APPENDIX L - Statutory Assessment

Queen Street Wastewater Diversion Project – Part 3 Part 4 Connector

Project number:	W-SL001.00
Document Title:	Appendix L – Statutory Assessment, Queen Street Wastewater Diversion Project – Part 3 Part 4 Connector Tunnel
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The following provides an assessment of the project works in relation to the following matters from the Auckland Unitary Plan:

- Objectives and Policies of the Regional Policy Statement
- Non-RPS Objectives and Policies
- Standards
- Assessment Criteria

A summary of the assessment is provided within Section 12 of the AEE.

Regional Policy Statement

The following is an assessment of the project works against the relevant provisions of the Regional Policy Statement.

Regional Policy Statement - Auckland Unitary Plan Chapter B		
Provision		Response/ comment
B2.2 Urban Growth and Form		
B2.2.1 Objectives		
(1)	A quality compact urban form that enables all of the following: a) higher-quality urban environment; b) greater productivity and economic growth; c) better use of existing infrastructure and efficient provision of new infrastructure; d) improved and more effective public transport; e) greater social and cultural vitality; f) better maintenance of rural character and rural productivity; and g) reduced adverse environmental effects.	The installation of a new wastewater pipeline in the city centre will reduce adverse effects from the stormwater system, which is currently impacted by overflows of the wastewater network. At present, these wastewater overflows can disturb the City Centre with odour and exposure to contaminants. These works will resolve these overflows and create a higher-quality urban environment.
(5)	The development of land within the Rural Urban Boundary, towns, and rural and coastal towns and villages is integrated with the provision of appropriate infrastructure.	
B2.2.2 Policies		
(5)	Quality compact urban form Enable higher residential intensification: (a) in and around centres; (b) close to public transport, social facilities and employment opportunities	Increasing wastewater capacity will provide the necessary infrastructure to support urban population growth. Located in the heart of Auckland's City Centre, this project will enable a greater population of people to live and work around Queen Street and adjacent areas.
B3.2 Infrastructure		

B3.2.1 Objectives		
(1)	Infrastructure is resilient, efficient and effective.	The purpose of this project is to construct a new wastewater alignment to improve the resilience of the wastewater network. In achieving this result, a carefully developed construction methodology has been selected to minimise adverse effects to the environment.
(3)	Development, operation, maintenance, and upgrading of infrastructure is enabled, while managing adverse effects on: a. the quality of the environment and, in particular, natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character; b. the health and safety of communities and amenity values.	
(4)	The functional and operational needs of infrastructure are recognised.	
(8)	The adverse effects of infrastructure are avoided, remedied or mitigated.	
B3.2.2 Policies		
(1)	Provision of infrastructure Enable the efficient development, operation, maintenance and upgrading of infrastructure.	A trenchless construction methodology has been specifically chosen for its lesser impact on the streetscape and adjacent properties compared to trenching methods.
(3)	Provide for the locational requirements of infrastructure by recognising that it can have a functional or operational need to be located in areas with natural and physical resources that have been scheduled in the Unitary Plan in relation to natural heritage, Mana Whenua, natural resources, coastal environment, historic heritage and special character.	
(7)	Managing adverse effects Encourage the co-location of infrastructure and the shared use of existing infrastructure corridors where this is safe and satisfies operational and technical requirements.	
(8)	Avoid, remedy or mitigate the adverse effects from the construction, operation, maintenance or repair of infrastructure.	

AUP Objectives and Policies (non-RPS)

The following provides an assessment of the project works against the relevant objectives and policies of the AUP. The relevant objectives and policies of the following chapters of the AUP have been considered

- E25 Noise and Vibration
- E36 Natural Hazards and Flooding

AUP Objectives and Policies		
Provision		Response
E1 Water quality and Integrated management		
Note: Activities listed in Chapter E7 relate to the objectives and policies listed in Chapters E1 and E2. The objectives and policies relating to wastewater management have been included below.		
E1.2 Objectives		
(3)	Stormwater and wastewater networks are managed to protect public health and safety and to prevent or minimise adverse effects of	Installation of this wastewater pipeline will protect public health and safety by reducing the current occurrence of overflows into the stormwater network.

