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Paekākāriki, Peka Peka and Te Horo Wastewater Servicing Assessment

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Client: Kapiti Coast District Council

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Prepared by

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Executive Summary

The purpose of this investigation is to identify wastewater options for potential levels of intensification under the NPS-UD and provide recommendations whether the provision of reticulated wastewater infrastructure in all or any of these three settlements would be feasible either in terms of cost, time, or physical constraints.

This memo provides preliminary high-level planning and engineering advice on the potential constraints and opportunities to provide a reticulated wastewater system in the settlements of Paekākāriki, Peka Peka and Te Horo for the Kāpiti Coast District Council (KCDC).

There are opportunities to connect into the existing wastewater treatment facilities within the district. However, this would require the installation of new infrastructure and the upgrading of existing infrastructure (pipes, storage, and pumping facilities) and connections into the treatment facilities at Paraparaumu or Otaki. In summary:

- There are capacity constraints of the existing wastewater network to enable the connection of the existing and future plan-enabled dwellings into the current wastewater reticulated systems for all settlements.
- Te Horo Beach is not currently serviced with a reticulated water supply. When considering providing wastewater servicing, consideration needs to be given to the provision of water supply. This was not included or costed in this assessment.
- The relevant statutory documents recognise and provide for wastewater infrastructure. However, new discharges of wastewater may have some consenting risks - in particular mana whenua and community opposition. A full consenting strategy should be undertaken at the next stage of any investigations.
- There could be opposition from these communities in response to the planned growth, which would require additional stakeholder engagement by KCDC to manage the risk.
- The servicing impacts from climate change were not considered here and would need further investigation e.g., a pressure sewer option being more resilient to higher ground water tables, or the risks of increased flooding (coastal inundation or localized flooding), and how this might impact on the growth of these settlements and new, planned infrastructure.
- There is a risk to the pipeline alignments assumed in the State Highway road corridor, this would require further engagement with Waka Kotahi.
- Early engagement with the Greater Wellington Regional Council, internal consents team at KCDC, mana whenua, the community and stakeholders are recommended prior to lodging applications for new or changes to existing consents
- The Paraparaumu treatment facility is currently being reconsented so there is opportunity to future proof for increased wastewater through this process.
- A new, planned future treatment facility could provide the opportunity to connect all settlements into a single location, with discharge to land as promoted by the regional plan. A new facility could provide more sustainable options for carbon emissions, energy efficiency, resource recovery etc. This option has not been investigated as part of this assessment.

Options Assessment / Cost Estimates

The two wastewater network servicing options used for costing purposes are Gravity Sewer and Pressure Sewer. Indicative costs to service the **existing** and **future** communities are summarised in the Table below.

Description	Indicative Estimate – Current Households (Range -30% to +40%)	Indicative Estimate – Current + Future Planned Households (Range -30% to +40%)
1a - Paekākāriki - Gravity	\$ 78,221,000	\$83,136,000
1b - Paekākāriki - Low Pressure	\$ 66,839,000	\$69,056,000
2a - Peka Peka Gravity	\$ 16,523,000	\$17,854,000
2b - Peka Peka - Low Pressure	\$ 14,134,000	\$14,663,000
3a - Te Horo Gravity	\$ 23,175,000	\$24,492,000
3b - Te Horo- Low Pressure	\$ 21,022,000	\$22,012,000

- There are further cost provisions that would need to be considered if these options were progressed e.g., cost of upgrades to the WWTPs, greenfield development. Please see section 4 and Appendix 2 for the full financial assessment and list of exclusions and assumptions.
- The provisions for KCDC to fund these schemes, and the affordability to the community e.g., rates impact, developer contributions, alternative funding schemes, should be assessed further to determine the cost-benefit of growth in these settlements.
- Key points to note regarding the development of the cost estimates:
 - Expected accuracy range of -30% to +40%
 - Preliminaries and General 25%
 - Design Development Contingency 30%
 - Construction Contingency 20%

1.0 Introduction

The purpose of this investigation is to provide a desktop review of the wastewater servicing of the settlements of Paekākāriki, Peka Peka and Te Horo for the Kāpiti Coast District Council (KCDC). KCDC has requested this in response to the National Policy Statement for Urban Development (NPS: UD) and the potential intensification of these urban settlements.

The NPS-UD (in combination with the proposed amendments to the Resource Management Act) requires the Council to change its district plan to enable residential intensification in these settlements.

The purpose of this investigation is to identify wastewater options for potential levels of intensification under the NPS-UD and provide recommendations whether the provision of reticulated wastewater infrastructure in all or any of these three settlements would be feasible either in terms of cost, time or physical constraints.

For each settlement, based on current and future dwelling numbers, this assessment identifies whether reticulated wastewater infrastructure could be provided, and presents high-level concepts for how servicing could be provided. During this discovery stage the capacity and constraints of the existing wastewater networks and plants in neighbouring catchments were considered.

A planning and consenting review was undertaken and high-level planning findings on potential challenges including National Policy Statements, Wellington Regional Council regulatory direction, (re)consenting and compliance, the changing natural environment, mana whenua and community expectations as well as deliverability (skills, capacity, and funding).

1.1 Existing Wastewater Reticulation in the Kāpiti Coast District

Paekākāriki, Peka Peka and Te Horo have no reticulated wastewater infrastructure. Domestic wastewater is treated and disposed of on each site via septic tanks. The Paraparaumu Wastewater Treatment Plant (WWTP) receives and treats wastewater from the reticulated network of Paraparaumu, Waikanae and Raumati where it is treated prior to being discharged to land and a local stream. The Otaki WWTP receives and treats wastewater from the reticulated network of Otaki. Wastewater is treated in oxidation ponds and discharged to land.

Current consents that authorise the operation of the Paraparaumu WWTP expire in March 2022. KCDC are currently working through a process to identify the best long-term solution for the plant and its discharges.

The reconsenting of the Paraparaumu WWTP provides an opportunity to future proof for future connections with Paekākāriki and Peka Peka. The opportunity for Te Horo to connect to the Otaki WWTP network could also be considered.

It is also noted that Paekākāriki and Peka Peka have a reticulated water supply. Te Horo does not have reticulated water supply. Should wastewater service be installed in Te Horo it would be expected water supply would be installed,

1.2 Current and Potential Development

A summary of the existing and estimated number of plan-enabled dwellings is shown in Table 1. The estimated number of plan-enabled dwellings was provided by in an email from KCDC on the 4th February 2022.

Infrastructure sized in Section 5 has been based on the existing lots only. On confirmation of the growth figures, we will assess the requirements to accommodate growth in Stage 2 of the project.

Location	Existing Dwellings	Estimated Estimated population number of plan- (based on 2.7 enabled per/dwelling) dwellings		Population estimate (based on 2.3 people/dwelling)
Paekākāriki	725	1958	2,580	5,940
Peka Peka	173	467	1,150	2,640
Te Horo Beach	260	702	710	1,620

Table 1	Population	Sorviced -	Current and	Euturo	Estimated
	Population	Serviced -	Current and	ruture	Estimated

1.3 Wastewater Flows

The flow rates calculated for each area is summarised in Table 2 and Table 3. Note the gravity calculations are based on assuming 2.5 pers/dwelling with a discharge of 250 l/day per person.

Table 2 Design Flow Rates - Existing Dwellings

Catchment	Peak Dry Weather Flow (Gravity) I/s	Peak Wet Weather Flow (Gravity) I/s	Peak Flow (Pressure Sewer) I/s
Paekākāriki	14.2	28.3	19
Peka Peka	3.4	6.8	6
Te Horo Beach	5.1	10.2	7.8

Table 3 Design Flow Rates - Future Dwellings

Catchment	Peak Dry Weather Flow (Gravity) I/s	Peak Wet Weather Flow (Gravity) I/s	Peak Flow (Pressure Sewer) I/s
Paekākāriki	43	85.9	39
Peka Peka	19.1	38.3	24
Te Horo Beach	11.8	23.6	16.2

2.0 Wastewater Servicing Options – Long List

A high-level assessment of servicing options was considered and is summarised in Table 4 below. Table 4 High Level Servicing options

Servicing option	Comment	Recommendation
De-centralised WWTP	Consenting would be challengingLand requirements are high	Not carried forward
Gravity collection	 Ground conditions are predominantly sand High ground water Limited maximum depth to approximately 2.0m Re-routing the house lateral can be challenging 	To be assessed
Pressure sewer	 Pump can be located to intercept the existing house lateral Decision would need to be made on ownership model Opportunity to implement a Smart sewer system Increased risk of high retention times increasing septicity and odours at the discharge point Reduced I&I More resilient to higher ground water situations which may be more prevalent with climate change 	To be assessed
Vacuum Sewer	 Ground conditions are predominantly sand High ground water Re-routing the house lateral can be challenging Reduced I&I 	Not carried forward

The two options recommended to be carried forward are Gravity Sewer and Pressure sewer. These are discussed further below.

Option 1: Gravity Sewer

Gravity sewer is the most common way to provide wastewater services to dwellings. This option has the benefit of simplicity. A well designed and constructed system will require very little maintenance over its lifetime. Pump stations are required to convey the wastewater to a point of discharge. They have the highest I&I component of any system.

Typically, the septic tanks are located at the rear of a property. This required intercepting close to the house and re-routing to the road reserve at the front of the house. This is costly and requires reasonable consultation with the property owner. In some cases, it may not be possible to service a property by gravity due to the distance from the main, and the depth of the main. For example, a property located to the rear of another property. In these cases, a pressure sewer pump would need to be installed.

Due to the ground condition typically found at these sites we have assume a gravity pipe no deeper than approximately 2.0m would be appropriate. The maximum depth has an impact on the number of pump stations required to service a catchment.

Option 2: Pressure Sewer

Pressure has become more common in New Zealand over the last 15 years. It is a proven technology and performs well. It has the benefit that the network pipes can be laid shallow and being pressurised there is no I&I. More recently smart sewers have been implemented with pressure sewers with benefits of reducing downstream network impacts, identifying houses with contributing I&I and reduction is the size of pressure mains to name a few.

When installing pressure sewer on a property the pump station is typically located as close to the house as possible. Although in some recent projects in NZ homeowners have insisted, they be installed in the same location as the existing septic tank.

3.0 Summary of Servicing Options by Community

This section summarises the following:

- Quantity of infrastructure to the existing dwellings in the catchment
- Point of discharge into existing KCDC network
- Infrastructure to convey to the point of discharge
- Commentary on alignments

3.1 Te Horo Beach

3.1.1 Te Horo Beach Network

The following table summarises the assessment of infrastructure requirements for Te Horo Beach.

Table 5 Te Horo Beach Network – Servicing Existing Dwellings

Description	Pipe Size	Unit	Quantity
Gravity Option	DN150	m	3450
Pressure Sewer Option	DN40 – DN90	m	3450
Connections	DN100	ea	260
Pump Stations – Gravity Option		ea	3
Pump Stations – Pressure Sewer Option			2
Te Horo Beach to Otaki Pressure Main – Existing Dwellings			
Gravity Option	DN140 PE100 SDR17	m	8650
Pressure Sewer Option	DN140 PE100 SDR17	m	8650
Te Horo Beach to Otaki Pressure Main – Existing and future Dwellings			
Gravity Option	DN200 PE100 SDR17	m	8650
Pressure Sewer Option	DN200 PE100 SDR17	m	8650

3.1.2 Te Horo Beach Wastewater Conveyance to KCDC Infrastructure

Wastewater from the Te Horo network would be conveyed directly to the Otaki WWTP Inlet works.

Alternatively, consideration could be given to conveying wastewater to the Ruaparaha pump station via the Peke Peka proposed network. With the plan to relocate the Paraparaumu WWTP the plant could be designed to accommodate the loadings to a better quality than the Otaki WWTP.

Te Horo Beach is not currently serviced with a reticulated water supply. When considering providing wastewater servicing, consideration needs to be given to the provision of water supply. Previous studies have assessed options for supplying water from Otaki. This assessment has not undertaken any further investigations into the supply of water from Otaki.

There is the opportunity to discharge into the gravity pipe on Riverbank road, however the high residence time of the wastewater presents a high risk of odours. This risk would be better managed at the WWTP.

Figure 1 shows the alignment selected for the pressure main to the Otaki WWTP. This follows Te Horo Beach Road, State Highway 1, the onto Riverbank Road. We have assumed there is the opportunity to install the pipe on the State Highway bridge crossing the Otaki River.



The pressure main from Te Horo Beach to the Otaki WWTP would be approximately 8.650m in length. This presents challenges with the need to maintain sufficient velocity to mobilise solids and management of biofilm within the pipe. Running the pump station at sufficient velocity would result in the need for a high head pump station. Options such as an intermittent flush cycle could be an option but requires further assessment. For this project, we have assumed a second pump station between

Te Horo Beach and Otaki.

