Appendix 10
Geotechnical and Liquefaction Assessment

Cuttriss

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Geotechnical Assessment and Liquefaction Analysis Report

Kapiti Island Gateway, Maclean Park, Paraparaumu Beach

Issue Date: **27 March 2020**

MINZ Reference: **200133-RP-001[A]**

Prepared for: **Kapiti Coast District Council**

miyamoto.

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Report Tracking – Kapiti Island Gateway, Maclean Park, Paraparaumu Beach

Revision	Status	Date	Prepared by	Reviewed by
A	FINAL	27 March 2020	I. Vollenhoven	R. McLachlan A. Giannakogiorgos

Authorisation

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1. Introduction and Scope

Miyamoto International NZ Ltd (MINZ) has been engaged by Kapiti Coast District Council (Client) to conduct a geotechnical investigation and assessment for the proposed development at Kapiti Island Gateway, Maclean Park, Paraparaumu Beach. The Purpose of this geotechnical report is so the findings can be used in support of a resource consent application at Kapiti Coast District Council (KCDC).

The new development has been proposed to improve the Kapiti Island departure point by creating a visitor centre, also known as Gateway Centre, and supporting infrastructure comprising a new bridge over Tikotu Stream and a possibly dry-dock. The site location is presented in Figure 1.

We have conducted the following works with the findings presented in the report:

- Desktop study to identify available geotechnical information;
- Shallow Geotechnical Site Investigation, comprising:
    - 5 No. Hand Augered boreholes (HA);
    - 5 No. Dynamic Cone Penetrometer (DCP) tests.
- Deep Geotechnical Site Investigation, comprising:
    - 4 No. piezo Cone Penetration Tests (CPTu).
- Geotechnical Assessment:
    - Evaluation of the results of the geotechnical investigation;
    - Assessment of the Site Sub-Soil Class in accordance with NZS 1170.5:2004;
    - Identification of Geotechnical Hazards including Liquefaction Assessment;
    - Provision of foundation recommendations.

This report summarises the findings of the above.

2. Site Description

MacLean Park, Paraparaumu (legally described as PT SEC 2 SO 322370) is a recreational area adjacent to the beach and Marine Parade. The Park comprises multiple picnic areas, a playground, a skate park and multiple car parks. The Kapiti Island Boating Club and Kapiti Island Eco Experience tour operator are also located in MacLean Park. The total surface area of MacLean Park is approximately 3 ha.

The proposed development is to be situated in the Northern section of MacLean Park. The area to be developed has a surface area of approximately 5,000 m^2. The site consists of slightly undulating dunes with vegetation covering the dunes facing the beach. Beach access can be reached by footpaths from MacLean Park. The flat recreation areas have been landscaped and Tikotu Stream runs through the site from East to West and then flows into the sea. A footbridge over Tikotu Stream connects the southern and northern sections of the site and retaining walls contain the Tikotu Stream.

Figure 1: Site Location

3. Desktop Study

References

We have conducted a desktop study from the following sources of information:

- New Zealand Geotechnical Database (NZGD);
- Greater Wellington Regional Council (GWRC) GIS Viewer;
- Kapiti Coast District Council (KCDC) Map Viewer;
- GNS Science – Geological Maps;
- GNS Science – Sub Soil Classification Maps for Wellington area;
- Google Earth – Imagery.

Geology

The local GNS Geological Map (Begg, J.G. & Johnston, M.R., 2000) indicates the surface geology at the site to be “Holocene windblown deposits” consisting of “inactive dunes”.

Site Topography

The site is relatively flat with elevations ranging between RL[1] +1.0 m (at the bed of Tikotu Stream) and +4.5 m (at the top of the dune bordering the beach). A topographic and aerial land survey has been undertaken by Cuttriss Consultants Ltd. Appendix A presents the topographical map for the site, provided by Cuttriss Consultants Ltd.

Natural Hazards

The following natural hazards have been identified from the Greater Wellington Regional Council Maps and the Kapiti Coast District Council Maps:

- Ground shaking hazard: "Severity 3: Moderate";
- Liquefaction hazard: "Severity 3: High";
- Slope failure hazard: "Severity 1: Low";
- Combined Earthquake Hazard: "Severity 4: Moderate to High";
- Wind area: "Very High Wind Zone";
- Corrosion area: "Stainless zone".

Most of the site is located in the "orange" Tsunami Evacuation Zone, with the western parts on the beach front in the "red" Tsunami Evacuation Zone, as identified by GWRC and KCDC.

The area around Tikotu Stream is within a "Stream Corridor" flood hazard area as identified by KCDC. Additionally, the part of the site south of Tikotu Stream is partly within a "Ponding" hazard area. A flood hazard map obtained from KCDC Maps is presented in Appendix B.

Aerial Imagery

Satellite aerial imagery shows that there have significant changes to the site in the past decade. The changes relate to KCDC's "MacLean Park Refresh" programme, which aims to develop the park for the public. As part of this programme, the area has been landscaped, new outdoor furniture has been added and paths through the park have been created. The playgrounds and basketball court have also been upgraded, with the latter relocated.

4. Geotechnical Site Investigation

MINZ conducted a shallow geotechnical investigation on 17 March 2020 comprising 5 No. Hand Augered boreholes (HA) and 5 No. Dynamic Cone Penetrometer (DCP) tests. In addition to the shallow geotechnical investigation, a deep geotechnical investigation comprising 4 No. piezocone penetration tests (CPTu) was completed by CPT Elite, on behalf of MINZ, on 17 and 18 March 2020.

The locations of the tests are shown in Figure 2, details of the geotechnical investigations are summarised in Table 1, the HA / DCP logs are presented in Appendix C and the CPT plots are presented in Appendix D.

[1] All vertical elevations are in NZVD2016 datum

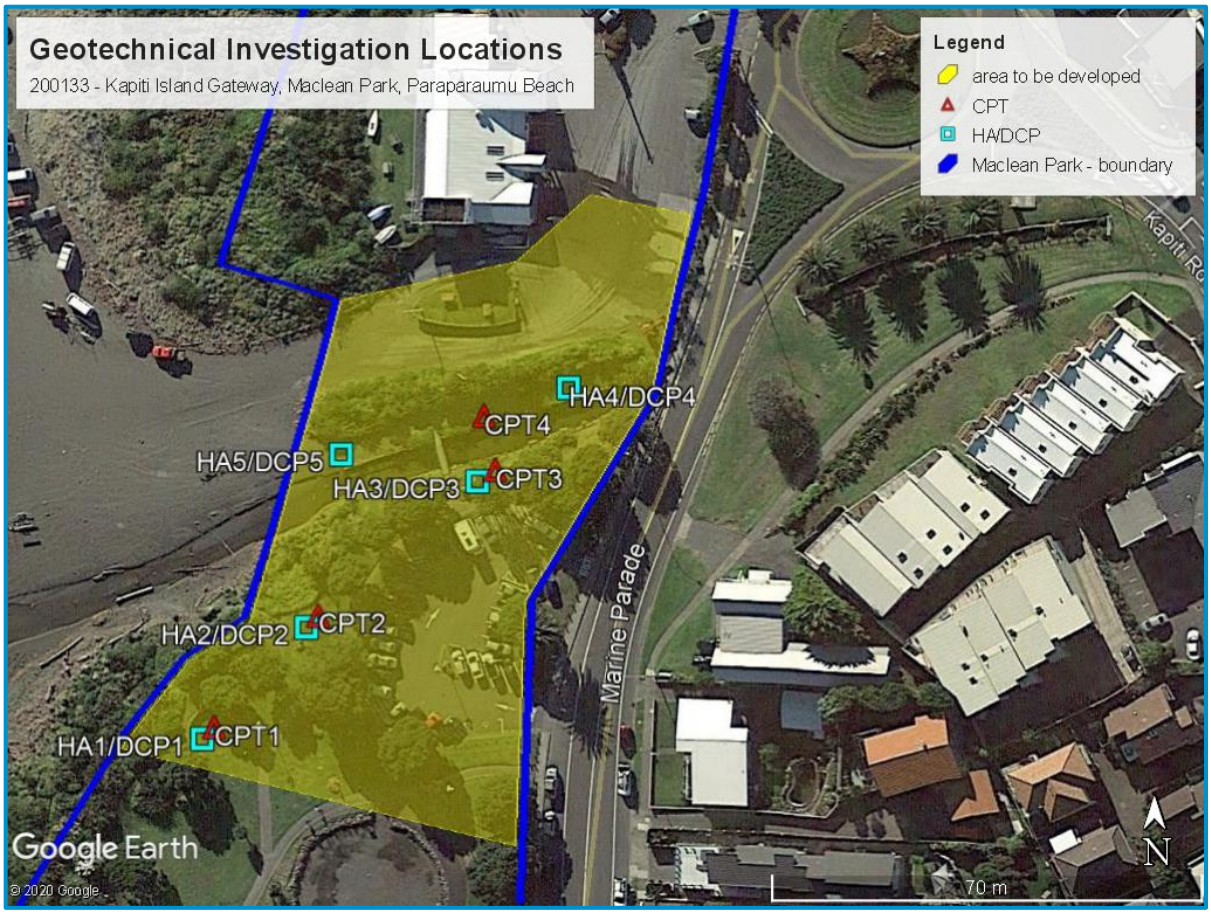

Figure 2: Geotechnical Investigation Location Plan

Table 1: Geotechnical Investigation Summary

Test Reference	Source	Source Reference	Test Type	Elevation RL (m)	Depth (mbgl)
HA1 / DCP1	MINZ	200133	Hand Augered Borehole / Dynamic Cone Penetrometer	+2.5	1.5* / 1.9
HA2 / DCP2				+3.2	0.9* / 1.9
HA3 / DCP3				+2.4	0.8** / 1.9
HA4 / DCP4				+2.6	2.1* / 2.9
HA5 / DCP5				+1.7	0.6** / 1.9
CPT1	CPT Elite (on behalf of MINZ)	KIG CPT-1	Piezocone Penetration Test	+2.5	7.8
CPT2		KIG CPT-2		+3.2	12.7
CPT3		KIG CPT-3		+2.4	13.5
CPT4		KIG CPT-4		+2.5	11.3

* hand auger terminated due to hole collapse ** hand auger terminated due to practical refusal

5. Geotechnical Evaluation and Assessment

Ground Profile

The ground profile interpreted from the results of the site-specific investigation is presented in Table 2. The ground conditions comprise sand dune with intermittent layers of silty sand / sandy silt. Very loose sands have been encountered in the top 1.2 mbgl at CPT location 4, with strength parameters lower than the CPT cone sensitivity, something which have found very common for the top sandy layers in the wider Kapiti area. These sands, which are part of unit A as per Table 2, are windblown sand deposits consisting of very fine, dry sands.

Table 2: Interpreted Ground Profile

Unit	Depth to base (mbgl)	Soil Description
Topsoil	0.2	SAND, fine to medium grained, brown, dry, with rootlets
A	1.2 – 3.0	Silty SAND and Sandy SILT, fine to medium grained, light-brown, dry to moist, loose to medium dense
B	6.1 – 7.7	SAND and silty SAND, medium dense
C	7.7 – 8.2	Silty SAND and Sandy SILT, loose to medium dense
D	>13.5	SAND and silty SAND, dense

Two geotechnical cross sections have been drawn for the site. The cross sections are provided in Appendix E. Figure 3 provides the overview plan for the cross sections, and Figure 4 provides cross section 2.

Figure 3: Geotechnical Cross Sections – Overview (see also Appendix E)

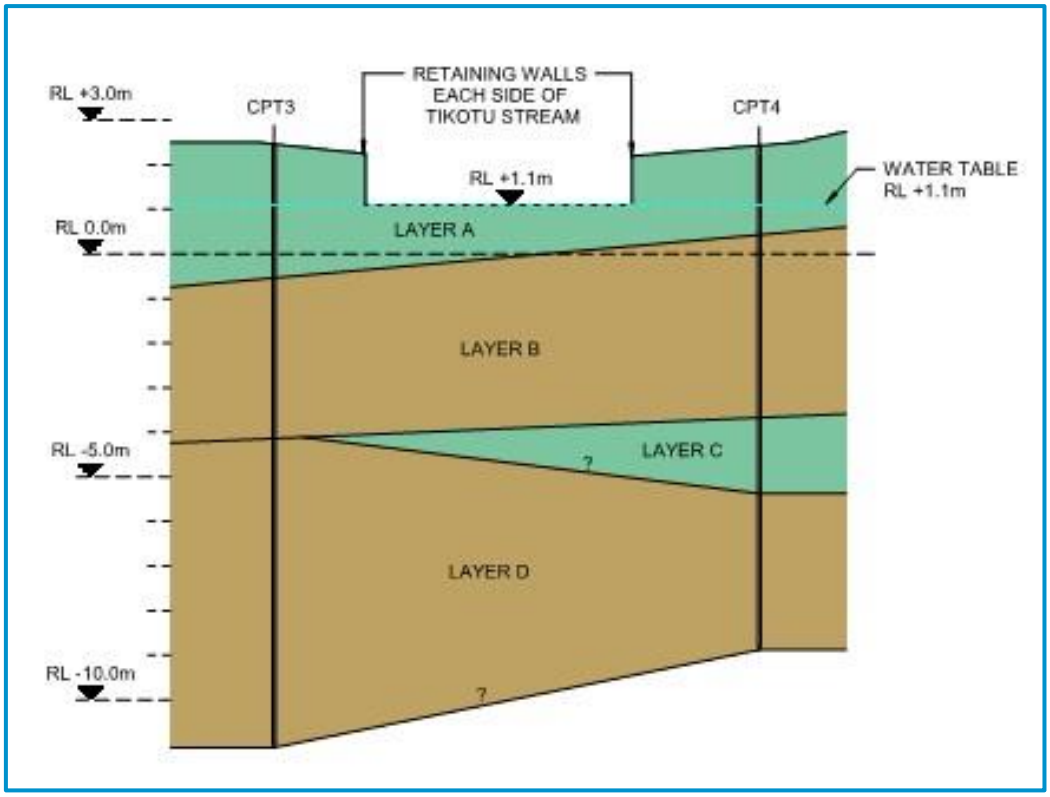

Figure 4: Geotechnical Cross Section 2 (see also Appendix E)

Groundwater Conditions

Groundwater was encountered in hand auger 4 at 1.4 mbgl and hand auger 5 at 0.6 mbgl. The encountered groundwater corresponds to the bed of Tikotu Stream (between RL +1.2 and RL +1.1 m). It is noted that the groundwater level is influenced by seasonal and tidal variations. A groundwater table at RL +1.1 m has been adopted for the liquefaction assessment.

Compressible Soils

No highly compressible soils or voids were encountered during our investigations.

NZS 1170 Site Sub-soil Class

Based on the results of our site-specific investigation, geological maps and other available information, including the Wellington Region site subsoil class map (GNS Science, 2019), the site is classified as Site Subsoil Class D - deep or soft soil site in accordance with NZS 1170.5:2004.

Sloping Ground

A detailed assessment of slope stability has not been undertaken as part of this phase of works. A detailed slope stability assessment must be undertaken as part of detailed design when the location of the structures is known. The largest elevation difference is from the highest beach dune at RL + 4.5 m to the beach at an elevation of RL +0.5 m.

The elevation difference between the bed of Tikotu Stream and the top of the banks is between 1.5 and 2.0 m. The bed of Tikotu Stream within the site is between RL +1.2 m and RL +1.0 m.

A retaining wall supports the banks on each side of Tikotu Stream. The two retaining walls are shown in cross section 2, as displayed in Figure 4. During the design stage of this project, and following a detailed slope stability assessment, the existing retaining walls may need to be reinforced or replaced, depending on the location of the proposed new structures (the visitor centre, bridge and dry dock).

Ground Motion Parameters

The ground motion parameters for geotechnical analysis have been assessed using the MBIE - NZGS Earthquake Geotechnical Engineering Practice Module 1 (March 2016), and in accordance with such, may be evaluated using one of the following methods:

- Method 1: Risk-based method using the earthquake hazard presented in the NZTA Bridge Manual (2016);
- Method 2: Site-specific probabilistic seismic hazard analysis;
- Method 3: Site-specific response analysis.

Method 1 is appropriate for routine engineering design projects, whereas methods 2 and 3 are more advanced analysis methods that are preferred for more complex, large-scale projects. Method 1 is the most suitable method for this case and the ground motion parameters from the NZTA Bridge Manual Addendum 6A Table 6A.1 have been adopted. The importance level of the building is interpreted to be Importance Level 2 (IL2). Peak horizontal ground acceleration, a_{max} is calculated as:

$$a_{max} = C_{0,1000} \cdot (R/1.3) \cdot f$$

where:

- $C_{0,1000}$ is the unweighted peak ground acceleration coefficient corresponding to a 1000-year return period. In this case, $C_{0,1000}$ = 0.44 for Site Sub-soil Class D;
- R is the return period factor given in NZS 1170.5:2004. The R factors in this case, for a building with Importance Level 2 (IL2) and 50 year design life are as follows:
  - Serviceability Limit State (SLS): R = 0.25 for 1/25-year return period;
  - Intermediate Event (IE): R = 0.5 for 1/100-year return period;
  - Ultimate Limit State (ULS): R = 1 for 1/500-year return period;
- f is the site response factor. f = 1.0 for Class D soils.

The ground motion parameters for the design events are summarised in Table 3.

Table 3: Design Ground Motion Parameters

Earthquake scenario	Effective Magnitude M_w	Peak horizontal ground acceleration a_{max} (g)
1/25-year SLS event	6.2	0.08
1/100-year Intermediate Event	6.2	0.17
1/500-year ULS event	6.9	0.34

It should be noted that the above parameters are for geotechnical design purposes only. Ground motion parameters for purposes of structural analysis and design should be derived in accordance with NZS 1170.5:2004.

Liquefaction Triggering Analysis

An assessment of the earthquake-induced free-field post-liquefaction volumetric settlement at the site has been carried out using proprietary liquefaction assessment software (CLiq by GeoLogismiki), in general accordance with MBIE - NZGS Earthquake Geotechnical Engineering Practice Module 3 (May 2016). The design criteria are as follows:

- Ground motion parameters as per Table 3;
- Boulanger and Idriss (2014) simplified CPT-based methodologies for liquefaction triggering;
- Zhang et al. (2002) post-liquefaction volumetric strain calculation for estimating the free-field settlements (it should be noted that these settlement estimates only account for the free-field component of the expected settlement. Actual total settlements under SLS or ULS earthquake loading may be greater or less);
- Liquefaction assessment – vulnerability indicators (free-field settlement values, Liquefaction Severity Number and Liquefaction Potential Index damaging criteria) evaluation for the full depth of the CPTs (max 13.5 mbgl).

The results of the liquefaction triggering analyses are presented in Appendix F and summarised in Table 4 below.

Table 4: Estimated "Free-Field" Ground Surface Settlements & Performance Levels

Earthquake scenario	Total Estimated Free Field Ground Surface Settlements (mm) of top 13.5 mbgl	Performance Level (based on MBIE – NZGS Module 3)
1/25-year SLS event	negligible	Insignificant effect - L0
1/100-year Intermediate Event	25 – 50	LPI < 2 LSN < 10 Mild effect – L1
1/500-year ULS event	85 – 150	10 < LPI < 20 15 < LSN < 40 Severe Effect – L4

* LPI = Liquefaction Potential Index; LSN = Liquefaction Severity Number

Based on the above and our site-specific liquefaction assessment, "Severe effects" from excess pore water pressure and liquefaction are expected under ULS seismic loading conditions. "Mild effects" are expected under Intermediate Event (1/100 year) and "Insignificant effects" under SLS seismic loading conditions.

Liquefiable layers under ULS seismic loading conditions have been identified consistently below the groundwater table, RL +1.1 m, over the full depth of the CPTs, to RL -11.1 m. Several layers have been identified where liquefaction triggering is less likely, however these layers are thin (maximum 1 m thick).

It is noted that under SLS seismic loading conditions, no liquefaction is anticipated in the analysed soil profile based on the analysis. It should also be noted that the liquefaction assessment is limited to the top 13.5 mbgl due to the CPT refusal.

Considering the liquefaction potential within the site, the locations of the structures should be optimised to limit the risks of liquefaction. Future foundations and retaining structures must be designed considering the lateral spread, post-liquefaction settlements and potential liquefiable layers.

As per MBIE - NZGS Earthquake Geotechnical Engineering Practice Module 3, the magnitude of liquefaction-induced ground displacements is generally related to the liquefaction triggering factor (FL) and to the overall thickness of the liquefied layer (Ishihara, 1985; Ishihara and Yoshimine, 1992). Based on interpretation of these relations, Table 5 summarises performance levels for liquefied soil deposits.

