed to successfully demonstrate compliance with Section 3 of AS/NZS 2890.1:2004 in respect of access width, access location, sight distance to frontage vehicles, pedestrian visibility splays and access leg gradient.
- 4(d) – car parking spaces 14 and 15 do not comply with AS/NZS 2890.1:2004 in terms of their dimensions.

- *Rule 14I 2.1(a): Earthworks in all activity areas are permitted up to a total volume of 50m^3 and maximum vertical alteration of 1.2m.*
  - The proposal seeks to undertake earthworks to a combined cut and fill volume of 843m^3 (745m^3 cut, 98m^3 fill), and maximum cut and fill depth of 3.2m and 1.4m respectively.

I consider the proposal to be a restricted discretionary activity under Rules 14A 5.1(b) and 14I 2.2(a), and a discretionary activity under Rule 4A 4.2.10(b) Overall, the activity status of the land use consent is **discretionary**.

Subdivision consent

The subdivision portion of the proposal must be considered in accordance with Chapter 11 of the District Plan. The proposal requires consent due to non-compliance with the following District Plan standards:

- *Rule 11.2.2.1(a): Subdivision in the General Residential activity area is a controlled activity subject to compliance with all relevant standards and terms.*

  The proposed subdivision of the site is unable to comply with the minimum allotment size and shape requirements for new lots within this zone. The minimum allotment area is 400m^2, which can accommodate a shape factor of 10m x 15m. This requirement can be waived if t is demonstrated that an undersized allotment could support a permitted dwelling The applicant has failed to demonstrate that the proposed residential allotments (ranging in area from 57m^2 to 132m^2) could conceivably accommodate permitted dwellings, hence there is no scope to waive the allotment design standard 11.2.2.1(a). The 3m frontage requirement is satisfied for each allotment, either through a direct road frontage, or a frontage to the internal access area.

  The proposed subdivision is also non-compliant with subdivision standard 11.2.2.1(b) relating to transport. The proposal is non-compliant with Transport Standards 1(c), 2(a) and 4(d) for the reasons articulated in respect of land use consent above.

  Finally, the proposal is also non-compliant with subdivision standard 11.2.2.1(e) requiring compliance with permitted activity conditions 14I 2.1.1 (earthworks). The proposal seeks to undertake earthworks to a combined cut and fill volume of 843m^3 (745m^3 cut, 98m^3 fill), and maximum cut and fill depth of 3.2m and 1.4m respectively.

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The proposed subdivision therefore requires resource consent as a restricted discretionary activity under Rule 11.2.3(a), and a discretionary activity under Rule 11.2.4(i). The overall activity status of the subdivision consent is **discretionary**.

It is considered that the subdivision and land use consents are not mutually exclusive, and hence it is necessary to consider the effects of both subdivision and land use under a single assessment. On this basis, when bundled, the overall activity status of the proposal is **discretionary**.

National Environmental Standards

The application site is identified as being at risk of potential contamination from asbestos and lead (from the age of existing onsite buildings, and heavy metals, fertilisers and pesticides (from the onsite plant nursery) however is not formally registered to Greater Wellington Regional Council's SLUR list. This activity is captured under the Ministry for the Environment Hazardous Activities and Industries List (HAIL) under categories I and A10 Consequently, the subdivision or change of use of the site is only a permitted activity under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS) if the following requirements are met:

- A Preliminary Site Investigation (PSI) exists for the site
- The PSI must state that it is highly unlikely that there will be a risk of human health if the activity is done to the piece of land
- The report must be accompanied by a relevant site plan to which the report is referenced
- The consent authority (in this instance, Hutt City Council) must have both the PSI and the plan.

The applicant submitted a PSI prepared by ENGEO in support of their application. This report summarised the likely sources and risk of contamination onsite. This PSI failed to confirm that that it is highly unlikely that there will be a risk of human health if the activity is done to the piece of land, instead recommending that a Detailed Site Investigation (DSI) be undertaken to confirm actual onsite risk. No DSI has been submitted by the applicant.

Consequently, the proposal is ineligible for assessment as a permitted, controlled, or restricted discretionary activity and is hence to be assessed as a **discretionary activity** under Clause 11 of the NESCS.

4. PERMITTED BASELINE

The permitted baseline allows a consent authority to disregard adverse environmental effects that are the same as could arise from a permitted development on the subject site.

The permitted baseline in regards to subdivision for the application site includes minor boundary adjustments, provided that the permitted activity conditions can be met and no additional allotments are created. This subdivision creates new residential allotments and so

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cannot be considered a minor boundary adjustment. This permitted baseline is not relevant for assessing the effects of the proposed subdivision.

The permitted baseline in regards to built form onsite includes two 8m high dwellings per existing site, given Rule 4A 4.2.1(a) permits up to two dwellings per site provided they meet the relevant permitted activity conditions and development standards of the General Residential Activity Area and General Rules chapters of the District Plan. The dwellings would need to comply with 40% total site coverage, 8m height limit, be located within recession planes of 2.5m and 45 degrees, be located at least 1m from side and rear boundaries and be located 3m from the front boundary. Each dwelling would also need to have at least 50m^2 each of private outdoor space with a dimension of at least 4m. 30% of the site would also need to be of a permeable surface. It is noted that there is no minimum car parking requirements whereby no on-site parking is required by the District Plan.

Construction of an accessory building is also a permitted activity provided it complies with the development standards for site coverage, building height, recession planes, yards and permeable surfaces.

In the context of the existing sites at 71 & 73 Raukawa Street, the applicant submitted a permitted baseline plan in support of their resource consent application. This permitted baseline featured 4 two-storeyed dwellings (2 per site). The dwellings spanned a footprint of up to 310m^2 (combined gross floor area across two floors of up to 720m^2). This is copied in below.

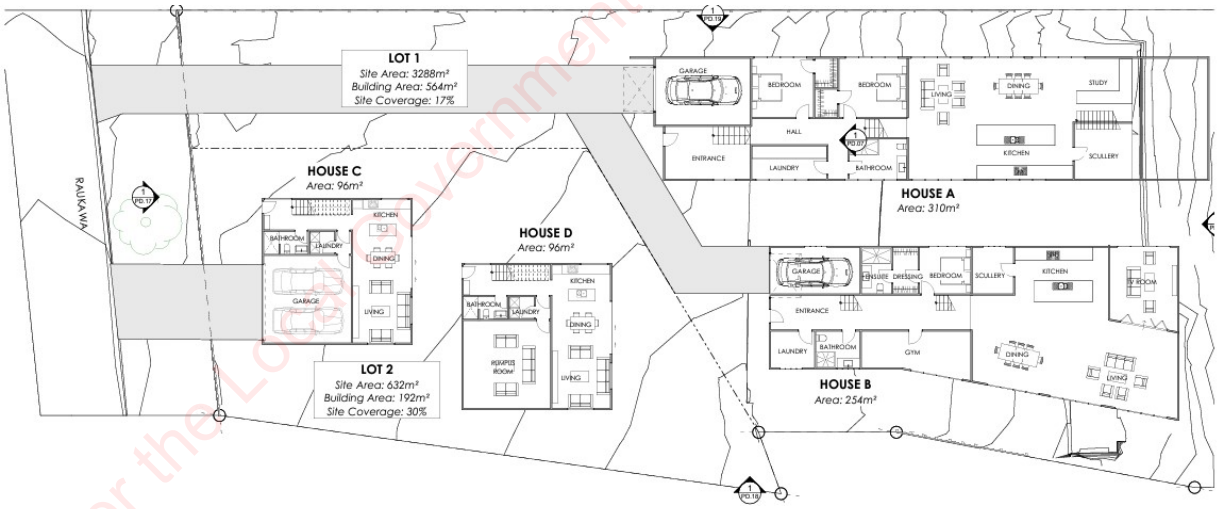

Figure 3: Permitted baseline scenario submitted by the applicant.

It is assessed that the permitted baseline prepared by the applicant is fanciful, on the grounds that the gross floor area of dwellings A and B in particular is vastly greater than a typical dwelling in the General Residential activity area. The floor plan for dwelling A features 7 bedrooms, a media room, two living areas, a conservatory, study, gym, 4 bathrooms, and an entrance room and garage. The concept dwellings A and B are long in form and arranged lengthwise against the contour of the land, requiring a staggered approach to the floor levels and multiple stairwells. There are no known examples of dwellings with such large floor areas which respond to the topographical constraints of a site in this way. This is assessed as being a non-credible example of what would conceivably occur on the subject site, in the General

Residential activity area in Stokes Valley. Consequently, for the underlying site at 71 and 73 Raukawa Street the permitted baseline presented by the applicant has been disregarded for the purpose of this decision, and a standard permitted baseline applied (in the context of those District Plan parameters detailed above, scaled to be proportionate to a non-fanciful dwelling typologies for this zone and suburb across both subject sites). This credible permitted scenario could result in the concept dwellings 'A' and 'B' instead having dwelling floor areas and footprints more comparable to those shown for dwellings 'C' and 'D'.

Earthworks of up to a maximum volume of 50m^3 per underlying site (100m^3 across the two sites linked to the application works area) and 1.2m measured vertically from natural ground level are permitted. This permitted baseline is considered to be of relevance.

5. NOTIFICATION ASSESSMENT

Council must assess any resource consent application under section 95 of the Resource Management Act 1991 to determine whether a resource consent application should be notified. The Resource Management Act 1991 details a four-step process that must be followed, and triggers or precludes notification of applications in certain circumstances. The sections below follow the four-step process for public notification (under section 95A) and limited notification (under section 95E).

5.1 - PUBLIC NOTIFICATION STEPS – SECTION 95A

Pursuant to section 95A of the Resource Management Act, this section follows the 4-step process to determine if public notification is required.

Step 1 - Public notification is mandatory in certain circumstances

Public notification is mandatory in certain circumstances.

Has the applicant requested public notification?	No
Is public notification required under s95C?	No
Is the application made jointly with an application to exchange recreation reserve land under s15AA of the Reserves Act?	No

Public notification is not mandatory under step 1.