	contaminants on freshwater and coastal water quality.	Without this upgrade, current overflows may potentially harm freshwater and coastal water eco-systems.
E1.3 Policies		
(19)	Wastewater network overflow discharges Ensure wastewater networks are designed and operated to minimise wet weather overflows by: a) requiring wastewater networks to be designed and constructed in accordance with recognised industry standards, including being sized to cater for the maximum probable development level of the area to be serviced; b) requiring the management of connections to the wastewater network; c) requiring wastewater networks to be managed in accordance with a network operations plan including an overflow mitigation plan with clear requirements and timeframes; and d) designing and locating overflow points to minimise nuisance, damage, public health risk and adverse ecological effects.	In upgrading the capacity of Auckland City Centre's wastewater network, the Project's purpose is to minimise wastewater overflows into the stormwater network in wet weather events. As such, the existing nuisance, public health risk and ecological effects will be reduced.
E25 Noise and vibration		
E25.2 Objectives		
(1)	People are protected from unreasonable levels of noise and vibration.	A comprehensive management plan for construction noise and vibration is included within Appendix I of the application, and updated in Attachment E of the s92 Response. This plan details physical and managerial mitigation measures to be implemented in order to protect people from unreasonable levels of noise, including: • equipment selection prioritising quieter technologies. • Early consultation with properties who may receive a noise exceedance • adoption of physical barriers and noise enclosures. • shutting off equipment when not in use. • periodic assessment of machinery.
(3)	Existing and authorised activities and infrastructure, which by their nature produce high levels of noise, are appropriately protected from reverse sensitivity effects where it is reasonable to do so.	
(4)	Construction activities that cannot meet noise and vibration standards are enabled while controlling duration, frequency, and timing to manage adverse effects.	
E25.3 Policies		
(1)	Set appropriate noise and vibration standards to reflect each zone's function and permitted activities, while ensuring that the potential adverse effects of noise and vibration are avoided, remedied or mitigated.	Noise will be kept to the minimum possible level using the best practicable option for construction to take place. As this upgrade of wastewater infrastructure is needed to serve the growing population in the City Centre, it is essential for construction activities to occur in this location. Hence, the project is not inconsistent these policies.
(2)	Minimise, where practicable, noise and vibration at its source or on the site from which it is generated to mitigate adverse effects on adjacent sites.	

(10)	Construction, demolition and maintenance activities Avoid, remedy or mitigate the adverse effects of noise and vibration from construction, maintenance and demolition activities while having regard to: (a) the sensitivity of the receiving environment; and (b) the proposed duration and hours of operation of the activity; and (c) the practicability of complying with permitted noise and vibration standards.	
E36 Natural Hazards and Flooding		
E36.2 Objectives		
(1)	N/A	
(2)	Subdivision, use and development, including redevelopment in urban areas, only occurs where the risks of adverse effects from natural hazards to people, buildings, infrastructure and the environment are not increased overall and where practicable are reduced, taking into account the likely long term effects of climate change.	The infrastructure works within the floodplain at the Greys Avenue Carpark are temporary in nature and will have no permanent impact on stormwater flows. Any flooding risks associated with the works locating in this area will be mitigated through the measures outline in the ESCP.
(3)	N/A	
(4)	Where infrastructure has a functional or operational need to locate in a natural hazard area, the risk of adverse effects to other people, property, and the environment shall be assessed and significant adverse effects are sought first to be avoided or, if avoidance is not able to be totally achieved, the residual effects are otherwise mitigated to the extent practicable.	The temporary shaft is located outside of the main overflow channel. The site of the P3-P4 Connector tunnel and shaft is the most appropriate location for this infrastructure to be located on the wastewater diversion alignment. As such, locating these works within a floodplain is unavoidable and any adverse effects have been appropriately mitigated through the establishment of clean and dirty water corridors on site to maintain the conveyance of the floodplain and OFP.
(5)	Subdivision, use and development including redevelopment, is managed to safely maintain the conveyance function of floodplains and overland flow paths.	
(6)	Where appropriate, natural features and buffers are used in preference to hard protection structures to manage natural hazards.	As the works are taking place in a carpark in a heavily urbanised environment, hot mix asphalt bunds are appropriate for the situational environment.
E36.3 Policies		
(1-14)	N/A	
(15-20)	1. Ensure all development in the 1 per cent annual exceedance probability (AEP) floodplain does not increase adverse effects from flood hazards or increased flood depths and velocities, to other properties upstream or downstream of the site.	Once installed, the P3P4 Connector tunnel will be completely underground and therefore have no permanent consequence on the flow of stormwater and existing flooding hazard. Any hazardous substances required at the Greys Avenue CSA site will be stored outside of the floodplain. Comprehensive mitigation of flooding effects has been provided in the ESCP in Appendix H. In addition to clean and dirty water corridors, these measures include additional freeboard at the downslope of bunds, catchpit protection devices and stabilisation of access points. The controls listed above will be maintained and monitored at regularly scheduled intervals to ensure any damage is immediately remediated. Clean water diversions will maintain the function if the overland flow path by creating a 5 metre wide corridor. Once installation is complete, the connector will have
(21)	Require the storage and containment of hazardous substances in floodplains so that the integrity of the storage method will not be compromised in a flood event.Ensure all development in the 1 per cent annual exceedance probability (AEP) floodplain does not increase adverse effects from flood hazards or increased flood depths and velocities, to other properties upstream or downstream of the site.	
(22)	Provide for flood mitigation measures which reduce flood-related effects and provide for the reconstruction of culverts and bridges where	