Table 5: General performance levels for liquefied deposits (from Table 5.1, Earthquake Geotechnical Engineering Module 3)

PERFORMANCE LEVEL	EFFECTS FROM EXCESS PORE WATER PRESSURE AND LIQUEFACTION	CHARACTERISTICS OF LIQUEFACTION AND ITS CONSEQUENCES	CHARACTERISTIC F_L, LPI	
L0	Insignificant	No significant excess pore water pressures (no liquefaction).	$F_L > 1.4$ LPI=0 LSN <10	SLS
L1	Mild	Limited excess pore water pressures; negligible deformation of the ground and small settlements.	$F_L > 1.2$ LPI = 0 LSN = 5 – 15	IE
L2	Moderate	Liquefaction occurs in layers of limited thickness (small proportion of the deposit, say 10 percent or less) and lateral extent; ground deformation results relatively small in differential settlements.	$F_L \approx 1.0$ LPI < 5 LSN 10 – 25	
L3	High	Liquefaction occurs in significant portion of the deposit (say 30 percent to 50 percent) resulting in transient lateral displacements, moderate differential movements, and settlement of the ground in the order of 100mm to 200mm.	$F_L < 1.0$ LPI = 5 – 15 LSN = 15 – 35	
L4	Severe	Complete liquefaction develops in most of the deposit resulting in large lateral displacements of the ground, excessive differential settlements and total settlement of over 200mm.	$F_L << 1.0$ LPI > 15 LSN > 30	ULS
L5	Very severe	Liquefaction resulting in lateral spreading (flow), large permanent lateral ground displacements and/or significant ground distortion (lateral strains/stretch, vertical offsets and angular distortion).		

6. Conclusions and Recommendations

Assessment Against RMA Section 106

As per the requirements of Section 106 of the Resource Management Act (RMA) (2017), an assessment of the significant geotechnical hazards has been undertaken that may affect the site. These hazards include, but are not limited to, erosion, falling debris, slippage, subsidence, inundation.

At the time of the site visit, the only evidence of erosion was bank erosion, wearing away both sides of the banks of Titoku Stream. Other erosion hazards that are expected to be present on the site are coastal erosion and shoreline instability from tidal impact. All these hazards must be considered and mitigated.

Slope instability and lateral movement is considered a moderate to high risk for the banks of Tikotu Stream. Slope instability can be mitigated by appropriate offset distance, use of retaining structures, earthworks, drainage, or a combination thereof. The retaining structures need to be assessed once details of the development are known, and these structures are expected to require strengthening or replacement.

Part of the site has been identified as being within a flood hazard area as mapped by the KCDC. Tikotu Stream may be susceptible to localised flooding and ponding. To mitigate the risk of inundation, adequate stormwater discharge management plans are required. Minimum floor levels for the proposed new visitor centre must be confirmed with KCDC.

Falling debris is not considered to be of significant risk. There is no evidence of past rockfall or sources of rockfall on or near the site.

Earthquake induced subsidence and lateral movement have been identified as the main geotechnical hazard at the site. However, provided that the geotechnical recommendations given in this report are followed, and the appropriate engineering measures implemented, we consider this hazard can be mitigated.

The results from our liquefaction analysis indicate “Severe effects” from excess pore water pressure and liquefaction are expected under ULS seismic loading conditions. However, it is noted that under Intermediate Event seismic loading conditions, “Insignificant effects” are expected, and SLS seismic loading conditions the effects are expected to be insignificant.

Recommendations for the Kapiti Island Gateway Development

Considering the liquefaction potential within the site, the location of the new Gateway Centre should be optimised to limit the risks of liquefaction. Future foundations and retaining structures must be designed considering the lateral spread, post-liquefaction settlements and potential liquefiable layers. It is noted that during SLS earthquake events, the effects of liquefaction induced settlement are expected to be negligible. The foundation design for the Gateway Centre will be optimised during the design stage when more details of the developments are known.

The following foundation options are considered to be geotechnically feasible and appropriate for an NZS 3604 compliant structure (visitor centre) at the site:

- Specifically designed reinforced concrete or waffle slab foundation on a minimum 600 mm thick geogrid reinforced gravel raft;
- Specifically designed enhanced NZS3604 shallow pile foundation.

The foundation types detailed above are preliminary and should be further developed and optimised in collaboration with the structural engineer once further details of the proposed development are known. Alternative foundation systems may be considered by the engineer to implement the most cost-effective solution; however, the design of the foundations must consider lateral spreading, post-liquefaction settlements and potential liquefiable layers.

If cut and/or fill works are required, these should be completed in accordance with NZS 4431:1989 (code of practice for earth fill for residential development) prior to the construction of foundations.

Furthermore, a more detailed stability assessment is proposed to be undertaken as part of the detailed design phase. The existing retaining walls may need to be reinforced or replaced, depending on the location of the proposed new structures (the visitor centre, bridge and dry dock).

The scope of this report is limited to a site-specific geotechnical assessment in support of a resource consent application at KCDC.

It is recommended to discuss the designs with an experienced team, to include architects, structural engineers, geotechnical engineers, coastal engineering specialists and KCDC's planning and compliance team.

7. Additional Considerations

It is recommended that, as Miyamoto has completed this initial investigation and is familiar with its contents and the site itself, Miyamoto is engaged for the scope of works below which will require involvement of an experienced Geotechnical Chartered Professional Engineer:

- Review of the final foundation remedial works design, drawings and specifications to ensure consistency with this report, prior to the commencement of construction.
- Observation of the foundation remedial works to provide recommendations in respect of design or construction where the ground conditions encountered differ from the findings of this report.
- Construction monitoring to confirm that the actual foundation soils at the time of construction are consistent with the findings in this report and provision of a PS4 (Producer Statement for Construction Monitoring) which are generally required by territorial authorities as part of a building or resource consent application, including for subsequent Code of Compliance Certification.

8. Limitations

This report is subject to the following limitations:

- This report has been prepared by Miyamoto for the Client for the purpose/s agreed with the Client (Purpose). Miyamoto accepts no responsibility for the validity, appropriateness, sufficiency or consequences of the Client using the report for purposes other than for the Purpose.
- This report is not intended for general publication or circulation. This report is not to be reproduced by the Client except in relation to the Purpose, without Miyamoto's prior written permission. Miyamoto disclaims all risk and all responsibility to any third party.
- This report is provided based on the various assumptions contained in the report.
- Miyamoto's professional services are performed using a degree of care and skill reasonably exercised by reputable consultants providing the same or similar services as at the date of this report.
- The Client is responsible for ensuring that the design of any foundations ensures the functionality of the building under SLS level loads.
- The sub surface information has been obtained from investigation carried out at discrete locations, which by their nature only provide information about a relatively small volume of subsoils. While Miyamoto has taken reasonable skill and care in carrying out the investigation to determine the subsoil condition, the subsoil condition could differ substantially from the results of any sampling investigation. Miyamoto is not responsible for and does not accept any liability in respect of any difference between the actual subsoil conditions and the results of our investigation.
- Any susceptibility analysis carried out in respect of liquefaction is based on Miyamoto's current understanding as an experienced professional engineering consultant of the data, methods etc. Future seismic events may change our understanding of liquefaction and its affects, which may affect the content of this report. Miyamoto is not responsible for and does not accept any liability where the content of this report is changed due to a change in industry knowledge of matters relating to liquefaction.
- This report specifically excludes assessment or advice relating to hazardous materials, such as asbestos.
- Where the Client provides information to Miyamoto, including design calculations and drawings of the as-built structure, or where the report indicates that we have obtained and/or relied upon information provided from a third party, Miyamoto has not made any independent verification of this information except as expressly stated in the report. Miyamoto assumes no responsibility for any inaccuracies in, or omissions to, that information.

- A change in circumstances, facts, information after the report has been provided may affect the adequacy or accuracy of the report. Miyamoto is not responsible for the adequacy or accuracy of the report as a result of any such changes.

9. References

Begg, J.G., Johnston, M.R. (compilers) 2000. Geology of the Wellington area. Institute of Geological and Nuclear Sciences 1:250,000 geological map 10. 1 sheet +64p. Lower Hutt, New Zealand: Institute of Geological and Nuclear Sciences Limited

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New Zealand Geotechnical Society (NZGS) and Ministry of Business, Innovation and Employment (MBIE) (2016). Earthquake geotechnical engineering practice Module 1: Overview of the guidelines, March 2016.

New Zealand Geotechnical Society (NZGS) and Ministry of Business, Innovation and Employment (MBIE) (2016). Earthquake geotechnical engineering practice Module 3: Identification, assessment and mitigation of liquefaction hazards, May 2016.

New Zealand Standard NZS1170.5 (2004). Structural Design Actions, Part 5: Earthquake Actions - Standards New Zealand, 2004

New Zealand Standard NZS3604 (2011). Timber-framed buildings – Standards New Zealand, 2011

New Zealand Standard NZS4431:1989 (1989). Code of practice for earth fill for residential development – Standards New Zealand, 1989

Appendix A: Topographic Contours (from Cuttriss Consultants Ltd)

LEGEND

EXISTING CONTOURS

SEWER LINE (GIS)
STORMWATER LINE (GIS)
WATER LINE (GIS)

SEWER MANHOLE (GIS)
STORMWATER MANHOLE (GIS)

TOP OF BANK
BOTTOM OF BANK

NOTES:

1. THIS PLAN DEFINES THE TOPOGRAPHICAL NATURE & FEATURES OF THE SITE & SHOULD NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED
2. COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC DATUM 2000, WANGANUI CIRCUIT
3. LEVELS ARE IN TERMS OF MEAN SEA LEVEL WELLINGTON VERTICAL DATUM 1953. ORIGIN OF LEVELS: OSP V DP 85858, RL=4.335
4. NOT ALL INTERESTS ON THE RECORD OF TITLE MAY BE SHOWN ON THIS PLAN, AND SHOULD BE INVESTIGATED FURTHER
5. SERVICES HAVE BEEN SHOWN FROM KCDC GIS, AND SHOULD BE VERIFIED ON SITE
6. CONTOUR INTERVALS: 0.25m
7. SURVEYED BY:
SCOTT TURKINGTON & JOSH GOODMAN 10 MARCH 2020
8. INSTRUMENT USED: TRIMBLE GPS RTK R10 & DJI PHANTOM 4 RTK(PPK)
9. GROUND LEVELS SHOWN ON THIS PLAN ARE EXISTING GROUND LEVELS AT THE TIME OF SURVEY.
10. ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES

SHEET 1
SHEET 2
SHEET 3
SHEET 4
SHEET 4
SHEET 5

0 10 20 30 40 50m
SCALE BAR

REVISION DETAILS	NAME	DATE

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PROJECT
MACLEAN PARK, MARINE PARADE
PARAPARAUMU BEACH
TOPOGRAPHICAL PLAN

CLIENT
KAPITI COAST DISTRICT COUNCIL

SCALE A1 1:500
REDUCED SCALE A3 - 1:1000

	NAME	DATE
FIELDWORK	SMT	02/20
DESIGNED		
DRAWN	JLG	03/20
CHECKED	SMT	03/20

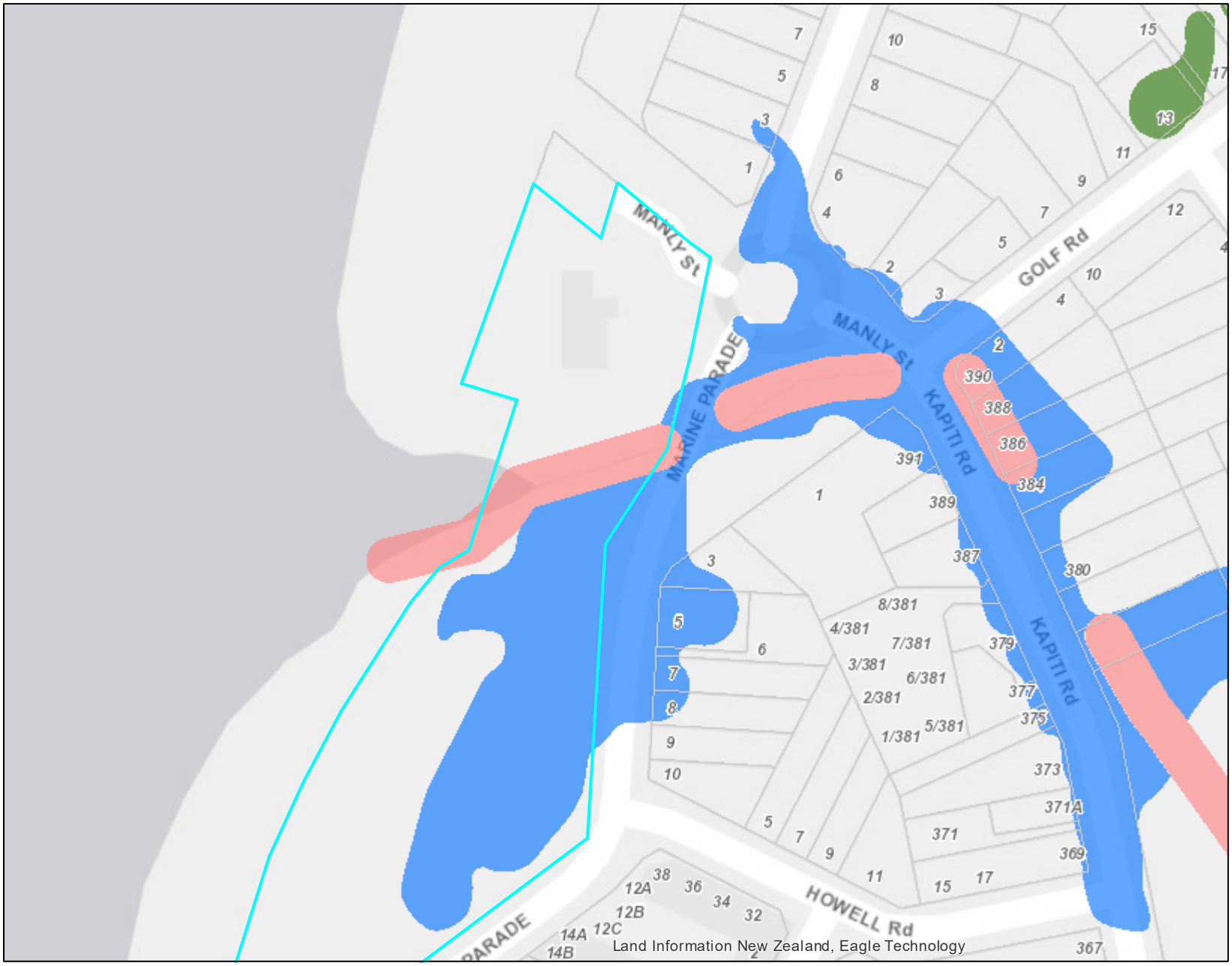
DRAWING NUMBER
22630 TPO
SHEET 1 OF 5 SHEETS
REVISION -

Appendix B: Flood Hazard Map

Date Printed: March 25, 2020

200133 - Kapiti Island Gateway, Maclean Park, Paraparaumu Beach

NORTH



Legend

- District Boundary
- River Corridor
- Stream Corridor
- Overflow Path
- Residual Overflow
- Fill Control
- Storage
- Ponding
- Residual Ponding
- Shallow Surface Flow

Scale @ A4 - 1:2,000

0 25 50 100 Metres

Kāpiti Coast DISTRICT COUNCIL

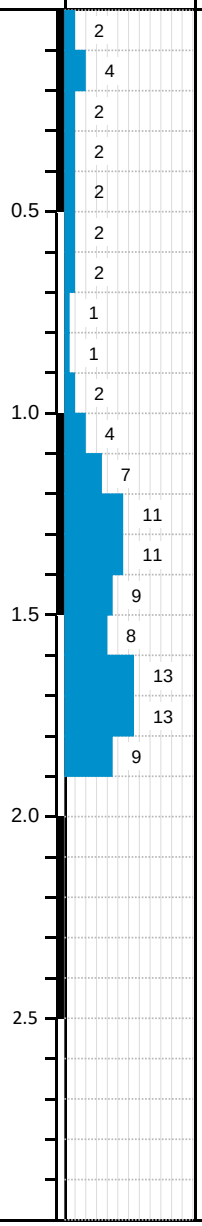
Appendix C: Shallow Geotechnical Investigation Results

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200133**
	CLIENT:	**Kapiti Coast District Council**
	TESTING COMPLETED:	**17 March 2020**

SHALLOW GROUND INVESTIGATION LOG

HA1/DCP1

PROJECT:	**Kapiti Island Gateway, Maclean Park, Paraparaumu Beach**				
LOGGED BY:	**IV**	*TOTAL DEPTH OF HOLE:*	**1.5 mbgl**	*HOLE DIAMETER:*	**50 mm**
CHECKED BY:	**CG**	*DRILLING METHOD:*	**Hand Auger**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Vane shear strength (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*Gr*	*Sa*	*FC*			
				SAND, fine grained, light-brown, dry, loose becoming dense											
				at 0.7 mbgl: becomes moist, brown											
				at 1.4 mbgl: becomes wet											
				EOH - Hole Collapse due to Side Wall Failure											

LEGEND

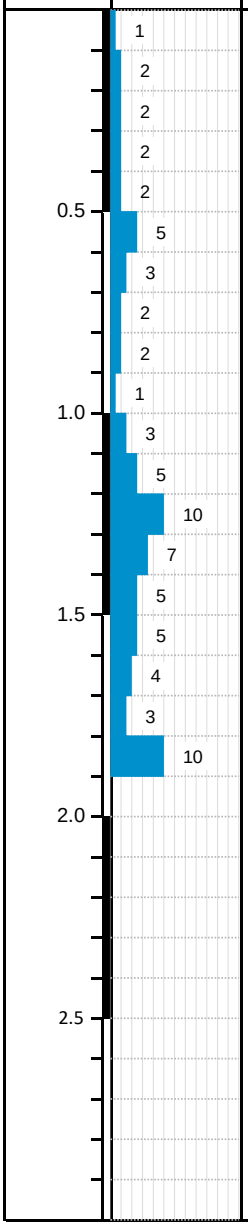
ABBREVIATIONS								NOTES
DCP	DYNAMIC CONE PENETROMETER	HA	HAND AUGER	LL	LIQUID LIMIT	Gr	GRAVEL	
GWL	GROUNDWATER LEVEL	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	Sa	SAND	
mbgl	METERS BELOW GROUND LEVEL	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT	
WC	WATER CONTENT	UW	UNIT WEIGHT (kN/m^3)	NE	NOT ENCOUNTERED	▽	STANDING GWL	

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200133**
	CLIENT:	**Kapiti Coast District Council**
	TESTING COMPLETED:	**17 March 2020**

SHALLOW GROUND INVESTIGATION LOG

HA2/DCP2

PROJECT:	**Kapiti Island Gateway, Maclean Park, Paraparaumu Beach**				
LOGGED BY:	**IV**	*TOTAL DEPTH OF HOLE:*	**0.9 mbgl**	*HOLE DIAMETER:*	**50 mm**
CHECKED BY:	**CG**	*DRILLING METHOD:*	**Hand Auger**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Vane shear strength (kPa) peak/remoulded*
			USC	*Soil Characteristics*	*Graphic Log*		*Atterberg Limits*			*Grain Size*			*WC (%)*	*UW*	
							LL	*PL*	*PI*	*Gr*	*Sa*	*FC*			
				SAND, fine grained, light-brown, dry, loose, with minor seashell fragments, with minor rootlets in top 0.1 mbgl											
				EOH - Hole Collapse due to Side Wall Failure											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	HA	HAND AUGER	LL	LIQUID LIMIT	Gr	GRAVEL
GWL	GROUNDWATER LEVEL	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	Sa	SAND
mbgl	METERS BELOW GROUND LEVEL	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
WC	WATER CONTENT	UW	UNIT WEIGHT (kN/m³)	NE	NOT ENCOUNTERED	▽	STANDING GWL

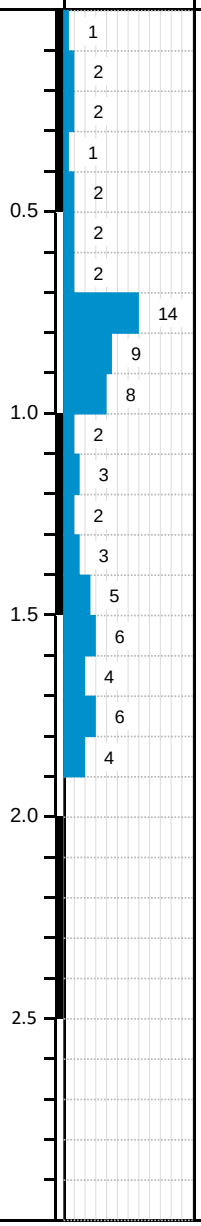
NOTES

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200133**
	CLIENT:	**Kapiti Coast District Council**
	TESTING COMPLETED:	**17 March 2020**

SHALLOW GROUND INVESTIGATION LOG

HA3/DCP3

PROJECT:	**Kapiti Island Gateway, Maclean Park, Paraparaumu Beach**				
LOGGED BY:	**IV**	*TOTAL DEPTH OF HOLE:*	**0.8 mbgl**	*HOLE DIAMETER:*	**50 mm**
CHECKED BY:	**CG**	*DRILLING METHOD:*	**Hand Auger**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**N/E**	This report may only be reproduced in full	



Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Vane shear strength (kPa) peak/remoulded*
							Atterberg Limits			*Grain Size*			*WC (%)*	*UW*	
			USC	*Soil Characteristics*	*Graphic Log*		*LL*	*PL*	*PI*	*Gr*	*Sa*	*FC*			
				SAND, fine to medium grained, brown, dry, with some rootlets (TOPSOIL)											
				SAND, fine to medium grained, light-brown, dry, loose, with some wood particles											
				Sandy CLAY, low plasticity, soft, dark-brown with yellow spots, moist, with minor subangular to subrounded gravel											
				Gravelly SAND, fine to medium grained, light-brown, dry, very dense, with some subangular to subrounded gravel											
		NOT ENCOUNTERED		**EOH - Practical Refusal in Gravels**											