Step 2 - Public notification is precluded in certain circumstances

If public notification is not required under step 1 it may be precluded in certain circumstances (unless special circumstances apply under step 4).

Are all activities in the application subject to a rule in a Plan or National Environmental Standard precluding public notification?	No
Is the application for one or more of the following (but no other) activities? ▪ A controlled activity ▪ A boundary activity with a restricted discretionary, discretionary or non-complying activity status	No

Public notification is not precluded under step 2.

Step 3 - Public notification is required in certain circumstances

If public notification is not precluded under step 2, public notification may be required in certain circumstances.

Is any activity in the application subject to a rule in a Plan or National Environmental Standard that requires public notification?	No
Does the activity have, or is likely to have, adverse environmental effects that are more than minor in accordance with s95D?	No (see assessment below)

Does the activity have, or is likely to have, adverse environmental effects that are more than minor in accordance with s95D?
Public notification is required under step 3 if the activity will have or is likely to have adverse effects on the environment that are more than minor.

In considering if the adverse effects on the environment are more than minor, the effects on persons who own or occupy the land in, on, or over which the activity will occur; or any land adjacent to that land must be disregarded. I have therefore disregarded the effects on the persons who own or occupy properties at 62, 63, 65, 75, 77A, 89A Raukawa Street, Stokes Valley in making an assessment under s95D.

The adverse effects on the environment are considered to be less than minor for the following reasons:

Residential character and amenity effects
It is noted that the Raukawa Street frontage is the sole location for site access, and will be the environment which interacts with the proposed residential development most significantly.

Units 1 – 4 will be the most visibly prominent part of the site from the streetscape, due to directly fronting Raukawa Street. These units are arranged to form one large building block, with one vehicle crossing positioned in the north-easternmost corner of the site (servicing Unit 1), and the primary site access crossing in the north-westernmost site corner (servicing the balance of the site). The dwellings are slightly recessed from the street environment and sited above the street ground level by approximately 1m. These units all comply with the minimum front yard requirement and are designed to address the street with front facing entrance doors, outdoor living areas, and low fences.

The site's integration with the surrounding streetscape was assessed by consultant urban designer Dr Morten Gjerde, who noted that "*the street facing building helps to consolidate activities at the street edge, despite being set back from the boundary to allow for outdoor living*", with features such as landscaping, a large site access, and streetscape orientation assisting in activating the street frontage. The application proposes 1.2m high semi-permeable fencing to create positive interaction between the front site dwellings and the street environment, further softening the appearance of the site while adhering to appropriate crime prevention through environmental design (CPTED) principles. The main vehicle access to the site takes up a limited portion of the frontage, and provides access to a central parking area that is well screened by units 1 – 4 to avoid a car-centric frontage. All rear units will have refuse collected within the site via a private collection agency, reducing amenity impacts from rubbish bins. Extensive landscaping is also proposed along the street frontage, which will

assist in softening building bulk while also providing some variation between the repetitive style dwellings.

It is noted that the proposed development does not align with what could occur in a permitted baseline scenario for the two underlying sites at 71 and 73 Raukawa Street, given the irregular site shapes for these properties prohibiting extensive building mass from being developed at the street edge as a permitted activity. Despite this, I consider that character, while not consistent in form and grain of that surrounding the site, is appropriate as the development is clearly residential in nature and has been designed in accordance with the medium density design guide. In addition, the development is well-aligned with the rapidly emerging medium-density character of the Raukawa Street area.

Overall, residential character and amenity effects will be less than minor on the environment.

Privacy and shading effects

The proposed buildings have been designed to comply with all yards, height and recession plane standards for the General Residential activity area. This is with the exception of recession plane breaches along the common boundary shared with 65 Raukawa Street. It is noted that assessment of shading and privacy impacts upon persons at adjoining properties is excluded from consideration under s95D and will be assessed later in this report. The wider environment, which is eligible for assessment under this section, is sufficiently setback from the application site, with interactions typically transient within the footpath or road carriageway, such that privacy and shading effects will be less than minor.

Transport effects

Council's consultant traffic engineer Harriet Fraser has reviewed the proposal. Through an iterative process the proposed design was updated in response to Ms Fraser's advice to the point that the updated design is considered to be suitable for the intended residential and refuse collection function, including with regards to vehicle access width and manoeuvring. Ms Fraser recommended a number of conditions for this resource consent to manage all remaining transport effects, which have been adopted by the applicant as forming part of their application. Consequently, transport effects are less than minor on the environment.

Earthworks effects

Proposed earthworks to level the site for building platforms and access total 843m^3 (745m^3 cut, 98m^3 fill), and maximum cut and fill depth of 3.2m and 1.4m respectively. The applicant notes the following in respect of earthworks proposed:

The majority of the cut / fill areas within the site will be covered by either buildings, carparks, concrete or grass/planting. This will mean that the majority of the cuts will be screened. The exception to this is at the rear of the site and to the rear of lots 11-15, where the proposed cuts will be retained by retaining walls. These retaining walls will however be screened by the dwellings built on these lots. This will reduce any residential amenity effects that could have otherwise been created.

Raukawa Street sits off Stokes Valley Road which is the main road into this area. Therefore, the transportation of the cut / fill material will be appropriate and efficient and allow trucks to stick to main roads reducing any effect trucks could potentially have within residential areas to

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transport materials to an approved location.

While there is a significant amount of earthworks above what is permitted on site, once the development is completed, these earthworks will have no lasting effects and instead allow for good building platforms, a flattened out driveway / carparking area and flat outdoor living areas.

There are no existing natural features and the site does not have any historical or cultural significance. The topography of the site slopes upwards towards the south. The areas of the cuts however do not disturb the ground once the slope really starts to get steep at the rear of the site.

I agree with the above statement and adopt it for the purpose of this assessment. The applicant has advised that silt and sediment control measures will be implemented onsite, including the use of silt fencing. The applicant noted their assumption that a detailed Erosion and Sediment Control Plan would be imposed as a condition of consent for submission and has consequently agreed to a condition to this effect. Overall, ea thworks effects will be temporary in nature and less than minor.

Contaminated Soil (NESCS)

The PSI submitted by the applicant highlighted the need to undertake further investigation of the soil onsite to clearly ascertain actual contamination levels and risk to human health onsite. The applicant has subsequently proffered an array of conditions in accordance with those recommendations in the ENGEO PSI, including the undertaking and submission of a DSI to Council, and if required, the preparation and implementation of a Remediation Action Plan (RAP) and Contaminated Land Management Plan (CLMP) to extract and safely dispose of contaminated soils onsite. Adherence to these conditions will mitigate risk of persons being exposed to contaminated soils such that effects on the environment will be less than minor.

Construction effects

Construction effects from the proposal will be somewhat similar to that of a potential permitted baseline dwelling of four large dwellings. Construction noise will be controlled through compliance with construction noise standards, dust suppression to avoid dust effects, and erosion and sediment control methods such as silt fencing. effects from works. Furthermore, the effects resulting from construction will be temporary in nature, limited to certain hours and days and will cease following completion of the site works. Accordingly potential adverse construction effects will be less than minor.

Subdivision and servicing effects

All of the proposed allotments are undersized with respect to the minimum 400m^2 area required for the General Residential activity area. Despite this, each allotment can comfortably contain the proposed dwellings, compliant outdoor living areas, suitable dwelling access, and space for onsite storage and bins.

Regarding servicing, Wellington Water has advised that the site is situated outside of the modelled flood hazard area. Despite this, in accordance with CRD requirements, the applicant has provided for onsite stormwater neutrality. Onsite wastewater mitigation has also been

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provided, in accordance with recommendations from Wellington Water. There is sufficient capacity within the existing network to provide for water supply requirements onsite.

Public notification is not required under step 3.

Step 4 – Public notification is required in special circumstances
If public notification is not required under step 3 it may still be warranted where there are special circumstances.

Do special circumstances exist that warrant public notification?	No

Special circumstances have been defined as circumstances that are unusual or exceptional, but may be less than extraordinary or unique. The proposal relates to the comprehensive residential development of a site zoned for residential purposes. There are numerous nearby examples of residential intensification either recently approved or under assessment for resource consent. This reflects the provision within the District Plan for comprehensive residential development on larger sites, whereby the application is not considered an unusual proposal. While the development will result in a much higher dwelling density on the subject site than is existing or permitted by the District Plan, the District Plan is considered to provide clear policy direction and assessment matters relevant to the proposal (as well as others in the nearby area), and it is considered that public notification will not reveal any new information relevant to determination.

On this basis, it is not considered necessary to publicly notify the application due to special circumstances.

Conclusion
Public notification is not required.

5.2 - LIMITED NOTIFICATION STEPS - SECTION 95B

As determined in section 5.1, public notification is not required. Pursuant to section 95B of the Resource Management Act, a 4-step process must therefore be followed to determine if limited notification is required.

Step 1 – Certain affected groups/persons must be notified
Limited notification is mandatory for certain groups/persons.

Are there affected customary rights groups?	No
Are there affected customary marine title groups (for accommodated activities)?	No
Is the proposal on or adjacent to, or may affect, land that is subject to a statutory acknowledgement and whether the person to whom the statutory acknowledgement is made affected under section 95E?	No

Limited notification is not required under step 1.

Step 2 – Limited notification is precluded in certain circumstances

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Limited notification to any other persons not referenced in step 1 is precluded in certain circumstances (unless special circumstances apply under step 4).

Are all activities in the application subject to a rule in a Plan or National Environmental Standard precluding limited notification?	No
Is the application for the following, but no other activity: ▪ A controlled activity (other than a subdivision) under the District Plan	No

Limited notification is not precluded under step 2.

Step 3 – Certain other persons must be notified

If limited notification is not precluded under step 2, limited notification is required for any persons found affected under s95E.

Are any of the following persons 'affected' under s95E? ▪ For 'boundary activities' an owner of an allotment with an 'infringed boundary'	No (see below assessment)
For all other activities, are there any affected persons in accordance with s95E?	No (see below assessment)

In accordance with s95E are there any affected persons?