Figure 1 Te Horo Beach to Otaki WWTP Proposed Wastewater Pipe Alignment

The length of main will see elevated sewer retention times (>10hours). Discharging to the WWTP with suitable odour control would manage the risk the aged sewer presents. An allowance has made for odour control at the Otaki WWTP.

To service the existing dwellings a DN140 PE100 SDR 17 pressure main has been selected. This provides some capacity for growth. To service the future dwellings a DN200 would need to be required for both gravity and pressure options.

For both pipe size options consideration will need to be given to managing high retention times requiring management of odours at the discharge point, and corrosion from H2S. There would need to be a flushing program to periodically mobilise solids (typically once a day). This would require a pump with a high head to generate sufficient velocities. An alternative option for the management of flows would be to install an intermediate pump station, this should be assessed further in the next phase.

3.2 Peka Peka

3.2.1 Peka Peka Network

The following table summarises the assessment of infrastructure requirements for Peka Peka.

Description	Pipe Size	Unit	Quantity
Gravity Option	DN150	m	2400
Pressure Sewer Option	DN40 – DN90	m	2400
Connections	DN100	ea	173
Pump Stations – Gravity Option		ea	2
Pump Stations – Pressure Sewer Option			0
Peka Peka to Waikanae Pump Station Pressure Main – Existing Dwellings			
Gravity Option	DN110 PE100 SDR17	m	1230
Pressure Sewer Option	DN110 PE100 SDR17	m	1230
Peka Peka to Waikanae Pump Station Pressure Main – Existing and future Dwellings			
Gravity Option	DN180 PE100 SDR17	m	1230
Pressure Sewer Option	DN180 PE100 SDR17	m	1230

 Table 6
 Peka Peka Beach Network – Servicing Existing Dwellings

3.2.2 Peka Peka Wastewater Conveyance to KCDC Infrastructure

Wastewater from the Peka Peka network would be conveyed directly to the Ruaparaha pump station located at the site of the old Waikanae WWTP. This pump stations conveys to the Ruaparaha pump station which is currently constrained. There is further assessment required to fully understand what upgrades would be triggered if the flows from Peka Peka were discharged to Ruaparaha pump station.

A pressure sewer system at Peka Peka would be able to pump directly to the Waikanae pump station. The pressure main to the Waikanae pump station would be approximately 1,300m, this would have a low sewage residence time (<2hrs).



Figure 2 shows the alignment selected for the pressure main to the Waikanae (Ruaparaha) pump station along Paetawa Road.

Figure 2 Peka Peka to Waikanae WWTP Proposed Wastewater Pipe Alignment

To service the existing dwellings a DN110 PE100 SDR 17 pressure main has been selected. This provides some capacity for growth. To service the future dwellings a DN180 would be required.

3.3 Paekakariki

3.3.1 Paekakariki Network

The following table summarises the assessment of infrastructure requirements for Paekākāriki.

Description	Pipe Size	Unit	Quantity
Gravity Option	DN150 – DN225	m	9200
Pressure Sewer Option	DN40 – DN90	m	9200
Connections	DN100	ea	1958
Pump Stations – Gravity Option		ea	3
Pump Stations – Pressure Sewer Option			1
Paekākāriki to Rata Pump Station Pressure Main – Existing Dwellings			
Gravity Option	DN250 PE100 SDR17	m	8900
Pressure Sewer Option	DN200 PE100 SDR17	m	8900
Paekākāriki to Rata Pump Station Pressure Main – Existing and future Dwellings			
Gravity Option	DN355 PE100 SDR17	m	8900
Pressure Sewer Option	DN315 PE100 SDR17	m	8900

 Table 7
 Paekākāriki
 Network – Servicing Existing Dwellings

3.3.2 Paekākāriki Wastewater Conveyance to KCDC Infrastructure

Wastewater from the Paekākāriki network would be conveyed directly to the Rata pump station into the Paraparaumu WWTP. It is understood there is capacity for this station to accept more flow. However, PWWF from the existing Paekākāriki would be approximately 29.0 l/s, this would use all the available capacity. Upgrades would be required to allow for the inevitable growth that will occur.

The pressure main would have a length of approximately 8,900m. This presents a similar challenge to the Te Horo Beach pressure main in maintaining sufficient velocity to mobilise solids and management of biofilm within the pipe. For this project, we have assumed a second pump station between Paekākāriki and the Rata pump station.

The length of main will see elevated sewer retention times (>10hours). Discharging to the Rata pump station with suitable odour control would manage the risk the aged sewer presents. We have not assessed existing odour control at the Rata pump station. The wastewater discharge can also have elevated levels of H_2S which increases the risk of corrosion if the wet well is not lined.

Figure 3 shows the alignment selected for the pressure main Paekākāriki to the Rata Pump station. The two options for the pipe alignment are through the QE2 reservoir along within the State Highway corridor. For costing purposes, we have assumed the pressure main will be installed in the road corridor.



To service the existing dwellings by gravity a DN250 PE100 SDR 17 pressure main has been selected. This does provide some capacity for growth. To service the future dwellings a DN355 would be required.

For both pipe size options consideration will need to be given to managing high retention times requiring management of odours at the discharge point, and corrosion from H2S. There would need to be a flushing program to periodically mobilise solids (typically once a day). This would require a pump with a high head to generate sufficient velocities. An alternative option for the management of flows would be to install an intermediate pump station, this should be assessed further in the next phase.

Figure 3 Paekākāriki to Waikanae WWTP Proposed Wastewater Pipe Alignment

3.3.3 Paraparaumu WWTP

There is currently capacity at the current wastewater treatment plant. However, the addition of Paekākāriki and Peka Peka existing and future flows would absorb significant capacity designed for growth in the Parapraumu – Raumati area. Consideration should be given to applying wastewater treatment and reticulation development contributions to existing dwellings. This has not been included in the cost estimate.

4.0 Capital Cost Estimate

A cost estimate has been prepared for the feasibility capital estimate for the Paekākāriki, Peke Peka and Te Horo networks.

The total expected capital cost estimate for the options assessed is summarised in Table 8 (Current dwellings only), and Table 9 (Current and Future dwellings).

The full estimate with assumptions and exclusions is attached in Appendix 2. Key points to note regarding the development of the cost estimates:

- Expected accuracy range of -30% to +40%
- Preliminaries and General 25%
- Design Development Contingency 30%
- Construction Contingency 20%

Table 8 Paekākāriki, Peke Peka and Te Horo WW Servicing Feasibility Estimate – Current Dwellings

	Indicative	Range			
Description	Estimate	Value (Min -30%)	Value (Max +40%)		
1a - Paekākāriki - Gravity	\$ 78,221,000	\$ 55,000,000	\$ 110,000,000		
1b - Paekākāriki - Low Pressure	\$ 66,839,000	\$ 47,000,000	\$ 94,000,000		
2a - Peka Peka Gravity	\$ 16,523,000	\$ 12,000,000	\$ 23,000,000		
2b - Peka Peka - Low Pressure	\$ 14,134,000	\$ 10,000,000	\$ 20,000,000		
3a - Te Horo Gravity	\$ 23,175,000	\$ 16,000,000	\$ 32,000,000		
3b - Te Horo- Low Pressure	\$ 21,022,000	\$ 15,000,000	\$ 29,000,000		

Table 9 Paekākāriki, Peke Peka and Te Horo WW Servicing Feasibility Estimate – Current and Future Dwellings

	Indicative	Range			
Description	Estimate	Value (Min -30%)	Value (Max +40%)		
1a - Paekākāriki - Gravity	\$ 83,136,000	\$ 58,000,000	\$ 116,000,000		
1b - Paekākāriki - Low Pressure	\$ 69,056,000	\$ 48,000,000	\$ 97,000,000		
2a - Peka Peka Gravity	\$ 24,492,000	\$ 17,000,000	\$ 34,000,000		
2b - Peka Peka - Low Pressure	\$ 22,012,000	\$ 15,000,000	\$ 31,000,000		
3a - Te Horo Gravity	\$ 24,492,000	\$ 17,000,000	\$ 34,000,000		
3b - Te Horo- Low Pressure	\$ 22,012,000	\$ 15,000,000	\$ 31,000,000		

4.1 Assumptions / Exclusions

Key points for each network that can have an impact on the estimates are described below.

Te Horo Beach

- Allowance of \$250,000 for allowance of odour control at the Otaki WWTP
- There is no allowance for increasing the treatment capacity at the Otaki WWTP
- Assumed access to install the pipe within NZTA land would be granted.
- No budget allowed for land purchasing (for pump stations)
- Development contributions for wastewater treatment has not been included in the cost estimate. At \$481 per dwelling this would be an additional \$125,060 for the existing dwellings.

Peka Peka

- Ruaparaha Pump Station has sufficient capacity
- Ruaparaha pressure main Currently identified to be upgraded as there is already a constraint. No allowance in the estimate for contribution to the planned upgrade.
- No allowance for odour control, retention time is short.
- Development contributions for wastewater treatment and reticulation is not included in the cost estimate. At \$1,757¹ per dwelling this would be an additional \$304,000 for the existing dwellings.

Paekakariki

- Allowance of \$250,000 for allowance of odour control at the Rata Pump Station
- There is no allowance for increasing the treatment capacity at the Paraparaumu WWTP
- Development contributions for wastewater treatment and reticulation is not included in the cost estimate. At \$777² per dwelling this would be an additional \$1,522,000 for the existing dwellings.
- No allowance has been made for increasing capacity at the Rata pump station and downstream assets

5.0 Regulatory Direction and Consenting

New or upgraded wastewater infrastructure is likely to require several consents under both the district and regional plans. The complexity of and risks for obtaining consents will vary depending on the ultimate strategy for the wastewater reticulation. Statutory documents that require consideration include:

- National Policy Statements (NPS): for Urban Development (which has triggered this investigation), Freshwater Management, Biodiversity and Highly Productive Land (the latter two are in draft but likely to come into effect in 2022)
- Greater Wellington Regional Policy Statement and Natural Resources Plan
- Kāpiti Coast District Plan

5.1.1 National Policy Statements

NPS and NES for Freshwater Management

The NPS places the health and well-being of freshwater over the needs of people and provisions for communities and their social, economic and cultural well-being. Involvement of mana whenua in freshwater management objectives, which includes matters such as community wastewater management in particular any discharge, is emphasised. Freshwater regulations are becoming more

¹ Waikanae DC per dwelling – Wastewater Treatment \$527, Reticulation \$1230

² Paraparaumu-Raumati DČ per dwelling – Wastewater Treatment \$527, Reticulation \$250

restrictive and any new discharge to surface water could be challenging to consent as regional plans are updated in accordance with the NPS.

The collective reticulation and large-scale treatment of wastewater from communities, when compared to individual on-site treatment and discharge to land, could remove potential cumulative environmental effects on local waterbodies and groundwater. This aligns with the objectives and policies of the NPS in particular the prioritisation of the health and well-being of water bodies and freshwater ecosystems.

Natural wetlands and areas with natural ponding in proximity to the settlements need to be considered in future consenting strategies as it is increasingly difficult to obtain consents for disturbance in proximity to these features. However, there are consenting pathways for "specified infrastructure" which includes water and wastewater utilities.

NPS Urban Development (along with the proposed RMA (Enabling Housing Supply and other Matters) Amendment Bill)

Under Subpart 1 of the NPS: UD, KCDC must provide sufficient development capacity to meet expected demand for housing in existing urban areas in the short term, medium term, and long term. In order to be sufficient, the development capacity must be infrastructure ready. This means that the infrastructure required to support the intensification must either: have existing infrastructure to support the development of land (short term); have funding identified in the long-term plan (medium term); or funding identified in the local infrastructure strategy (long term) under clause 3.4(3) of the NPS: UD.

Clause 3.5 of Subpart 1 of the NPS: UD requires that local authorities must be satisfied that the additional infrastructure to service the development capacity is likely to be available. Clause 3.7 of Subpart 1 requires that if a local authority determines there is insufficient development capacity over the short, medium or long term they must update planning documents as well as consider other options for increasing development capacity. Therefore, there is limited scope in not enabling development unless: there is evidence of very little demand for housing and business use in the area (under Policy 3 (d)) which is unlikely in the Wellington region which is a Tier 1 region; or there is a qualifying matter under Policy 4. Relying on a qualifying matter to justify a modification to the direction in the NPS: UD must be supported by an evaluation report under subclause 3.33 on the NPS: UD.

RMA (Enabling Housing Supply and Other matters) Amendment Bill (enacted on 20 December 2021) enables the acceleration of the supply of housing urban areas by permitting intensification in residential zones.