LEGEND

ABBREVIATIONS								NOTES
DCP	DYNAMIC CONE PENETROMETER	HA	HAND AUGER	LL	LIQUID LIMIT	Gr	GRAVEL	
GWL	GROUNDWATER LEVEL	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	Sa	SAND	
mbgl	METERS BELOW GROUND LEVEL	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT	
WC	WATER CONTENT	UW	UNIT WEIGHT (kN/m^3)	NE	NOT ENCOUNTERED	▽	STANDING GWL	

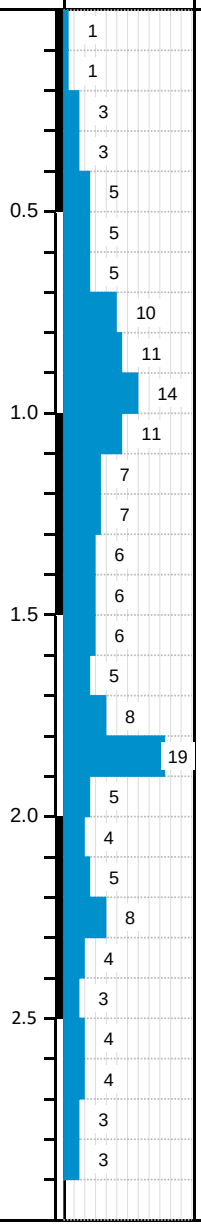
miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS

PROJECT NUMBER:	**200133**
CLIENT:	**Kapiti Coast District Council**
TESTING COMPLETED:	**17 March 2020**

SHALLOW GROUND INVESTIGATION LOG

HA4/DCP4

PROJECT:	**Kapiti Island Gateway, Maclean Park, Paraparaumu Beach**				
LOGGED BY:	**IV**	*TOTAL DEPTH OF HOLE:*	**2.1 mbgl**	*HOLE DIAMETER:*	**50 mm**
CHECKED BY:	**CG**	*DRILLING METHOD:*	**Hand Auger**	*SHEAR VANE NUMBER:*	**-**
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**1.5 mbgl**	This report may only be reproduced in full	



Depth (m)	DCP Test Results (Blows per 100mm)	GWL	Soil Description: USC	Soil Description: Soil Characteristics	Soil Description: Graphic Log	Sample Taken	Lab Testing: Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI	Grain Size Gr	Grain Size Sa	Grain Size FC	WC (%)	UW	Vane shear strength (kPa) peak/remoulded
				SAND, fine grained, light-brown, dry, loose to medium dense											
				at 0.7 mbgl: becoming dense											
				at 0.9 mbgl: becomes brown, with minor subangular to subrounded gravels											
				at 1.1 mbgl: becomes moist, medium dense											
				at 1.3 mbgl: becomes dark grey/brown, gravel absent											
		▽		at 1.5 mbgl: becomes saturated											
				EOH - Hole Collapse in Saturated Sands											

LEGEND

ABBREVIATIONS

DCP	DYNAMIC CONE PENETROMETER	HA	HAND AUGER	LL	LIQUID LIMIT	Gr	GRAVEL
GWL	GROUNDWATER LEVEL	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	Sa	SAND
mbgl	METERS BELOW GROUND LEVEL	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT
WC	WATER CONTENT	UW	UNIT WEIGHT (kN/m^3)	NE	NOT ENCOUNTERED	▽	STANDING GWL

NOTES

As per MINZ policy, the DCP was transferred to the base of the hand auger borehole at 1.9m depth

miyamoto. ENGINEERS + CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:*	**200133**
	CLIENT:	**Kapiti Coast District Council**
	TESTING COMPLETED:	**17 March 2020**

SHALLOW GROUND INVESTIGATION LOG

HA5/DCP5

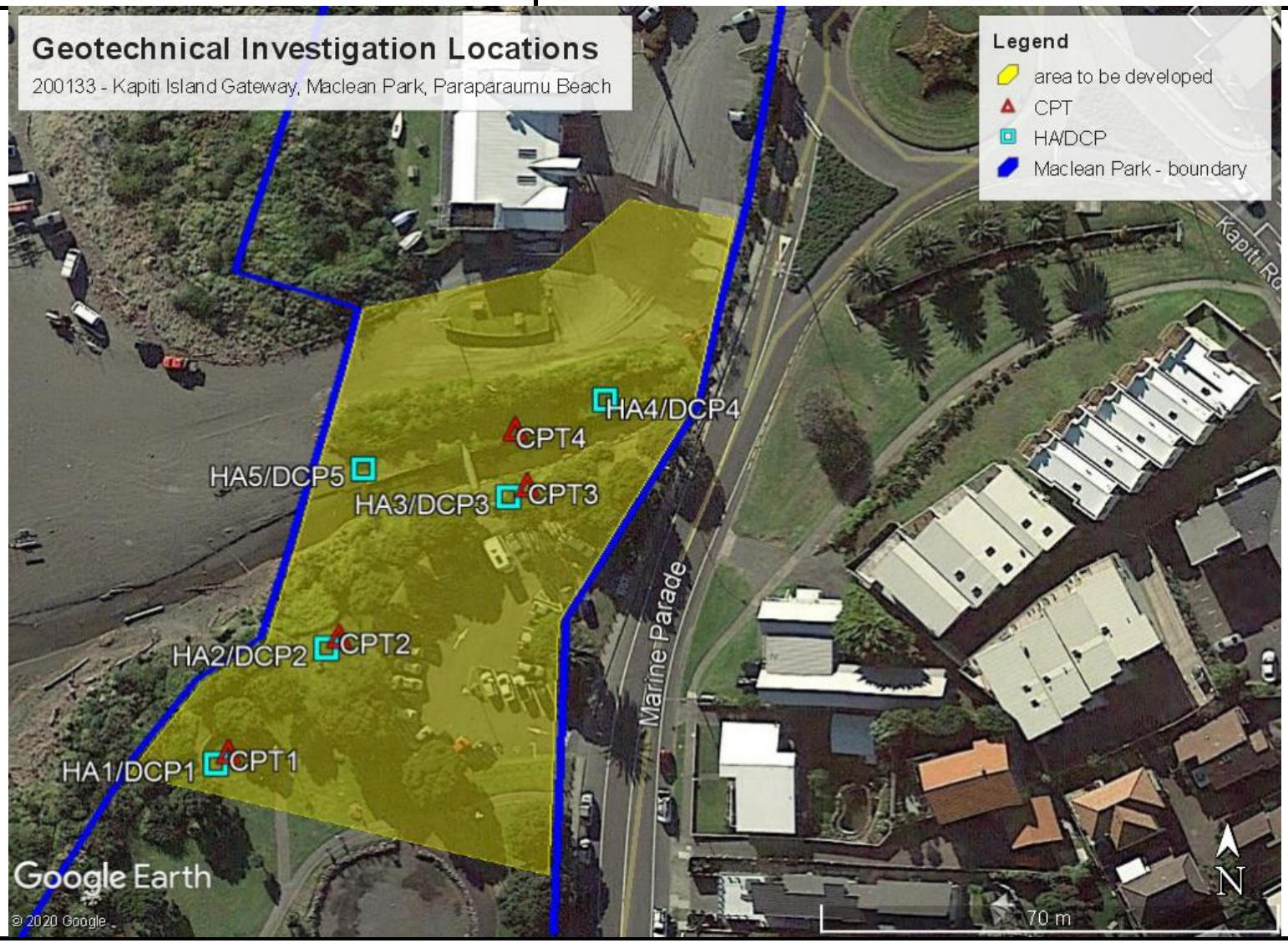
PROJECT:	**Kapiti Island Gateway, Maclean Park, Paraparaumu Beach**						
LOGGED BY:	**IV**	*TOTAL DEPTH OF HOLE:*	**0.6**	**mbgl**	*HOLE DIAMETER:*	**50 mm**	
CHECKED BY:	**CG**	*DRILLING METHOD:*	**Hand Auger**		*SHEAR VANE NUMBER:*	**-**	
LOCATION:	**REFER TO SITE PLAN**	*GROUNDWATER LEVEL:*	**0.6**	**mbgl**	This report may only be reproduced in full		

Depth (m)	*DCP Test Results (Blows per 100mm)*	*GWL*	*Soil Description*			*Sample Taken*	*Lab Testing*								*Vane shear strength (kPa) peak/remoulded*
			USC	*Soil Characteristics*	*Graphic Log*		*Atterberg Limits*			*Grain Size*			*WC (%)*	*UW*	
							LL	*PL*	*PI*	*Gr*	*Sa*	*FC*			
0.5	3 7 15 19 19 20+ Practical refusal	▽		SAND, fine to medium grained, light grey-brown, dry, medium dense to very dense at 0.4 mbgl: becomes moist at 0.5 mbgl: beomces wet, with gravels											
1.0				**EOH - Practical Refusal in Gravels**											
1.5															
2.0															
2.5															

LEGEND

ABBREVIATIONS								NOTES
DCP	DYNAMIC CONE PENETROMETER	HA	HAND AUGER	LL	LIQUID LIMIT	Gr	GRAVEL	
GWL	GROUNDWATER LEVEL	UTP	UNABLE TO PENETRATE	PL	PLASTIC LIMIT	Sa	SAND	
mbgl	METERS BELOW GROUND LEVEL	EOH	END OF HOLE	PI	PLASTICITY INDEX	FC	FINES CONTENT	
WC	WATER CONTENT	UW	UNIT WEIGHT (kN/m^3)	NE	NOT ENCOUNTERED	▽	STANDING GWL	

miyamoto. ENGINEERS+ CONSTRUCTION CONSULTANTS	*PROJECT NUMBER:* **200133** *CLIENT:* **Kapiti Coast District Council** *TESTING COMPLETED:* **17 March 2020**
SITE INVESTIGATION PLAN	**Kapiti Island Gateway, Maclean Park, Paraparaumu Beach**



Appendix D: Deep Geotechnical Investigation Results

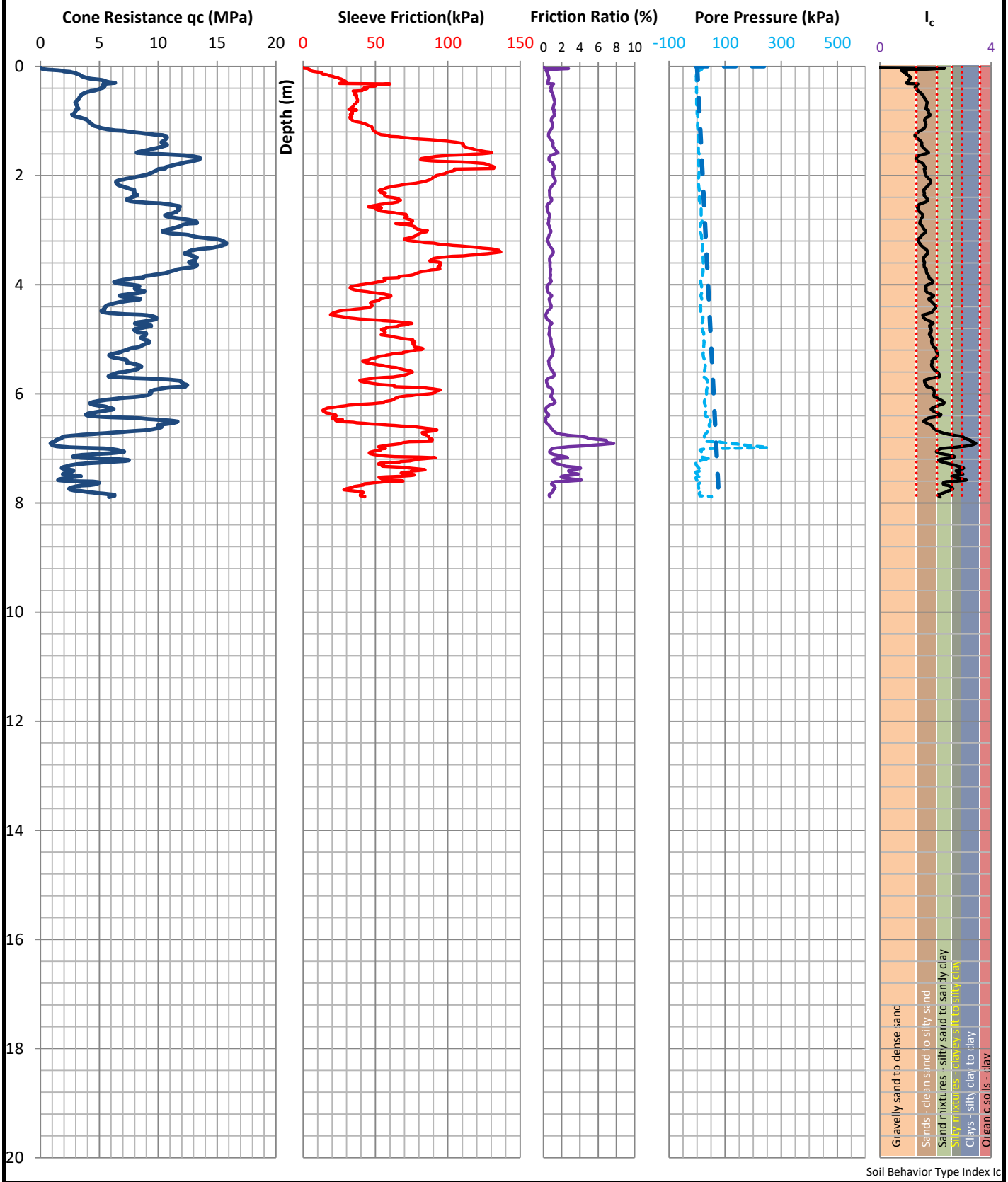
CPT ELITE
GROUND INVESTIGATION

Paraparaumu, Kapiti Coast, New Zealand
cptelite@piling.co.nz

CPT-1

Latitude: 4053.5155S **Longitude:** 17458.8070E
Date / Time: *03/17/2020 10:30:38* **Pre-Drill:** 0.00 m
Location: south west1 200133 **Assumed GWL:** 0.00 m
Address: Kapiti Island Gateway, Paraparaumu Beach

Client: Miyamoto International NZ Ltd
Project: Geotechnical Investigation



Soil Behavior Type Index Ic

Operator: willy
Probe code: Mkj581
Cone type: 15 sqr cm piezocone

Remarks: Anchor failure

CPT ELITE
GROUND INVESTIGATION

Paraparaumu, Kapiti Coast, New Zealand
cptelite@piling.co.nz

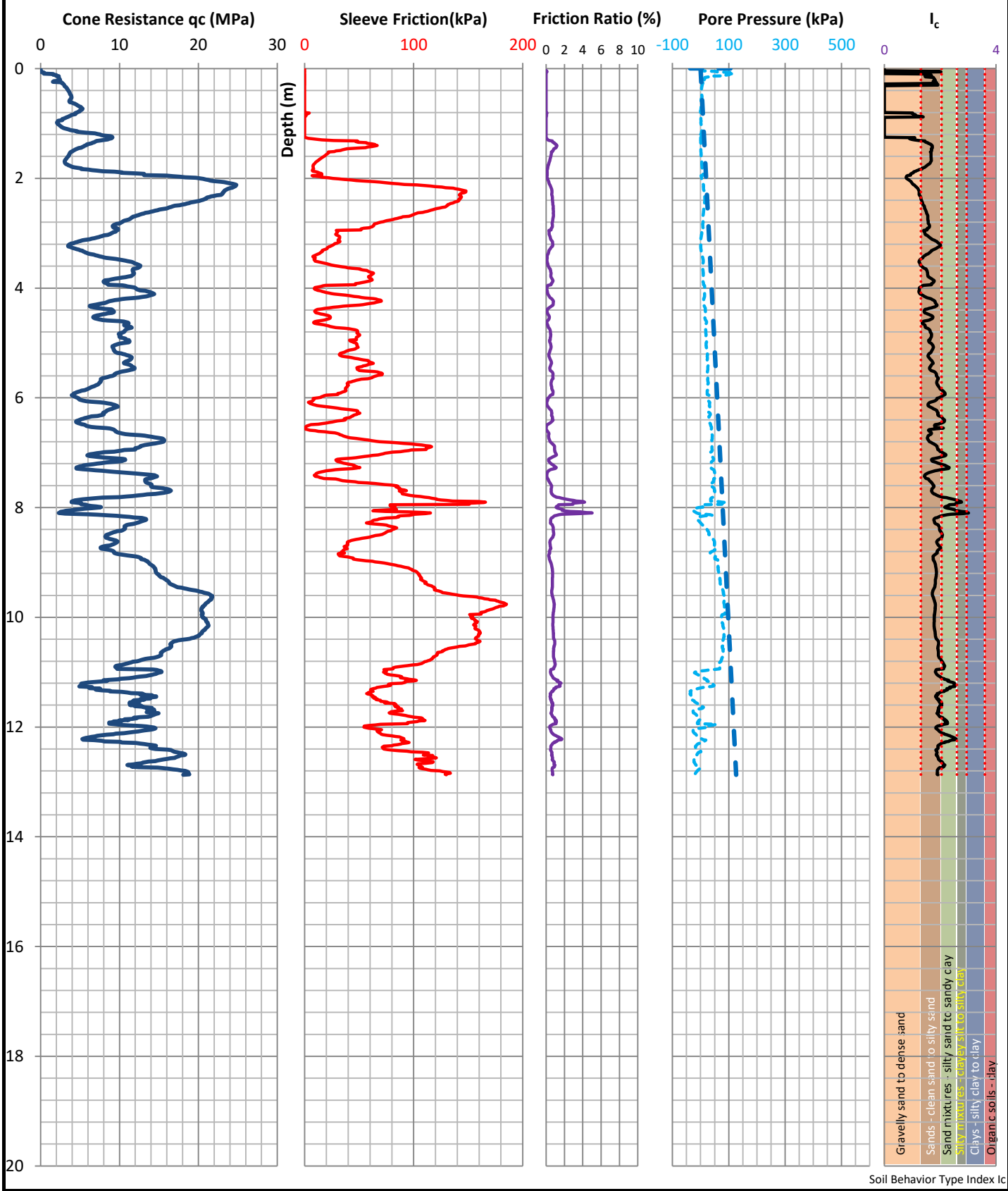
CPT-2

Latitude: 4053.5035S **Longitude:** 17458.8119E

Date / Time: *03/17/2020 12:28:59* **Pre-Drill:** 0.00 m

Client: Miyamoto International NZ Ltd **Location:** south west2 200133 **Assumed GWL:** 0.00 m

Project: Geotechnical Investigation **Address:** Kapiti Island Gateway, Paraparaumu Beach



Operator: willy

Probe code: Mkj581

Cone type: 15 sqr cm piezocone

Remarks: Anchor failure

CPT ELITE
GROUND INVESTIGATION

Paraparaumu, Kapiti Coast, New Zealand
cptelite@piling.co.nz

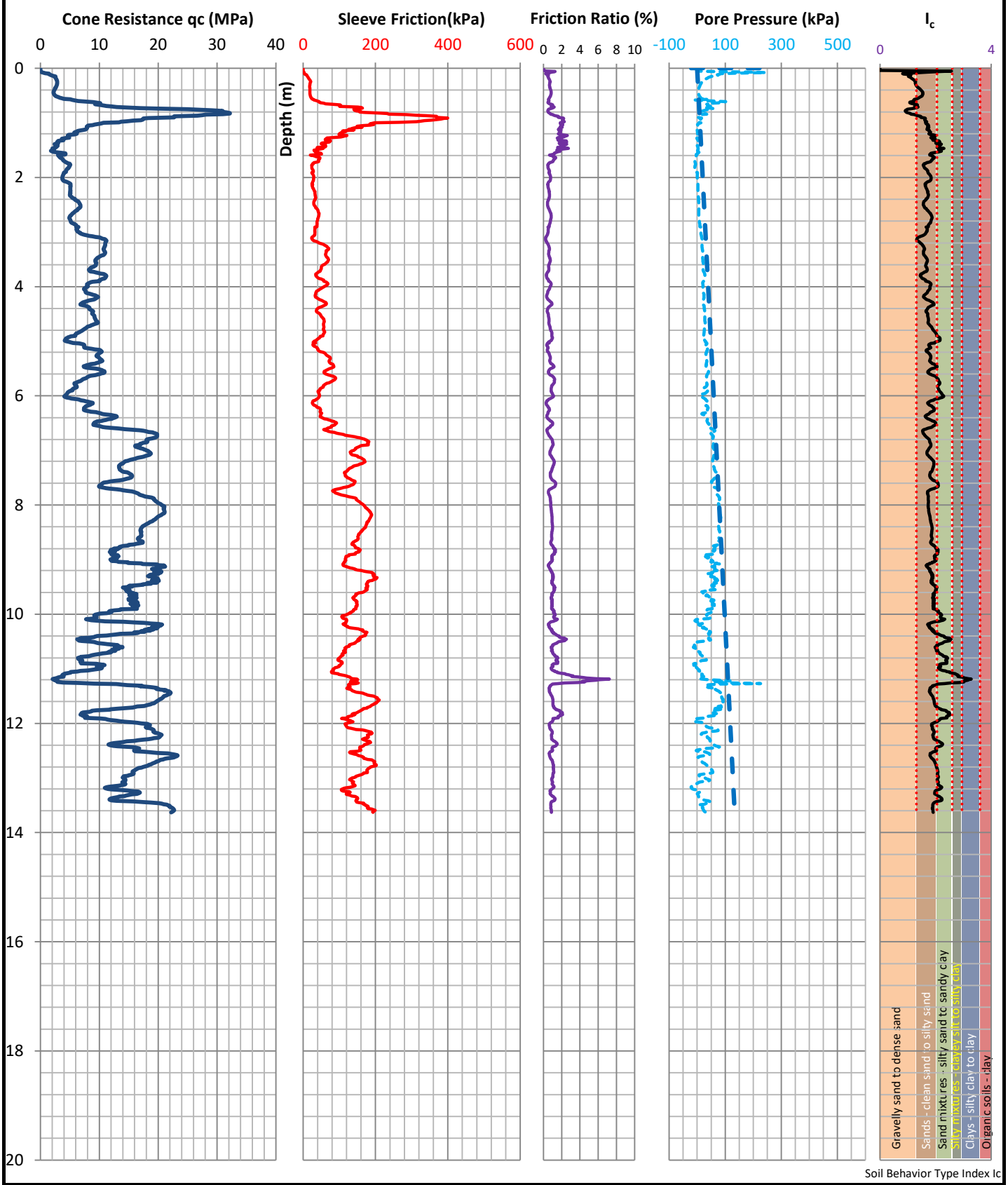
CPT-3

Latitude: 4053.4906S Longitude: 17458.8353E

Client: Miyamoto International NZ Ltd
Project: Geotechnical Investigation

Date / Time: *03/17/2020 14:23:03*
Location: south west3 200133
Address: Kapiti Island Gateway, Paraparaumu Beach