Section 95E(3)(a) stipulates that those individuals who give written approval to a proposal cannot be considered to be an affected person/s. The following persons have given written approval:

- Michael Friday (Friday Homes Developments Ltd), on behalf of owners of 63 & 65 Raukawa Street, Stokes Valley

In respect of the above approval, it was noted this was only on behalf of the future owner of the site, requiring that effects on the current owner and occupiers of both 63 and 65 Raukawa Street still be subject to assessment under s95E. Michael Friday (future owner of the aforementioned sites) then supplied a Sale and Purchase Agreement which provided confirmation that legally, the site occupiers would be required to exit the sites at 63 & 65 Raukawa Street upon settlement of the site in August 2022. Consequently, there is robust evidence that the site occupiers will cease to be onsite from August 2022 and hence an assessment of effects on the current owners and occupiers of 63 & 65 Raukawa Street can be focussed to the time between the consent being granted, and the date of settlement, as after this time the site owner will also be the sole site occupier. This equates to a period of approximately 6 months.

In accordance with section 95E, I have considered whether the proposal could adversely affect any other persons. I consider there to be no affected persons as the potential environmental effects will be less than minor for the following reasons:

63 & 65 Raukawa Street

As noted above, approval has been obtained from the future owner of these sites. Effects on the current owners and occupiers of these sites is still a relevant consideration, particularly for the duration they are legally entitled to occupy the site. These persons will hence only experience potential construction effects in this interim period, with the dwellings proposed to

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be complete approximately 12 months following the issue of resource consent if granted, well after the current owners and site occupiers are obligated to have vacated the premises. Hence, these persons will not experience any permanent bulk, amenity, privacy or shading effects from the dwellings.

Consequently, I consider it appropriate that the only effect relevant to consider on the occupiers of the properties above is construction effects. Temporary construction effects include construction traffic, noise, vibration and dust. It is considered that these effects will be somewhat similar to that of a potential permitted baseline dwelling of four large dwellings. Construction noise will be controlled through compliance with construction noise standards, dust suppression to avoid dust effects, and erosion and sediment control methods such as silt fencing.

Overall, effects on the occupiers of 63 & 65 Raukawa Street will be less than minor.

75 Raukawa Street

This is a residential property abutting the western boundary of the application site for the first 38m extending from the road frontage. The property contains a single storey detached dwelling.

The proposed buildings will generally be well separated from the boundary shared with No 75, with minimum setbacks of 5m for the front unit block, 14m for the middle block and 12m for the rear unit block. The applicant's permitted baseline concept included two dwellings located adjacent ('House C' and 'House D'), which are considered to be a non-fanciful representation of development which could be established in this location without resource consent. These concept dwellings are located closer to the boundary than the proposed dwellings. Considering the separation of proposed building bulk from the boundary, it is considered potential adverse effects of visual amenity, privacy and shading resulting will be less than what could result from the permitted baseline as presented by the applicant. It is further noted that boundary plantings (including several specimen trees) will soften the visual effect of buildings, and may interrupt some direct views between first floor windows and activity at No 75. For the above reasons, but particularly noting the comparison to the permitted baseline, potential adverse effects of visual amenity, shading and privacy will be less than minor on persons at 75 Raukawa Street.

The proposed development where it directly abuts the boundary shared with No 75, includes the shared driveway entrance, one car parking space and a communal bin storage area. The shared driveway will provide access to 13 car parking spaces (each associated with one of the proposed dwellings). Vehicle activity with this density of residential development will be more than can be typically expected from the existing environment or a permitted baseline. However the vehicle access areas are expected to be a low speed environment, with sufficient provision of vehicle manoeuvring which will further limit the audible extent of vehicle activity. Boundary fencing (1.8m high) will be supplemented by landscaping (which as noted above include several specimen trees) will provide a buffer to the visual effects of vehicle activity. The bin storage area adjacent the boundary will be within a screened enclosure. Boundary planting and fencing will further screen the visual effect of the bin storage area. The bins will be permanently stored within the enclosure. To manage odour effects the applicant has proffered a condition of consent requiring that the enclosure be regularly maintained. For

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the above reasons potential adverse effects on residential amenity related to the intensity of the development will be less than minor.

When assessed cumulatively, adverse effects on general amenity with reference to the above assessment and the assessment on all persons and properties below, will be less than minor.

77A Raukawa Street

This is a residential property which abuts the rear portion of the application site's western boundary. The property contains a recently constructed large, single-storey dwelling. Where adjacent to the shared boundary the dwelling is elevated by pole foundations with an elevated deck on the eastern elevation. Building consent plans for the dwelling are held on file by Council and indicate that were adjacent to the boundary the internal layout includes the main living area and master bedroom.

The proposed rear unit block (dwellings 11 and 15) will be adjacent to the established residential activity at No 77A. Views from No 77A towards this unit block will be primarily towards dwelling 15, with the other dwellings in the unit block arranged behind this dwelling and largely separated and screened from view. There will be visibility to other unit blocks, however these will be relatively well-separated from the boundary (13m for the middle unit block, and 24m for the front unit block). The development will comply with yard setback and recession plane controls in relation to this boundary. Proposed landscaping includes a specimen tree located between the boundary and the western elevation of dwelling 15, which will serve to soften the visual effect of building bulk. Existing vegetation planted along the boundary within No 77A will provide effective screening over the fence-line. Although the retention of this vegetation is not within the applicant's control, it is noted as being part of the existing environment and will serve to mitigate adverse effects related to building bulk.

As the length of the unit block will be arranged perpendicular to the boundary, the width of the building bulk adjacent to the boundary will be approximately 9m. The permitted baseline concept of building bulk in this location as presented by the applicant is considered to be fanciful and is not relied on for assessment of effects on persons at No 77A (refer to section 4 of this report for details). Notwithstanding, it is considered that a less extensive but credible permitted baseline development (for which resource consent would not be required) could result in a more continuous extent of two-storey building along the boundary than will result from the proposed development. Accordingly the visual extent of building bulk as well as shading effects will be less than what can be expected from a permitted baseline development. Although the unit block will have a two-storey height, proposed earthworks cut will set the building within the rising topography, thereby lessening the extent it would appear visually imposing. The proposed dwelling will be set hard within the retained cut face, limiting the extent of visibility towards permanent cut faces or retaining structures. For the above reasons potential adverse effects on visual amenity and shading will be less than minor.

With respect to privacy effects dwelling 15 will present one bedroom window on the second storey of the east elevation facing No 77A. Bedroom spaces are typically used primarily during night-time hours, limiting the extent they may result in overlooking. This is considered a lesser extent of second storey fenestration than could result from a permitted baseline development. The aforementioned existing and proposed vegetation near the boundary will provide some interruption of views between the window and persons at No 77A. Earthworks

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cut will result in the ground floor of dwelling 15 and the primary outdoor space being lower than the site levels at the boundary, increasing the effectiveness of the 1.8m high boundary fencing in providing screening towards this activity. For the above reasons potential adverse privacy effects will be less than minor.

With the exception of dwelling 15, outdoor living spaces will be generally well separated from the boundary to No 77A. Only the end portion of the driveway will be adjacent to the shared boundary. This together with the low-speed environment, provision for vehicle manoeuvring and screening from the boundary, will limit the extent that adverse effects related to vehicle activity will be apparent. A bin storage area will be located adjacent to a small portion of the shared boundary, however separated from the residential activity at No 77A. As previously noted, the applicant has proffered a condition that the bin storage areas are maintained to manage adverse odour effects. Accordingly potential adverse effects on amenity related to the intensity of the development will be less than minor. When assessed cumulatively, adverse effects on general amenity with reference to the above assessment and the assessment on all persons and properties below, will be less than minor.

62 Raukawa Street

This property is located opposite the application site to the north, separated by the Raukawa Street road carriageway, and contains a single detached residential dwelling. A 20m road carriageway separates the application site frontage from the frontages of the above address, meaning the dwellings above are at least 28m from the proposed dwelling units 1 – 4 at the street frontage (being the nearest component of the proposed development). The front units will not encroach within the minimum front yard. Proposed boundary treatments including 1.2m high semi-permeable boundary fencing and landscaping will help integrate the development with the streetscape. The proposed landscaping, which includes four specimen trees, will serve to soften the visual effect of the building bulk. For the above reasons, but particularly noting the separation afforded by the road reserve, potential adverse amenity effects on persons at 62 Raukawa Street will be less than minor.

89A Raukawa Street

This property is located to the rear of the application site, situated approximately 18 vertical metres above the existing dwelling on the application site. It comprises a single residential dwelling, and a large area of vegetated land.

The proposal will establish five additional dwellings centrally on the site at 71 Raukawa Street, approximately in the same location as the existing onsite dwelling. Given the sloped topography of the application site, screening afforded via the dense vegetation buffer, and the height of 89A Raukawa Street above the application site, the new dwellings will be generally unperceivable for the owners and occupiers of this property. There are no non-compliances with respect to the common boundary shared with this site, including yards, building height, or recession planes. Consequently, effects on the owners and occupiers of 89A Raukawa Street will be less than minor.

General effects on all persons

- The proposed design remains residential in nature, and will be of a size and scale that can be sufficiently separated or screened from all other surrounding dwellings/persons.

Persons who view the proposal from Raukawa Street in passing, either as pedestrians or persons in vehicles, will experience the site in a transient way for a limited duration, meaning effects from the site will be less than minor, despite the change in outlook toward the site.

