APPENDIX K - Statutory Assessment

Queen Street Wastewater Diversion Project – Part 3 – Part 6 Link project

Project number:	W-SL001.04
Document Title:	Appendix K – Statutory Assessment, Queen Street Wastewater Diversion Programme; Part 3 – Part 6 Link Project
Date:	17 December 2024
Version:	V2.2

The following provides an assessment of the project works in relation to the following matters from the Auckland Unitary Plan (AUP):

- Objectives and Policies of the Regional Policy Statement
- Non-RPS Objectives and Policies
- AUP Standards Assessment
- 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;	The installation of a new wastewater pipeline in the city centre will reduce adverse effects of overflows from the wastewater network on the stormwater system. Wastewater overflows have the potential to affect the City Centre by

	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.	exposing it to harmful contaminants. These works will resolve these overflows and create a higher-quality urban environment. The project will also make use of existing infrastructure (Orakei Main Sewer) while enabling urban growth within the City Centre, which will support investment into the public transport network from the nearby City Rail Link.
(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 within the city centre 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, which have excellent access to the public transport network and employment opportunities.
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 pipeline to improve the resilience of the wastewater network. 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		
	Provision of infrastructure	

(1) (3)	Enable the efficient development, operation, maintenance and upgrading of infrastructure. 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.	A trenchless tunnelling methodology has been specifically chosen for its lesser impact on the streetscape and adjacent properties, while the construction shaft will be constructed using secant piling, which reduces dewatering effects. Due to the alignment of the previously approved Part 3 consent, there is a functional need to connect the Part 3 – Part 6 Link alignment to the Mayoral Shaft.
(7) (8)	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. 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

- E7 Taking, using, damming and diversion of water and drilling
- E26 Infrastructure

AUP Objectives and Policies		
Provision		Response
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 Water quality and Integrated management		
E1.2 Objectives		
(3)	Stormwater and wastewater networks are managed to protect public health and safety and to prevent or minimise adverse effects of contaminants on freshwater and coastal water quality.	Installation of this wastewater pipeline will protect public health and safety by reducing the current occurrence of overflows into the stormwater network.

		Without this upgrade, current overflows may potentially harm coastal water ecosystems.
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 and resilience 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.
E2 Water Allocation and Use (Activities in Chapter E7 refer to the policies of E2)		
E2.2 Objectives		
(1)	Water in surface rivers and groundwater aquifers is available for use provided the natural values of water are maintained and established limits are not exceeded.	The P3-P6 Link will support the wider Queen Street Wastewater Diversion programme of works to increase the capacity of the City Centre's wastewater network. Hence this proposal is not contrary to the objectives and Policies of Chapter E2 relating to water allocation and use. As described in the AEE, dewatering will be required as part of shaft construction works. The method for construction is trenchless tunnelling via a pilot boring machine. This is a water efficient method of pipe laying as it requires less excavation and reduces the amount of water take from dewatering. The construction of Marmion Shaft will utilise secant piling, which will also result in less dewatering compared to other methods (such as post and panel).
(2)	Water resources are managed within limits to meet current and future water needs for social, cultural and economic purposes.	
(3)	N/A	
(4)	Water resources are managed to maximise the efficient allocation and efficient use of available water.	
(5)	Mana Whenua values including the mauri of water, are acknowledged in the allocation and use of water.	
E2.3 Policies		

(7)	Require all proposals to take and use groundwater from any aquifer to demonstrate that: a) the taking is within the water availabilities and levels for the aquifer in Table 1 Aquifer water availabilities and Table 2 Interim aquifer groundwater levels in Appendix 3 Aquifer water availabilities and levels, except in accordance with Policy E2.3(11), and meeting all of the following: i. recharge to other aquifers is maintained; and ii. aquifer consolidation and surface subsidence is avoided. b) the taking will avoid, remedy or mitigate adverse effects on surface water flows, including the following: base flow of rivers, streams and springs; and iii. any river or stream flow requirements and in particular the minimum stream flow and availability in Appendix 2 River and stream minimum flow and availability. c) the taking will avoid, remedy or mitigate adverse effects on terrestrial and freshwater ecosystem habitat; d) the taking will not cause saltwater intrusion or any other contamination; e) the taking will not cause adverse interference effects on neighbouring bores to the extent their owners are prevented from exercising their lawfully established water takes; f) Policy E2.3(7)(e) above will not apply in the following circumstances: i. where it is practicably possible to locate the pump intake at a greater depth within the affected bore; or ii. where it can be demonstrated that the affected bore accesses, or could access, groundwater at a deeper level within the same aquifer, if drilled or cased to a greater depth. g) the proposed bore is capable of extracting the quantity of groundwater applied for; and h) the proposal avoids, remedies or mitigates any ground settlement that may cause distress, including reducing the ability of an existing	An assessment of groundwater drawdown effects has been undertaken (Appendix D.1), which considers effects on neighbouring bores, nearby environmental features (streams and other surface water bodies) and saline intrusion. Overall, it is considered that the proposed take of groundwater during construction will have a negligible effect on these matters. Settlement effects on neighbouring buildings and structures are also assessed as negligible, and monitoring during construction is proposed to ensure no unexpected effects occur.