	those measures do not create or exacerbate flooding upstream or downstream or otherwise increase flood hazards.Require the storage and containment of hazardous substances in floodplains so that the integrity of the storage method will not be compromised in a flood event.	no lasting effect on the flow of the OFP as it will be underground. Stormwater will be able to flow safely without interruption.
(23)	N/AProvide for flood mitigation measures which reduce flood-related effects and provide for the reconstruction of culverts and bridges where those measures do not create or exacerbate flooding upstream or downstream or otherwise increase flood hazards.	
(24-26)	Enable the construction and maintenance of flood mitigation works to reduce flood risks to people, property, infrastructure and the environment.	
(27)	N/AEnable the construction and maintenance of flood mitigation works to reduce flood risks to people, property, infrastructure and the environment.	
(28)	Maintain the function of overland flow paths to convey stormwater runoff safely from a site to the receiving environment.	
(29)	Require changes to overland flow paths to retain their capacity to pass stormwater flows safely without causing damage to property or the environment.Maintain the function of overland flow paths to convey stormwater runoff safely from a site to the receiving environment.	
(30)	Require changes to overland flow paths to retain their capacity to pass stormwater flows safely without causing damage to property or the environment.	

AUP Standards

The following table provides an assessment of the proposed works against the relevant standards of the AUP. For the avoidance of confusion, standards relating to the permitted activities have been detailed in Appendix E. Please note that not all activity rules have applicable standards for consideration against.

AUP Activity Standards		
Standards		Response
Note: No standards apply for restricted discretionary activities under Chapter E36.		
Activity Rule E25.4.1 (A2): Restricted discretionary Activities that do not comply with the permitted standards for noise and vibration		
E25.6.1. General standards		
(1)	Noise levels arising from activities must be measured and assessed in accordance with the New Zealand Standard NZS 6801:2008 Measurement of environmental sound and the New Zealand Standard NZS 6802:2008 Acoustics - Environmental noise except where more specific requirements apply.	N/A
(2)	The application of an adjustment for noise containing special audible characteristics in terms of Appendix B4 Special Audible Characteristics in New Zealand Standard NZS 6802:2008 Acoustics – Environmental noise may apply to the A weighted level for any measurement but an	N/A