NPS for Indigenous Biodiversity

Areas of ecological importance in particular areas of indigenous biodiversity are identified in planning maps surrounding each of the settlements. The proposed NPS: Indigenous Biodiversity sets out objectives and policies to identify, protect, manage and restore indigenous biodiversity which will need to be considered in the planning for future installation or expansion of wastewater infrastructure.

NPS for Highly Productive Land

KCDC is considering residential intensification of existing residential zones therefore should not impact on productive land. Future installation or expansion of wastewater infrastructure is unlikely to impact significantly on any highly productive land.

5.1.2 Regional and District Plans

An overview of the zoning and features of Paekākāriki, Peka Peka and Te Horo in the of KCDC and GWRC planning maps (copy of maps attached in Appendix 1) is provided below:

Paekākāriki

- General Residential Zone (District Plan)
- KCDC public drinking water supply well and protection area immediately east of settlement (Regional Plan)
- Waahi Tapu and sites with significant mana whenua values surrounding settlement (District Plan)
- Ecological sites surrounding the settlement include significant natural wetlands, threatened or at-risk fish habitat and areas of indigenous biodiversity (District and Regional Plan)

- Flood ponding around the settlement (District Plan)

Peka Peka

- General Residential Zone (District Plan) and an area zoned Rural Lifestyle Zone between town and State Highway 1 (Designation NZTA-001)
- Significant natural wetlands north of settlement, threatened or at-risk fish habitat surrounding settlement (Regional Plan)
- Stream and wetland sites with significant mana whenua values (Regional Plan)
- Some flood storage and ponding areas surrounding (District Plan)

Te Horo

- General Residential Zone (District Plan)
- Inanga spawning habitat at stream, significant natural wetland to south, threatened, or at-risk fish habitat surrounding settlement (Regional Plan)
- Stream corridor has significant mana whenua value (Regional Plan)
- Flood hazard mapped throughout area (District Plan)

GWRC: Regional Policy Statement (RPS) and Natural Resources Plan

Several consents are likely to be required from the GWRC for a reticulated wastewater system. However, it is the discharge of treated wastewater and emergency overflows that are likely to be the most challenging.

The objectives and policies in the RPS and Natural Resources Plan promote discharges to land over discharges to waterbodies. Treated sewage often contains high levels of disease-causing organisms that can make the rivers unsafe for recreational use, as well as nutrients, which can promote nuisance aquatic weed and algal growth. Discharges of wastes into water bodies are of particular concern to tangata whenua because waste, particularly sewage waste, degrades the mauri (life force) of the water body.

Policy 16 of the RPS states:

Regional plans shall include policies, rules and/or methods that promote: (a) discharges of human and/or animal waste to land rather than water, particularly discharges of sewage, while maintaining groundwater quality and soil health; and (b) the use of collective sewage treatment systems that discharge to land where it is likely that individual treatment systems will not maintain groundwater quality and soil health.

Relevant policies for consideration in the Natural Resources Plan include:

- Policy P62: Promoting discharges to land
- Policy P82: Mana whenua values and wastewater discharges
- Policy P81: Minimising and improving wastewater discharges
- Policy P83: Avoiding new wastewater discharges to fresh water
- Policy P83A: Discouraging new discharges of treated wastewater to coastal water

Rules in the regional plan (R61, R62, R80) for discharges of wastewater include: to land a restricted discretionary activity; to coastal water a discretionary activity; and to fresh water non-complying activity.

Regional rules associated with wastewater infrastructure (incl. piping, treatment facility and discharge) are generally permissive.

Kāpiti Coast District Plan 2021

The District Plan recognises the importance and benefits of infrastructure and ensures the efficient development, maintenance and operation of an adequate level of social and physical infrastructure and services throughout the District that:

- 1. meets the needs of the community and the region; and
- 2. builds stronger community resilience, while avoiding, remedying or mitigating adverse effects on the environment.

Relevant policies for consideration in the District Plan include:

- INF-GEN-P1: Recognition of the importance and benefits of sustainable, secure and efficient provision of infrastructure including sanitation and waste facilities
- INF-GEN-P4: Adverse environmental effects arising from the establishment, operation, maintenance and upgrading of infrastructure will be avoided, remedied or mitigated as far as reasonably practicable
- INF-GEN-P7: Infrastructure and growth management focussed on existing urban areas
- INF-PNU-P13: The development, use, maintenance, replacement and upgrading of network utilities will be enabled while ensuring that adverse environmental effects are minimised
- Policy INF-MENUP21 Subdivision, land use and development will ensure that the treatment and disposal of wastewater will be adequate for the anticipated end uses appropriate to the location. The treatment and disposal of wastewater will be undertaken in a manner that avoids, remedies or mitigates adverse effects on the environment and maintains public health and safety

Rules under the district plan for new or upgraded wastewater infrastructure, which is likely to include underground pipes, pump and treatment facilities, are generally permissive provided key planning features identified in the district planning maps can be avoided.

New above ground network utilities within any ponding area, shallow surface flow area, overflow path or residual overflow path, which are above ground are restricted discretionary activities and require resource consent.

6.0 Engagement

Mana Whenua

Mana Whenua are generally opposed to discharge of wastewater directly to waterbodies. Given the nature of the environment and value to mana whenua, significant treatment and discharge to land would be preferred by mana whenua.

Iwi and Hapū within the Kāpiti Coast District that would need to be consulted include:

Ōtaki

- Ngāti Raukawa ki te Tonga:
 - Ngāti Huia ki Katihiku
 - Ngāti Koroki
 - Ngāti Maiotaki
 - o Ngāti Pare
 - o Ngāti Kapumanawawhiti.

Waikanae, Paekākāriki, Porirua, Wellington

- Āti Awa ki Whakarongotai
- Ngāti Haumia
- Ngāti Toa Rangatira.

Community and Stakeholders

Engagement with the community and stakeholders should be undertaken in future phases if KCDC progresses wastewater reticulation. Potential issues from the community and stakeholders may include concern regarding cost of infrastructure being borne. There may be interest by environmental groups in a system that has new discharges to the environment.

7.0 Standard Limitations

AECOM Consulting Services (NZ) Limited (AECOM) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of Kapiti Coast District Council and only those third parties who have been authorised in writing by AECOM to rely on this Report.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Report.

It is prepared in accordance with the scope of work and for the purpose outlined in the contract dated 11 Jan 2022.

Where this Report indicates that information has been provided to AECOM by third parties, AECOM has made no independent verification of this information except as expressly stated in the Report. AECOM assumes no liability for any inaccuracies in or omissions to that information.

This Report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This Report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

Except as required by law, no third party may use or rely on this Report unless otherwise agreed by AECOM in writing. Where such agreement is provided, AECOM will provide a letter of reliance to the agreed third party in the form required by AECOM.

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Except as specifically stated in this section, AECOM does not authorise the use of this Report by any third party.

It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

Any estimates of potential costs which have been provided are presented as estimates only as at the date of the Report. Any cost estimates that have been provided may therefore vary from actual costs at the time of expenditure.

Appendix 1

Kāpiti Coast District Council and Greater Wellington Regional Council Planning Maps



Figure 1: Paekākāriki – District Planning Map



Figure 2: Paekākāriki – Regional Planning Map



Figure 3: Peka Peka – District Planning Map



Figure 4: Peka Peka – Regional Planning Map



Figure 5: Te Horo – District Planning Map



Figure 6: Te Horo – Regional Planning Map

Appendix 2

1

Cost Estimate



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate

				Rar	nge	
Description	Expecte	ed Estimate	Valu	ue (Min -30%)	Val	ue (Max +40%)
1a - Paekākāriki - Gravity	\$	78,221,000	\$	55,000,000	\$	110,000,000
1b - Paekākāriki - Low Pressure	\$	66,839,000	\$	47,000,000	\$	94,000,000
2a - Peka Peka Gravity	\$	16,523,000	\$	12,000,000	\$	23,000,000
2b - Peka Peka - Low Pressure	\$	14,134,000	\$	10,000,000	\$	20,000,000
3a - Te Horo - Gravity	\$	23,175,000	\$	16,000,000	\$	32,000,000
3b - Te Horo- Low Pressure	\$	21,022,000	\$	15,000,000	\$	29,000,000

				Rai	nge	
Description	Expect	ed Estimate	Va	lue (Min -30%)	Va	alue (Max +40%)
1a - Paekākāriki - Gravity FUTURE	\$	83,136,000	\$	58,000,000	\$	116,000,000
1b - Paekākāriki - Low Pressure FUTURE	\$	69,056,000	\$	48,000,000	\$	97,000,000
2a - Peka Peka Gravity FUTURE	\$	17,854,000	\$	12,000,000	\$	21,000,000
2b - Peka Peka - Low Pressure FUTURE	\$	14,663,000	\$	10,000,000	\$	21,000,000
3a - Te Horo - Gravity FUTURE	\$	24,492,000	\$	17,000,000	\$	34,000,000
3b - Te Horo- Low Pressure FUTURE	\$	22,012,000	\$	15,000,000	\$	31,000,000

Basis

Kapiti Coast Pipe Sizings. xlsx

KCDC Paekākāriki, Peka Peka and Te Horo WW Servicing Memo v3.0. pdf

Assumptions

Full access, normal working hours

Projects performed/ procured seperately

Assume allowance for rock excavation required for 10% of total length of pipe

Assume de-watering required when depth exceeds 2m

Assume soft ground foundation required for 10% of total length of pipe

Exclusions

Contaminated Material GST Professional fees Land purchase/ acquisition Client internal costs Legal costs Consent costs Escalation beyound date of estimate

Legal Disclaimer

This estimate is solely for our Client's use for the purpose for which it is intended in accordance with the agreed scope of work. It may not be disclosed, used or relied upon by any person other than the Client contrary to the above, to which AECOM has not given its prior written consent.



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 1a - Paekākāriki - Gravity

ltem	Description	QTY	Unit	Rate	Total
1.00	Properties				16.820.000
1.01	Physical Works within property boundary - assume 80%	580	No	20,000	11,600,000
4 9 9	of properties require standard dig and relay			0 500	
1.02	Allow for consultation			2,500	
1.03	CCIV			500	
1.04	Decomission septic tank			5,000	
1.05	Assume 80% of properties - Lay new 100 PVC pipe assume average depth 1.5m average 20m length			4,000	
1.06	Allow for 2no. connections and inspection point			3,000	
1.07	Allow for property reinstatement - provisional allowance			5,000	
1.08	Physical Works within property boundary - assume 20% of properties require directionally drilling	145	No	36,000	5,220,000
1 09	Allow for consultation			2 500	
1.03	CCTV			500	
1.10	Decomission sontia tank			5.000	
1.11	Assume 20% of properties - Directional Drill 100 PVC			5,000	
1.12	Pipe average 50m			20,000	
1.13	Allow for 2no. connections and inspection point			3,000	
1.14	Allow for property reinstatement - provisional allowance			5,000	
2.00	Catchment Pipework				7,770,830
	Rates are fully inclusive of all integral components				
		0.040			
2.01	150DN uPVC SN16 Pipe	8,849	m		
2.02	0.0m - 1.0m Depth	167	m	220	36,740
2.03	1.0m - 2.0m Depth	7,524	m	370	2,783,880
2.04	2.0m - 3.0m Depth	1,158	m	470	544,260
2.05	225DN uPVC SN16 Pipe	322	m		
2.06	0.0m - 1.0m Depth	0	m	300	0
2.07	1.0m - 2.0m Depth	209	m	510	106,590
2.08	2 0m - 3 0m Depth	113	m	670	75 710
2.00		0 171	m	10	01 710
2.00	Allowance for rock execution accume type P2 10%	019	m ³	120	110 160
2.10	Allowance for soft around foundation accurate 40%	910		120	01,000
Z.11	Allowance for soft ground foundation assume 10%	918	m	100	91,800
2.12	Allowance for dewatering assume required over 2m depth	1,271	m	90	114,390
2.13	Allow to locate existing services	9,171	m	10	91,710
2.14	Allow testing and comisioning of the system	9,171	m	10	91,710
2.15	Allow for utility service coordination and standover	1	Sum	100,000	100,000
2.16	1050 Manholes - assume 50m centres				
2.17	0.0m - 1.0m Depth	4	No	4.070	16.280
2 18	1.0m - 2.0m Depth	155	No	6 400	992,000
2.10	2.0m - 3.0m Depth	26	No	7 140	185,640
2.10	Sewer Lateral	725	No	2 250	1 631 250
2.20	Installation of lateral in carriagoway assume 10m	125		2,200	1,001,200
2.21	assume 0-1.5m 100 dia PVC			2,000	
2.22	Lateral Junction			250	
2.23	Traffic Management	10	%	7,063,830	707,000
3.00	Catchment Pumpstations				250,000
3.01	Catchment Pump Station 10 L/S capacity	1	No	250,000	250,000
4.00	Terminal Pumpstation				1,375,000
4.01	Terminal Pump Station 30 L/S capacity, high head pump	1	No	1,375,000	1,375,000
5.00	Rising main				9,534,170
	State Highway				,,
5.01	PE100 OD250 PN12.5 Rising Main - Assume State	8,900	m	600	5,340,000
0.01	Highway corridor allowance to directionally drill majority	2,000		200	2,010,000
	1	l	1	I	1 I