	building or structure to meet the relevant requirements of the Building Act 2004 or the New Zealand Building Code, to any existing:	
(23)	Diversion of Groundwater Require proposals to divert groundwater, in addition to the matters addressed in Policy E2.3 (6) and (7) above, to ensure that: (b) the proposal avoids, remedies or mitigates any adverse effects on: i. scheduled historic heritage places and scheduled sites and places of significance to Mana Whenua; and ii. people and communities. (c) the groundwater diversion does not cause or exacerbate any flooding; (d) monitoring has been incorporated where appropriate, including: i. measurement and recording of water levels and pressures; and ii. measurement and recording of the movement of ground, buildings and other structures. (e) mitigation has been incorporated where appropriate including: i. minimising the period where the excavation is open/unsealed; ii. use of low permeability perimeter walls and floors; iii. use of temporary and permanent systems to retain the excavation; or iv. re-injection of water to maintain groundwater pressures.	The Dewatering Assessment **(Appendix D.1)** demonstrates that no buildings within proximity to Marmion Shaft are within the historic heritage overlay and therefore, these are not considered sensitive to settlement. Watercare has a long-standing relationship with tangata whenua of Tāmaki Makarau and the draft report for the proposed works has been circulated to mana whenua partners. There are no flooding hazards present within the site, therefore the groundwater diversion during construction is not expected to cause or exacerbate any flooding. As outlined in the ESCP (**Appendix G**), water will be contained within the construction site and clean water will be diverted around the site. This mitigation will prevent wet weather flows from entering nearby buildings and properties.
E26 Infrastructure		
E26.2.1 Objectives		
(1)	The benefits of infrastructure are recognised.	The proposed works will protect public health and safety and reduce adverse ecological effects by reducing potential wastewater overflows from the wastewater network, while providing additional capacity to serve future land development with Auckland's City Centre.
(2)	The value of investment in infrastructure is recognised.	
(3)	Safe, efficient and secure infrastructure is enabled, to service the needs of existing and authorised proposed subdivision, use and development.	
(4)	Development, operation, maintenance, repair, replacement, renewal, upgrading and removal of infrastructure is enabled.	

(5)	The resilience of infrastructure is improved and continuity of service is enabled.	The proposed works enable Watercare to provide for the safe and efficient collection, and conveyance of wastewater which is key to supporting the existing and future well-being of the residents of Auckland.
(6)	Infrastructure is appropriately protected from incompatible subdivision, use and development, and reverse sensitivity effects.	
(9)	The adverse effects of infrastructure are avoided, remedied or mitigated.	
E26.2.2 Policies		
(1)	Recognise the social, economic, cultural and environmental benefits that infrastructure provides, including: a) enabling enhancement of the quality of life and standard of living for people and communities; b) providing for public health and safety; c) enabling the functioning of businesses; d) enabling economic growth; e) enabling growth and development; f) protecting and enhancing the environment; g) enabling the transportation of freight, goods, people; and h) enabling interaction and communication.	The Project will increase the capacity and resilience of the wastewater system in the upper City Centre catchment and allow for increased development capacity in the area, as enabled by Plan Change 78 and the impending opening of the City Rail Link. This growth may be restricted without the investment of the Queen Street Wastewater Diversion programme. The proposed wastewater upgrades will therefore enable people and communities to provide for their social, economic and cultural well-being and for their health and safety. The project site is within the road reserve of a highly developed and modified urban area. The construction methodology has taken into consideration the timing of the works and the need to also undertake network utility relocations to reduce disruption from the works as much as practicable. Existing utilities will be diverted prior to construction commencing. The project site is not within any scheduled AUP overlays and therefore there are no specified values that are required to be avoided or mitigated.
(2)	Provide for the development, operation, maintenance, repair, upgrade and removal of infrastructure throughout Auckland by recognising: a) functional and operational needs; b) location, route and design needs and constraints; c) the complexity and interconnectedness of infrastructure services; d) the benefits of infrastructure to communities within Auckland and beyond; e) the need to quickly restore disrupted services; and f) its role in servicing existing, consented and planned development.	
(4)	Adverse effects of infrastructure Require the development, operation, maintenance, repair, upgrading and removal of infrastructure to avoid, remedy or mitigate adverse effects, including, on the: a) health, well-being and safety of people and communities, including nuisance from noise, vibration, dust and odour emissions and light spill;	