- Proposed landscaping and design treatments at the site frontage will mitigate bulk and amenity effects for all persons, with the dwelling units interacting positively with the streetscape in terms of opportunities for passive surveillance and general neighbourhood integration.
- 14 carparking spaces are provided onsite, to service the 15 proposed dwellings. It is noted that this represents a parking shortfall or one space (when applying a 1:1 parking ratio), it is acknowledged that a minimum number of car parks is no longer required by the District Plan whereby the applicant has a certain level of discretion in deciding to provide any at all. Council has no scope to consider effects caused by the number of parking spaces provided onsite, nor is there scope to require parking onsite as the proposal does not trigger High Trip Generator thresholds within the District Plan, which are triggered where a development seeks to establish 60 or more dwellings. Effects relating to parking supply are hence irrelevant to this decision. It is, however, relevant to consider effects arising from the non-compliances with transport standards 1(c), 2(a) and 4(d). On this matter, the proposal has been reviewed by Council's transport consultant Harriet Fraser who confirmed her support for the scheme on the basis that the breaches would not compromise road traffic safety, subject to several conditions which have been agreed to by the applicant as forming part of their consent application. A detailed review of this assessment is provided in Section 5.1 above and should be referenced for avoidance of repetition.
- Adequate space for refuse collection has been provided onsite in the form of two landscaped communal refuse storage areas (one behind unit 1, the other centrally in the parking area). The applicant notes that this will be serviced via a private refuse collection agency.
- Construction effects from the proposal will be somewhat similar to that of a potential permitted baseline dwelling of four large dwellings. Construction noise will be controlled through compliance with construction noise standards, dust suppression to avoid dust effects, and erosion and sediment control methods such as silt fencing. effects from works. Furthermore, the effects resulting from construction will be temporary in nature, limited to certain hours and days and will cease following completion of the site works. All construction vehicles are to be parked onsite for the duration of works. In addition a certain level of construction can be expected through a permitted baseline development. Overall, considering the above measures and the effects from a permitted baseline development, the construction effects will be less than minor on all persons.
- Wellington Water have advised the site is outside their modelled 1 in 100 year flood plain. Furthermore proposed cut volumes (745m^3) will greatly exceed proposed earthworks fill (98m^3), whereby it is unlikely the proposed development will displace water to adjacent sites. Proposed earthworks will be engineer designed and certified to ensure stability. Accordingly potential adverse effects related to natural hazards will be less than minor.
- Effects associated with subdivision and servicing have been assessed as having a less than minor effect on the environment for the reasons set out in Section 5.1 above. This

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assessment is applicable to the owners and occupiers of all adjoining properties and potentially affected persons, including those beyond adjacent properties.

- All other persons are sufficiently setback or screened such that effects from the proposal will be less than minor.

Limited notification is not required under step 3.

Step 4 – Limited notification is required under special circumstances
If limited notification is not required under step 3, limited notification may still be warranted where there are special circumstances.

Do special circumstances exist that warrant notification of any persons to whom limited notification would otherwise be precluded?	No

For the reasons outlined under step 4 in section 5.1 above I do not consider there to be any special circumstances that warrant limited notification of this proposal.

Conclusion
Limited notification is not required.

5.3 - NOTIFICATION DECISION

In accordance with the notification steps identified in Sections 5.1 and 5.2 above, this application shall proceed on a non-notified basis.

6. DETERMINING THE APPLICATION

Section 104 requires, when considering a resource consent application, that Council must, subject to Part 2, have regard to any actual or potential effects on the environment; any measure agreed or proposed by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any negative effects; any relevant provisions of a National Environmental Standard; other regulations; a National Policy Statement; a New Zealand Coastal Policy Statement; a Regional Policy Statement or proposed Regional Policy Statement; a plan or proposed plan; and any other matter the consent authority considers relevant and reasonably necessary to determine the application.

6.1 - ASSESSMENT OF ACTUAL OR POTENTIAL EFFECTS ON THE ENVIRONMENT UNDER S104(1)(A)

In accordance with section 104(2), when forming an opinion on the actual and potential effects on the environment, Council may disregard the adverse environmental effect of an activity if the District Plan or a regional plan, policy statement or national environmental standard permits an activity with that effect. I have already identified the permitted baseline for the proposal and its relevance, and have taken these factors into account when determining the application.

As discussed in section 5 of this report, I consider the adverse effects on persons at adjacent properties to be less than minor and other potential adverse effects on the environment to be

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less than minor. The conclusions made in section 5 of this report remain valid for the s104 assessment, whereby the following actual or potential effects of the proposed development to be acceptable:

- *Residential character and amenity effects*
- *Privacy and shading effects*
- *Transport effects*
- *Earthworks effects*
- *Construction effects*

Further to these matters, additional assessment is made with particular regard to effects internal to the application site. I consider the actual or potential effects of the proposed development to be acceptable for the following reasons:

- *Internal amenity* – each of the proposed dwellings will have a compliant sized outdoor living area, with the exception of proposed unit 14 which at 19.54m^2 will be marginally less than the minimum required 20m^2. The proposal has been assessed against Council's Medium Density Design Guide (MDDG) by Council's consultant urban design advisor Dr Morten Gjerde (refer to section 6.2 of this report for details) With regard to outdoor living spaces Dr Gjerde commented the outdoor spaces seem *'appropriately sized and well-appointed'*, are located *'to the north and east of the unit they serve'* (for sunlight access), and *'contribute significantly to the visual amenity of the site'*. I concur with Dr Gjerde's and note that due to the limited extent of the non-compliance for unit 14, I consider any adverse effects on amenity to be negligible Further the proposal includes a pathway to the rear bush area, which may provide additional opportunities for outdoor recreation. For the above reasons I consider that potential adverse effects on amenity for future residents to be less than minor and acceptable.
- *Allotment design* – the proposed residential lots 1-15 will not comply with the District Plan allotment design standards for size and shape. However each of the allotments area suitably sized to contain their respective dwellings, with suitable provision for outdoor living, and pedestrian and vehicle access. Accordingly the proposed dwellings are considered to be suitable for their intended residential use, and adverse effects related to the non-compliant lot sizes are considered to be acceptable.
- *Natural hazards* – the application site is located outside the 1 in 100 year flood extent as modelled by Wellington Water who have not made any specific minimum floor level for the site Proposed earthworks and retaining structures will be engineer designed and certified to ensure the stability of the site and adjacent properties. The site is not known to be particularly prone to any other natural hazards. For the above reasons potential adverse effects related to natural hazards will be less than minor and acceptable.
- *Engineering matters* – the application has been reviewed by Council's subdivisions engineer who has concluded it can meet the District Plan's engineering standards subject to adherence to conditions. I concur with this assessment and have included the engineer's recommended conditions with the consent.
- *Esplanade strips and reserves* – the subject site does not contain any watercourses, nor is it located within the Coastal Marine Area. No esplanade strips or reserves are therefore required.

- *Site contamination* – the PSI submitted by the applicant highlighted the need to undertake further investigation of the soil onsite to clearly ascertain actual contamination levels and risk to human health onsite. The applicant has subsequently proffered an array of conditions in accordance with those recommendations in the ENGEO PSI, including the undertaking and submission of a DSI to Council, and if required, the preparation and implementation of a Remediation Action Plan (RAP) and Contaminated Land Management Plan (CLMP) to extract and safely dispose of contaminated soils onsite. Adherence to these conditions will mitigate risk of persons being exposed to contaminated soils such that effects on the environment will be less than minor and acceptable.
- *Protecting significant sites* – the bush area to the rear of the existing dwelling is identified by the District Plan as being within Significant Natural Resource # 50 'Stokes Valley Bush'. No development works are proposed within the portion of the site subject to this listing. It is further noted that there are no District Plan rules in relation to this listing which would limit development of the site. As a result, I consider any effects on sites of significance to be negligible.
- *Regionally significant network utilities* – effects on the capacity of three waters infrastructure has been considered in section 5 of this report. The conclusion that effects are less than minor remain valid for the section 104 report whereby the effects are considered to be acceptable. The site is not within proximity to any other regionally significant network utilities.
- *Positive effects* – The supply of 15 new dwellings (13 additional) will increase housing supply and variety and will provide for economic well-being which are considered to be positive effects.
- *s108 and s220 matters* – I have considered it appropriate and necessary to impose conditions, including those referenced in the above assessment, to avoid, remedy or mitigate the adverse environmental effects of the proposal. The conditions have been agreed to by the applicant.

Conclusion
I consider the actual or potential effects on the environment to be acceptable for the reasons outlined above.

6.2 - ASSESSMENT OF THE RELEVANT PROVISIONS OF THE DISTRICT PLAN UNDER S104(1)(B)

Design guide assessment
As a comprehensive residential development, consideration of the proposal against Council's Medium Density Design Guide (MDDG) is a relevant assessment matter. The applicant submitted a comprehensive assessment against the MDDG within their application prepared by Novak & Middleton architects. This was then peer reviewed by Council's consultant urban designer Dr Morten Gjerde, alongside his own review of plans submitted in support of the consent application. The applicant's MDDG assessment is held on file and should be read in conjunction with this decision report. In response to this assessment, Dr Gjerde noted the following:

- *"The overall design principles consider the effect of the development proposal on the neighbourhood, the extent to which it will foster a positive sense of place and the*

quality of residential amenity on site, with particular emphasis on private outdoor spaces.

- *the site plan is coherent and responds well to the site constraints and opportunities. The car parking space will, by default, become the primary common area within the site and help organise the buildings around it. The taller, vertical plant species within this space supplement the low planting around the edges and together can contribute to a positive sense of place.*
- *The outdoor living spaces would seem to be appropriately sized and well-appointed with areas of landscaping and of paving. As such, they would support a range of more sedentary outdoor activities and contribute significantly to visual amenity within the site. These are located to the north and east of the unit they serve.*
- *The palette of landscape materials is very rich and should deliver the richness and variation across the site that will help create a positive sense of place. Overall, the landscape development proposal is outstanding, and I agree with the applicant's assessment."*

Dr Gjerde suggested that several minor amendments were made to the site design, including the amendment of fence heights at the street frontage, and clarification of fencing and retaining heights in relation to external site boundaries. These amendments were actioned, or clarity provided, by the applicant. Dr Gjerde concluded his assessment by noting that he could "*now confirm that the proposed development meets the anticipated outcomes of the MDDG"*.

As a result, I consider the proposal aligns with the intent and provisions within the MDDG.