5.02	Assume pits every 600m - site establishment, disestablishment, 100m ² carriageway reisnstatement, 100m barrier reinstatement, breather valves for pipe, inspection chamber	15	No	150,000	2,250,000
5.02	Extra Over allowance for railway crossing - 300 dia	2	No	350.000	700.000
5.05	for nine jacking equinment	∠		330,000	700,000
5.04	Traffic Management - State Highway	15	%	8 290 000	1 244 000
0.0 1	rounding		,.	0,200,000	170
6.00	Net Total				35,750,000
6.01	Preliminaries and General	25	%	35,750,000	8,938,000
6.02	Environmental Compliance	2	%	44,688,000	894,000
6.03	Drefessional Essa				
0.00	Professional Fees	10	%	45,582,000	4,559,000
6.04	Design Development Contingency	10 30	% %	45,582,000 50,141,000	4,559,000 15,043,000
6.04 6.05	Design Development Contingency Construction Contingency	10 30 20	% % %	45,582,000 50,141,000 65,184,000	4,559,000 15,043,000 13,037,000
6.04 6.05 6.06	Design Development Contingency Construction Contingency Escalation	10 30 20 N/A	% % %	45,582,000 50,141,000 65,184,000 78,221,000	4,559,000 15,043,000 13,037,000
6.04 6.05 6.06 7.00	Design Development Contingency Construction Contingency Escalation Expected Estimate Total	10 30 20 N/A	% % %	45,582,000 50,141,000 65,184,000 78,221,000	4,559,000 15,043,000 13,037,000 78,221,000
6.04 6.05 6.06 7.00 8.00	Design Development Contingency Construction Contingency Escalation Expected Estimate Total Expected Estimate - Min (-30%)	10 30 20 N/A	% % %	45,582,000 50,141,000 65,184,000 78,221,000	4,559,000 15,043,000 13,037,000 78,221,000 55,000,000



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 1b - Paekākāriki - Low Pressure

Item	Description	QTY	Unit	Rate	Total
1.00	Properties				18,850,000
1.01	Physical Works within property boandary	725.00	No	26,000	18,850,000
1.02	Allow for consultation	1.00	No	2,500	
1.03	CCTV	1.00	No	500	
1.04	Decomission septic tank	1.00	No	5,000	
1.05	Install new low pressure tank, pump and boundry	1.00	No	8,000	
1.06	Install new DN40 PE100 nine allow 20m	1 00	No	2 400	
1.00	Allow for electrical connection	1.00	No	2,400	
1.07	Allow for property reinstatement - provisional	1.00		2,000	
1.08	allowance	1.00	No	5,000	
2.00	Catchment Pipework				3,123,690
	Rates are fully inclusive of all integral components				
	assume AC asphalt reinstatement				
2.01	DN63 PE100 Pipe	8849.00	m		
2.02	0.0m - 1.0m Depth	8849.00	m	150	1,327,350
2.03	DN90 PE100 Pipe	322.00	m		
2.04	0.0m - 1.0m Depth	322.00	m	180	57,960
2.05	CCTV	8,849	m	10	88,490
2.06	Allowance for rock excavation assume type R2 10%	918	m³	120	110,160
2.07	Allow to locate existing services	8,849	m	10	88,490
2.08	Allow testing and comisioning of the system	8,849	m	10	88,490
2.09	Allow for utility service coordination and standover	1	Sum	100,000	100,000
2.10	1050 Manholes				
2.11	0.0m - 1.0m Depth	0.00	No	4,070	0
2.12	Sewer Lateral Renewal	725.00	No	1,350	978,750
2 12	Installation of lateral assume 10m assume DN40	1 00	No	1 200	
2.15	PE100 Pipe	1.00	110	1,200	
2.14	PE100 DN40/90 Junction	1.00	No	150	
2.15	Traffic Management	10	%	2,839,690	284,000
3.00	Catchment Pumpstations				0
3.01	Catchment Pump Station 10 L/S capacity	0.00	No	250,000	0
4.00	Terminal Pumpstation				950,000
4.01	nump	1	No	950,000	950,000
5.00	Rising main				9 534 310
0.00	State Highway				3,004,010
	PE100 OD250 PN12.5 Rising Main - Assume State				
5.01	Highway corridor allowance to directionally drill	8,900	m	600	5,340,000
	majority	- ,			-,,
	Assume pits every 600m - site establishment,				
F 00	disestablishment, 100m² carriageway	45	Na	450.000	2 250 000
5.02	reisnstatement, 100m barrier reinstatement,	15	NO	150,000	2,250,000
	breather valves for pipe, inspection chamber				
	Extra Over allowance for railway crossing - 300 dia				
5.03	steel casing pits, establishment and	2	No	350,000	700,000
	disestablishment for pipe jacking equipment.				
5.04	Traffic Management - State Highway	15	%	8,290,000	1,244,000
	rounding				310
6.00	Net Total				32,458,000
6.01	Preliminaries and General	20.00	%	32,458,000	6,492,000
6.02	Protessional Fees	10.00	%	38,950,000	3,895,000
6.03	Design Development Contingency	30.00	%	42,845,000	12,854,000
6.04	Construction Contingency	20.00	%	155,699,000	11,140,000



6.05	Escalation	N/A	%	66,839,000	
7.00	Expected Estimate Total				66,839,000
8.00	Expected Estimate - Min (-30%)				47,000,000
9.00	Expected Estimate - Max (+40%)				94,000,000



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 2a - Peka Peka Gravity

ltem	Description	QTY	Unit	Rate	Total
1.00	Properties				4,812,000
4.04	Physical Works within property boundary - assume 80%	405	No	20,000	2,200,000
1.01	of properties require standard dig and relay	105	NO	20,000	3,300,000
1.02	Allow for consultation			2,500	
1.03	CCTV			500	
1.04	Decomission septic tank			5,000	
4.05	Lay new 100 PVC pipe assume average depth 1.5m			1.000	
1.05	average 20m length			4,000	
1.06	Allow for 2no. connections and inspection point			3,000	
4.07				5 000	
1.07	Allow for property reinstatement - provisional allowance			5,000	
4.07	Physical Works within property boundary - assume 20%	40	NL.	00.000	4 540 000
1.07	of properties require directionally drilling	42	NO	36,000	1,512,000
1.08	Allow for consultation			2,500	
1.09	CCTV			500	
1.10	Decomission septic tank			5.000	
	Assume 20% of properties - Directional Drill 100 PVC				
1.11	Pipe average 50m			20,000	
1.12	Allow for 2no. connections and inspection point			3.000	
4.40				5 000	
1.13	Allow for property reinstatement - provisional allowance			5,000	
2.00	Catchment Pipework				2,395,230
	Rates are fully inclusive of all integral components				
	assume AC asphalt reinstatement				
2.01	150DN uPVC SN16 Pipe	2,336	т		
2.02	0.0m - 1.0m Depth	0	m	220	0
2.03	1.0m - 2.0m Depth	2,166	m	370	801,420
2.04	2.0m - 3.0m Depth	170	m	470	79,900
2.05	225DN uPVC SN16 Pipe	0	т		
2.06	0.0m - 1.0m Depth	0	m	300	0
2.07	1.0m - 2.0m Depth	0	m	510	0
2.08	2.0m - 3.0m Depth	0	m	670	0
2.09	CCTV	2,336	m	10	23,360
2 10	Allowance for rock excavation assume type R2 10%	234	m ³	120	28,080
2 11	Allowance for soft ground foundation assume 10%	234	m	100	23 400
2.11	Allowance for dewatering assume required over 2m	201		100	20,100
2.12	denth	2,166	m	90	194,940
2 13	Allow to locate and protect existing services	2 336	m	10	23 360
2.10	Allow to locate and protect existing services	2,336	m	10	23,300
2.14	Allow for utility convice coordination and standover	2,000	Sum	100 000	100,000
2.10	Allow for utility service coordination and standover	1	Sum	100,000	100,000
2.10	1050 Mannoles	0	No	4.070	0
2.17	0.0m - 1.0m Deptn	0	INO Nu	4,070	0
2.18	1.0m - 2.0m Depth	44	NO	6,400	281,600
2.19	2.0m - 3.0m Depth	4	No	7,140	28,560
2.20	Sewer Lateral Renewal	207	No	2,750	569,250
2.21	CCTV	1	No	500	
2.22	Installation of lateral assume 10m assume 0-1.5m 100	1	No	2 000	
2.22	dia PVC	,	///0	2,000	
2.23	Lateral Junction	1	No	250	
2.24	Traffic Management	10	%	2,177,230	218,000
3.00	Catchment Pumpstations				250,000
3.01	Catchment Pump Station 10 L/S capacity	1	No	250,000	250,000
4.00	Terminal Pumpstation				250,000
4.01	Terminal Pump Station 10 L/S capacity	1	No	250,000	250,000
5.00	Rising main				315,770
5.01	PE100 OD110 PN12.5 Rising Main - Standard Dig and	1300.00	m	210	272 000
5.01	relay	1300.00		210	213,000
5.02	Air Valve and inspection chamber	3.00	No	5,000	15,000



5.02	Traffic Management	10	%	273,000	28,000
	rounding				-230
6.00	Net Total				8,023,000
6.01	Preliminaries and General	20	%	8,023,000	1,605,000
6.02	Professional Fees	10	%	9,628,000	963,000
6.03	Design Development Contingency	30	%	10,591,000	3,178,000
6.04	Construction Contingency	20	%	13,769,000	2,754,000
6.05	Escalation	N/A	%	16,523,000	
7.00	Expected Estimate Total				16,523,000
8.00	Expected Estimate - Min (-30%)				12,000,000
9.00	Expected Estimate - Max (+40%)				23,000,000



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 2b - Peka Peka - Low Pressure

ltem	Description	QTY	Unit	Rate	Total
1.00	Properties				5,356,000
1.01	Physical Works within property boandary	206.00	No	26,000	5,356,000
1.02	Allow for consultation	1.00	No	2,500	
1.03	CCTV	1.00	No	500	
1.04	Decomission septic tank	1.00	No	5.000	
1.05	Install new low pressure tank and pump	1.00	No	8,000	
1.06	Install new DN40 PE100 pipe allow 20m	1.00	No	2,400	
1.07	Allow for electrical connection	1.00	No	2,600	
1 4 4 4	Allow for property reinstatement -	(
1.08	provisional allowance	1.00	NO	5,000	
2.00	Catchment Pipework				940.680
	Rates are fully inclusive of all integral				
	components assume AC asphalt				
	reinstatement				
2.01	DN63 PE100 Pipe	2336.00	m		
2.02	0.0m - 1.0m Depth	1402.00	m	150	210.300
2.03	DN90 PE100 Pipe	0.00			,
2 04	0.0m - 1.0m Depth	934 00	m	180	168 120
2.05	CCTV	2 336	m	10	23,360
2.00	Allowance for rock excavation assume type R	2,000	m ³	120	28,000
2.00	Allow to locate existing services	2 3 3 6		10	20,000
2.07	Allow to lood to existing services	2,000			20,000
2.08	Allow testing and comisioning of the system	2,336	m	10	23,360
2.09	Allow for utility service coordination and	1	Sum	100.000	100.000
0.40	standover			1.050	070,400
2.10	Sewer Lateral Renewal	206.00	NO	1,350	278,100
2.11	Installation of lateral assume 10m assume DN40 PE100 Pipe			1,200	
2.12	PE100 DN40/90 Junction			150	
2.13	Traffic Management	10	%	854,680	86,000
3.00	Catchment Pumpstations				0
3.01	Catchment Pump Station 10 L/S capacity	0.00	No	250,000	0
4.00	Terminal Pumpstation				250,000
4.01	Terminal Pump Station 10 L/S capacity	1	No	250,000	250,000
5.00	Rising main				316,320
5.01	PE100 OD110 PN12.5 Rising Main -	1300.00	m	210	273 000
5.01	Standard Dig and relay	1300.00		210	273,000
5.02	Air Valve and inspection chamber	3.00	No	5,000	15,000
5.02	Traffic Management	10	%	273,000	28,000
	rounding				320
6.00	Net Total				6,863,000
6.01	Preliminaries and General	20.00	%	6,863,000	1,373,000
6.02	Professional Fees	10.00	%	8,236,000	824,000
6.03	Design Development Contingency	30.00	%	9,060,000	2,718,000
6.04	Construction Contingency	20.00	%	11,778,000	2,356,000
6.05	Escalation	N/A	%	14,134,000	
7.00	Expected Estimate Total				14,134,000
8.00	Expected Estimate - Min (-30%)				10,000,000
9.00	Expected Estimate - Max (+40%)				20,000,000