	b) safe and efficient operation of other infrastructure; c) amenity values of the streetscape and adjoining properties; d) environment from temporary and ongoing discharges; and e) values for which a site has been scheduled or incorporated in an overlay.	
(5)	Consider the following matters when assessing the effects of infrastructure: a) the degree to which the environment has already been modified; b) the nature, duration, timing and frequency of the adverse effects; c) the impact on the network and levels of service if the work is not undertaken; d) the need for the infrastructure in the context of the wider network; and e) the benefits provided by the infrastructure to the communities within Auckland and beyond.	
(8)	Encourage new linear infrastructure to be located in roads, and where practicable within the road reserve adjacent to the carriage way.	

AUP Standards

The following table provides an assessment of the proposed works against the relevant permitted activity and restricted discretionary standards of the AUP.

Permitted Activity Standards

Auckland Unitary Plan - Permitted Activities		
Activity	Standards	Comment
E25.4.1 (A1) Construction Noise and Vibration in the Road Reserve.	**E25.6.29 Construction noise and vibration levels for work within the road** (3) The noise levels specified in Standard E25.6.29(1) above do not apply to unplanned repair or maintenance works or planned works in the road corridor between the hours of 7am and 10pm where:	As assessed in the Construction Noise and Vibration Assessment in **Appendix I**, shaft construction works will occur within the road reserve, while tunnelling will occur entirely below ground. Due to the nature of the construction works, it is not possible to achieve full compliance with the typical required noise limits for the City Centre zone.

	(b) because of the nature of the works and the proximity of receivers the noise generated cannot be practicably made to comply with the relevant noise levels of the following tables: (i) Table E26.6.27.1 Construction noise limits for activities sensitive to noise in all zones except the Business - City Centre Zone and the Business – Metropolitan Centre Zone; (ii)Table E25.6.27.2 Construction noise levels for noise affecting any other activity; or (iii)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; or (iv)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; or (c) for planned works, a copy of the works access permit issued by Auckland Transport or approval from the New Zealand Transport Agency is provided to the Council five days prior to work commencing; or (d) for planned works where the works will take more than 8 hours to complete a construction noise and vibration management plan is provided to the Council no less than five days prior to the works commencing in accordance with the applicable provisions of Standard E25.6.29(5) below (4A) The vibration levels specified in E25.6.29(1A)(b) do not apply to works within the road where: (b) a construction noise and vibration management plan is provided to the Council no less than five days prior to the works commencing in accordance with the applicable provisions of Standard E25.6.29.(5) below. (5) construction noise and vibration management plan must be prepared by a suitably qualified and experienced person and include the following: (a) details of the community consultation to be undertaken to advise the occupiers of properties located within 100m of the proposed works of all of the following: (i) the area affected by the work; (ii) why the work is required to be undertaken at night (where relevant);	As per the AUP standards, a Construction Noise and Vibration Management Plan is submitted alongside this application. Council will be notified of the works beginning more than five days prior to their start. While night works are not currently planned, if they are required, they will be addressed in an updated CNVMP, to be certified by Council.