Pre-Drill: 0.00 m
Assumed GWL: 0.00 m



Operator: willy
Probe code: MKj654
Cone type: 15 sqr cm piezocone

Remarks: Anchor failure

CPT ELITE
GROUND INVESTIGATION

Paraparaumu, Kapiti Coast, New Zealand
cptelite@piling.co.nz

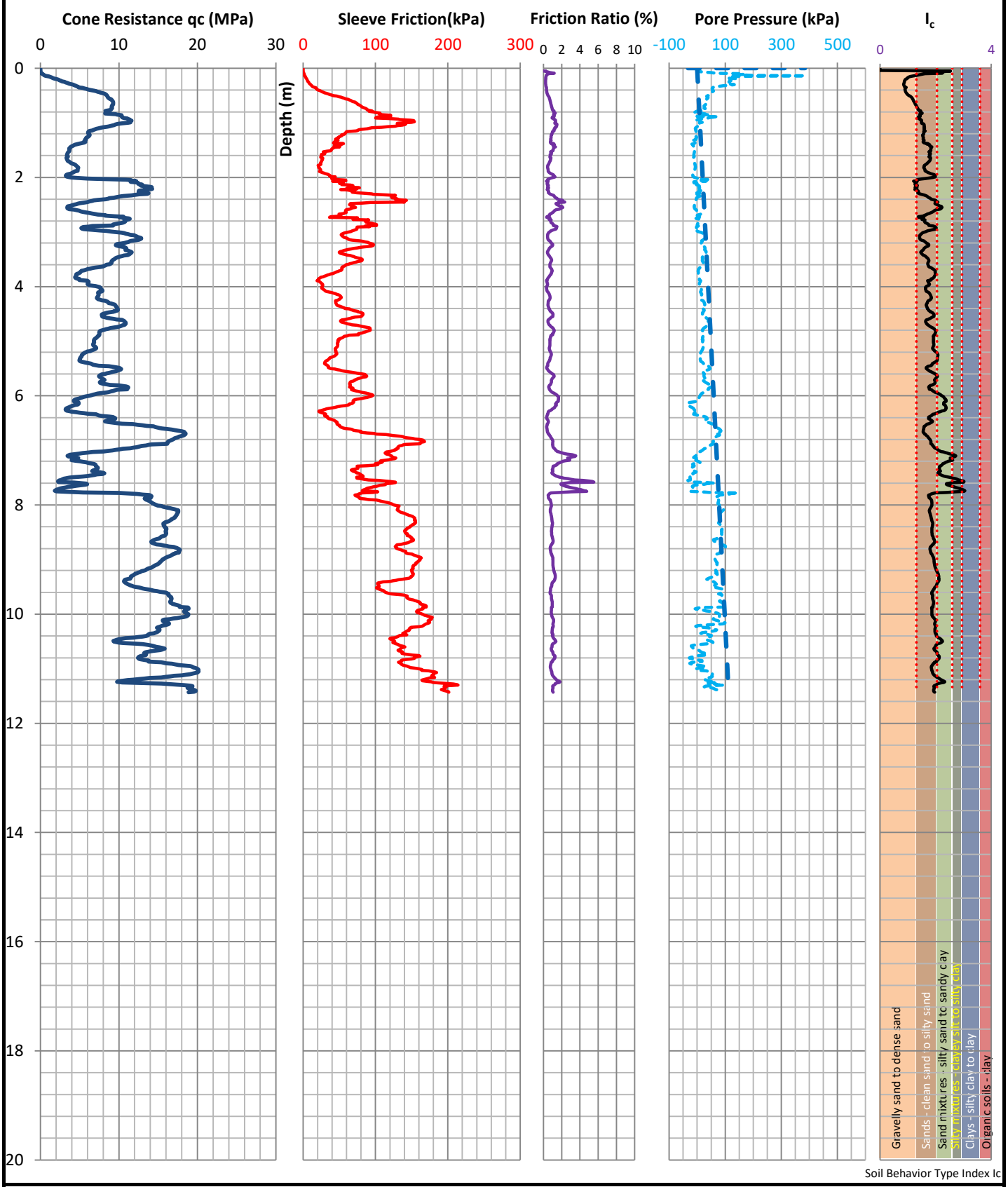
CPT-4

Latitude: 4053.4851S Longitude: 17458.8338E

Date / Time: ***03/18/2020 10:36:33*** **Pre-Drill: 0.00 m**

Client: Miyamoto International NZ Ltd **Location: north west1 200133** **Assumed GWL: 0.00 m**

Project: Geotechnical Investigation **Address: Kapiti Island Gateway, Paraparaumu Beach**



Operator: willy

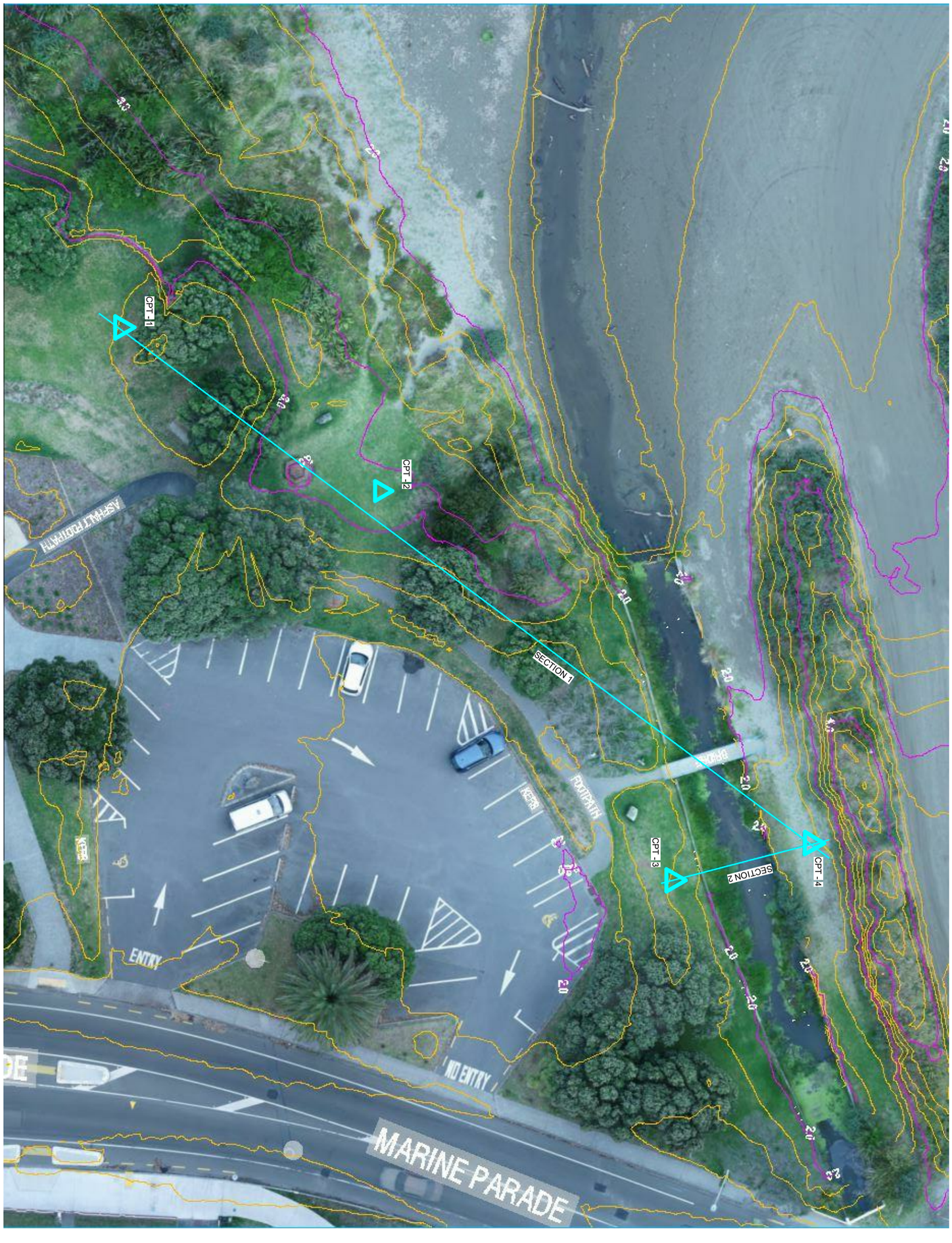
Probe code: Mkj581

Cone type: 15 sqr cm piezocone

Remarks: Anchor failure

Appendix E: Geotechnical Cross Sections

ALL DIMENSIONS IN MILLIMETERS U.N.O. DO NOT SCALE



FOR INFORMATION

CLIENT: Kāpiti Coast DISTRICT COUNCIL

CONSULTANTS: Cuttriss Surveyors, Engineers, Planners

REV	DATE	DESCRIPTION
A	25-03-20	FOR RESOURCE CONSENT

REVISION HISTORY

PROJECT No: 200133

DRAWN: DAS

ENGINEER: IV

CHECKED: AG

APPROVED: AG

SIZE: A1 (REDUCED AS SCALE = HALF STATED) SCALE: 1:7

SHEET No: S1000 PHASE: REV: A

SITE PLANS

GEOTECHNICAL ASSESSMENT
KAPITI ISLAND GATEWAY, MACLEAN PARK, PARAPARAUMU BEACH

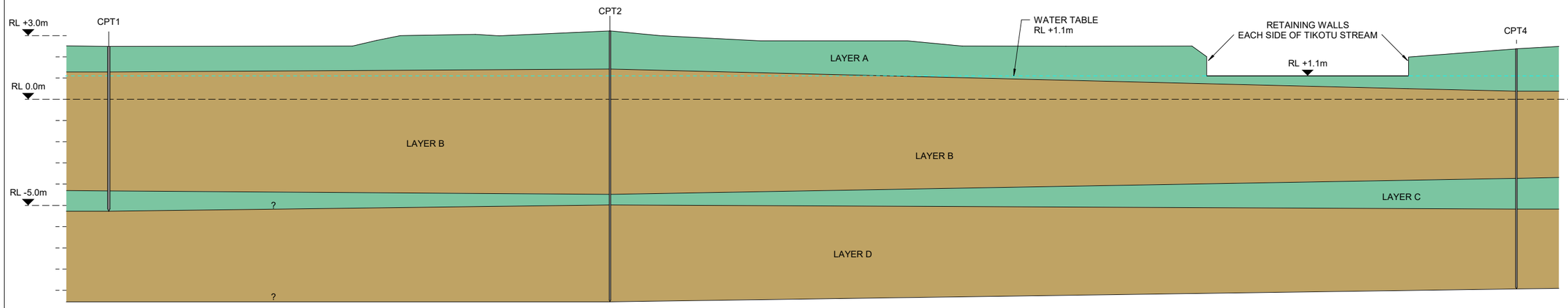
miyamoto.

53 Kapiti Road
Paraparumu 5032

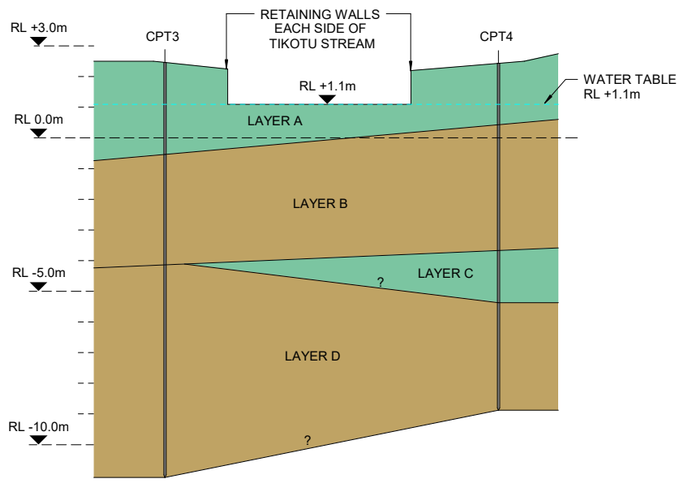
T: 64 04 974 1272
miyamoto.nz
projects@miyamoto.nz

F:\Projects\2020\200133 - Kapiti Island Gateway, MacLean Park, Paraparaumu Beach\05 Drafting\BIM\200133_Kapiti Gateway.rvt

PLOTTED: 27/03/2020 10:14:16 AM



SECTION 1 CPT1 - CPT2 - CPT4
1 : 100



SECTION 2 CPT3 - CPT4
1 : 100

miyamoto.
53 Kapiti Road
Paraparaumu 5032
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projects@miyamoto.nz

GEOTECHNICAL ASSESSMENT
KAPITI ISLAND GATEWAY, MACLEAN PARK, PARAPARAUMU BEACH

FOR INFORMATION

CLIENT: Kāpiti Coast District Council

CONSULTANTS: Cuttriss Surveyors. Engineers. Planners.

REVISION HISTORY

REV	DATE	DESCRIPTION
A	25-03-20	FOR RESOURCE CONSENT

PROJECT No: 200133

DRAWN:	DAS
ENGINEER:	IV
CHECKED:	AG
APPROVED:	AG

SIZE: A1 SCALE: 1 : 100
(REDUCED A3 SCALE = HALF STATED)

GROUND SECTIONS

SHEET No: S2000 PHASE: REV. A

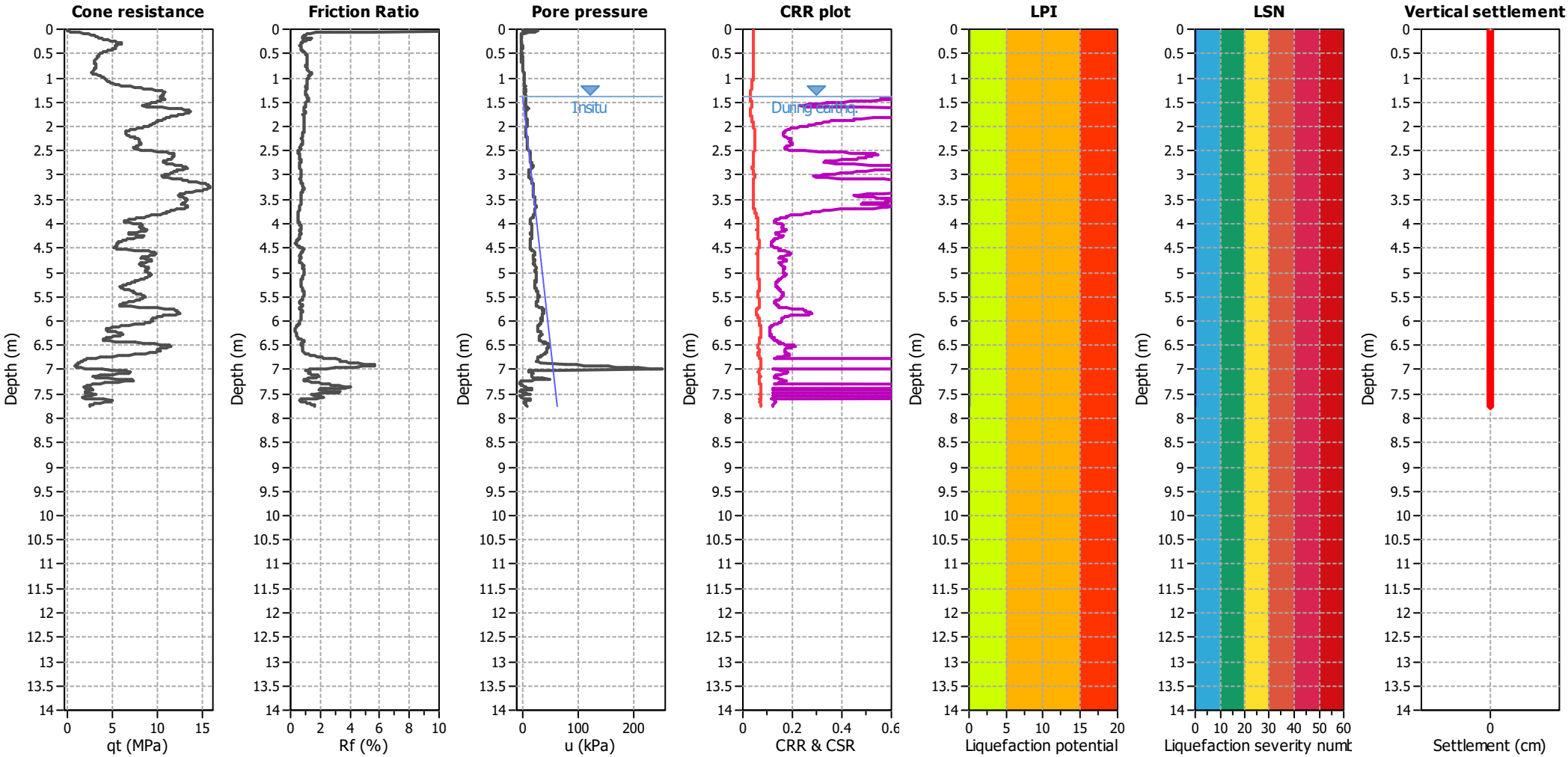
F:\Projects\2020\200133 - Kapiti Island Gateway, MacLean Park, Paraparaumu Beach\05 Drafting\BIM\200133_Kapiti Gateway.rvt

Appendix F: Liquefaction Analysis Results

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: MINZ 200133 - Kapiti Island Gateway
Location: Maclean Park, Paraparaumu Beach