Objectives and policies of the District Plan

I consider the proposal is consistent with the relevant District Plan objectives and policies identified below:

4A General Residential Activity Area

4A 2 Objectives

Objective 4A 2.1
Residential Activities are the dominant activities in the General Residential Activity Area. Any non-residential activities that locate in the General Residential Activity Area are compatible with the low to medium density residential development and high levels of amenity anticipated for the zone.

Objective 4A 2.2
Housing capacity and variety are increased.

Objective 4A 2.3
Built development is consistent with the planned low to medium density built environment and is compatible with the amenity levels associated with low to medium density residential development.

Objective 4A 2.4

Built development provides high quality on-site amenity for residents as well as high quality residential amenity for adjoining properties and the street.

Objective 4A 2.6
Built development is located and designed to manage significant risk from natural hazards.

4A 3 Policies

Policy 4A 3.1
Provide for residential activities and those non-residential activities that support the community's social, economic and cultural well-being and manage any adverse effects on residential amenity.

Policy 4A 3.2
Enable a diverse range of housing types and densities.

Policy 4A 3.3
Enable efficient use of larger sites and combined sites by providing for comprehensive residential developments.

Policy 4A 3.4
Manage the effects of built development on adjoining sites and the streetscape and minimise visual dominance on adjoining sites by controlling height, bulk and form of development and requiring sufficient setbacks.

Policy 4A 3.5
Require built development to maintain a reasonable level of privacy and sunlight access for adjoining sites.

Policy 4A 3.6
Require built development to provide useable and accessible outdoor living space to provide for outdoor amenity.

Policy 4A 3.7
Encourage high quality built development to contribute to attractive and safe streets and public open spaces by providing for buildings that address the streets and public open spaces, minimise visual dominance and encourage passive surveillance.

Policy 4A 3.9
Require rainwater tanks and a minimum area of permeable surface in order to assist with the management of stormwater runoff created by development.

Assessment
The proposal will increase the available housing stock within Stokes Valley by 15 dwellings (13 additional dwellings to what was existing across the two underlying sites previously) and is an activity that is compatible with the increasingly medium-density character of this zone and street. The site provides for stormwater neutrality to minimise stormwater effects. The proposal also provides a reasonable area of outdoor living space for residents such that they

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can enjoy a good level of onsite amenity, all of which have been enhanced by landscaping treatments to enhance amenity and functionality. With reference to the above comments and the assessment and conclusions within sections 5.2 and 6.1 of this report I consider the proposal to be consistent with the above objectives and policies.

11 Subdivision

11.1.1 Allotment Standards

Objective
To ensure that land which is subdivided can be used for the proposed use or development

Policy

a) *To ensure that allotments in lower density residential areas and rural zones have minimum design standards such as, minimum size, shape and frontage, which are suitable for the proposed use or development.*
b) *To provide flexibility in lot size, shape and frontage within Commercial, Mixed Use, General Residential and Medium Density Residential Activity Areas to enable diversity of commercial and residential development size and density.*

11.1.2 Engineering Standards

Objective
To ensure that utilities provided to service the subdivision protect the environment and that there are no adverse effects on the health and safety of residents and occupiers.

Policy

a) *To ensure that utilities provided comply with specified performance standards relating to such matters as access, street lighting, stormwater, water supply, wastewater, gas, telephone, electricity and earthworks.*
b) *The engineering practices to maintain the ecological values of Speedy's Stream and the onsite wetland from stormwater runoff resulting from the subdivision of the land identified in Appendix Subdivision 7.*

Assessment
A Council subdivision engineer has assessed the proposal and confirmed that subject to conditions, the proposal will comply with the relevant performance standards related to three waters, electricity, earthworks and telecommunication.

14A Transport

Objective 14A 3.1
A safe, efficient, resilient and well-connected transport network that is integrated with land use patterns, meets local, regional and national transport needs, facilitates and enables urban growth and economic development, and provides for all modes of transport.

Objective 14A 3.5

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Adverse effects on the safety and efficiency of the transport network from on-site facilities (vehicle access, parking, manoeuvring and loading facilities) are managed.

Policy 14A 4.2
Land use, subdivision and development should not cause significant adverse effects on the connectivity, accessibility and safety of the transport network, and, where appropriate, should:

- *seek to improve connectivity within and between communities; and*
- *enable walking, cycling and access to public transport.*

Policy 14A 4.6
Vehicle access, parking, manoeuvring and loading facilities should be designed to standards that ensure they do not compromise the safety and efficiency of the transport network

Policy 14A 4.7
The transport network, land use, subdivision and development should provide for all transport modes.

Assessment
The proposed development has been suitably designed with consideration to the integration with the surrounding land transport network. It is considered vehicles and pedestrians will be able to safely access the site without unduly impacting the safety and operation of the land transport network or safe access to adjacent sites. Although the proposal does not comply with various District Plan transport standards including in relation to access, with the proposal has been reviewed and supported by Council's consultant traffic advisor and any related adverse effects have been assessed as acceptable.

14I Earthworks

14I 1.1 Natural Character

Objective
To ensure that earthworks are designed to maintain the natural features that contribute to the City's landscape.

Policy

a) *To ensure that earthworks are designed to be sympathetic to the natural topography.*
b) *To protect significant escarpments, steep hillside areas, and the coastal area by ensuring that earthworks are designed to retain the existing topography, protect natural features, and prevent erosion and slips.*

14I 1.2 Amenity, Cultural and Historical Values

Objective
To ensure earthworks do not affect adversely the visual amenity values, cultural values or historical significance of an area, natural feature or site.

Policy

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a) *To protect the visual amenity values of land which provides a visual backdrop to the City.*
b) *That rehabilitation measures be undertaken to mitigate adverse effects of earthworks upon the visual amenity values.*
c) *To protect any sites with historical significance from inappropriate earthworks.*
d) *To recognise the importance of cultural and spiritual values to the mana whenua associated with any cultural material that may be disinterred through earthworks and to ensure that these values are protected from inappropriate earthworks.*

Assessment

The proposed earthworks are not undertaken on a site of historical or cultural significance, nor does the site provide an important backdrop to the city. There are no notable topographical features onsite which will be affected by the proposal, with much of the site's key features being retained. Amenity effects associated with earthworks have been assessed in Sections 5.2 and 6.1 to this report as having a less than minor effect on all persons, and will be suitably mitigated through adherence to the erosion and sediment control methods detailed by the applicant and imposed through conditions to this resource consent.

6.3 - ASSESSMENT OF THE RELEVANT PROVISIONS OF OTHER STATUTORY PLANNING DOCUMENTS UNDER S104(1)(B)

National Policy Statement on Urban Development 2020

The NPS-UD came into effect on 20 August 2020. This document sets a mandate for Local Authorities to improve housing affordability and provide for the development of a variety of homes which meet the needs (in terms of price, location, and typology) of various population groups. This is to be done through planning decisions, with the intent that housing density and supply is increased over time.

This proposal involves the establishment of 15 new residential dwellings on a site which previously contained 2 standalone dwellings across 2 separate titles. The application site is positioned within the suburb of Stokes Valley, situated just off a secondary collector road host to a multitude of bus routes. There is evidence of high demand for housing in Stokes Valley, particularly near key public transport connections, and the proposal is deemed consistent with the intent of the NPS-UD in that it will provide for increased housing availability in this area. By increasing available housing stock, the assumption is that housing affordability will also improve in tandem. It is hence concluded that the proposal is directly consistent with the objectives and policies in the NPS-UD.

I consider that there are no other relevant provisions of national environmental standard, other regulations, national policy statement, New Zealand Coastal Policy Statement or regional policy statement or proposed regional policy statement that regard must be had.

6.4 – PURSUANT TO S104(1)(C) ARE THERE ANY OTHER MATTERS RELEVANT AND REASONABLY NECESSARY TO DETERMINE THE APPLICATION?

I consider there are no other matters relevant and reasonably necessary to determine the application.

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6.5 - PART 2 OF THE RESOURCE MANAGEMENT ACT

I consider the proposal meets Part 2 matters of the Resource Management Act 1991.

6.6 - IN ACCORDANCE WITH S106 A CONSENT AUTHORITY MAY REFUSE SUBDIVISION CONSENT IN CERTAIN CIRCUMSTANCES

A consent authority may refuse subdivision consent or may grant a subdivision consent subject to conditions if it considers that there is significant risk from natural hazards or sufficient provision has not been made for legal and physical access to each allotment to be created by the subdivision.

The entire application site is positioned outside the modelled flood hazard risk area such that minimum floor levels onsite are only required to be set in accordance with the Building Code. Stormwater neutrality has also been provided for. Earthworks and retaining walls will be engineer designed and certified to ensure site stability.

Each dwelling/allotment is afforded compliant legal access, with the option of both pedestrian and vehicular site access.

Consequently there is no reason to refuse consent under s106.

6.7 - SUBSTANTIVE DECISION

In accordance with s104B I have considered the application for a discretionary activity and have decided to grant the application subject to conditions under s108 and s220.

7. CONDITIONS OF RESOURCE CONSENT

In accordance with s108 and s220 of the Resource Management Act, resource consent has been granted subject to the following conditions:

Subdivision consent

1. That the proposal is carried out substantially in accordance with the information and approved plans submitted with the application and held on file at Council.

   Approved plans:

   - Scheme Plan prepared by Spencer Holmes Limited, Drawing Nos. S21-0261-(AP6-AP7) Rev. A, and (AP1 – AP3) Rev. B, all dated 30/07/2021.
   - Proposed Services Plan, Drawing Nos. S21-0261-(D0-D14), Rev A and dated 31/01/2022.

2. The consent holder shall pay a contribution to Council's Reserves Purchases and Development Account at Council's standard rate of 5.5% of the value of the additional residential allotments or capped at $10,000 per allotment whichever is the lesser. The

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amounts required will be determined on the basis of a market value assessment from a registered valuer. It is the consent holder's responsibility to instruct the valuer and supply Council with this assessment. The amount to be paid will be determined when the consent holder submits the qualified valuer's assessment.