	(iii) the times and days when the noise and vibration is likely to be generated; (iv) a contact name and number of the works supervisor who can be contacted if any issues arise and (v) how noise and vibration complaints will be managed and responded to; (b) a description of the works and its duration, anticipated equipment to be used, the processes to be undertaken, and the predicted noise and vibration levels; and (c) identification of the best practicable options that will be undertaken to mitigate and minimise any noise and vibration being produced that is likely to exceed the relevant levels of the following tables: (i) Table E26.6.27.1 Construction noise limits for activities sensitive to noise in all zones except the Business - City Centre Zone and the Business – Metropolitan Centre Zone; (6) For the purpose of Standards E25.6.29(1) to E25.6.29(4A) above: (a) planned work means work that has been planned to take place at least seven days before the work commences; (b) the measurement and assessment of all construction noise must be in accordance with New Zealand Standard NZS 6803:1999 Acoustics – Construction noise; and (c) the measurement of all vibration must be in accordance with E25.6.30 Vibration.	
Network utilities and electricity generation – all zones and roads General E26.2.3.1 (A4) Minor utility structure E26.2.3.1 (A9) Pipes and cables for the conveyance of water, wastewater, stormwater, electricity, gas, and telecommunications	No relevant standards	The Project is infrastructure which proposes a new section of pipe that will connect the Part 3 Mayoral Shaft to the Marmion Shaft, as part of the wider Queen Street wastewater alignment.

Water, wastewater and stormwater structures **E26.2.3.1 (A49)** Underground pipelines and ancillary structures for the conveyance of water, wastewater and stormwater (including above ground ancillary structures associated with underground pipelines) **E26.2.3.1 (A57)** Ventilation facilities, drop shafts and manholes		
E26.5 Network Utilities and electricity generation – Earthworks all zones and roads **E26.5.3.1 (A95)** Earthworks up to 2500m^2 other than for maintenance, repair, renewal, minor infrastructure upgrading **E26.5.3.1 (A96)** Earthworks up to 2500m^3 other than for maintenance, repair, renewal, minor infrastructure upgrading **E26.5.3.2 (A101)** Earthworks up to 10,000m^2 where land has a slope less than	**E25.5.5.2 General Standards** **Regional** (1) Not relevant. (2) Not relevant. (3) Land disturbance must not, after reasonable mixing, result in any of the following effects in receiving waters: (a) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials; (b) any conspicuous change in the colour or visual clarity; any emission of objectionable odour; (c) the rendering of fresh water unsuitable for consumption by farm animals; or any significant adverse effects on aquatic life. (4) Best practice erosion and sediment control measures must be implemented for the duration of the land disturbance. Those measures must be installed prior to the commencement of land disturbance and maintained until the site is stabilised against erosion. Note 1 Best practice in Auckland is generally deemed to be compliance with Auckland Council Technical Publication 90	Required earthworks are well below the permitted threshold. The total area of earthworks will be approximately 554m^2. The total volume of earthworks will be 1,228.5m^3. As assessed in the Groundwater Drawdown Assessment in **Appendix D.1**, the works will not result in any instability of land beyond the site boundary. No network utilities will be disrupted during the P3-P6 Link Connector, and impacted utilities will be relocated or protected prior to construction works occurring. No access to private property will be restricted during these works.

10 degrees outside the Sediment Control Protection Area other than for maintenance, repair, renewal, minor infrastructure upgrading	Erosion and Sediment Control Guideline for Land Disturbing Activities in the Auckland Region or similar design. (5) Dewatering of trenches and other excavations must be done in accordance with best practice and must not result in a discharge of untreated sediment laden water to any stormwater reticulation system or water body. (6) Trenching must be progressively closed and stabilised such that no more than 120m of continuous trench is exposed to erosion at any one time. (7) Only cleanfill material may be imported and utilised as part of the land disturbance. (8) To prevent the spread of contaminated soil and organic material with kauri dieback disease, vehicle and equipment hygiene procedures must be adopted when working within 3 times the radius of the canopy drip line of a New Zealand kauri tree. Soil and organic material from land disturbance within 3 times the radius of the canopy drip line must not be transported beyond that area unless being transported to landfill for disposal. District (9) Earthworks associated with the operation, repair, renewal, upgrading and maintenance of existing roads, will be undertaken within the legal road or the formation width of existing roads if this extends beyond the legal road width. (10) Land disturbed for the operation, renewal, repair, upgrading or maintenance of utilities outside the formation width of existing roads or abutments, or within an overland flow path, will be reinstated to the ground level prior to the works being undertaken as soon as practicable after completion of the works. (11) Not relevant. (12) Not relevant (13) Works must not result in any instability of land or structures at or beyond the boundary of the property where the land disturbance occurs.	Measures to ensure that the discharge of dust beyond the boundaries of the site (if required) will be contained the final ESCP to be certified by council. No filling is proposed within any 1% floodplains, ensuring that there will be no changes in flood hazards beyond the site. Cleanfill will be imported as backfill material. As outlined in the ESCP (Appendix G), water will be contained within the construction site and clean water will be diverted around site. This mitigation will prevent diverted wet weather flows from entering nearby buildings and properties. No stockpiling is required as soil will be removed from site immediately. There are no flooding hazards present within the site, therefore the groundwater diversion during construction is not expected to cause or exacerbate any flooding. As the proposed installation of the pipeline will be underground, the works will not raise ground levels more than 300mm.