CPT: CPT-1 _ SLS
Total depth: 7.76 m

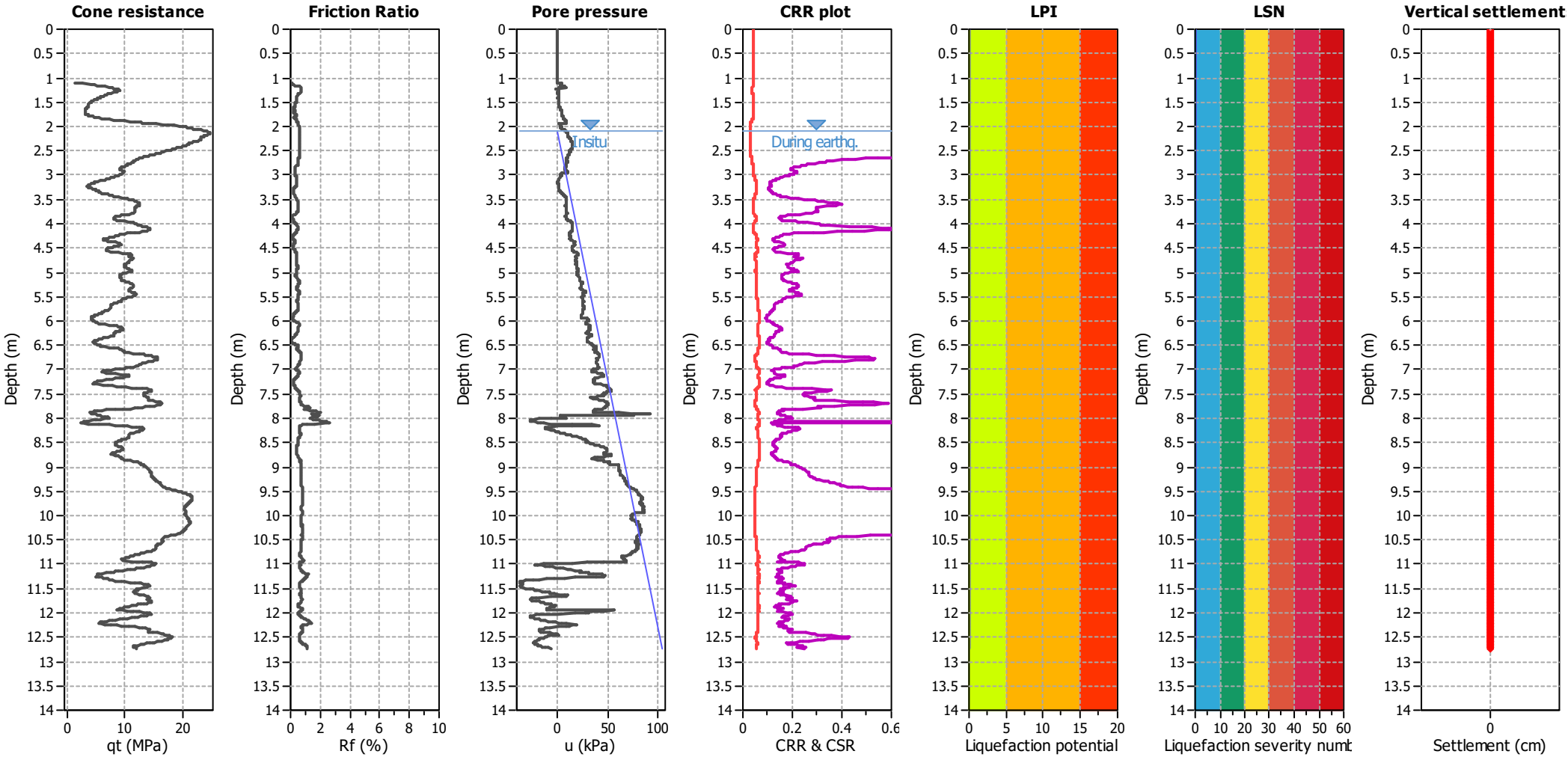


Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.40 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.40 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.20	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.08	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: MINZ 200133 - Kapiti Island Gateway
Location: Maclean Park, Paraparaumu Beach

CPT: CPT-2 _ SLS
Total depth: 12.73 m

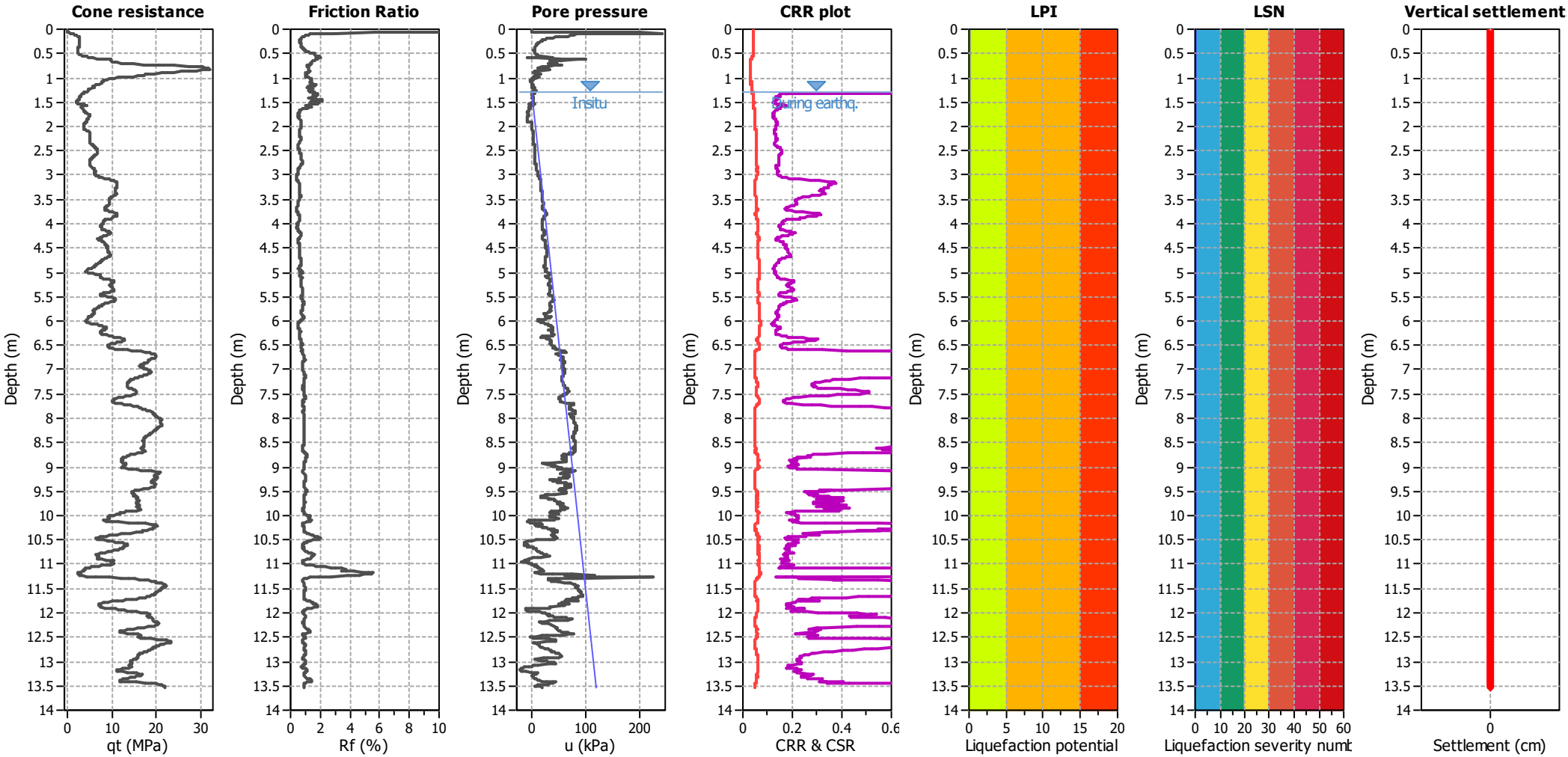


Analysis method:	B&I (2014)	G.W.T. (in-situ):	2.10 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	2.10 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.20	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.08	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: MINZ 200133 - Kapiti Island Gateway
Location: Maclean Park, Paraparaumu Beach

CPT: CPT-3 _ SLS
Total depth: 13.53 m

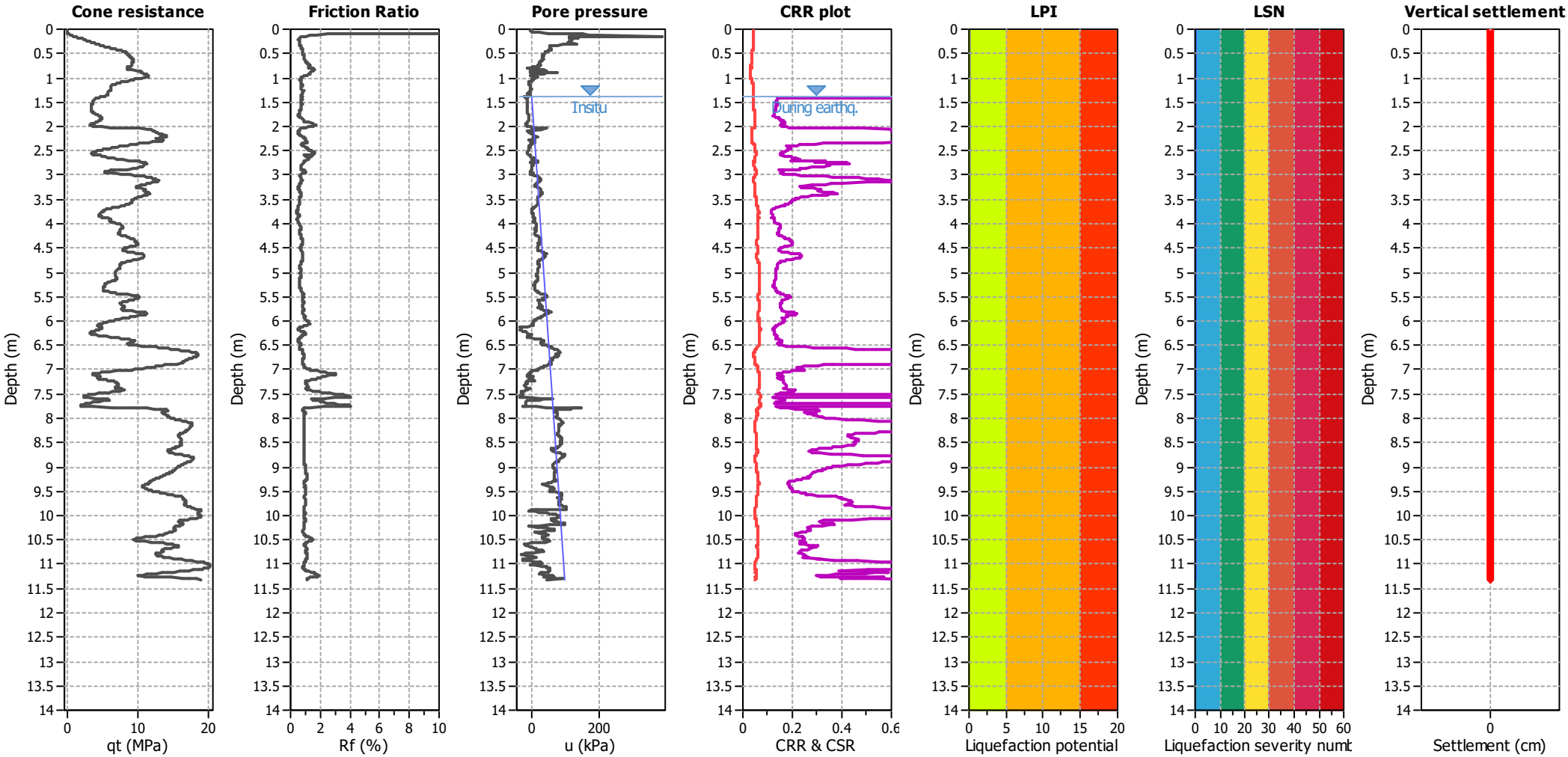


Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.30 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.30 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.20	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.08	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: **MINZ 200133 - Kapiti Island Gateway**
Location: **Maclean Park, Paraparaumu Beach**

CPT: CPT-4 _ SLS
Total depth: 11.31 m

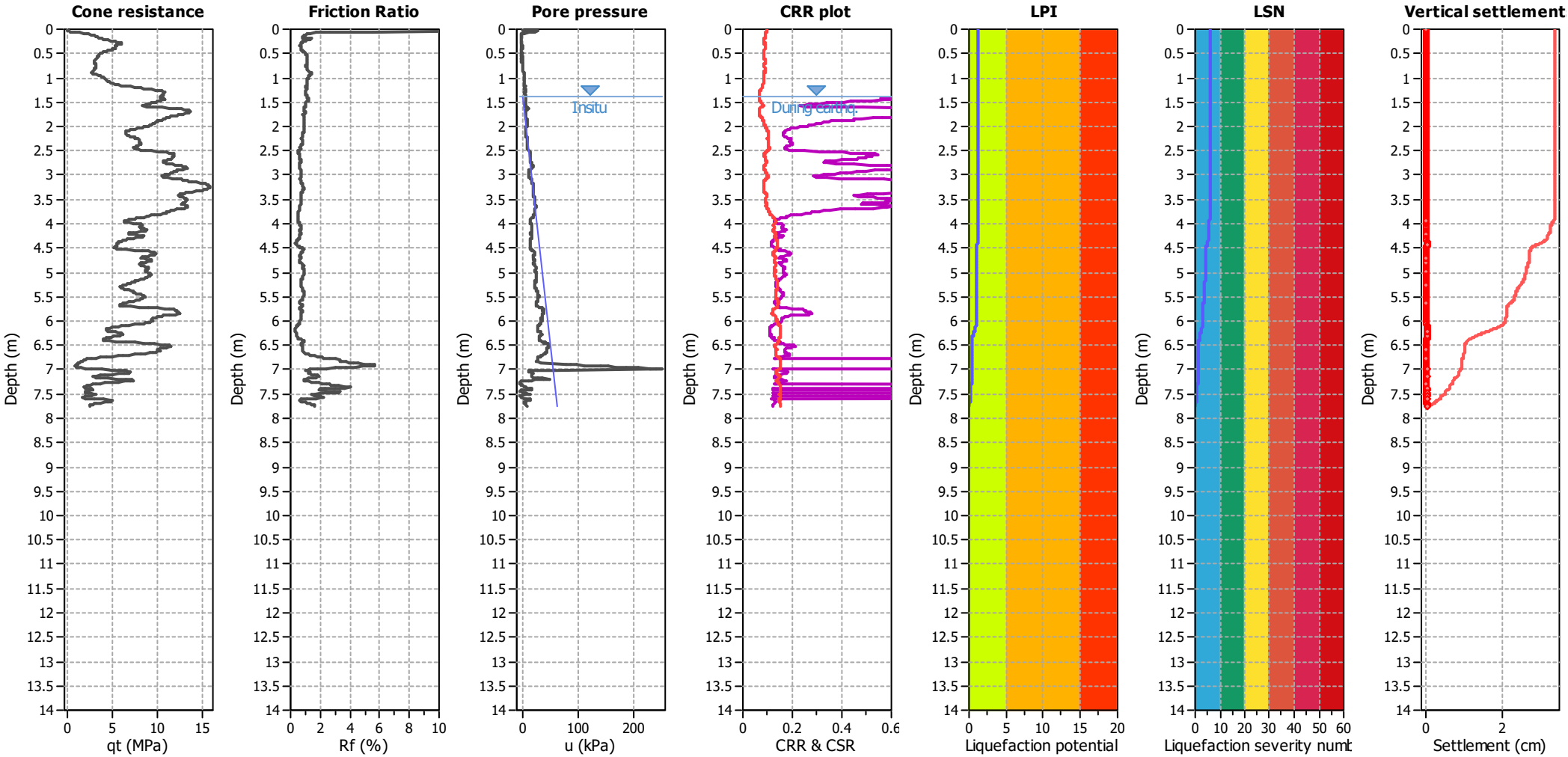


Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.40 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.40 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.20	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.08	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: **MINZ 200133 - Kapiti Island Gateway**
Location: **Maclean Park, Paraparaumu Beach**

CPT: CPT-1 _ IE
Total depth: 7.76 m

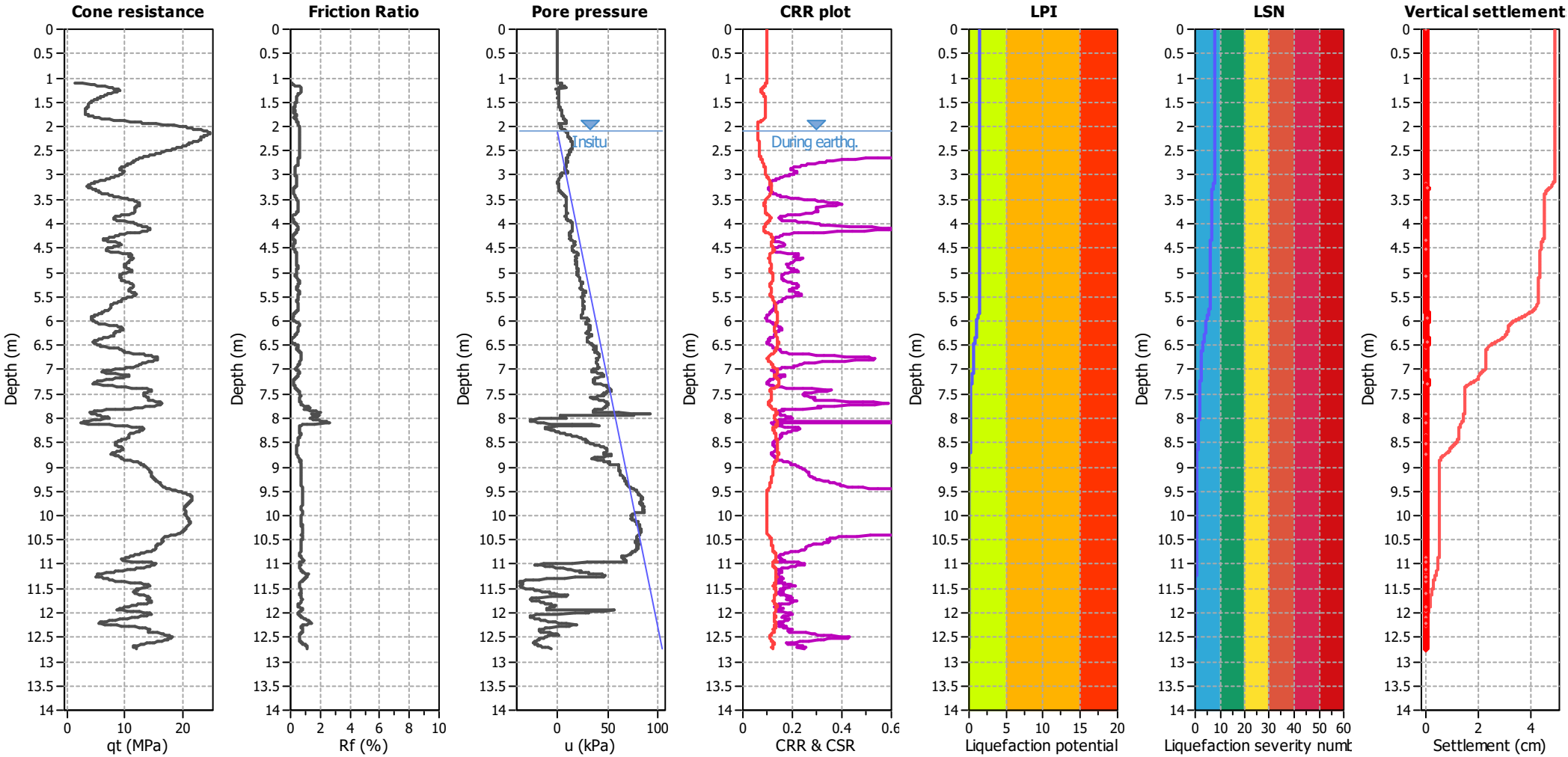


Analysis method:	B&I (2014)	G.W.T. (in-situ):	1.40 m	Use fill:	No	Clay like behavior applied:	.
Fines correction method:	B&I (2014)	G.W.T. (earthq.):	1.40 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude M_w:	6.20	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.17	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: **MINZ 200133 - Kapiti Island Gateway**
Location: **Maclean Park, Paraparaumu Beach**

CPT: CPT-2 _ IE
Total depth: 12.73 m



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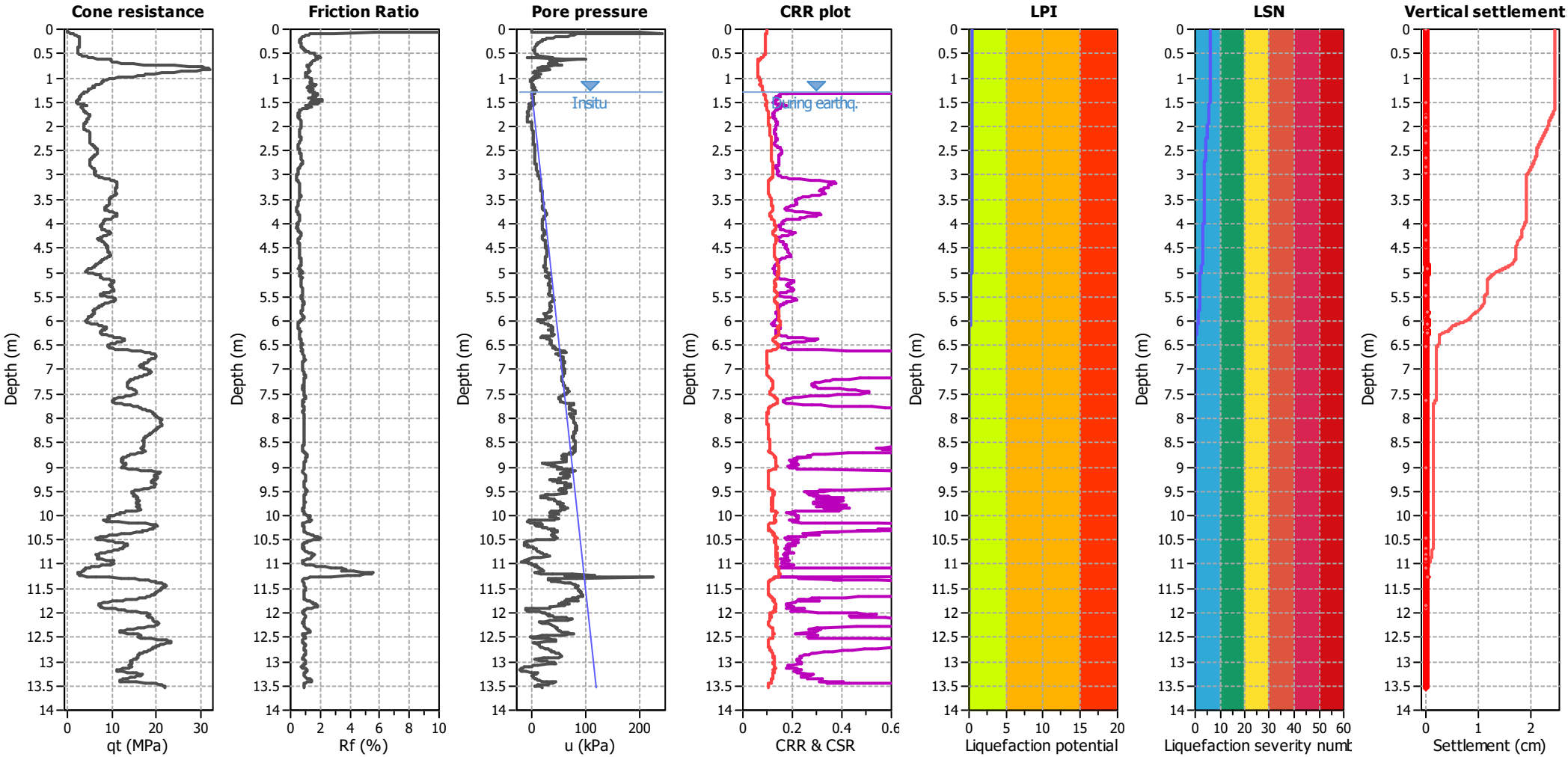
Peak ground acceleration:	0.17	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: **MINZ 200133 - Kapiti Island Gateway**
Location: **Maclean Park, Paraparaumu Beach**