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 3a - Te Horo - Gravity

ltem	Description	QTY	Unit	Rate	Total
1.00	Properties				2,780,000
1.01	Physical Works within property boundary - assume 80% of properties require standard dig and relay	139.00	No	20,000	2,780,000
1.02	Allow for consultation			2.500	
1.03	CCTV			500	
1.04	Decomission septic tank			5.000	
1.05	Lay new 100 PVC pipe assume average depth 1.5m			4,000	
1.06	Allow for 2no. connections and inspection point			3,000	
1.07	Allow for property reinstatement - provisional allowance			5,000	
1.08	Physical Works within property boundary - assume 20% of properties require directionally drilling	35.00	No	36,000	1,260,000
1.09	Allow for consultation			2,500	
1.10	CCTV			500	
1.11	Decomission septic tank			5,000	
1.12	Assume 20% of properties - Directional Drill 100 PVC Pipe average 50m			20,000	
1.13	Allow for 2no. connections and inspection point			3,000	
1.14	Allow for property reinstatement - provisional allowance			5,000	
2.00	Catchment Pipework				2,978,680
	Rates are fully inclusive of all integral components				
	assume AC asphalt reinstatement				
2.01	150DN uPVC SN16 Pipe	3,450	т		
2.02	0.0m - 1.0m Depth	0	m	220	0
2.03	1.0m - 2.0m Depth	2,860	m	370	1,058,200
2.04	2.0m - 3.0m Depth	590	m	470	277,300
2.05	225DN uPVC SN16 Pipe	0	т		
2.06	0.0m - 1.0m Depth	0	m	300	0
2.07	1.0m - 2.0m Depth	0	m	510	0
2.08	2.0m - 3.0m Depth	0	m	670	0
2 09	CCTV	3 450	m	10	34 500
2 10	Allowance for rock excavation assume type R2 10%	345	m ³	120	41 400
2.10	Allowance for soft ground foundation assume 10%	345	m	100	34 500
2.12	Allowance for dewatering assume required over 2m	2,860	m	90	257,400
2 13	Allow to locate existing services	3 450	m	10	34 500
2.10	Allow testing and comisioning of the system	3,450	m	10	34,500
2.09	1050 Manholes	_			
2.10	U.Um - 1.Um Depth	0	No	4,070	0
2.11	1.0m - 2.0m Depth	58	No	6,400	371,200
2.12	2.0m - 3.0m Depth	12	No	7,140	85,680
2.13	Sewer Lateral Renewal	174	No	2,750	478,500
2.14	CCTV	1	No	500	
2.15	Installation of lateral assume 10m assume 0-1.5m 100 dia PVC	1	No	2,000	
2.16	Lateral Junction	1	No	250	
2.17	Traffic Management	10	%	2,707,680	271,000
3.00	Catchment Pumpstations				250,000
3.01	Catchment Pump Station 10 L/S capacity	1	No	250,000	250,000
4.00	Terminal Pumpstation				1,450,000
4.01	Terminal Pump Station 12 L/S capacity, high heap pump	1	No	1,200,000	1,200,000
4.02	Extra Over allowance for additional odour control	1	No	250,000	250,000
5.00	Rising main				3,164,320



5.01	PE100 OD140 PN12.5 Rising Main - Standard Dig and relay	4850.00	m	220	1,067,000
5.02	PE100 OD140 PN12.5 Rising Main -Dig and relay State Highway 1	3800.00	m	420	1,596,000
5.03	Air Valve and inspection chamber	18.00	No	5,000	90,000
5.04	Bridge Crossing	1.00	No	250,000	250,000
5.05	Traffic Management	15	%	1,067,000	161,000
	rounding				320
6.00	Net Total				11,253,000
6.01	Preliminaries and General	20	%	11,253,000	2,251,000
6.02	Professional Fees	10	%	13,504,000	1,351,000
6.03	Design Development Contingency	30	%	14,855,000	4,457,000
6.04	Construction Contingency	20	%	19,312,000	3,863,000
6.05	Escalation	N/A	%	23,175,000	
7.00	Expected Estimate Total				23,175,000
8.00	00 Expected Estimate - Min (-30%)				16,000,000
9.00	Expected Estimate - Max (+40%)				32,000,000



KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 3b - Te Horo- Low Pressure