3. That the consent holder pays Council an engineering fee to meet the cost of work carried out by Council subdivision engineer in assessing, inspecting, testing and approving water, sewer and stormwater services, access or any other aspect of the proposal so assessed by the engineer or any representatives of the engineer (as distinct from work which must be monitored as a result of any building consent). The fee is charged at an hourly basis of $175 per hour for an engineer or $195.00 for a senior engineer. Payment is necessary before or at the time of applying for a section 224(c) certificate.

   Note: Conditions 1-3 address essential administrative matters.

4. That the consent holder takes into account the geotechnical report prepared by *ENGEO*, titled *'Geotechnical Investigation 71-73 Raukawa Street, Stokes Valley Lower Hutt'*, dated 28/07/2021 and follows any recommendations it contains when undertaking all earthworks.

5. That the consent holder compacts all earthwork fill areas generally in accordance with the Code of Practice for Earth Fill for Residential Development (NZS4431:1989).

   Please note:

   - Before building any retaining walls subject to traffic loading (or other surcharge) or are more than 1.5 metres high, the consent holder must obtain a building consent. The consent holder must submit a design prepared by a chartered professional engineer with the building consent application, followed by a producer statement on completion of the walls.
   - Fill depths in excess of 0.6m below proposed buildings are outside the scope of foundation design under 'NZS 3604:Timber-Framed Buildings' and require specific engineering design by a suitably qualified professional engineer.

6. That the consent holder engages a suitably experienced qualified engineer to monitor the earthworks and that, on completion of earthworks (or during earthworks if Council considers it necessary), the consent holder provides a report from a qualified engineer in accordance with Clause 2.6.1 of NZS4404:2010. This report shall include details of the specific site investigations, design work, testing and construction monitoring undertaken and shall include a statement of professional opinion as set out in Schedule 2A of NZS4404:2010. Where the report identifies development limitations, such as specific design for stability or foundation design or building setback distances, Council will register a consent notice regarding this on the certificates of title of any affected lots, as allowed for under section 221 of the Resource Management Act 1991.

7. That the consent holder installs subsoil drains behind all new retaining walls and connects the drains to an appropriate stormwater outlet, unless otherwise approved.

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Please note:

- The proposed subsoil drains and outlet connection locations shall be clearly shown on the engineering drawings submitted for approval and the as-built drawings. Subsoils shall discharge via a sump unless otherwise approved.

Note: conditions 4-7 will ensure that the earthworks are appropriately designed and certified to manage natural hazard and to ensure the site is suitable for residential development.

8. That the consent holder undertakes all earthworks (including for trenching purposes) in such a way that no sediment leaves the site or enters streams or the stormwater system; and that the consent holder installs and maintains sediment control measures in compliance with Greater Wellington Regional Council's erosion and sediment control guidelines (issued in June 2006).

9. That the consent holder paves, metals, re-grasses, hydro-seeds or plants all areas exposed by earthworks, trenching or building work as soon as possible after excavation or, at the latest, within a month of completing earthworks to the satisfaction of Council subdivision engineer; and that the consent holder repeats any seeding or planting that fails to become fully established within 12 months of the completion of earthworks.

10. That the consent holder ensures vehicles and machinery leaving the site do not drop dirt or other material on roads or otherwise damage road surfaces; and that if such spills or damage happen, the consent holder cleans or repairs roads to their original condition, being careful not to discharge the material into any stream, stormwater system or open drainage channel in the process. (The term "road" includes footpaths, vehicle crossings and berms.)

11. That the consent holder ensures all development and construction work complies with the provisions of NZS 6803 1999 Acoustics - Construction noise; and that notwithstanding this standard, machinery operating hours, including machinery start-up times, are limited to between 7am and 6pm Monday to Saturday, with no work on Sundays or public holidays.

12. That the consent holder constructs the private way, including a heavy-duty vehicle crossing and necessary stormwater control in accordance with Council's codes and standards, except for the variations outlined below.

Please note:

- If applicable, any exposed aggregate method is to be in accordance with the NZ Ready Mixed Concrete Association's Safe Environmental Guidelines - "On Site Management of Concrete Wash-water".
- **The vehicle crossing edges shall flare directly from the property boundary through to the kerb to accommodate vehicles passing or waiting clear of the road frontage.**
- **The pedestrian strip shall be continued from the entrance of the driveway through to the kerb.**

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- **The gradient of the vehicle crossing shall be no more than 5% for the first 6m from the kerb, and transition grades shall be in accordance with AS/NZS2890.1:2004.3, unless otherwise approved.**

13. That the consent holder constructs a 1.6m wide footpath along the property frontage between the two proposed vehicle crossings.

14. That the consent holder removes any redundant vehicle crossing/s and reinstates the kerb, footpaths, and berms in accordance with Council's codes and standards.

15. That the consent holder constructs a concrete vehicle crossing to serve Lot 1 in accordance with Council's codes and standards.

16. That the consent holder installs the reticulation as necessary and connects separate minimum 100mm NB sewer and stormwater service leads to the public mains (or other approved disposal point in the case of stormwater) for each residential lot (and adjust existing services where necessary) in accordance with Council's codes and standards.

    Please note:

    - All stormwater, sewer, and water reticulation services shall be designed and constructed in accordance with the *'Regional Standard for Water Services'*, the *'Regional Specification for Water Services'* and the *'Approved Products Register'*, including all associated amendments. Copies of the latest version of these documents are available on the following website: https://wellingtonwater.co.nz/contractors/technical-information.
    - It is now Council policy that only existing sewer and stormwater laterals less than 25 years old can be utilised for a new dwelling or new vacant lot, otherwise they are to be renewed or sealed off at the mains if not replaced in the same location.

17. That the consent holder ensures the development is designed to be stormwater neutral to avoid impact on the downstream network. Stormwater neutrality is required for both a 10 year and a 100-year rainfall event. The development must therefore be provided with a stormwater management system(s). The stormwater management design must be approved in writing by the Wellington Water Land Development Team and the following aspects must be met:

    i. The consent holder must construct an approved stormwater management system or systems in accordance with plans approved under the Resource or Building Consent and agreed with the Wellington Water Land Development Team.

    ii. The stormwater management system(s) must be designed so that the total stormwater discharge post-development from the site in both a 10 year and a 100 year rainfall event is less than or equal to the stormwater runoff flows prior to the development.

    iii. The consent holder must ensure that all connections to the system(s) are trapped to minimise debris entering the system.

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iv. Following construction of the stormwater management system(s), an as-built plan and a maintenance schedule must be made available for future property owners. The plan and schedule must be approved by the Wellington Water Land Development Team.

v. The owner(s) of appropriate lots must follow the required operation, maintenance and renewal of the system(s), set out in the maintenance schedule, to ensure it is in full working order at all times.

vi. The owner(s) of appropriate lots cannot increase stormwater discharge, through an increase in non-permeable areas, without Council approval; as an increase in stormwater discharge may result in failure of the stormwater detention systems.

Council will register a consent notice, in accordance with section 221 of the Resource Management Act 1991, on the record of title of appropriate lots specifying the requirements (iv -vi) above.

18. That the consent holder installs an approved method of wastewater mitigation to avoid impact on the downstream wastewater network. Lots 3 - 15 shall be provided with a wastewater management system so that wastewater can be stored and released at a controlled rate during off peak periods only. The wastewater management design must be accepted in writing by the Wellington Water Land Development Team. Council will register a consent notice, in accordance with section 221 of the Resource Management Act 1991, on the titles of 3 – 15 (plus any other lots in the case of a shared system) advising future owners in respect to the provision and ongoing operation and maintenance of the approved wastewater mitigation system(s).

Please note:

- Wastewater detention systems shall be fitted with an audio and visual high level alarm, audible and visible from the private way.
- Wastewater detention systems shall have SCADA capability.
- Following construction of the wastewater management system, an as-built plan and a maintenance schedule must be documented and made available for future property owners. The plan and schedule must be accepted by the Land Development Team.
- The consent notice will require the property owners to follow the required operation, maintenance and renewal of the system(s) as set out in the maintenance schedule, to ensure it is in full working order on an on-going basis. The wording on the consent notice will be dependent upon the approved mitigation measures adopted and whether or not these are individual or shared systems.
- The proposed method of wastewater mitigation shall be submitted with the engineering plans for approval.

19. That the consent holder supplies water reticulation as necessary and supplies separate minimum 20mm NB connections for each residential lot that meets Council's code for domestic supply and the fire-fighting capability required under the New Zealand Fire Service code of practice (SNZ PAS 4509:2008).

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- It is Council policy that only existing laterals of polyethylene material can be utilised for a new dwelling or new vacant lot. All existing non-polyethylene laterals, including the tobies, are to be renewed and sealed at the main if not replaced in the same position.
- The consent holder must apply for new water connections at the customer services counter of Council Building, 30 Laings Road, Lower Hutt. These applications are processed by Wellington Water Ltd., which is a Council-controlled company in charge of Council water and drainage assets. Their contact person is Chandra Koswatte (ph. 04 912 4534). Wellington Water Ltd. may impose special requirements or conditions for new connections depending on, among other things, the existing reticulation system's condition and layout, flow rates, pressure zones and proposed future work. It is important the consent holder makes an application early in the design or construction phase. Council recommends that the consent holder makes this application before submitting engineering plans to Council subdivision engineer.
- In the case of a rear section, any new services are to be laid beyond a shared right-of-way section of the access leg and not just to the road boundary.

20. That the consent holder submits a copy of the approved water connection application form (signed by Wellington Water Ltd.) when applying for the section 224(c) certificate.

21. That the consent holder severs all abandoned cross-boundary services, including any water, sewer and stormwater pipes. Abandoned pipes within the property are to be sealed at the junction with the "live" pipe and at all ends (including where the line is broken through). In addition, where abandoned pipes have the potential to act as a cross-boundary field drain they are to be sealed at the boundaries. Abandoned property laterals (connections from the main or kerb) are to be severed and sealed at the main or kerb.