CPT: CPT-3 _ IE
Total depth: 13.53 m



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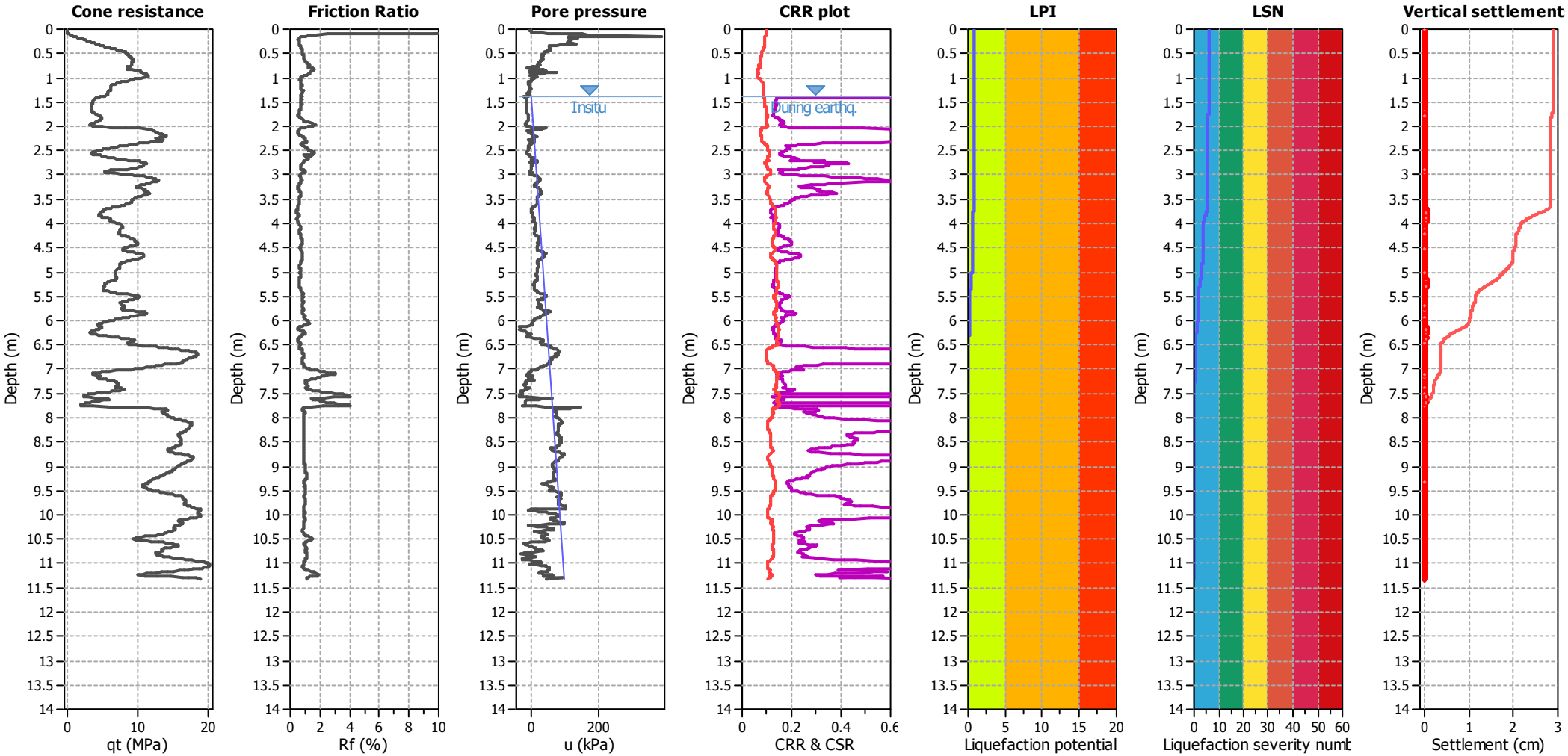
Peak ground acceleration:	0.17	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: **MINZ 200133 - Kapiti Island Gateway**
Location: **Maclean Park, Paraparaumu Beach**

CPT: CPT-4 _ IE
Total depth: 11.31 m



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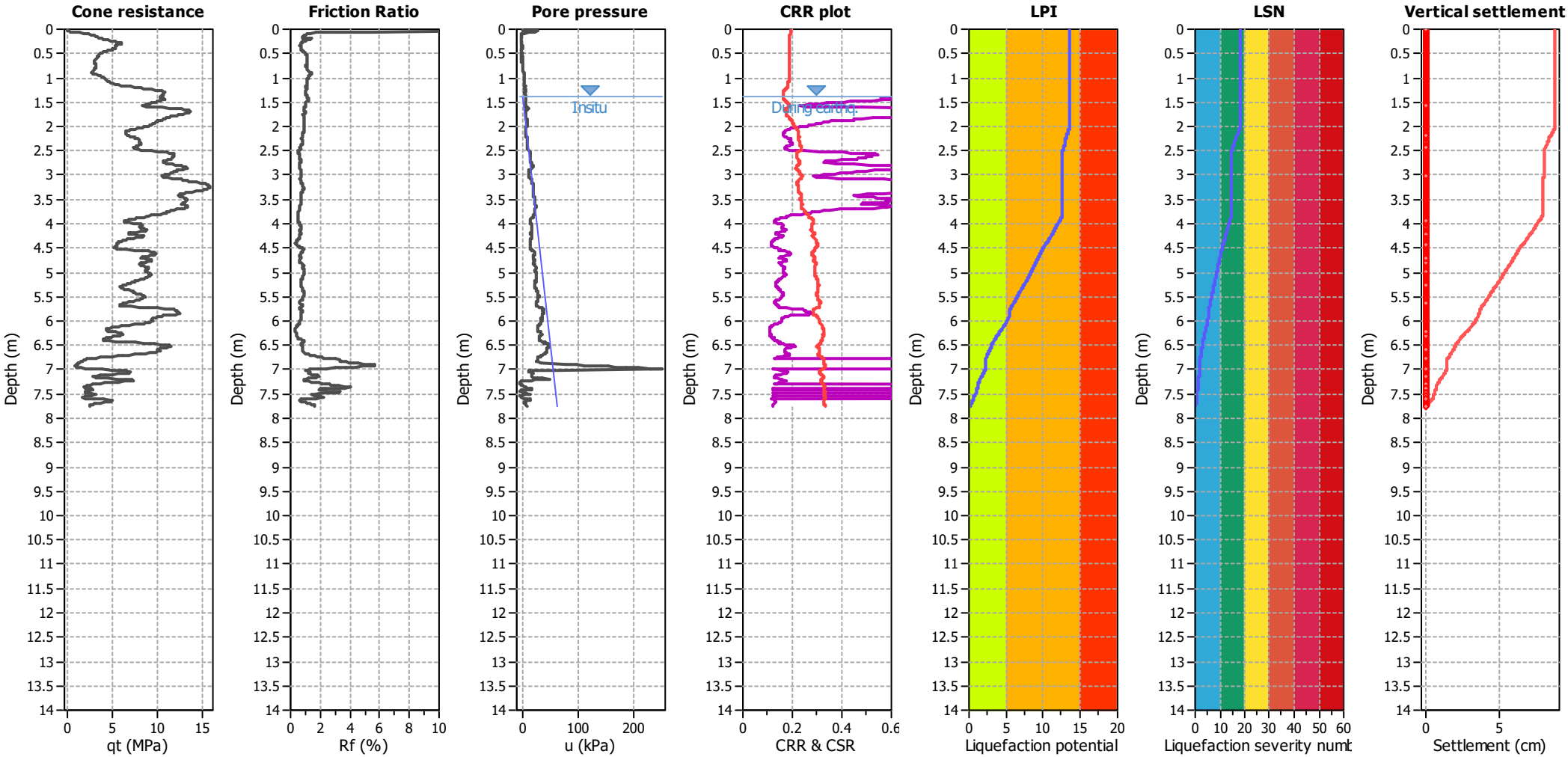
Peak ground acceleration:	0.17	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: MINZ 200133 - Kapiti Island Gateway
Location: Maclean Park, Paraparaumu Beach

CPT: CPT-1 _ ULS
Total depth: 7.76 m



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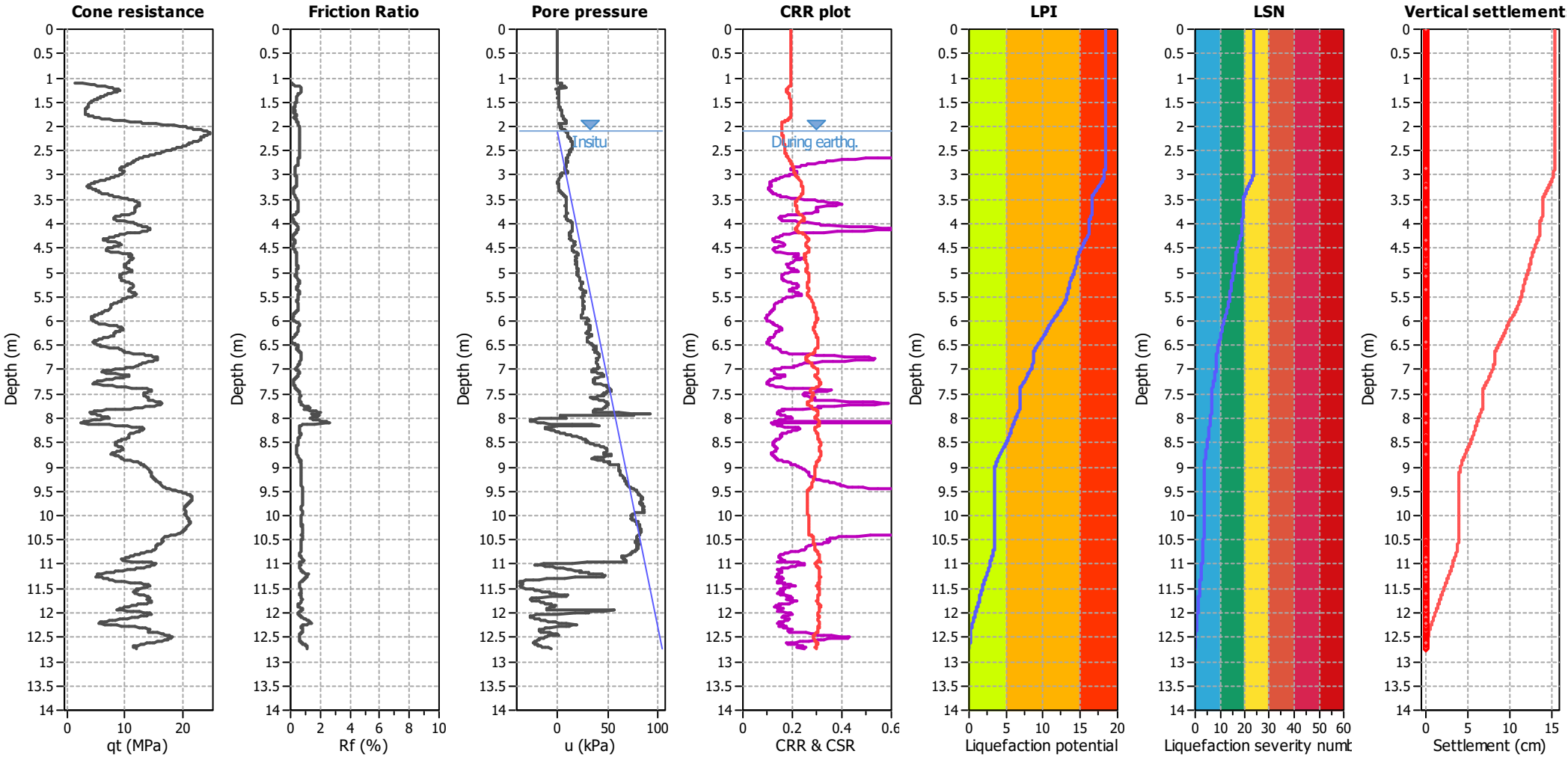
Peak ground acceleration:	0.34	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: **MINZ 200133 - Kapiti Island Gateway**
Location: **Maclean Park, Paraparaumu Beach**

CPT: CPT-2 _ ULS
Total depth: 12.73 m



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Peak ground acceleration:	0.34	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
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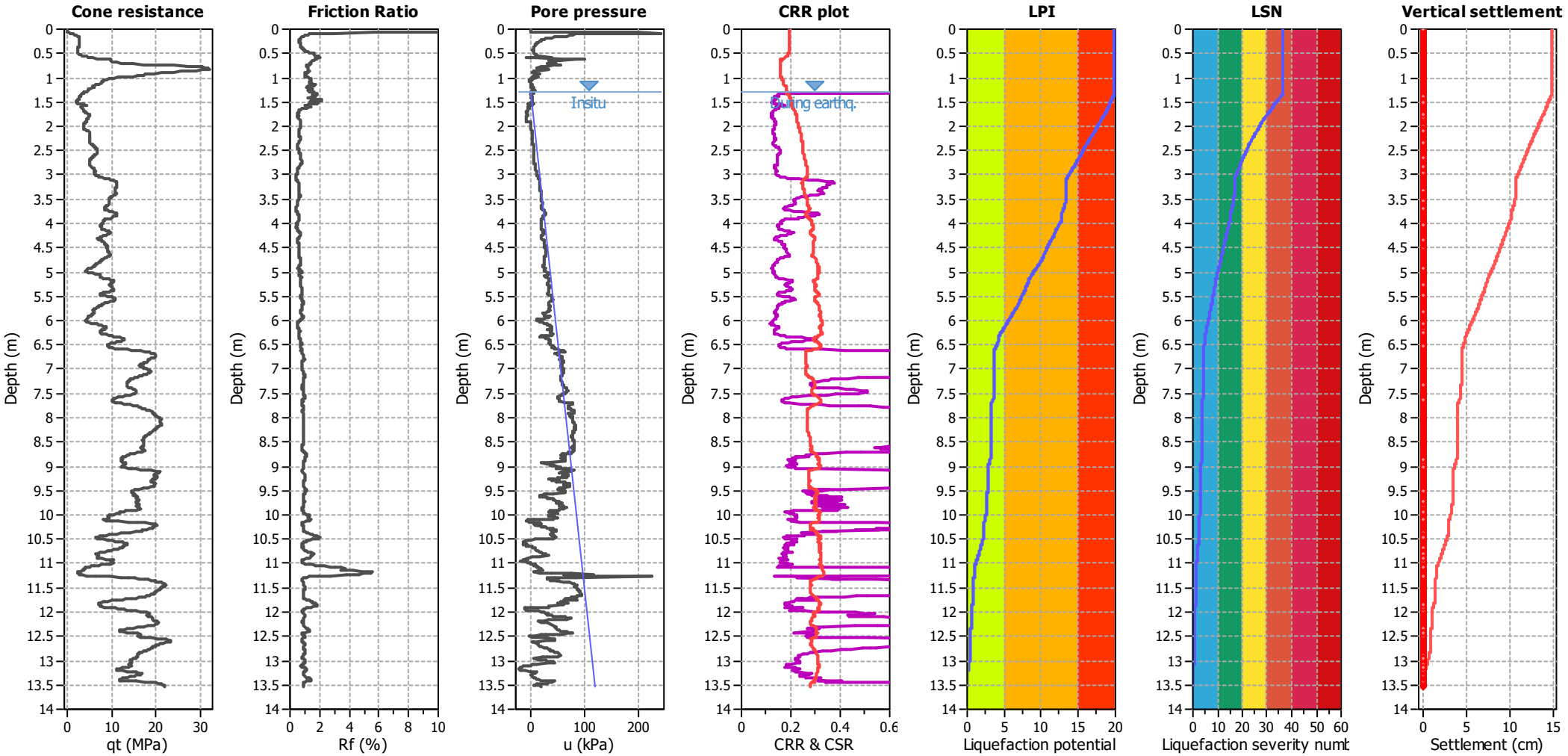
Project: MINZ 200133 - Kapiti Island Gateway
Location: Maclean Park, Paraparaumu Beach

CPT: CPT-3 _ ULS
Total depth: 13.53 m



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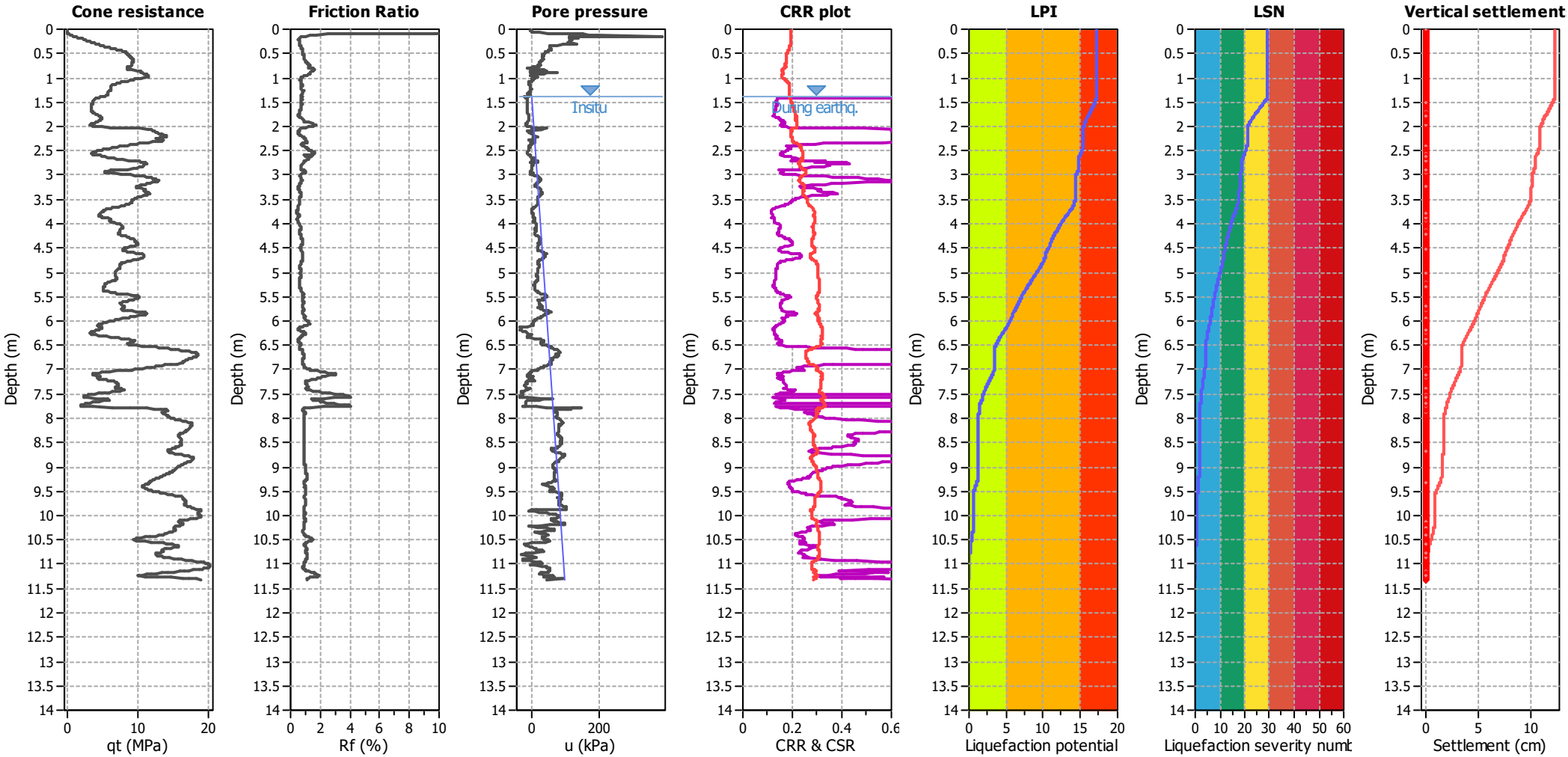
Peak ground acceleration:	0.34	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Miyamoto International NZ Ltd.
53 Kapiti Road
Paraparaumu 5032
www.miyamoto.nz