	(14) The land disturbance must not cause malfunction or result in damage to network utilities, or change the cover over network utilities so as to create the potential for damage or malfunction. (15) Access to public footpaths, berms, private properties, network utilities, or public reserves must not be obstructed unless that is necessary to undertake the works or prevent harm to the public. (16) Only cleanfill material may be imported and utilised as part of the land disturbance. (17) Measures must be implemented to ensure that any discharge of dust beyond the boundary of the site is avoided or limited such that it does not cause nuisance. (18) Not relevant (19) Earthworks (including filling) within overland flow paths (excluding road network activities) must maintain the same entry and exit point at the boundaries of a site and not result in any adverse changes in flood hazards beyond the site, unless such a change is authorised by an existing resource consent. (20) Temporary land disturbance and stockpiling of soil and other materials within 1% AEP flood plain and/or overland flow path for up to a maximum of 28 days in any calendar year may occur as part of construction or maintenance activities. (21) Not relevant (22) Not relevant (23) Not relevant (24) Not relevant	

Restricted Discretionary Standards

AUP Activity – Restricted Discretionary Activity Standards		
Standards		Comment
Activity Rule E7.4.1 (A28): Restricted discretionary Diversion of groundwater caused by any excavation, (including trench) or tunnel that does not meet the permitted activity standard *Note: Assessment against the permitted standards of E7 are contained within the Dewatering Assessment (**Appendix D**)*		
E7.6.3 Restricted Discretionary Standards E7.6.3.3. Take and use of groundwater		
(1)	The water take must not be geothermal water.	The proposed works do not involve geothermal water nor the replacement of an existing consent. The proposed water take is not for municipal water supply.
(2)	The replacement of an existing resource consent to take and use groundwater for municipal water supply purposes: (a) at the time of the application, the take is an authorised take; (b) a water management plan has been prepared; (c) the take will not result in the water availabilities and levels in Table 1 Aquifer water availabilities and Table 2 Aquifer groundwater levels, in Appendix 3 Aquifer water availabilities and levels being exceeded, except in accordance with E2 Water quantity, allocation and use Policy E2.3(11); and (d) the take must not be from an area in the Wetland Management Areas Overlay.	

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
Rule E7.4.1 (A20): Restricted Discretionary Dewatering or groundwater level control associated with a groundwater diversion authorised as a restricted discretionary activity under the Unitary Plan, not meeting permitted activity standards or is not otherwise listed. &

Rule E7.4.1 (A28): Restricted Discretionary Diversion of groundwater caused by any excavation, (including trench) or tunnel that does not meet the permitted activity standards.		
(1)	all restricted discretionary activities: (a) the extent to which any effects on Mana Whenua values are avoided, remedied or mitigated; (b) the extent to which the proposal will be consistent with the management of allocation of freshwater within the guidelines provided by Appendix 2 River and stream minimum flow and availability and Appendix 3 Aquifer water availabilities and levels, and give priority to making fresh water available for the following uses (in descending order of priority): *i. existing and reasonably foreseeable domestic and municipal water supply and animal drinking water requirements;* *ii. existing lawfully established water users;* *iii. uses of water for which alternative water sources are unavailable or unsuitable;* *iv. all other uses*	The proposed works do not involve the use of fresh or geothermal water from a lake, river, spring, stream or wetland. An assessment of dewatering effects is contained in the groundwater drawdown assessment in **Appendix D.1** and considers that adverse effects will be negligible. Monitoring of groundwater drawdown and settlement effects during construction is proposed to ensure that no unexpected effects occur.
(2)	Whether the proposal promotes the efficient use of freshwater and geothermal water by: (a) ensuring the amount of water taken and used is reasonable and justifiable with regard to the intended use, and where appropriate: *i. municipal water supplies are supported by a water management plan* *ii. an industrial and irrigation supply implements best practice in respect of the efficient use of water for that particular activity or industry* *iii. all takes (other than for municipal water supply from dams) are limited to a maximum annual allocation based on estimated water requirements* (b) considers water conservation and thermal efficiency methods	