<table>
<tr><td></td><td>adjustment must not be applied to any level measured in the 63Hz and 125Hz octave bands.</td><td></td></tr>
<tr><td>(3)</td><td>The noise from any construction work activity must be measured and assessed in accordance with the requirements of New Zealand Standard NZS6803:1999 Acoustics – Construction noise. Construction work is defined in New Zealand Standard NZS6803:1999 Acoustics – Construction noise.</td><td>As per Appendix G1, construction noise levels have been measured in accordance with NZS6803:1999.</td></tr>
<tr><td>(4)</td><td>The noise limits of the Plan do not apply to emergency service sirens and callout sirens during emergency situations.</td><td rowspan="3">N/A</td></tr>
<tr><td>(5)</td><td>Where more than one standard applies that requires insulation of a noise sensitive space from an external noise source, the standards must be applied cumulatively.</td></tr>
<tr><td>(6)</td><td>Where standards are provided for specific activities, the zone interface standards and the zone standards do not apply to that activity.</td></tr>
<tr><td colspan="3">E25.6.28 Construction noise levels in the Business – City Centre Zone and the Business – Metropolitan Centre Zone</td></tr>
<tr><td>(1)</td><td>Construction activities in the Business – City Centre Zone and the Business – Metropolitan Centre Zone must comply with Standard E25.6.27(1) above for any receiver not in a Business – City Centre Zone or a Business – Metropolitan Centre Zone and must not exceed the levels in Table E25.6.28.1 Construction noise levels for construction less than 15 consecutive calendar days duration in the Business – City Centre Zone and the Business – Metropolitan Centre Zone and Table E25.6.28.2 Construction noise levels for construction of 15 consecutive calendar days or more duration in the Business – City Centre Zone and the Business – Metropolitan Centre Zone when measured for any 30 minute period 1m from the façade of any building in the Business – City Centre Zone or the Business – Metropolitan Centre Zone that is occupied during the work.
Table E25.6.28.1 Construction noise levels for construction less than 15 consecutive calendar days duration in the Business – City Centre Zone and the Business – Metropolitan Centre Zone
<table><tr><th colspan="3">Construction of less than 15 consecutive calendar days duration (total duration of works)</th></tr><tr><th>Time</th><th>$L_{Aeq(30\ min)}$</th><th>L_{AFmax}</th></tr><tr><td>Monday to Friday 6.30am - 10.30pm</td><td>80 dB</td><td>90 dB</td></tr><tr><td>Saturday 7am - 11pm</td><td>85 dB</td><td>90 dB</td></tr><tr><td>Sunday 9am - 7pm</td><td>80 dB</td><td>90 dB</td></tr><tr><td>All other times (night time)</td><td>60 dB</td><td>75 dB</td></tr><tr><td>All other times in the City Centre Residential Precinct and the Learning Precinct</td><td>55 dB</td><td>75 dB</td></tr></table>
Table E25.6.28.2 Construction noise levels for construction of 15 consecutive calendar days or more duration in the Business – City Centre Zone and the Business – Metropolitan Centre Zone
<table><tr><th colspan="3">Construction of 15 consecutive calendar days or more (total duration of works)</th></tr><tr><th>Time</th><th>$L_{Aeq(30\ min)}$</th><th>L_{AFmax}</th></tr><tr><td>Monday to Friday 6.30am-10.30pm</td><td>75 dB</td><td>90 dB</td></tr><tr><td>Saturday 7am-11pm</td><td>80 dB</td><td>90 dB</td></tr><tr><td>Sunday 9am-7pm</td><td>65 dB</td><td>85 dB</td></tr><tr><td>All other times (night time)</td><td>60 dB</td><td>75 dB</td></tr><tr><td>All other times in the City Centre Residential Precinct and the Learning Precinct</td><td>55 dB</td><td>75dB</td></tr></table>
Where external measurement of construction noise is impractical or inappropriate, the upper limits for the noise measured inside the building will be 20dB less than the relevant levels in Table E25.6.28.1 Construction noise levels for construction less than 15 consecutive calendar days duration in the Business – City Centre Zone and the Business – Metropolitan Centre Zone and Table E25.6.28.2 Construction noise levels for construction of 15 consecutive calendar days or more duration in the Business – City Centre Zone and the Business – Metropolitan Centre Zone above.</td><td>As per the updated CNVA in Attachment E of the s92 response, two properties in the Business – City Centre Zone receive a level of noise exceeding the AUP limits in Table E25.6.28.1. Although a noise exceedance is recorded at these properties, these will be reasonable and are not deemed to determine the property be an affected party under the RMA.</td></tr>
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AUP Assessment Criteria

The following is an assessment of the applicable activities against the assessment criteria provided within the AUP.