22. That the consent holder submits engineering plans for the above construction work to Council subdivision engineer for approval; that the plans provide information on the materials to be used, including the size, type and class of pipes, as well as indicate pipe gradients; and that all this work is carried out in accordance with the approved plan.

    Please note:

    - This condition is necessary (even for minor works) as the engineering approval letter will list further engineering requirements in regard to Corridor Access Requests, pipe materials, inspections, as-built information, etc.
    - Engineering approval of the proposed services and access up to the individual lot boundaries is completely separate from any approval given under building consent and must be requested prior to installation, irrespective of any building consent being issued.
    - Please provide construction details and design levels of the proposed private way.

23. That the consent holder appoints a representative to carry out the design and supervision of construction work, as well as certification upon completion, as provided for by clause 1.7.1 of NZS 4404:2010; and that the consent holder submits the name, contact details and experience of the representative to Council subdivision engineer for approval before or at the time of submitting engineering plans. The consent holder must document the

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representative's experience in a resume and show the relevance of that experience to the works and services required under this consent. The certification must include confirmation that the materials, installation and testing meet Council's codes and standards.

24. That the consent holder appoints a suitably qualified contractor or contractors to complete the works to the approved design; and that the consent holder submits to Council subdivision engineer for approval the name, contact details and experience of the contractor(s) at the time of submitting engineering plans for approval or at least a minimum of 7 days in advance of commencing the construction works. The approved contractor(s) must give a minimum of 48 hours' notice to Council subdivision engineer before starting work.

25. That the consent holder provides underground telephone and electrical services to each lot in accordance with the specifications and requirements of the relevant authority.

26. That the consent holder provides Council with written confirmation from Chorus (or the equivalent network supplier) and Wellington Electricity Lines Ltd that they are satisfied with the supply of their utilities to each lot.

27. That the consent holder provides Council with written confirmation from a surveyor or suitably qualified engineer that all existing services have been adjusted so they are contained within the lot (or are protected by an appropriate easement) and that the ends of all abandoned lines have been sealed in accordance with council requirements, or alternatively that the consent holder provides Council with written confirmation from a surveyor or suitably qualified engineer that no such adjustments and sealing are necessary.

    Note: Conditions 8-27 address the effects of the subdivision and will ensure each of the lots will be appropriately serviced.

28. That the consent holder provides appropriate easements for public and private services where necessary, with the easements shown as a memorandum of easement on the land transfer title plan. The consent holder must show easements for public services on a plan with a minimum three-metre width centred over the service, or twice the depth of the trench, whichever is greater; show Council as the grantee in gross; and engage a lawyer at the consent holder's expense to prepare easement documents. Please note that, in accordance with the Regional Standard for Water Services, the easement width shall be an increased where there is more than one service within that easement.

    Please note:

    - The proposed water 63mm OD ridermain shall be vested as public and accordingly will require a 1.8m wide easement in gross benefitting Hutt City Council.

29. That the consent holder moves all buildings clear of the new boundaries before applying for a section 224(c) certificate.

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30. That, at the time of requesting a section 224(c) certificate, the consent holder provides a schedule of assets detailing each item to be transferred to Council ownership as part of the subdivision process; and that the consent holder supplies a full description of the item, material type, size, length, area, volume, et cetera, following the format set out in Council form RAS-FORM-014.

    Please note:

    - Within private rights of way and property the assets to vest in Council generally include:
        - Street-lighting & cables (when required by Council).
        - Sewer mains (of 150mm dia. and above) and manholes, **but not individual laterals**.
        - Stormwater mains (of 300mm dia. and above) and manholes, **but not individual laterals, sumps and leads**.
        - Watermains of 100mm dia. and above, including valves and hydrants and individual laterals up to and including the tobies off the main only, **but not ridermains or individual laterals off ridermains**
    - Within road reserve the assets to vest in Council generally include:
        - All roads, footpaths, berms, vehicle crossings, street-lighting and cables, signage, sumps and leads.
        - All sewer and stormwater mains and manholes, **but not individual laterals**.
        - All watermains, ridermains valves and hydrants, **together with individual laterals up to and including the tobies**.

31. That the consent holder sets out the value of services to be taken over by Council to enable the creation of a buyer-created tax invoice, with the details provided to be in accordance with Council buyer-created tax invoice form RAS-FORM-015.

32. That, in accordance with section 221 of the Resource Management Act 1991, Council registers consent notices on the records of title of the applicable lots to ensure future owners are aware that the properties share private sewer and stormwater drains and water pipes.

33. That the consent holder meets the cost of registering consent notices.

34. That the consent holder provides Council with the as-built plan, certified by a surveyor or engineer, showing, where applicable, the levels and alignment of all the mains and road work, and the location of all service connections (and, if applicable, new work within private property) relative to the lot boundaries.

    Note: Conditions 28-34 address essential administrative matters.

35. That, in accordance with section 221 of the Resource Management Act 1991, Council registers a consent notice on the record of title of lots 1 to 15 inclusive. The consent

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notice shall state that due to the integrated nature of this development, the dwellings thereon must be built in accordance with condition (1) of the land use consent RM210455. This consent notice may not apply if all of the dwellings have been substantially constructed prior to 223/224 being issued.

Note: This condition will ensure future owners are aware of future requirements related to the proposed allotments.

36. That the consent holder complies with the following amalgamations (see: Land Information New Zealand request # 1749977).
    - That Lot 100 hereon (legal access) be held as to fifteen undivided one fifteenth shares by the owners of Lots 1 - 15 hereon as tenants in common in the said shares and that individual records of title be issued in accordance therewith.
    - That Lots 2 and 16 hereon be held in the same record of title.
    - That Lots 3 and 17 hereon be held in the same record of title.
    - That Lots 4 and 18 hereon be held in the same record of title.
    - That Lots 5 and 19 hereon be held in the same record of title.
    - That Lots 6 and 20 hereon be held in the same record of title.
    - That Lots 7 and 21 hereon be held in the same record of title.
    - That Lots 8 and 22 hereon be held in the same record of title.
    - That Lots 9 and 23 hereon be held in the same record of title.
    - That Lots 10 and 24 hereon be held in the same record of title.
    - That Lots 11 and 25 hereon be held in the same record of title.
    - That Lots 12 and 26 hereon be held in the same record of title.
    - That Lots 14 and 27 hereon be held in the same record of title.

    Note: A condition to this effect has been proposed by the applicant and addresses the proposed amalgamation of parking spaces to residential allotments and the shared ownership of the access leg.

Land use consent

1. That the proposal is carried out substantially in accordance with the information and approved plans submitted with the application and held on file at Council.

    Approved plans:

    - Architectural plans prepared by Novak + Middleton, Project No. 2113, Drawings Nos. PD.01 – 14 and dated 18/08/2021, and PD.21-22, dated 05/04/22.
    - Landscaping Plan 71/73 Raukawa Street, sheets 01 – 09, and 'Planting Schedule and Specification', all Rev. B, prepared by Biome Ltd and dated 16/12/21.

2. That the consent holder advises Council (enforcement@huttcity.govt.nz or 04 560 1044) at least two working days before any work starts on site; and that the consent holder also

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supplies the name, phone number and address of the main contractor and, if applicable, the same details for the earthworks company.

Important notes:

- When given notice of a start date, a compliance officer will suggest an on-site meeting to run through a checklist of things to make sure the project runs as smoothly as possible. This service is included in the resource consent application fee. Using it could avoid difficulties later on. Please note that additional monitoring visits will be charged at $175 per hour.
- Notification of work commencing is separate to arranging building inspections.
- Work outside what the District Plan permits is not to commence until all conditions that are to be signed off before work commences are complied with.

Note: Conditions 1 and 2 address essential administrative matters.

3. That the consent holder ensures all development and construction work complies with the provisions of NZS 6803:1999 Acoustics - Construction noise Machinery operating hours, including machinery start-up times, shall be limited to between 7.30am and 6pm Monday to Saturday, with no work on Sundays or public holidays, in accordance with the noise level restrictions in the table below. Some activity is permitted on construction sites on weekdays between 6.30am and 7.30am, however these shall be limited to preparation works and shall not include the operation of machinery.

Time Period	Weekdays			Saturdays			Sundays and Public Holidays		
Hours Between	L10	L95	Lmax	L10	L95	Lmax	L10	L95	Lmax
6:30am – 7:30am	60	45	70	*	*	*	*	*	*
7:30am – 6:00pm	75	60	90	75	60	90	*	*	*
6:00pm – 8:00pm	70	55	85	*	*	*	*	*	*
8:00pm – 6:30am	*	*	*	*	*	*	*	*	*

* *At these times the relevant provisions of NZS6802 shall apply. This may mean that no noisy work can take place during these hours.*

4. That the consent holder ensures vehicles and machinery leaving the site do not drop dirt or other material on roads or otherwise damage road surfaces; and that if such spills or damage happen, the consent holder cleans or repairs roads to their original condition to the satisfaction of the Team Leader Resource Consents, being careful not to discharge the material into any stream, storm water system or open drainage channel in the process. (The term “road” includes footpaths, vehicle crossings and berms.)

5. That during construction the consent holder takes measures to ensure stormwater and surface water run-off does not affect adjoining properties, and that afterwards surface water is controlled, to the satisfaction of Council’s subdivision engineer, through the use of onsite management systems (which may include, but is not restricted to, the use of curbing, channelling, permeable surface and/or installation of drains and pipes) to an approved outlet.

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Note: The consent holder is advised that free-draining retaining walls are not considered an acceptable means of controlling stormwater where retaining walls are required; sub-soil drainage will be required behind retaining walls to satisfy the above condition.

6. That the consent holder deposits all unwanted spoil at an appropriately authorised disposal facility by the conclusion of site works.

   Note: This condition is required to manage visual amenity and construction effects.

7. That the consent holder designs and carries out all onsite earthworks, building foundations and retaining in accordance with the recommendations detailed in Sections 6.2 – 6.5 of the Geotechnical Investigation Report (Project No. 19052.000.001), prepared by ENGEO Ltd and dated 28/07/2021.