	(c) encourages the shared use and management of water within a water user groups or other arrangement where it will result in an increased efficiency in the use and allocation of water.	
(4)	Whether the proposal to take and use groundwater from any aquifer demonstrates that: (a) the take is within the water availabilities and levels for the aquifer in Table 1 Aquifer water availabilities and Table 2 Aquifer groundwater levels, in Appendix 3 Aquifer water availabilities and levels and: *i. recharge to other aquifers is maintained;* *ii. aquifer consolidation and surface subsidence is avoided;* (b) the taking will avoid, remedy or mitigate adverse effects on surface water flows, including: *i. base flow of rivers, streams and springs;* *ii. any river or stream flow requirements;* (c) the taking will avoid, remedy or mitigate adverse effects on terrestrial and freshwater ecosystem habitat; (d) the taking will not cause saltwater intrusion or any other contamination; (e) the taking will not cause adverse interference effects on neighbouring bores to the extent their owners are prevented from exercising their lawfully established water takes; (f) (f) E7.8.2(5)(e)above will not apply in the following circumstances: *i. where it is practicably possible to locate the pump intake at a greater depth within the affected bore;* *ii. where it can be demonstrated that the affected bore accesses, or could access, groundwater at a deeper level within the same aquifer, if drilled or cased to a greater depth;* (g) the proposed bore is capable of extracting the quantity of groundwater applied for; (h) the proposal avoids, remedies or mitigates any ground settlement that may cause distress, including reducing the ability of an existing building	The Dewatering Assessment in **Appendix D.1** details how the necessary extraction of water from the construction site will be appropriately managed. This assessment considers effects on surface water flows, freshwater ecosystems, saltwater intrusion and neighbouring bores as negligible. Overall, it is considered that the proposed take of groundwater during network utility relocation and during construction will have negligible effects on the matters. Settlement effects on neighbouring buildings and structures is also assessed as negligible, and monitoring during construction is proposed to ensure no unexpected effects occur. The groundwater take will only occur during network utility relocations and construction works, ensuring there will be no long-term effects on the aquifer.

	or structure to meet the relevant requirements of the Building Act 2004 or the New Zealand Building Code, to existing: *i. buildings;* *ii. structures; and* *iii. services including roads, pavements, power, gas, electricity, water supply and wastewater networks and fibre optic cables.*	
(5)	Whether the proposal provides mitigation options where there are significant adverse effects on the matters identified in E7.8.2(3) and (4) above, including the following: (a) consideration of alternative locations, rates and timing of takes for both surface water and groundwater; (b) use of alternative water supplies; (c) use of water conservation methods when water shortage conditions apply; (d) provision for fish passage in rivers and streams; (e) wetland creation or enhancement of existing wetlands; (f) riparian planting; and (g) consideration of alternative designs for groundwater dewatering proposals.	
(6)	Whether the proposal to take and use surface water and groundwater will monitor the effects of the take on the quality and quantity of the freshwater resource to: (a) measure and record water use and rate of take; (b) measure and record water flows and levels; (c) sample and assess water quality and freshwater ecology; and (d) measure and record the movement of ground, buildings and other structures.	
(7-9)	(a) N/A	
(10)	Whether the proposal to divert groundwater will ensure that: (a) the proposal avoids, remedies or mitigates any adverse effects on: *i. scheduled historic heritage places and scheduled sites; and* *ii. people and communities;* (b) the groundwater diversion does not cause or exacerbate any flooding; (c) monitoring has been incorporated where appropriate, including: *i. measurement and recording of water levels and pressures; and*	The Dewatering Assessment demonstrates that while the closest edge of the shaft will be approximately 5 m fromthe nearest heritage site (Myers Park historic landscape, including trees and caretaker's cottage R11_2195 and R11_2669), however the historic landscape is unlikely to be affected by dewatering and the caretaker's

	ii. measurement and recording of the movement of ground, buildings and other structures; (d) mitigation has been incorporated where appropriate including: *i. minimising the period where the excavation is open/unsealed;* *ii. use of low permeability perimeter walls and floors;* *iii. use of temporary and permanent systems to retain the excavation; and* *iv. re-injection of water to maintain groundwater pressures;*	cottage is at least 200 m from the shaft, hence also unlikely to be affected. The diversion of groundwater is not anticipated to cause or exacerbate flooding. Monitoring during construction works is proposed to ensure that no unexpected effects arise.