AUP Restricted Discretionary Activity Assessment Criteria		
Activity Rule E25.4.1 (A2): Restricted discretionary Activities that do not comply with the permitted standards for noise and vibration		
(1)	For noise and vibration: (a) whether activities can be managed so that they do not generate unreasonable noise and vibration levels on adjacent land uses particularly activities sensitive to noise; (b) the extent to which the noise or vibration generated by the activity: (i) will occur at times when disturbance to sleep can be avoided or minimised; and (ii) will be compatible with activities occurring or allowed to occur in the surrounding area; and (iii) will be limited in duration, or frequency or by hours of operation; and (iv) will exceed the existing background noise and vibration levels in that environment and the reasonableness of the cumulative levels; and (v) can be carried out during daylight hours, such as road works and works on public footpaths. (c) the extent to which the effects on amenity generated by vibration from construction activity: (i) will be mitigated by written advice of the activity to adjacent land uses prior to the activity commencing; and (ii) can be mitigated by monitoring of structures to determine risk of damage to reduce occupant concern; and (iii) can be shown to have been minimised by the appropriate assessment of alternative options; and (iv) are reasonable taking into account the level of vibration and the duration of the activity (where levels of 10mm/s peak particle velocity may be tolerated only for very brief periods). (d) whether the measures to minimise the noise or vibration generated by the activity represent the best practicable option.	While 323-327 and 329 Queen Street are both predicted to receive noise levels in exceedance of AUP limits, physical and managerial mitigation measures will mitigate this exceedance to an acceptable level. The CNVMP outlines how the properties will be notified of the potential noise and vibration exceedance and given a direct line of contact to the project team. Site hoardings will be used on site to reduce the impact of noisy equipment.
(2)-(3)	N/A	
(4)	For noise in the Business – City Centre Zone, Business – Metropolitan Centre Zone, Business – Town Centre Zone, Business – Local Centre Zone, Business – Neighbourhood Centre Zone or the Business – Mixed Use Zone: (a) in addition to the assessment criteria in E25.8.2(1) above, all of the following will be considered: (i) the background noise at the affected receivers and the extent to which this is proposed to be exceeded; (ii) the level of existing sound insulation (where that information is available) and ventilation options for affected receivers existing as at the date of notification of the Plan; and (iii) the frequency and duration of the exceedance.	
(5)	N/A	
Rule E36.4.1 (A56): Restricted Discretionary All other infrastructure in areas listed in the heading above (1 per cent AEP floodplain) not otherwise provided for		
(17)	for operation, maintenance, renewal, repair and minor infrastructure upgrading of infrastructure in the coastal erosion hazard area; or in the coastal storm inundation 1 per cent annual exceedance probability (AEP) area; or in the coastal storm	Provided the existing ground levels are maintained and the manhole construction does not alter the surface contours, there should be no adverse effects resulting in the hazards spreading to more people, property and environments.

	inundation 1 per cent annual exceedance probability (AEP) plus 1m sea level rise area; or in the 1 per cent annual exceedance probability (AEP) floodplain; or in overland flow paths; or on land which may be subject to land instability: (a) the long-term management, maintenance and monitoring of any mechanisms associated with managing the risk of adverse effects resulting from the placement of infrastructure within a hazard area to other people, property and the environment including the management of hazardous substances; (b) the extent to which residual risks to people, property and the environment resulting from any mitigation measures implemented to manage the hazard (c) the extent to which an existing hazard is exacerbated or a new hazard is created as a result of the structure (d) the extent to which the proposal includes non-structural solutions to protect infrastructure from the hazard and resulting adverse effects; and (e) the extent to which landscape values and/ or public access are affected by the proposed structure or structures associated with the mitigation of the hazard	Proposed diversion bunds and the constructed flow corridor are not expected to divert flows anywhere which will cause residual risks for people, property or the environment. as a result of the works. The existing flood hazards relating to the flood plain and overland flow path will not be exacerbated by the works, as the temporary shaft is not within the constructed flow corridor and the permanent manhole following the works will exist entirely underground. The proposal does not include implementation of non-structural solutions to protect surrounding infrastructure. All permanent infrastructure proposed in the works is expected to be underground. The proposed infrastructure does not permanently affect access or landscape aspects provided that the original ground levels are restored.