Project: MINZ 200133 - Kapiti Island Gateway
Location: Maclean Park, Paraparaumu Beach

CPT: CPT-4 _ ULS
Total depth: 11.31 m



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Peak ground acceleration:	0.34	Unit weight calculation:	Based on SBT	K_σ applied:	Yes		

Appendix 11
District Plan Overlays Plan

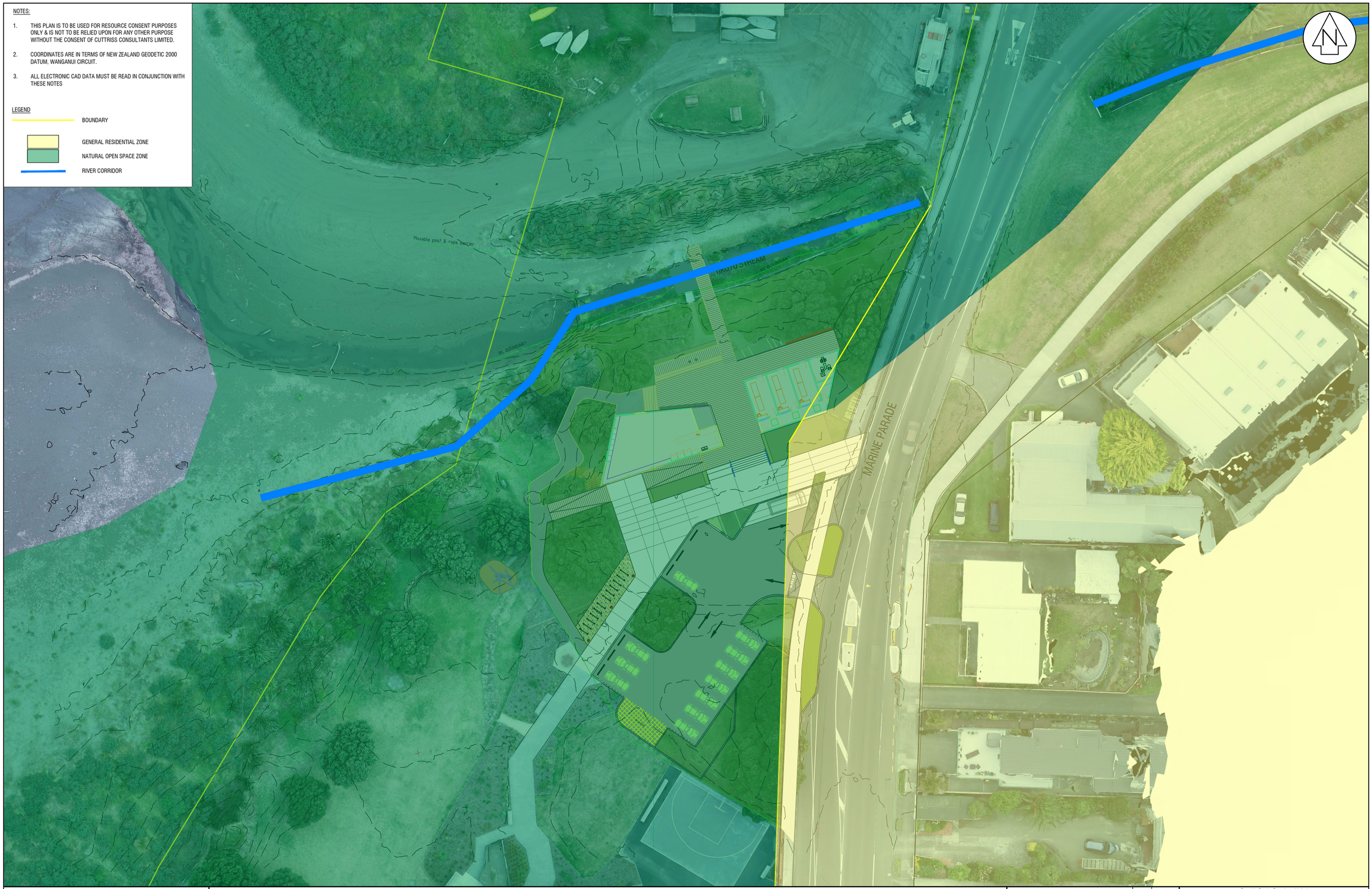
Cuttriss
Surveyors. Engineers. Planners.

NOTES:

1. THIS PLAN IS TO BE USED FOR RESOURCE CONSENT PURPOSES ONLY & IS NOT TO BE RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE CONSENT OF CUTTRISS CONSULTANTS LIMITED.
2. COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC 2000 DATUM, WANGANUI CIRCUIT.
3. ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES

LEGEND

- BOUNDARY
- GENERAL RESIDENTIAL ZONE
- NATURAL OPEN SPACE ZONE
- RIVER CORRIDOR



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PROJECT
PROPOSED KAPITI GATEWAY PROJECT
2 MARINE PARADE, PARAPARAUMU BEACH
DP - ZONES OVERLAYS

CLIENT
KAPITI COAST DISTRICT COUNCIL

REVISION DETAILS		NAME	DATE
A	BUILDING UPDATED	ECM	02/22

SCALE A1 1:250 | REDUCED SCALE A3 - 1:500

	NAME	DATE
FIELDWORK		
DESIGNED		
DRAWN	JAO	07/20
CHECKED	ECM	07/20

DRAWING NUMBER 22642 DP

SHEET 1 OF 3 SHEETS

REVISION A

NOTES:

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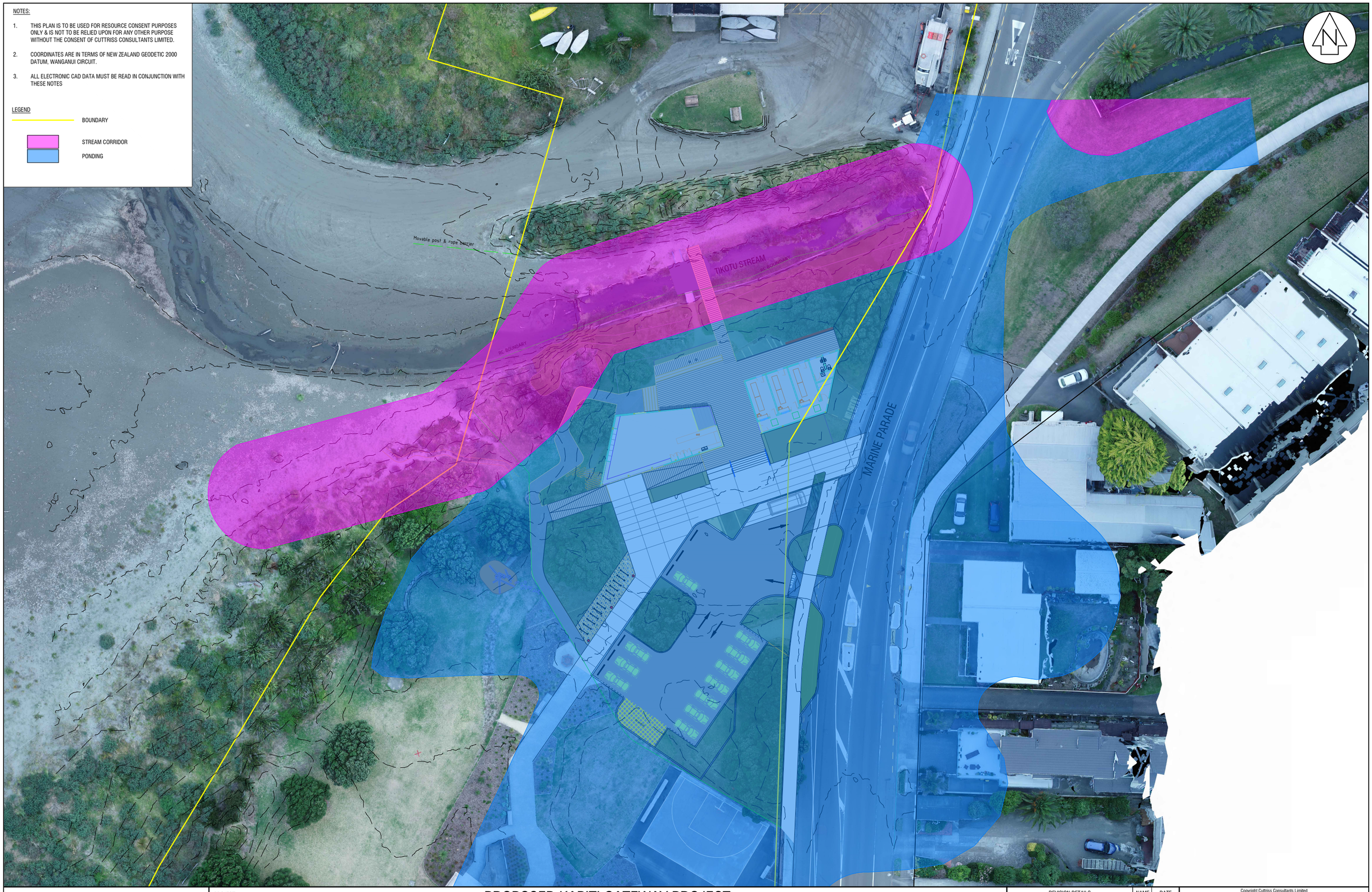
LEGEND

BOUNDARY

STREAM CORRIDOR

PONDING



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PROJECT
PROPOSED KAPITI GATEWAY PROJECT
2 MARINE PARADE, PARAPARAUMU BEACH
DP - HAZARDS PLAN

CLIENT
KAPITI COAST DISTRICT COUNCIL

REVISION DETAILS		NAME	DATE
A	BUILDING UPDATED	ECM	02/22

SCALE A1 1:250
REDUCED SCALE A3 - 1:500

	NAME	DATE
FIELDWORK		
DESIGNED		
DRAWN	JAO	07/20
CHECKED	ECM	07/20

DRAWING NUMBER
22642 DP
SHEET 2 OF 3 SHEETS
REVISION A

NOTES:

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2. COORDINATES ARE IN TERMS OF NEW ZEALAND GEODETIC 2000 DATUM, WANGANUI CIRCUIT.
3. ALL ELECTRONIC CAD DATA MUST BE READ IN CONJUNCTION WITH THESE NOTES

LEGEND

- BOUNDARY
- AREA OF HIGH NATURAL CHARACTER
- SPECIAL AMENITY LANDSCAPE
- COASTAL ENVIRONMENT

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PROJECT
PROPOSED KAPITI GATEWAY PROJECT
2 MARINE PARADE, PARAPARAUMU BEACH
DP - NATURAL ENVIRONMENT VALUES PLAN

CLIENT
KAPITI COAST DISTRICT COUNCIL

REVISION DETAILS		NAME	DATE
A	BUILDING UPDATED	ECM	02/22

SCALE A1 1:250 | REDUCED SCALE A3 - 1:500

	NAME	DATE
FIELDWORK		
DESIGNED		
DRAWN	JAO	07/20
CHECKED	ECM	07/20

DRAWING NUMBER 22642 DP
SHEET 3 OF 3 SHEETS
REVISION A

Appendix 12
Letter of Support

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Hon Eugenie Sage

Minister of Conservation
Minister for Land Information
Associate Minister for the Environment

Minita mō Te Papa Atawhai
Minita mō Toitū Te Whenua
Minita Tuarua mō Te Taiao

17 APRIL 2020

Ref: 20-A-0173

K Gurunathan JP, MA
Mayor, Kāpiti District
k.gurunathan@kapiticoast.govt.nz

Tēnā koe Mayor Guru

Thank you for your letter dated 5 March 2020 reporting progress on the Kāpiti Island Gateway Project. The project reflects a long-held ambition to create better links to the Island, and I acknowledge the lead that your Council has been taking to bring this to fruition.

I am pleased that the Department of Conservation is actively involved in providing information and support around visitor use, biosecurity requirements and the concession arrangements for the boat operators.

Iwi have important connections to the Island, directly and through the Kāpiti Island Strategic Advisory Committee. I am also pleased to hear that they are involved in the process.

We must seek to maintain or improve the wonderful natural and historic values of the Island in the project. These are the values that bring visitors to the Island. This is one of the department's goals to enhance the wellbeing of New Zealanders and international visitors by encouraging and enabling people to connect to our nature and heritage.

The Wellington Conservation Management Strategy also recognises that the department encourages increased, but regulated, visitor numbers to the Island, to ensure there are no adverse effects to its natural values.

I wish your Council success in the project. We are all affected by the COVID-19 response, and I urge you and the team working on this to prioritise your health and those of your whanau and community. I expect that there will be both challenges and opportunities for the project once the current controls are reduced. I look forward to your further updates.

Nāku noa, nā

E M Sage

Hon. Eugenie Sage
Minister of Conservation

+64 4 817 8727 | Private Bag 18041, Parliament Buildings, Wellington 6160, New Zealand | e.sage@ministers.govt.nz | beehive.govt.nz

Appendix 13
Stormwater Re-Route Design

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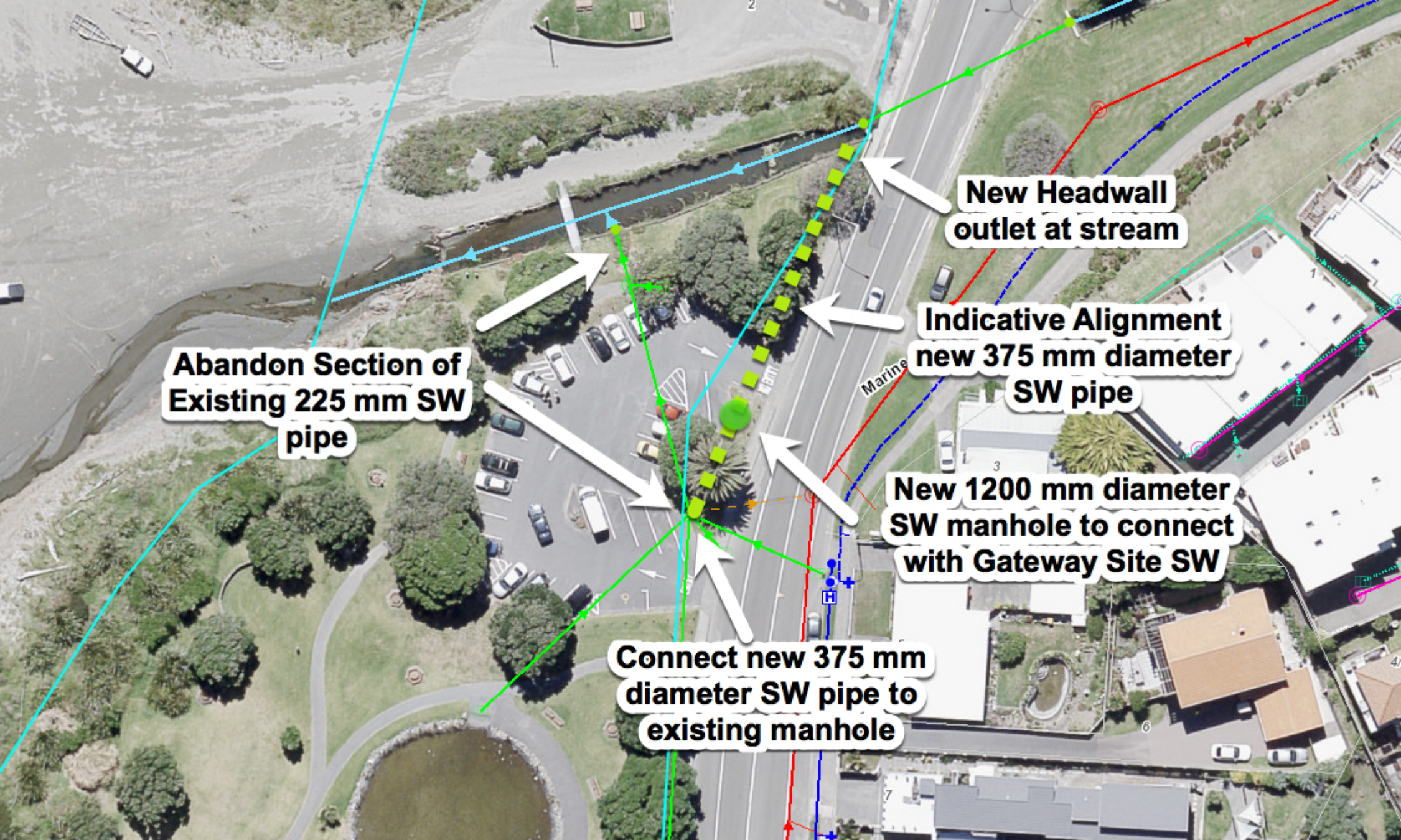
New Headwall outlet at stream
Indicative Alignment new 375 mm diameter SW pipe
Abandon Section of Existing 225 mm SW pipe
New 1200 mm diameter SW manhole to connect with Gateway Site SW
Connect new 375 mm diameter SW pipe to existing manhole
Marine

Appendix 14
Ecological Impact Assessment

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Terrestrial and Stream Ecological Impact Assessment

Gateway Project

NZ0119221

Prepared for

Kāpiti Coast District Council

23 September 2020

Cardno

Contact Information

Cardno (NZ) Limited
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Document Information

Prepared for	Kāpiti Coast District Council
Project Name	Gateway Project
File Reference	Tikotu Stream Ecological Assessment_Gateway Project.docx
Job Reference	NZ0119221
Date	23 September 2020
Version Number	2

Author(s):

Sriyan Jayasuriya	Claire Bullock	Effective Date	13/05/2020
Ecologist	Ecologist		

Approved By:

Vanessa Dally	Date Approved	13/05/2020
Water and Environment Manager		

Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
1	13/05/2020	Draft for client comment	CB	BM
2	21/09/2020	Amended based on S.92 request	SY	BM

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Appendices

Tables

Figures

1 Introduction

1.1 Background

Kāpiti Coast District Council (KCDC) is preparing a Resource Consent application for the development of the Kāpiti Coast "Gateway" (referred to as the Gateway Project from herein). The Gateway Project will be a tourism and community centre that emphasises the historical and cultural importance and natural values of the Kāpiti Coast and Kāpiti Island. The building will also enhance the functionality of existing facilities in the area like the Kapiti Boating Club, public access to the beach, MacLean Park and local shops.

The proposed new building will be located between MacLean Park and the boating club, in an area that is currently a carpark. The works associated with the current design (Appendix A) have the potential to affect the Tikotu Stream and small areas of mown grassland around the carpark. The proposal includes substantial landscaping of the stream banks, replacement of wooden retaining walls lining the stream banks, construction of a new pedestrian bridge slightly down stream of the current bridge and removal of the current pedestrian bridge, and planting the riparian zones. The site is also identified as a site of significance to Ātiawa ki Whakarongotai (Ātiawa) and is recognised as such in the Proposed Natural Resources Plan (not further addressed in this report).

In May 2020, Cardno NZ Ltd (Cardno) undertook a preliminary desktop-based ecological assessment of the proposed Tikotu Stream works for KCDC, which accompanied the resource consent application to Greater Wellington Regional Council (GWRC). GWRC has requested further details of the potential ecological effects. In addition, the potential footprint of the works have been further refined. Cardno has been contracted to provide a comprehensive Ecological Impact Assessment (EcIA) to determine the current ecological values and of the potential effects of Gateway Project especially on fauna habitats (lizard and avifauna communities).

This report details the methods and results of the Ecological Impact Assessment (EcIA) associated with the current design of the Kāpiti Coast "Gateway" and discusses appropriate recommendations to minimise potential adverse effects.

1.1 Scope

The ecological assessment included a desktop assessment and a field survey, to assess the following:

- The values and potential effects on aquatic habitats that could be affected by the proposed stream works;
- Potential impacts of the proposed works on spawning and fish migration within the affected reach;
- Identification of potential lizard habitat and potential effects on lizards and their habitat within and adjacent to the proposed worksite; and
- Avifauna use and potential effects on their habitats within and adjacent to the proposed worksite.

The level of potential effects from the proposed works were assessed according to the Environmental Institute of Australia and New Zealand 2018 guidelines (Roper-Linsday et al. 2018).

2 Methods

2.1 Site overview

The Tikotu Stream is part of the Wharemauku catchment. The Wharemauku has a catchment of approximately 22 km^2 which consists of pasture, scrub and some patches of native forest in the upper catchment, and densely populated urbanised area in the lower catchment (Figure 2-1). Historically, the Wharemauku Stream, which begins in the foothills of the Tararua Mountain range, flowed into the Tikotu Stream before discharging into the Tasman Sea at Marine Parade, Paraparaumu. However, due to residential development in the 1970's the connection between the Wharemauku Stream and Tikotu Stream was blocked, resulting in the Tikotu Stream servicing a smaller largely stormwater-fed urban/residential catchment (catchment PP09 approximately 1.6 km^2 in area) (TDE, 2019). The Tikotu Stream has limited areas of riparian vegetation and a highly modified channel (straightened and incised) (TDE 2019). The mouth of Tikotu Stream is located at the northern end of MacLean Park on the western side of Marine Parade. The stream mouth is approximately 1.5 km south of the Kãpiti Marine Reserve (MacDiarmid et al, 2012) (Figure 2-1).