1 Properies 4.498,000 1.01 Physical Works within property boandary 173.00 No 26,000 4,498,000 1.02 Allow for consultation 173.00 No 26,000 4,498,000 1.03 CCTV 500 500 500 500 1.04 Decomission septic tank 8,000 8,000 5,000 8,000 1.06 Install new Nido PE100 pice allow 20m 2,600 2,600 2,600 2,600 1.08 for property restatement - provisional allow for property restatement - provisional allowance 5,000 m 1,095,950 Rates are fully inclusive of all integral components assume AC asphait reinstatement 3450.00 m 150 517,500 2.02 0.03 No Depth 0.00 m 180 0 0 2.04 0.00 - I. Om Depth 0.00 m 180 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ltem	Description	QTY	Unit	Rate	Total
1.01 Physical Works within property boandary 173.00 No 26,000 4,498,000 1.02 Allow for consultation 5,000 500 500 1.03 Install new low pressure tank and pump 8,000 2,400 2,400 1.04 Decomission septic tank 2,400 2,400 2,400 1.06 Install new low pressure tank and pump 5,000 2,400 1.08 Install new low pressure tank and pump 5,000 2,400 1.08 Mow for electrical connection 5,000 2,400 2.01 DN63 PE100 Pipe 3450.00 m 150 517,500 2.02 0.0m - 1.0m Depth 3450.00 m 120 41,400 2.06 CCTV assume AC asphalt reinstatement 3,450 m 10 34,500 2.03 D.030 PE100 Pipe 0.00 m 180 0 3,450 2.04 O.0m - 1.0m Depth 3,450 m 10 34,500 2.10 Retreatal m 17,200	1	Properties				4,498,000
1.02 Allow for consultation 2.500 1.03 CCTV 500 1.04 Decomission septic tank 5,000 1.05 Install new low pressure tank and pump 8,000 1.06 Install new DN40 PE100 pipe allow 20m 2,400 1.07 Allow for property reinstatement - provisional 2,600 1.08 Allow for property reinstatement - provisional 5,000 2 Catchment Pipework - 1,095,950 2 Catchment Pipework - 1,095,950 2.01 DN63 PE100 Pipe 3450.00 m 10 2.02 0.07 -1.00 Depth 3450.00 m 10 34,500 2.04 0.07 -1.00 Depth 0.000 m 10 34,500 2.05 CCTV 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.07 Allow to locate existing services 3,450 m 10 34,500 2.10 Bardia	1.01	Physical Works within property boandary	173.00	No	26,000	4,498,000
1:03 CCTV 500 1:04 Decomission septic tank 5,000 1:05 Install new DN40 PE100 pipe allow 20m 2,600 1:07 Allow for property reinstatement - provisional 2,600 1:08 allow ance 5,000 2 Catchment Pipework 5,000 2 Catchment Pipework 5,000 2 Catchment Pipework 1,095,950 2 Catchment Pipework 1,095,950 2 Catchment Pipework 1,095,950 2 Cotom - 1.0m Depth 2450,00 m 2.01 DN63 PE100 Pipe 0.00 m 180 0 2.04 0.0m - 1.0m Depth 0.00 m 10 34,50 2.05 CCTV 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.10 Sewer Lateral Sume ro	1.02	Allow for consultation			2,500	
1.04 Decomission septic tank 5,000 1.05 Install new DN40 PE100 pipe allow 20m 2,400 1.06 Install new DN40 PE100 pipe allow 20m 2,600 1.08 Allow for property reinstatement - provisional allowance 5,000 2 Catchment Pipework 1095,950 Rates are fully inclusive of all integral components assume AC asphalt reinstatement 3450,00 m 2.00 0.01 m -10 Depth 3450,00 m 100 2.02 0.01 m -10 Depth 3450,00 m 100 2.04 0.00 -10 Depth 3450,00 m 100 34,500 2.04 0.00 -10 Depth 3,450 m 10 34,500 2.04 0.00 -10 Exectisting services 3,450 m 10 34,500 2.08 Allow testing and comisioning of the system 3,450 m 10 34,500 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 150 1,200,000 100,000	1.03	CCTV			500	
1.05 Install new low pressure tank and pump 8.000 1.06 Install new low DPE 100 pipe allow 20m 2.400 1.07 Allow for electrical connection 2.600 1.08 allow more 5.000 2 Catchment Pipework 1,095,950 Rates are fully inclusive of all integral components assume AC asphalt reinstatement 3450.00 m 2.01 DN63 PE100 Pipe 3450.00 m 150 2.03 DN90 PE100 Pipe 0.00 m 180 0.00 2.04 0.0m - 1.0m Depth 0.00 m 180 3450.00 2.05 CCTV 3.450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.06 Allow to to locate existing services 3,450 m 10 34,500 2.01 Installation of lateral assume 10m assume DN40 1 Sum 100.000 100.000 2.11 Installation of Liz/S capacity 0.00 No 1,200,000 1,200,000<	1.04	Decomission septic tank			5,000	
1.06 Instail new DN40 PE 100 pipe allow 20m 2,400 1.07 Allow for electrical connection 2,600 1.08 Allow for property reinstatement - provisional allowance 5,000 2 Catchment Pipework 1,095,950 Rates are fully inclusive of all integral components assume AC asphalt reinstatement 1,095,950 2.01 DN63 PE 100 Pipe 3450,00 m 2.02 0.0m - 1.0m Depth 3450,00 m 2.03 DN90 PE 100 Pipe 0.00 m 180 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3,450 m 10 34,500 2.08 Allow to tog and comisioning of the system 3,450 m 10 34,500 2.10 Installation of lateral assume 10m assume DN40 1 Sum 100,000 100,000 2.11 Installation of lateral assume 10m assume DN40 1 1,200 223,000 2.12 PE 100 DN40/90 Junction 1 10 % 995,950 100,000 <td>1.05</td> <td>Install new low pressure tank and pump</td> <td></td> <td></td> <td>8,000</td> <td></td>	1.05	Install new low pressure tank and pump			8,000	
1.07 Allow for electrical connection Allow for property reinstatement - provisional allowance 2,600 2 Catchment Pipework 1,095,950 2 Catchment Pipework 1,095,950 Rates are fully inclusive of all integral components assume AC asphalt reinstatement 3450,00 m 2.01 DN63 PE100 Pipe 0,00 m 150 2.02 0.0m - 1.0m Depth 3450,00 m 100 2.04 0.0m - 1.0m Depth 3450 m 10 34,500 2.05 CCTV 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 1 1 0 2.13 Traffic Management 10 % 995,950 100,000 5.01 Catchment Pump Station 10 L/S	1.06	Install new DN40 PE100 pipe allow 20m			2,400	
1.08 allow for property reinstatement - provisional allowance 5,000 2 Catchment Pipework 1,095,950 Rates are fully inclusive of all integral components assume AC asphalt reinstatement 3450,00 m 150 2.01 DNS3 PE100 Pipe 3450,00 m 150 517,500 2.02 0.0m - 1.0m Depth 3450,00 m 180 0 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3450 m 10 34,500 2.06 Allow toolcate existing services 3,450 m 10 34,500 2.08 Allow to locate existing services 3,450 m 10 34,500 2.09 Allow to locate existing services 3,450 m 10 34,500 2.11 PE100 Pipe 0.00 No 1,350 233,550 2.11 PE100 DN40/90 Junction 1 0 % 989,500 100,000 5.01 Catchment Pump Station 10 L/S capacity. high heap pump 1	1.07	Allow for electrical connection			2,600	
1.00 allowance 5,000 2 Catchment Pipework 1,095,950 Rates are fully inclusive of all integral components assume AC asphalt reinstatement 3450,00 m 1,003 2.01 DN83 PE100 Pipe 3450,00 m 150 517,500 2.02 0.0m - 1.0m Depth 3450,00 m 180 0 2.04 0.0m - 1.0m Depth 3450,00 m 10 34,500 2.04 O.0m - 1.0m Depth 3450 m 10 34,500 2.05 CCTV 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.09 Allow for utility service coordination and standover 1 Sum 100,000 100,000 2.11 PE100 Pipe 7.200 7.200 7.200 7.200 7.200 2.13 Trafic Management 10 % 995,950 100,000 0 5.01 Catchment Pumpstation 12 L/S capacity 0.00 <th< td=""><td>1 00</td><td>Allow for property reinstatement - provisional</td><td></td><td></td><td>5 000</td><td></td></th<>	1 00	Allow for property reinstatement - provisional			5 000	
2 Catchment Pipework Image: State are fully inclusive of all integral components assume AC asphalt reinstatement Image: State are fully inclusive of all integral components assume AC asphalt reinstatement 2.01 DNS3 PE100 Pipe 3450.00 m 150 2.02 0.0m -1.0m Depth 3450.00 m 180 0 2.04 0.0m -1.0m Depth 0.00 m 180 0 2.05 CCTV 3450 m 10 345,00 2.06 Allowace for rock excavation assume type R2 10% 345 m ³ 120 411,400 2.07 Allow to totace existing services 3,450 m 10 34,500 2.08 Allow to totace existing services 3,450 m 10 34,500 2.01 Installation of lateral assume 10m assume DN40 1 Sum 100,000 100,000 2.11 Installation of lateral assume 10m assume DN40 1,200 0 0 2.12 PE100 DN40/90 Junction 150 120 1400 2.13 Traffic Management 10	1.06	allowance			5,000	
Rates are fully inclusive of all integral components assume AC asphalt reinstatement 3450.00 m n 2.01 DN63 PE100 Pipe 3450.00 m 150 517,500 2.02 0.0m - 1.0m Depth 3450.00 m 150 517,500 2.03 DN90 PE100 Pipe 0.00 m 180 0 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3.450 m 10 34,500 2.06 Allow too cate existing services 3.450 m 10 34,500 2.08 Allow tor utility service coordination and standover 1 Sum 100,000 100,000 2.11 Installation of lateral assume 10m assume DN40 1 Sum 1,200 1 PE100 Pipe 10 % 995,950 100,000 0 0 2.11 Installation of L/s capacity. high heap 1 No 1,200,000 0 0 6.01 Terminal Pump Station 12 L/S capacity, high heap 1	2	Catchment Pipework				1,095,950
assume AC asphalt reinstatement 3450.00 m 150 2.01 DN63 PE100 Pipe 3450.00 m 150 517,500 2.03 DN90 PE100 Pipe 0.00 m 180 0 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 10 34,500 2.07 Allow to for telinity service coordination and standover 1 Sum 100,000 100,000 2.08 Allow to rot tility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 7 10 % 995,950 100,000 2.12 PE100 DN40/90 Junction 10 % 250,000 0 0 5.01 Catchment Pumpstation 12 L/S capacity, high heap pump 1 No		Rates are fully inclusive of all integral components				
2.01 DN63 PE100 Pipe 3450.00 m 150 517,500 2.02 0.0m - 1.0m Depth 3450.00 m 150 517,500 2.03 DN90 PE100 Pipe 0.00 m 180 0 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3.450 m 10 34,500 2.06 Allow to locate existing services 3.450 m 10 34,500 2.08 Allow to for totility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 1 10 % 995,950 100,000 2.13 Traffic Management 10 % 995,950 100,000 0 5.01 Catchment Pump Station 12 L/S capacity 0.00 No 250,000 250,000 0 6.01 Terminal Pump Station 12 L/S capacity 0.		assume AC asphalt reinstatement				
2.02 0.0m - 1.0m Depth 3450.00 m 150 517,500 2.03 DN90 PE100 Pipe 0.00 m 180 0 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3.450 m 10 34,500 2.06 Allow to cate existing services 3.450 m 10 34,500 2.08 Allow to for utility service coordination and standover 1 Sum 100,000 100,000 2.09 Allow to rutility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 1 10 % 995,950 100,000 5.01 Catchment Pumpstation 1 10 % 995,950 100,000 6.01 Terminal Pump Station 12 L/S capacity 0.00 No 250,000 1,200,000 6.02 Extra Over allowance for additional od	2.01	DN63 PE100 Pipe	3450.00	m		
2.03 DN90 PE100 Pipe 0.00 m 180 2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.06 Allow no for rock excavation assume type R2 10% 34.50 m 10 34.500 2.06 Allow to locate existing services 3.450 m 10 34.500 2.08 Allow to cate existing and comisioning of the system 3.450 m 10 34.500 2.09 Allow to culitly service coordination and standover 1 Sum 100.000 100.000 2.10 Installation of lateral assume 10m assume DN40 n 1.200 1 1.200 2.11 PE100 DN40/90 Junction 1 50 100.000 1.200 0 5.0 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 250,000 250,000 <td< td=""><td>2.02</td><td>0.0m - 1.0m Depth</td><td>3450.00</td><td>m</td><td>150</td><td>517,500</td></td<>	2.02	0.0m - 1.0m Depth	3450.00	m	150	517,500
2.04 0.0m - 1.0m Depth 0.00 m 180 0 2.05 CCTV 3,450 m 10 34,500 2.06 Allow to locate existing services 3,450 m 120 41,400 2.07 Allow to locate existing services 3,450 m 10 34,500 2.08 Allow to utility service coordination and standover 1 Sum 100,000 100,000 2.09 Allow for utility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 1 50 100,000 100,000 5 Catchment Pumpstation 10 % 995,950 100,000 0 5.01 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 0 6.01 Terminal Pumps tation 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 7.01	2.03	DN90 PE100 Pipe	0.00	m		
2.05 CCTV 3,450 m 10 34,500 2.06 Allowance for rock excavation assume type R2 10% 345 m³ 120 41,400 2.07 Allow to locate existing services 3,450 m 10 34,500 2.08 Allow to tuility service coordination and standover 1 Sum 100,000 100,000 2.10 Installation of lateral assume 10m assume DN40 1 Sum 1,350 233,550 2.11 PE100 DN40/90 Junction 1 10 995,950 100,000 2.13 Traffic Management 10 % 995,950 100,000 5 Catchment Pumpstations 1 No 250,000 0 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 1,200,000 7.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 250,000 250,000 1,596,000 7.02 Rising main 1 No <t< td=""><td>2.04</td><td>0.0m - 1.0m Depth</td><td>0.00</td><td>m</td><td>180</td><td>0</td></t<>	2.04	0.0m - 1.0m Depth	0.00	m	180	0
2.06 Allowance for rock excavation assume type R2 10% 345 m³ 120 41,400 2.07 Allow to locate existing services 3,450 m 10 34,500 2.08 Allow testing and comisioning of the system 3,450 m 10 34,500 2.09 Allow for utility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 - 16.00 17.00 PE 100 DN40/90 Junction - 15.0 - 0 2.12 PE100 DN40/90 Junction 10 % 995,950 100,000 5.01 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 7.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 3,164,050 7.02 <td>2.05</td> <td>CCTV</td> <td>3,450</td> <td>m</td> <td>10</td> <td>34,500</td>	2.05	CCTV	3,450	m	10	34,500
2.07 Allow to locate existing services 3,450 m 10 34,500 2.08 Allow testing and comisioning of the system 3,450 m 10 34,500 2.09 Allow for utility service coordination and standover 1 Sum 100,000 100,000 2.01 Installation of lateral assume 10m assume DN40 1 Sum 1,200 1,200 2.12 PE 100 DN40/90 Junction 10 % 995,950 100,000 5.01 Catchment Pumpstations 10 % 995,950 100,000 6.01 Terminal Pumpstation 10 L/S capacity 0.00 No 250,000 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 7.01 Resing main 1 No 1,200,000 250,000 250,000 7.02 Extra Over allowance for additional odour control 1 No 220 1,067,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay atrival valve and inspection chamber 18.00 No	2.06	Allowance for rock excavation assume type R2 10%	345	m³	120	41,400
2.08 Allow testing and comisioning of the system 3,450 m 10 34,500 2.09 Allow for utility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 173.00 No 1,200 2.12 PE 100 DN40/90 Junction 10 % 995,950 100,000 5.01 Catchment Pumpstation 10 L/S capacity 0.00 No 250,000 0 6.01 Terminal Pumps Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7.01 PE 100 OD140 PN12.5 Rising Main - Standard Dig and relay 3800.00 m 420 1,596,000 7.02 PE 100 OD140 PN12.5 Rising Main -Dig and relay 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000	2.07	Allow to locate existing services	3,450	m	10	34,500
2.09 Allow for utility service coordination and standover 1 Sum 100,000 100,000 2.10 Sewer Lateral 173.00 No 1,350 233,550 2.11 Installation of lateral assume 10m assume DN40 1 1200 1,200 1,200 2.12 PE100 DN40/90 Junction 10 % 995,950 100,000 2.13 Taraffic Management 10 % 995,950 100,000 5.01 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7.01 PE100 OD140 PN12.5 Rising Main - Standard Dig and relay 4850.00 m 220 1,067,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 250,000 250,000 7.04 Bridge Crossing 10.00 %	2.08	Allow testing and comisioning of the system	3,450	m	10	34,500
2.10 Sewer Lateral 173.00 No 1.350 233,550 2.11 Installation of lateral assume 10m assume DN40 1,200 1,200 1,200 2.12 PE100 DN40/90 Junction 10 % 995,950 100,000 5.11 Catchment Pumpstations 0 0 0 0 5.01 Catchment Pumpstation 10 L/S capacity 0.00 No 250,000 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 250,000 250,000 250,000 250,000 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 1,067,000 1,596,000 3,164,050 m 4850.00 m 420 1,596,000 250,000 250,000 250,000 250,000 250,000 250,000 250,000 50 <td>2.09</td> <td>Allow for utility service coordination and standover</td> <td>1</td> <td>Sum</td> <td>100,000</td> <td>100,000</td>	2.09	Allow for utility service coordination and standover	1	Sum	100,000	100,000
2.11 Installation of lateral assume 10m assume DN40 PE 100 Pipe 1,200 2.12 PE100 DN40/90 Junction 150 2.13 Traffic Management 10 % 995,950 100,000 5 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 6.01 Terminal Pump Station 10 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 7.01 Rising main 3,164,050 3,164,050 7.01 PE 100 CD140 PN12.5 Rising Main - Standard Dig and relay 4850.00 m 220 1,067,000 7.02 PE 100 CD140 PN12.5 Rising Main -Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 250,000 250,000 7.04 Bridge Crossing 1.00 No 220,00 161,000 50 8.00 Net Total <td>2.10</td> <td>Sewer Lateral</td> <td>173.00</td> <td>No</td> <td>1,350</td> <td>233,550</td>	2.10	Sewer Lateral	173.00	No	1,350	233,550
2.11 PE 100 Pipe 17,200 2.12 PE 100 DN40/90 Junction 150 2.13 Traffic Management 10 % 995,950 2.11 Traffic Management 10 % 995,950 5.01 Catchment PumpStation 10 L/S capacity 0.00 No 250,000 0 6 Terminal Pumpstation 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 250,000 250,000 7.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 250,000 250,000 7.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 220,000 250,000 7.01 PE100 OD140 PN12.5 Rising Main - Standard Dig and relay 3800.00 m 220 1,067,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 250,000 7.04 Bridge Crossing 1.00 No<	0.44	Installation of lateral assume 10m assume DN40			1 000	
2.12 PE 100 DN40/90 Junction 10 10 100 995,950 100,000 5 Catchment Pumpstations 0 0 0 0 5.01 Catchment Pumpstation 10 L/S capacity 0.00 No 250,000 0 6 Terminal Pumpstation 1 No 1,200,000 1,200,000 6.01 Terminal Pumpstation 12 L/S capacity, high heap pump 1 No 1,200,000 250,000 250,000 6.01 Terminal Pumpstation 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7.01 PE100 OD140 PN12.5 Rising Main - Standard Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 250,000 250,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 250,000 8.00 Net Total 10,028,000 10,028,000 2,024,000 50 8.01 Preliminarises and	2.11	PE100 Pipe			1,200	
2.13 Traffic Management 10 % 995,950 100,000 5 Catchment Pump Stations 0 0 0 5.01 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 . 0 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 1,200,000 250,000 250,000 6.02 Extra Over allowance for additional odour control 1 No 1,200,000 250,000 250,000 7.01 PE100 OD140 PN12.5 Rising Main - Standard Dig and relay state Highway 1 3800.00 m 420 1,596,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay state Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 250,000 250,000 7.04 Bridge Crossing 1.00 No 250,000 260,000 36	2.12	PE100 DN40/90 Junction			150	
5 Catchment Pump Stations 0 0 0 5.01 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 6 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 250,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7.01 PE100 OD140 PN12.5 Rising Main - Dig and relay and relay 3800.00 m 420 1,596,000 7.02 State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 250,000 7.04 Bridge Crossing 1.00 No 250,000 2,042,000	2.13	Traffic Management	10	%	995,950	100,000
5.01 Catchment Pump Station 10 L/S capacity 0.00 No 250,000 0 6 Terminal Pumpstation 1 No 1,200,000 1,200,000 6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7 Rising main 0 250,000 m 220 1,067,000 7.01 PE100 OD140 PN12.5 Rising Main - Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 8.00 Net Total 20.00 % 10,208,000 2,042,000 8.01 Preliminaries and General 20.00 % 13,475,000 3,204,000	5	Catchment Pumpstations				0
6 Terminal Pumpstation Image: block in the state in	5.01	Catchment Pump Station 10 L/S capacity	0.00	No	250,000	0
6.01 Terminal Pump Station 12 L/S capacity, high heap pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7 Rising main Image: Station 12 L/S Rising Main - Standard Dig and relay 4850.00 m 220 1,067,000 7.01 PE100 OD140 PN12.5 Rising Main - Dig and relay and relay 3800.00 m 420 1,596,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Taffic Management 15 % 1,067,000 161,000 7.05 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 %	6	Terminal Pumpstation				1,450,000
0.01 pump 1 No 1,200,000 1,200,000 6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7 Rising main 1 No 250,000 250,000 7 Rising main 3,164,050 3,164,050 7.01 PE100 OD140 PN12.5 Rising Main - Standard Dig and relay 4850.00 m 220 1,067,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 7.05 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.01 Preliminaries and General 20.00 % 10,208,000 1,225,000 8.02 Professional Fees 10.00 % 12,250,000	6.01	Terminal Pump Station 12 L/S capacity, high heap	1	No	1 200 000	1 200 000
6.02 Extra Over allowance for additional odour control 1 No 250,000 250,000 7 Rising main Image: construction of the standard Dig and relay PE100 OD140 PN12.5 Rising Main - Standard Dig and relay 4850.00 m 220 1,067,000 7.01 PE100 OD140 PN12.5 Rising Main -Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 8.00 Net Total 10,00 No 250,000 250,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00	0.01	pump	'	INU	1,200,000	1,200,000
7 Rising main Image: Main Picture Pic	6.02	Extra Over allowance for additional odour control	1	No	250,000	250,000
7.01 PE100 OD140 PN12.5 Rising Main - Standard Dig and relay 4850.00 m 220 1,067,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 7.05 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	7	Rising main				3,164,050
7.01 and relay 4000.00 iii 220 1,007,000 7.02 PE100 OD140 PN12.5 Rising Main -Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 7.05 Traffic Management 20.00 % 10,208,000 2,042,000 8.00 Net Total 20.00 % 12,250,000 1,225,000 8.01 Preliminaries and General 20.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	7 01	PE100 OD140 PN12.5 Rising Main - Standard Dig	4850.00	m	220	1 067 000
7.02 PE 100 OD140 PN12.5 Rising Main -Dig and relay State Highway 1 3800.00 m 420 1,596,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 7.05 Net Total 700 10,000 10,000 10,000 10,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	7.01	and relay	4030.00		220	1,007,000
7.02 State Highway 1 3000.00 III 420 1,000,000 7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 rounding 10,208,000 8.00 Net Total 10,00 % 10,208,000 2,042,000 8.01 Preliminaries and General 20.00 % 10,208,000 1,225,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 41,022,000	7 02	PE100 OD140 PN12.5 Rising Main -Dig and relay	3800.00	m	120	1 596 000
7.03 Air Valve and inspection chamber 18.00 No 5,000 90,000 7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 rounding 8.00 Net Total 700 10,208,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 42,020,000	1.02	State Highway 1	3000.00		420	1,590,000
7.04 Bridge Crossing 1.00 No 250,000 250,000 7.05 Traffic Management 15 % 1,067,000 161,000 7.06 Net Total 700 10,208,000 50 8.00 Net Total 20.00 % 10,208,000 2,042,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 4	7.03	Air Valve and inspection chamber	18.00	No	5,000	90,000
7.05 Traffic Management 15 % 1,067,000 161,000 50 8.00 Net Total 10,208,000 10,208,000 20,00 10,208,000 20,000 <th< td=""><td>7.04</td><td>Bridge Crossing</td><td>1.00</td><td>No</td><td>250,000</td><td>250,000</td></th<>	7.04	Bridge Crossing	1.00	No	250,000	250,000
7.05 Traine Management 15 % 1,067,000 161,000 50 8.00 Net Total 10,208,000 10,208,000 2,042,000 2,042,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	7.05		15	0/	1 067 000	161.000
8.00 Net Total 10,208,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	7.05	rounding	15	70	1,007,000	101,000
0.00 Net Total 10,208,000 8.01 Preliminaries and General 20.00 % 10,208,000 2,042,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	8 00	Net Total				10 208 000
8.01 Professional Fees 10.00 % 12,250,000 1,225,000 8.02 Professional Fees 10.00 % 12,250,000 1,225,000 8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000	8.01	Preliminaries and General	20.00	%	10 208 000	2 042 000
8.03 Design Development Contingency 30.00 % 13,475,000 4,043,000 8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000 9.00 Expected Estimate Total 21,022,000 21,022,000 21,022,000	8.02	Professional Fees	10.00	%	12 250 000	1 225 000
8.04 Construction Contingency 20.00 % 17,518,000 3,504,000 8.05 Escalation N/A % 21,022,000 21,022,000 9.00 Expected Estimate Total 21,022,000 21,022,000 21,022,000	8.03	Design Development Contingency	30.00	%	13 475 000	1,220,000
8.05 Escalation N/A % 21,022,000 21,022,000 9.00 Expected Estimate Total 21,022,000 21,022,000 21,022,000	8 04	Construction Contingency	20.00	%	17 518 000	3 504 000
9.00 Expected Estimate Total 21,022,000	8.05	Escalation	N/A	%	21 022 000	0,004,000
	9.00	Expected Estimate Total		/0	21,022,000	21 022 000
10.00 Expected Estimate - Min (-30%) 15.000.000	10.00	Expected Estimate - Min (-30%)				15 000 000
11.00 Expected Estimate - Max (+40%)	11.00	Expected Estimate - Max (+40%)				29,000,000

KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 1a - Paekākāriki - Gravity FUTURE

Item	Description	QTY	Unit	Rate	Total
1.00	Properties				16,820,000
1.01	Physical Works within property boundary - assume 80%	500	No	20.000	11 600 000
1.01	of properties require standard dig and relay	580	INO	20,000	11,600,000
1.02	Allow for consultation			2,500	
1.03	CCTV			500	
1.04	Decomission septic tank			5.000	
	Assume 80% of properties - Lav new 100 PVC pipe				
1.05	assume average depth 1.5m average 20m length			4,000	
1.06	Allow for 2no. connections and inspection point			3,000	
1.07	Allow for property reinstatement - provisional allowance			5,000	
1.08	Physical Works within property boundary - assume 20%	145	No	36,000	5,220,000
1 00	Allow for consultation			2 500	
1.09	CCTV			2,500	
1.10	CCTV Decemiesion contin tenk			500	
1.11	Decomission septic tank			5,000	
1.12	Pipe average 50m			20,000	
1.13	Allow for 2no. connections and inspection point			3,000	
1.14	Allow for property reinstatement - provisional allowance			5,000	
2.00	Catchment Pipework				7,770,830
	Rates are fully inclusive of all integral components				
	assume asphalt reinstatement				
2.01	150DN uPVC SN16 Pipe	8,849	m		
2.02	0.0m - 1.0m Depth	167	m	220	36,740
2.03	1.0m - 2.0m Depth	7,524	m	370	2,783,880
2.04	2.0m - 3.0m Depth	1.158	l m	470	544.260
2 05	225DN uPVC SN16 Pipe	322	m		
2.00	0.0m - 1.0m Denth	0	_ m	300	0
2.00	1 0m 2 0m Donth	200		510	106 500
2.07	1.011 - 2.011 Depth	209		510	75,740
2.06			m	070	75,710
2.09		9,171	m	10	91,710
2.10	Allowance for rock excavation assume type R2 10%	918	m ³	120	110,160
2.11	Allowance for soft ground foundation assume 10%	918	m	100	91,800
2.12	Allowance for dewatering assume required over 2m	1,271	m	90	114,390
2.13	Allow to locate existing services	9,171	l m	10	91,710
2.14	Allow testing and comisioning of the system	9,171	m	10	91,710
2 15	Allow for utility service coordination and standover	1	Sum	100 000	100,000
2.10	1050 Manholes - assume 50m centres			100,000	100,000
2.10	0.0m - 1.0m Denth	1	No	4 070	16 280
2.17	1.0m = 2.0m Depth	155	No	4,070	002.000
2.10	2.0m - 2.0m Depth	100	No	0,400	992,000
2.19	2.0m - 3.0m Depth	20	INO	7,140	185,640
2.20		725	INO	2,250	1,631,250
2.21	Installation of lateral in carriageway assume 10m assume 0-1.5m 100 dia PVC			2,000	
2.22	Lateral Junction			250	
2 23	Traffic Management	10	%	7 063 830	707 000
3 00	Catchment Pumpstations	10	70	1,000,000	250 000
3.01	Catchment Pump Station 10 L/S capacity	1	No	250.000	250.000
4.00	Terminal Pumpstation				2,394.000
4.01	Terminal Pump Station 86 L/S capacity, high head pump	1	No	2.394.000	2,394,000
5.00	Rising main			,,	10,762.170
	State Highway				.,,
5.01	PE100 OD355 PN12.5 Rising Main - Assume State	8,900	m	720	6,408,000
	Highway corridor allowance to directionally drill majority	,		-	,,- ,- ,-
	•	-	•	•	•

5.02	Assume pits every 600m - site establishment, disestablishment, 100m ² carriageway reisnstatement, 100m barrier reinstatement, breather valves for pipe, inspection chamber	15	No	150,000	2,250,000
5.00	Extra Over allowance for railway crossing - 300 dia	0	Na	250.000	700.000
5.03	for nine jacking equipment	2	INO	350,000	700,000
5.04	Traffic Management - State Highway	15	%	9.358.000	1.404.000
	rounding	-		-,,	170
6.00	Net Total				37,997,000
6.01	Preliminaries and General	25	%	37,997,000	9,500,000
6.02	Environmental Compliance	2	%	47,497,000	950,000
6.03	Professional Fees	10	%	48,447,000	4,845,000
6.04	Design Development Contingency	30	%	53,292,000	15,988,000
6.05	Construction Contingency	20	%	69,280,000	13,856,000
6.06	Escalation	N/A	%	83,136,000	
7.00	Expected Estimate Total				83,136,000
8.00	0 Expected Estimate - Min (-30%)				58,000,000
0.00	9.00 Expected Estimate - Max (+40%)				110 000 000

KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 1b - Paekākāriki - Low Pressure FUTURE

ltem	Description	QTY	Unit	Rate	Total
1.00	Properties				18,850,000
1.01	Physical Works within property boandary	725.00	No	26,000	18,850,000
1.02	Allow for consultation	1.00	No	2,500	
1.03	CCTV	1.00	No	500	
1.04	Decomission septic tank	1.00	No	5,000	
1.05	Install new low pressure tank, pump and boundry	1.00	No	8,000	
4 06		100		0.400	
1.00 ≰.07	Install new DN40 PE100 pipe allow 20m	1.00	NO NO	2,400	
1.07	Allow for electrical connection	1.00	NO	2,000	
1.08	Allow for property reinstatement - provisional	1.00	No	5,000	
2.00	Catchment Pipework		├ ──		3,123,690
	Rates are fully inclusive of all integral components				-,,
	assume AC asphalt reinstatement	l l	1 '		
2.01	DN63 PE100 Pipe	8849.00	<i>m</i> '	1	
2.02	0.0m - 1.0m Depth	8849.00	l m '	150	1,327,350
2.03	DN90 PE100 Pipe	322.00	<i>m</i> '	1	
2.04	0.0m - 1.0m Depth	322.00	l m '	180	57,960
2.05	ICCTV	8,849	l m '	10	88,490
2.06	Allowance for rock excavation assume type R2 10%	918	m³ ′	120	110,160
2.07	Allow to locate existing services	8,849	l m '	10	88,490
2.08	Allow testing and comisioning of the system	8,849	m '	10	88,490
2.09	Allow for utility service coordination and standover	1	Sum	100,000	100,000
2.10	1050 Manholes	i	1 '		
2.11	0 0m - 1 0m Depth	0.00	No '	4.070	0
2.12	Sewer Lateral Renewal	725.00	No	1.350	978,750
	Installation of lateral assume 10m assume DN40	4.00		1000	
2.13	PE100 Pipe	1.00	No	1,200	
2.14	PE100 DN40/90 Junction	1.00	No	150	
2.15	Traffic Management	10	%	2,8 <u>39,690</u>	284,000
3.00	Catchment Pumpstations				0
3.01	Catchment Pump Station 10 L/S capacity	0.00	No	250,000	0
4.00	Terminal Pumpstation				1,310,000
4 01	Terminal Pump Station 40 L/S capacity, high heap	 I 1	No '	1 310 000	1 310.000
T.V.	pump			1,010,000	1,010,000
5.00	Rising main				10,250,310
	State Highway	l l	1 '		
- 04	PE100 OD315 PN12.5 Rising Main - Assume State		1 _ '	070	5 000 000
5.01	Highway corridor allowance to directionally drill	8,900	m	670	5,963,000
	majority	i	1 '	1	
	Assume pits every 600m - site establishment,	l I	1 '	1	
5.02	disestablishment, 100m ² carriageway	15	No '	150,000	2,250,000
	reisnstatement, 100m barrier reinstatement,	i	1 '	,	· · ·
	breather valves for pipe, inspection champer	i	1 '	1	
- 00	Extra Over allowance for railway crossing - 300 dia		1 '		700.000
5.03	steel casing pits, establishment and	2	No	350,000	/00,000
- 04	disestablishment for pipe jacking equipment.				1 007 000
5.04	Traffic Management - State Highway	15	%	8,913,000	1,337,000
6.00	rounaing		<u> </u>		310
6.00	Inel Total	20.00	0/2	22 524 000	6 707 000
0.01	Preliminaries and General	20.00	70 0/	33,534,000	0,707,000 4,025,000
0.02	Protessional Fees		70	40,241,000	4,020,000
0.00	Design Development Conlingency	30.00	70 I		13,200,000
0.04		20.00 NI/A	70 0/.	57,540,000	11,510,000
0.00	Escalation	IN/A	70	169,050,000	