8. That the consent holder installs landscaping treatments in accordance with the approved landscaping plan (*Landscaping Plan 71/73 Raukawa Street, sheets 01 – 09, Rev. A, prepared by Biome Ltd and dated 02/08/2021*), unless otherwise approved by Condition 8 below. All plantings must be installed as soon as the seasons make practicable, but must be finished within six months of the completion of construction. Any plant which fails to establish or perishes must be re-planted within 12 months of the completion of construction. All specimen and narrow trees are to be a minimum height of 1.5m at the time of planting.

9. That the consent holder ensures that, unless written approval from Council's roading and traffic team is given, no construction vehicles or machinery park on the berm of the street frontage, with all vehicles and machinery required to be parked onsite or within the road carriageway throughout the duration of construction works.

   Note: This condition is required to prevent damage to the street berm during the construction period.

10. That the consent holder submits a Construction Management Plan (CMP) to the Council for consideration and approval, which details:
    a. Contact (mobile) telephone number(s) for the on-site manager where contact could be made 24 hours a day / 7 days a week;
    b. Details of appropriate local signage/information of the proposed work including the location of a large (greater than 1m²) noticeboard on the site that clearly identifies the name, telephone number and address for service of the site manager, including cell-phone and after-hours contact details;
    c. A communication and complaints procedure for adjoining property owners/occupiers, passers-by and the like;
    d. safety fencing and associated signage for the construction site;
    e. Details of the locations of any temporary construction hoardings to be erected;
    f. Specific consideration for loading areas, truck waiting areas and access to the site;
    g. Details of methods to mitigate vibration effects beyond the property boundary;
    h. A traffic management diagram showing the physical layout of any proposed traffic management procedures;
    i. Earthworks management, including:

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i. Confirmation of final earthworks specifications;
ii. Earthworks methodology and sequencing, including any temporary and permanent methods for stabilising areas of cut and fill;
iii. An illustrated plan that records the key features of the earthworks management procedures;
iv. A description of the broad approaches to be used to prevent erosion, and minimise problems with dust and water-borne sediment;
v. Measures to limit the area of earthworks exposed to the weather at any one time (sources of dust and sediment);
vi. Measures to ensure dirt, mud or debris or other materials are not left on the road;
vii. Measures to control dust, silt and sediment and to minimise the associated nuisance effects of earthworks (including in relation to the Council's stormwater system);
viii. The type and location of silt fences to control water-borne sediment; and

j. The covering of soil and other material to trucked on or off the site;
k. Specific consideration for the potential for cumulative effects occurring as a result from other construction work in the area and how these can be mitigated.
l. Nomination of a site person responsible for the implementation and administration of the CMP.

Note: Compliance with Conditions 9 & 10 does not nullify the requirement to apply for a Corridor Access Request (CAR) from Hutt City Council's roading and traffic department should works or machinery obstruct the legal road or pedestrian footpath at any point during works.

11. Prior to earthworks commencing and after demolition of the existing building, an adequate Detailed Site Investigation (DSI) must be submitted to and certified by the Council's Compliance Monitoring Officer (the CMO). The DSI must be:
    a. Carried out in accordance with the Ministry for the Environment's (MfE) Contaminated Land Guidelines No.5 (CLMG 5).
    b. Prepared by suitably qualified and experienced practitioner in general accordance with MfE Contaminated Land Guideline No. 1 (CLMG 1).

12. If the DSI confirms a risk to human health, a remediation action plan (RAP) and contaminated land management plan (CLMP) must be prepared by a suitably qualified and experienced practitioner and certified by the CMO prior to earthworks commencing.

13 Soil disturbance works must be undertaken in accordance with the approved RAP or CLMP.

14. Once soil disturbance works commence, if unexpected soil conditions, such as staining, odorous material or evidence of potentially asbestos containing materials, are encountered; work in that area must cease and the CMO must be notified immediately.

15. If remedial works are required, a Site Validation Report must be prepared in general accordance with MfE CLMG No. 1 and must be provided to the CMO within 3 months of completion of the soil disturbance activities. The Site Validation Report must include the following:

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a. The location and dimensions of the excavations carried out, including a relevant site plan.
b. Records of any unexpected contamination encountered during the works.
c. Soil validation results, if applicable (i.e. if remediation is carried out or unexpected contamination is encountered).
d. Copies of the disposal dockets for the material removed from the site and any clean fill imported onto the site.
e. Specify the requirements for ongoing monitoring and management (if required).

The report must also comment on the site's suitability for the intended residential use

Note: Conditions 10 – 15 were proffered by the applicant.

16. That the consent holder arranges for a final inspection of the site, to determine reasonable compliance with the above land use conditions, prior to the occupation of dwellings onsite.

    Note: This condition is required to enable Council officers to access throughout the site with the express permission of the consent holder, to avoid the need to obtain permission to access each property from individual dwelling owners/occupiers.

17. That the consent holder ensures that rubbish storage areas are regularly maintained to manage visual amenity and odour effects and to avoid vermin being attracted to these areas.

    Note: This condition is required to manage amenity effects related to rubbish storage areas.

Processing Planner:

Peter McDonald
Senior Resource Consents Planner

Peer reviewer:

Stephen Dennis
Principal Resource Consents Planner

Application lodged: 5 September 2021

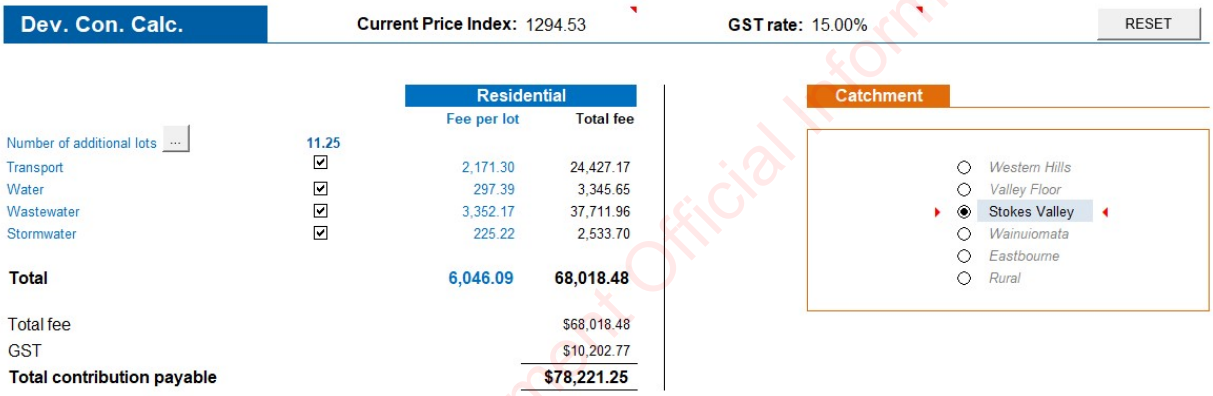
released under the Local Government Official Information and Meetings Act

Application approved: 6 April 2022
No of working days taken to process the application: 63

Note: Assessment timeframes were extended by 20 working days in accordance with S37A(4)(b)(i). The high volume of applications and resourcing constraints are cited as special circumstances.

8. NOTES:

- The subdivision resource consent is subject to payment of a development contribution fee. Payment of this fee is required before receiving section 224(c) certification. Two-bedroom dwellings are considered a small residential unit in accordance with Council policy, whereby development contributions are levied at a rate of 0.75 Equivalent Household Units (EHU). A credit of 2 EHUs was applied for the two existing titles (8 * 1.0 EHU + 7 * 0.75 EHU, less 2 EHUs = 11.25 EHUs). The total payable charge is **$78,221.25.**



- In accordance with section 357 of the Resource Management Act 1991, the consent holder is able to object to the conditions of the consent. The consent holder must submit reasons in writing to Council within 15 working days of the date of this decision.

- In accordance with section 120 of the Resource Management Act 1991, the applicant and consent holder on the application or review of consent conditions may appeal to the Environment Court against the whole or any part of this decision by the consent authority.

- The consent lapses, in accordance with section 125 of the Resource Management Act 1991, if the proposal is not given effect to within five years, that is, by 6 April 2027.

- The consent applies to the application as approved by Council. The consent holder should notify Council if there are changes to any part of the plans. Council may require that the consent holder submits a new resource consent application.

- The proposal has been assessed against the requirements of the city's District Plan. Bylaws may apply to the proposal that may require separate approval from Council before starting any site works. See huttcity.govt.nz for a full list of bylaws.

- The proposal has not been checked for compliance with the Building Act 2004. No associated building work should start without first getting a building consent.

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- The consent is not a licence to create adverse effects such as unwarranted dust, noise or disruption. It does not change the legal duty to avoid, remedy or minimise such effects. Council may enforce the provisions of the Resource Management Act 1991 if the consent holder fails to meet this obligation.

- Failure to comply with an abatement notice may result in Council imposing an infringement fine or initiating prosecution.

- Advice note from Heritage New Zealand: The property has, or is likely to have been occupied prior to 1900. Any disturbance of land or damage or destruction of any building or structure associated with human activity prior to 1900, may require an archaeological authority from Heritage New Zealand under the Heritage New Zealand Pouhere Taonga Act 2014. Please contact Heritage New Zealand for further information.

- Before commencement of any work within the legal road corridor, including the laying of services, application is to be made for a Corridor Access Request (CAR). A CAR request can be made through contacting BeforeUdig either on their website: beforeudig.co.nz or 0800 248 344. Work must not proceed within the road reserve until the CAR has been approved, including the approved traffic management plan if required.

- Constructing, modifying or repairing a vehicle crossing requires separate Council approval, in addition to the approved resource consent. The vehicle crossing is to be constructed in accordance with Council's standards and codes. For more information contact the Transport Division via (04) 570 6881 or click the following link: huttcity.govt.nz/Services/Roads-and-parking/Vehicle-crossings/

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