7.00	Expected Estimate Total	69,056,000
8.00	Expected Estimate - Min (-30%)	48,000,000
9.00	Expected Estimate - Max (+40%)	97,000,000

Item	Description	QTY	Unit	Rate
1.00	Properties			
1.01	Physical Works within property boandary	206.00	No	26,000
1.02	Allow for consultation	1.00	No	2,500
1.03	CCTV	1.00	No	500
1.04	Decomission septic tank	1.00	No	5,000
1.05	Install new low pressure tank and pump	1.00	No	8,000
1.06	Install new DN40 PE100 pipe allow 20m	1.00	No	2,400
1.07	Allow for electrical connection	1.00	No	2.600
	Allow for property reinstatement -			_,
1.08	provisional allowance	1.00	No	5,000
2.00	Catchment Pipework			
	Rates are fully inclusive of all integral			
	components assume AC asphalt			
	reinstatement			
2.01	DN63 PE100 Pipe	2336.00	m	
2.01	0.0m - 1.0m Denth	1402.00	m	150
2.02	DNIQ0 PE100 Pine	0.00		100
2.03	0 0m 1 0m Donth	0.00	m	180
2.04		334.00	- 111 - m	100
2.05	Allowerse for reak every sting accurate time F	2,330	111	10
2.00	Allowance for rock excavation assume type F	234	m	120
2.07	Allow to locate existing services	2,330	m	10
2.08	Allow testing and comisioning of the system	2,336	m	10
2.09	Allow for utility service coordination and	1	Sum	100,000
2.10	Sewer Lateral Renewal	206.00	No	1,350
2.11	Installation of lateral assume 10m assume DN40 PE100 Pipe			1,200
2.12	PE100 DN40/90 Junction			150
2.13	Traffic Management	10	%	854.680
3.00	Catchment Pumpstations			
3.01	Catchment Pump Station 10 L/S capacity	0.00	No	250.000
4.00	Terminal Pumpstation			
4.01	Terminal Pump Station 16 L/S capacity	1	No	450,000
5.00	Rising main			
F 04	PE100 OD180 PN12.5 Rising Main -	4000.00		050
5.01	Standard Dig and relay	1300.00	m	250
5.02	Air Valve and inspection chamber	3.00	No	5,000
5.02	Traffic Management	10	%	325.000
	rounding	-		
6.00	Net Total			
6.01	Preliminaries and General	20.00	%	7,120,000
6.02	Professional Fees	10.00	%	8,544,000
6.03	Design Development Contingency	30.00	%	9,399,000
6.04	Construction Contingency	20.00	%	12,219,000
6.05	Escalation	Ν/Δ	%	14 663 000
7.00	Expected Estimate Total	1 1// 1	,,,	. 1,000,000
8.00	Expected Estimate - Min (-30%)			
9.00	Expected Estimate - Max (+40%)			
0.00				

KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 2b - Peka Peka - Low Pressure FUTURE

Total	
	5,356,000
	5,356,000
	940,680
	210,300
	168 120
	23 360
	23,300
	23,000
	20,000
	23,360
	100.000
	100,000
	278,100
	86.000
	00,000
	0
	450,000
	450,000
	373,320
	325.000
	45,000
	15,000
	33,000
	7 120 000
	1 424 000
	855.000
	2.820.000
	2,444,000
	14,663,000
	10,000,000
	21.000.000

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KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 2a - Peka Peka Gravity FUTURE

Item	Description	QTY	Unit	Rate	Total
1.00	Properties				4,812,000
4.04	Physical Works within property boundary - assume 80%	405		00.000	0,000,000
1.01	of properties require standard dig and relay	165	No	20,000	3,300,000
1.02	Allow for consultation			2,500	
1.03	CCTV			500	
1.04	Decomission septic tank			5.000	
4.05	Lay new 100 PVC pipe assume average depth 1.5m			(000	
1.05	average 20m length			4,000	
1.06	Allow for 2no. connections and inspection point			3,000	
1.07				5 000	
1.07	Allow for property reinstatement - provisional allowance			5,000	
1.07	Physical Works within property boundary - assume 20%	12	No	36,000	1 512 000
1.07	of properties require directionally drilling	42	NO	30,000	1,512,000
1.08	Allow for consultation			2,500	
1.09	CCTV			500	
1.10	Decomission septic tank			5,000	
1 1 1	Assume 20% of properties - Directional Drill 100 PVC			20.000	
	Pipe average 50m			20,000	
1.12	Allow for 2no. connections and inspection point			3,000	
1.13	Allow for property reinstatement - provisional allowance			5,000	
2.00	Catchment Pipework				2.395.230
	Rates are fully inclusive of all integral components				_,,
	assume AC asphalt reinstatement				
2.01	150DN uPVC SN16 Pipe	2,336	m		
2.02	0.0m - 1.0m Depth	0	m	220	0
2.03	1.0m - 2.0m Depth	2,166	m	370	801,420
2.04	2.0m - 3.0m Depth	170	m	470	79,900
2.05	225DN uPVC SN16 Pipe	0	т		
2.06	0.0m - 1.0m Depth	0	m	300	0
2.07	1.0m - 2.0m Depth	0	m	510	0
2.08	2.0m - 3.0m Depth	0	m	670	0
2.09	CCTV	2,336	m	10	23,360
2.10	Allowance for rock excavation assume type R2 10%	234	m³	120	28,080
2.11	Allowance for soft ground foundation assume 10%	234	m	100	23,400
0.40	Allowance for dewatering assume required over 2m	0.400		00	101.010
2.12	depth	2,100	m	90	194,940
2.13	Allow to locate and protect existing services	2,336	m	10	23,360
2.14	Allow testing and comisioning of the system	2,336	m	10	23,360
2.15	Allow for utility service coordination and standover	1	Sum	100,000	100,000
2.16	1050 Manholes				
2.17	0.0m - 1.0m Depth	0	No	4,070	0
2.18	1.0m - 2.0m Depth	44	No	6,400	281,600
2.19	2.0m - 3.0m Depth	4	No	7,140	28,560
2.20	Sewer Lateral Renewal	207	No	2,750	569,250
2.21	CCTV	1	No	500	
2.22	Installation of lateral assume 10m assume 0-1.5m 100	1	No	2,000	
2 23	Lateral Junction	1	No	250	
2.24	Traffic Management	10	%	2.177.230	218.000
3.00	Catchment Pumpstations			_,,	250.000
3.01	Catchment Pump Station 10 L/S capacity	1	No	250.000	250.000
4.00	Terminal Pumpstation			200,000	810.000
4.01	Terminal Pump Station 24 L/S capacity	1	No	810.000	810.000
5.00	Rising main			,	401.770
	PE100 OD200 PN12.5 Rising Main - Standard Dig and	4000.00		070	054.000
v 5.01	relay	1300.00	m	270	351,000
5.02	Air Valve and inspection chamber	3.00	No	5,000	15,000

5.02	Traffic Management	10	%	351,000	36,000
	rounding				-230
6.00	Net Total				8,669,000
6.01	Preliminaries and General	20	%	8,669,000	1,734,000
6.02	Professional Fees	10	%	10,403,000	1,041,000
6.03	Design Development Contingency	30	%	11,444,000	3,434,000
6.04	Construction Contingency	20	%	14,878,000	2,976,000
6.05	Escalation	N/A	%	17,854,000	
7.00	Expected Estimate Total				17,854,000
8.00	Expected Estimate - Min (-30%)				12,000,000
9.00	Expected Estimate - Max (+40%)				25,000,000

KCDC - Paekākāriki, Peka Peka and Te Horo WW Servicing Feasibility Estimate 3a - Te Horo - Gravity FUTURE

ltem	Description	QTY	Unit	Rate	Total
1.00	Properties				2,780,000
1.01	Physical Works within property boundary - assume 80% of properties require standard dig and relay	139.00	No	20,000	2,780,000
1.02	Allow for consultation			2.500	
1.02	CCTV			500	
1.00	Decomission sentic tank			5 000	
1.05	Lay new 100 PVC pipe assume average depth 1.5m			4,000	
1.06	Allow for 2no. connections and inspection point			3,000	
1.07	Allow for property reinstatement - provisional allowance			5,000	
1.08	Physical Works within property boundary - assume 20% of properties require directionally drilling	35.00	No	36,000	1,260,000
1.09	Allow for consultation			2,500	
1.10	CCTV			500	
1.11	Decomission septic tank			5,000	
1.12	Assume 20% of properties - Directional Drill 100 PVC Pipe average 50m			20,000	
1.13	Allow for 2no. connections and inspection point			3,000	
1.14	Allow for property reinstatement - provisional allowance			5,000	
2.00	Catchment Pipework				2,978,680
	Rates are fully inclusive of all integral components				,,
	assume AC asphalt reinstatement				
2.01	150DN uPVC SN16 Pipe	3,450	т		
2.02	0.0m - 1.0m Depth	0	m	220	0
2.03	1.0m - 2.0m Depth	2.860	m	370	1.058.200
2.00	2 0m - 3 0m Depth	590	m	470	277 300
2.01	225DN uPVC SN16 Pine	0	m	-110	211,000
2.00	0.0m 1.0m Donth	0		300	0
2.00	1.0m - 2.0m Donth	0		510	0
2.07	1.011 - 2.011 Depth	0	111	070	0
2.08	2.0m - 3.0m Depth	0	m	670	0
2.09	CCTV	3 4 5 0	m	10	34 500
2.00	Allowance for rock excavation assume type R2 10%	3/5	m ³	120	41,000
2.10	Allowance for soft around foundation assume 10%	345	m	120	34 500
2.11	Allowance for dowatering accume required over 2m	545		100	54,500
2.12	Anowance for dewatering assume required over 211	2,860	m	90	257,400
0.40	Allow to logate evicting convises	2 450	-	10	24 500
2.13	Allow to locate existing services	3,450		10	34,500
2.14	Allow testing and comisioning of the system	3,450	m	10	34,500
2.09	1050 Manholes				
2.10	0.0m - 1.0m Depth	0	No	4,070	0
2.11	1.0m - 2.0m Depth	58	No	6,400	371,200
2.12	2.0m - 3.0m Depth	12	No	7,140	85,680
2 13	Sewer Lateral Renewal	174	No	2 750	478 500
2.10	CCTV	1	No	500	470,000
2.14	Installation of lateral assume 10m assume 0 1 5m 100	,	///0	500	
2.15	dia PVC	1	No	2,000	
2.16	Lateral Junction	1	No	250	
2.17	Traffic Management	10	%	2,707,680	271,000
3.00	Catchment Pumpstations				250,000
3.01	Catchment Pump Station 10 L/S capacity	1	No	250,000	250,000
4.00	Terminal Pumpstation				1,810,000
4.01	Terminal Pump Station 39 L/S capacity, high heap pump	1	No	1,560,000	1,560,000
4.02	Extra Over allowance for additional odour control	1	No	250,000	250,000
5.00	Rising main				3,444,320