2.2 Data collection

2.2.1 Stream habitat and fauna

A comprehensive desktop exercise was carried out using ESRI ArcGIS (ver. 10.7) and included resources such as the New Zealand River Environment Classification system (REC), the New Zealand Freshwater Fish Database (NZFFD) and Freshwater Ecosystems of New Zealand (FENZ) database (Leathwick et al. 2010; Snelder et al. 2010). This provided information on the aquatic species occupying the upstream and downstream habitats, and stream characteristics. The stream habitat was classified according to Table 2-1.

Table 2-1 Stream habitat classification criteria used in Tikotu Stream.

Classification	Criteria
Perennial	> Streams that flow all year round > Well defined channel and stream banks > Riffle, run, and pool habitats > More complex habitats supporting aquatic life > Gaining systems
Intermittent	> Flow for longer periods, carrying water seasonally > Defined channel with bed and banks > May have terrestrial and / or aquatic plant vegetation in channel > Evidence of pooling that can act as refuges > May retain subsurface flow
Ephemeral	> Streams that only flow for short periods of the year often following rainfall > No well-defined channel, may develop a flow path depression > No obvious aquatic substratum > May retain subsurface flow > Terrestrial vegetation within channel / flow path > Above the water table (losing system) > Located at headwaters of stream
Watershed	> No defined stream channel > No aquatic habitat > Headwater / seepages other than wetland habitat
Artificial Channel	> Artificial drainage or clean water diversion channel that has been excavated to facilitate works that was not previously a feature of the landscape > May be lined with geo-fabric > May support opportunistic aquatic or wetland species

A field-based visual assessment was conducted on 15 September 2020 to describe the habitat values of the Tikotu Stream adjacent to the proposed Gateway Project. This included general stream morphometrics (e.g. depth and width), stream habitat type, substrate type, bank cover and riparian vegetation (Figure 2-2a).

2.2.2 Lizard habitats

Potential lizard habitat within and adjacent to the proposed footprint was assessed on 15 September 2020 with a Visual Encounter Survey (VES; Lettink and Monks, 2016) that involved searching for lizards between 9:28 am and 10:27 am by a sutibily qualified and experienced ecologist. Lizard searching involved raking areas of mown grass and the rank grass in the remnant dune areas, examining crevices and holes in trees, poking sand and soil out from beneath carpark furniture, examining the curbing, rock walls and memorial rocks for signs of lizard droppings or skins, and scanning the canopy for arboreal lizards (Figure 2-2b and c).

2.2.3 Avifauna

Historic records of bird species an approximate 2km radius from the proposed construction site were collated from the New Zealand eBird database (eBird, 2017). Further information was collected to detail the habitat occupancy, distribution range (within New Zealand) and conservation status of the previously recorded birds (New Zealand Birds Online, Robertson et al. 2016).

Throughout the 15 September 2020 site visit, avifauna observations were recorded by an experienced and suitabily qualified ecologist with a particular focus on birds between 11:07am and 11:47am. All bird species and how they used the habitat within and adjacent to the proposed construction site were noted.

2.2.4 Receiveing marine environment of the Tikotu stream

A visual assessment was undertaken to assess the ecological values of Tikotu Stream mouth where it flows into the receiving marine environment. This included searching for the presence of potential marine habitats such as salt marshes, sea grass beds, intertidal reefs, subtidal reefs, mudflats and shell hash (Figure 2-2d).

Figure 2-1 Map of the Tikotu stream catchment showing the proposed works site at the Kāpiti Road and Marine Parade intersection, Paraparaumu.

a)

b)

c)

d)

Figure 2-2 Views of the fauna habitat survey conducted by Cardno ecologists: (a) stream habitat survey, (b, c) lizard survey, and (d) marine habitat survey.

2.3 Ecological Impact Assessment

The assessment of ecological effects of the proposed work is based on the methods described in the EIANZ guidelines (Roper-Lindsay et al. 2018). This includes the following:

- Assigning value to vegetation or habitat for assessment processes (Table 2-2 and 2-3);
- Description of the magnitude of effect (Table 2-4 and 2-5); and
- Description of level of effects, based on value and magnitude (Table 2-6).

Table 2-2 Aspects of consideration for assessing ecological value to a freshwater site or area according to EIANZ guidelines (Roper-Lindsay et al., 2018).

Aspect of Ecological Value	Attributes
Representativeness	> Extent to which site/catchment is typical or characteristic > Stream order and classification (permanent, intermittent or ephemeral) > Size of the catchment > Standing water characteristics (e.g. lakes, ponds, wetlands)
Rarity/distinctiveness	> Supporting nationally or locally (within an Ecological District) 'Threatened', 'At Risk' or 'Uncommon' species > National distribution limits > Endemism > Distinctive ecological features > Type of lake/pond/wetland/spring
Diversity and pattern	> Level of natural diversity > Diversity metrics > Complexity of biotic community > Biogeographical considerations: pattern, complexity, size, shape
Ecological context	> Stream order > Instream habitat > Riparian habitat > Local environmental conditions and influences, site history and development > Intactness, health and resilience of populations and communities > Contribution to ecological networks, linkages, pathways > Role in ecosystem functioning: high level, proxies

Table 2-3 Assessing the value of a site for assessment purposes, according to EIANZ guidelines (Roper-Lindsay et al., 2018).

Value	Determining Factors
Very High	> Area/site rates high for 3 or all 4 of the aspects of ecological value listed in Table 2-2 > Likely to be nationally important and recognised as such
High	> Area/site rates high for 2 of the aspects of ecological value low and moderate for the rest, or > Area/site rates high for I of the aspects of ecological value and moderate for the rest > Likely to be regionally important and recognised as such
Moderate	> Area/site rates high for 1 of the aspects of ecological value and moderate and low for the rest > Area/site rates moderate for 2 or more value aspects low or very low for the rest > Likely to be important at the level of the Ecological District
Low	> Area/site rates low or very low for majority of the value aspects and moderate for 1 > Limited ecological value other than as local habitat for tolerant native species
Very Low	> Area/site rates very low for 3 value aspects and moderate, low or very low for the rest

Table 2-4 Criteria for describing magnitude of effect according to EIANZ guidelines (Roper-Lindsay et al., 2018).

Magnitude	Description
Very High	Total loss of, or very major alteration to, key elements/features/ of the existing baseline conditions, such that the post-development character, composition and/or attributes will be fundamentally changed and may be lost from the site altogether; and/or loss of a very high proportion of the known population or range of the element/feature.
High	Major loss or major alteration to key elements/features of the existing baseline conditions such that the post-development character, composition and/or attributes will be fundamentally changed; and/or loss of a high proportion of the known population or range of the element/feature.
Moderate	Loss or alteration to one or more key elements/features of the existing baseline conditions, such that the post-development character, composition and/or attributes will be partially changed; and/or loss of a moderate proportion of the known population or range of the element/feature.
Low	Minor shift away from existing baseline conditions. Change arising from the loss/alteration will be discernible, but underlying character, composition and/or attributes of the existing baseline condition will be similar to pre-development circumstances or patterns; and/or having a minor effect on the known population or range of the element/feature.
Negligible	Very slight change from the existing baseline condition. Change barely distinguishable, approximating to the 'no change' situation; and/or having negligible effect on the known population or range of the element/feature.

Table 2-5 Probable timescales of effects adapted for freshwater habitats by following EIANZ guidelines (Roper-Lindsay et al., 2018).

Timescale	Duration	Description
Permanent	>10 years	Effects continue after 10 years (which could permanently eliminate one or more intolerant species from the site)
Long term	5-10 years	Where there is likely to be a noticeable change in stream ecosystem function from a particular impact
Medium term	2-5 years	Stream communities is likely to recover within this period
Short term	Up to 2 years	Stream communities is likely to recover with the elimination of cause or after establishing natural instream habitat.
Temporary	Days or months	The effects will last for few months after completion of construction phase

Table 2-6 Criteria for describing level of effect according to EIANZ guidelines (Roper-Lindsay et al., 2018).

Magnitude	Ecological Value				
	Very High	High	Moderate	Low	Negligible
Very High	Very High	Very High	High	Moderate	Low
High	Very High	Very High	Moderate	Low	Very Low
Moderate	High	High	Moderate	Low	Very Low
Low	Moderate	Low	Low	Very Low	Very Low
Negligible	Low	Very Low	Very Low	Very Low	Very Low
Positive	Net gain	Net gain	Net gain	Net gain	Net gain

Note: When assigning the magnitude of effect to the activity, the spatial scale of the effect was the extent of the footprint of the earthworks. The temporal scale of the potential effects (i.e. permanent or temporary in the case of these works) was also taken into consideration during the assessment (Table 2-4).

To assess the current ecological value of the proposed worksite, the Macroinvertebrate Community Index (MCI) and the fish Index of Biotic Integrity (Fish IBI) were used to determine local environmental conditions within the ecological context of the affected stream habitat. The MCI values were derived from the FENZ predictions, and the Fish IBI score was calculated by using fish records from the NZFFD. Stark and Maxted (2007), Joy (2004) and NPS-FM (2020) provided guidelines to interpret the MCI and Fish IBI scores respectively (Table 2-7, Table 2-8 and Table 2-9).

Table 2-7 Interpretation of MCI values analysed in Tikotu Stream ecological assessment (Stark and Maxted, 2007).

Quality Class	Description	MCI Score
Excellent	Clean water	> 119
Good	Doubtful quality or possible mild pollution	100–119
Fair	Probable moderate pollution	80−99
Poor	Probable severe pollution	< 80

Table 2-8 Attributes and suggested thresholds for interpretation of Fish IBI scores for the Wellington region (Joy, 2004).

Integrity Class	Attributes	IBI Score
Excellent	Comparable to the best situations without human disturbance; all regionally expected species for the stream position are present. Site is above the 97th percentile of Wellington sites.	52 - 60
Very Good	Site is above the 90th percentile of all Wellington sites; species richness is slightly less then best for the region.	48 - 51
Good	Site is above the 70th percentile of Wellington sites but species richness and habitat or migratory access reduced some signs of stress.	38 - 47
Fair	Score is just above average but species richness is significantly reduced habitat and or access impaired.	30 – 37
Poor	Site is less than average for Wellington region IBI scores, less than the 50th percentile, thus species richness and or habitat are severely impacted.	18 – 29
Very poor	Site is impacted or migratory access almost non-existent.	2 - 17
No native fish	Site is grossly impacted or access for fish is non-existent.	0

Table 2-9 Bands and thresholds for interpretation of Fish IBI scores in accordance with the National Policy Statement for Freshwater management (NPS-FM, 2020).

Attribute band	Band description	IBI Score
A	High integrity of fish community. Habitat and migratory access have minimal degradation.	≥34
B	Moderate integrity of fish community. Habitat and/or migratory access are reduced and show some signs of stress.	<34 - ≥28
C	Low integrity of fish community. Habitat and/or migratory access is considerably impairing and stressing the community.	<28 - ≥18
D	Severe loss of fish community integrity. There is substantial loss of habitat and/or migratory access, causing a high level of stress on the community.	<18

3 Results

3.1 Terrestrial habitats

The proposed Gateway building construction area is located within MacLean Park and the footprint comprises a tar sealed carpark, bounded by concrete kerbs and surrounded by mown grass with widely spaced planted trees. The carpark connects to Marine Parade on the eastern side, and there are several pedestrian paths. The planted trees are pohutukawa (*Metrosideros excelsa*) but there also is one phoenix palm (*Phoenix canariensis*) and the location of these in relation to the proposed development, are shown in Figure 3-2. Tikotu Stream flows from east to west, on the northern side of proposed construction area. The stream enters the coastal environment just past the park area. A small sand dune is located along the western margin of the proposed construction area between the park area and the beach (Figure 3-1 and Figure 3-2).

a)

c)

Figure 3-1 Site photos showing the built environment at the proposed construction site and its immediate surrounding: (a) looking south from the true left bank of the Tikotu Stream, and (b) the parking area under the footprint of proposed worksite.

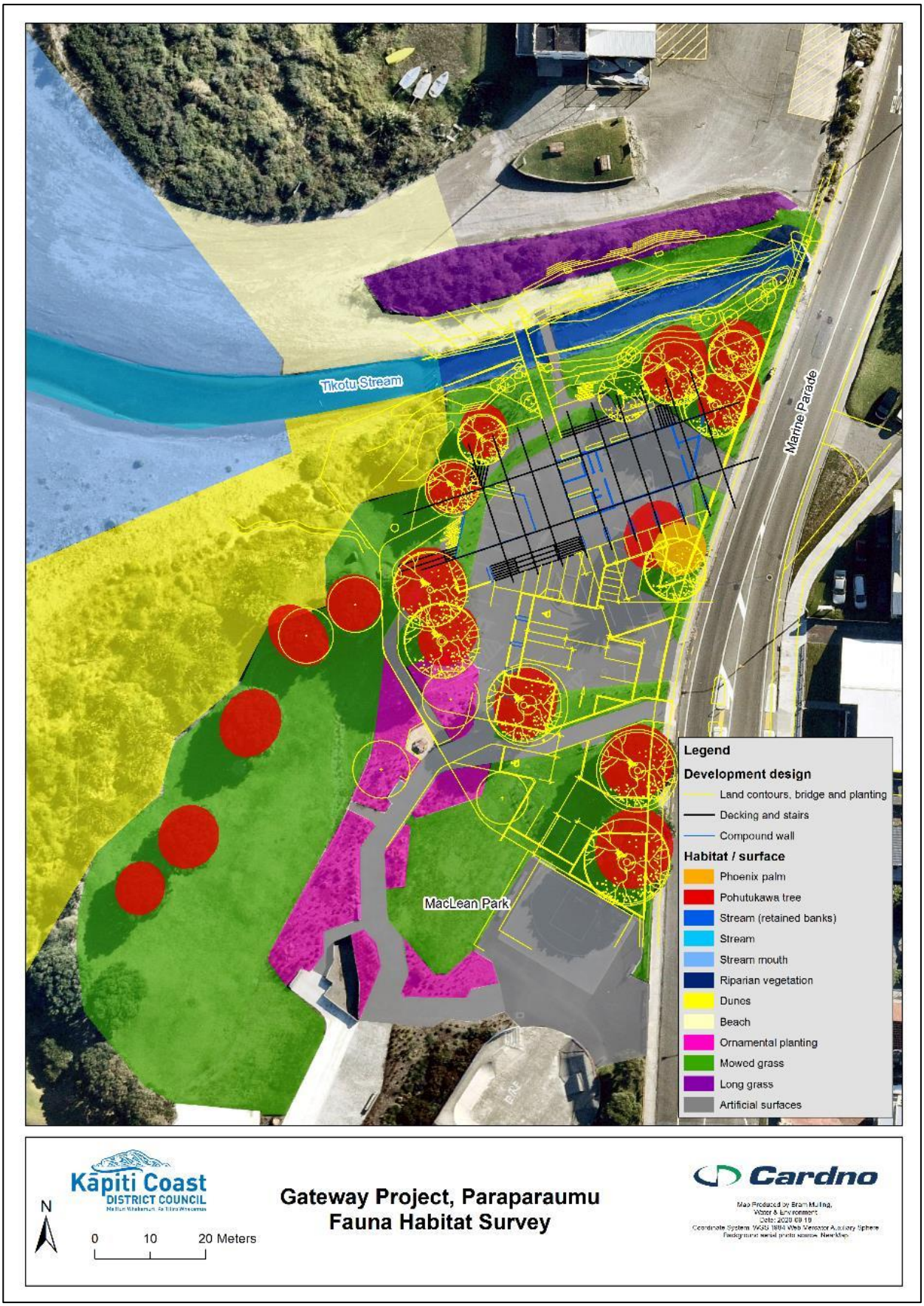

Figure 3-2 Vegetation and habitats within and adjacent to the proposed Gateway Project construction site.

Much of the area within the proposed development footprint currently consists of tarseal or concrete paving (Figure 3-2). Vegetation that will potentially be affected is mown grass comprising kikuyu (*Cenchrus clandestinus*) and fescue (*Festuca* sp.) species beneath planted pohutukawa (*Meterosideros excelsa*). Two of the pohutukawa near the stream are in very poor health. A phoenix palm (*Phoenix canariensis*) occurs near the road, and a small patch of whaririki (*Phormium cookianum*) with lupin (*Lupinus arboreus*) and kikuyu grass is found beside the stream near the road. The banks of the stream were mostly covered with kikuyu grass but there were some pukio (*Carex secta*) and a patch of bachelor's button (*Cotula coronopifolia*) along the stream, as well as a single Indian hawthorn plant (*Rhaphiolepis indica*).

The remnant dune system between the mown grass and beach comprises a range of pest plant species such as, kikuyu, phoenix palm seedlings, marram (*Ammophila arenaria*), lupin, ice plant (*Carpobrotus edulis*), fennel (*Foeniculum vulgare*), coastal wattle (*Acacia sophorae*), common sow-thistle (*Sonchus oleraceus*), wild radish (*Raphanus raphanistrum*), catchweed bedstraw (*Galium aparine*), and gravel groundsel (*Senecio skirrhodon*), but also had patches of harakeke (*Phormium tenax*), whaririki, karo (*Pittosporum crassifolium*; not native to Kapiti Coast), taupata (*Coprosma repens*), and on the beach margin patches of kowhangatara (*Spinifex sericeus*) and shore bindweed (*Calystegia soldanella*). The list of species noted are listed in Table 1 in Appendix B.

3.2 Stream Habitat Assessment

The potentially affected reach is located approximately 100 metres inland from the coast and is subject to frequent salt water influence. The stream is artificially straightened, has an incised channel, and timber retaining structures, and is therefore considered to be a highly modified perennial stream (Table 1-2). At this location, it is a low order, low elevation and low gradient urban stream in the REC system (Table 3-1). The FENZ predicted values show that the stream is a first order stream, which consists of abundant pools and the channel bed mainly comprises of sand and fine gravel. The average instream habitat type consists of pools and stagnant water sections, while typical bed sediment type includes sand and fine gravel. Due to continuous sediment deposition, the stream is subjected to routine dredging under existing resource consents. Table 3-1 details the results of desktop survey on stream habitat values.

Table 3-1 Fish habitat data of the Tikotu Stream reach, data collated from REC and FENZ geodatabase.

Habitat Vector	Tikotu Stream (NZ Reach 9004286)
Climate[1]	Warm dry
Source of flow[1]	Low elevation
Land cover[1]	Urban
Valley landform[1]	Low gradient
Network position[1]	Low
Land cover[1]	Urban
Stream order[1]	1
Distance to sea[1] (m)	325
Catchment area[1] (ha)	443041
Mean annual flow[2] (L sec^{-1})	4.97
Riparian shade[2] (%)	79
Proportion of native riparian vegetation (%)[1]	0.0
Average habitat type[2]	Pool
Average bed sediment type[2]	Sand and fine gravel

[1] REC data (MfE 2010).

[2] FENZ data (Leathwick et al. 2008).

As observed on site, Tikotu Stream near the proposed construction area has been heavily modified and thus has lost most of its natural character. These stream modifications has resulted in an artificially straightened reach and incised channel, due to current timber retaining structures. The high turbidity has caused a poor visibility through the water column. The average measured width and depth of the Tikotu Stream were, respectively 4.1m and 50.7 cm, across three transects between Marine Parade and the stream mouth. The

entire reach consisted of a pool habitat with sand substrate. The bank along the entire reach consisted of wood retaining walls while most of the bank is covered by mowed grass. There was no riparian vegetation cover except for the flax and scrub at the upstream end of the reach exiting the culvert beneath Marine Parade (Table 3-2 and Figure 3-3).

Table 3-2 The morphological characteristics of the Tikotu Stream

Transect	Width (m)	Depth (cm)	Habitat type	Substrate type	Bank cover		Riparian cover	
					True left	True right	True left	True right
01 –culvert exit	2.9	57	Pool	Sand	Mowed grass	Mowed grass	Flax / Scrub	Flax Scrub
02- mid reach	4.6	45	Pool	Sand	Mowed grass	Mowed grass	Grass/ scrub	Grass
03- at the foot bridge	5.0	50	Pool	Sand	Mowed grass	Mowed grass	None	None

a) b)

Figure 3-3 a) looking upstream, Tikotu Stream from the pedestrian bridge; b) looking from the true left (north) bank across the stream just upstream of the pedestrian bridge. .

3.3 Fish Community Assessment

Two recent 2020 NZFFD records recorded four native fish species upstream of the proposed work site (Figure 2-1, Table 3-4); inanga (*Galaxias maculatus*) and longfin eel (*Anguilla dieffenbachii*), which are classified under the “At Risk-Declining” (Dunn et al. 2018); and shortfin eel (*Anguilla australis*) and common bully (*Gobiomorphus cotidianus*) which are classified as “Not Threatened. In addition to the NZFFD records, FENZ (Leathwick et al. 2008) predicted the presence of gambusia (*Gambusia affinis*) within the affected reach which are classified as “Introduced and Naturalised”. Considering the NZFFD records, there is a high probability for the four native species to occur within the Tikotu Stream worksite.

Based on the four species recorded for the upstream reaches (NZFFD, 2020), the affected reach scored a Fish IBI value of 28, which is categorised as “Poor” (Table 2-8). This is considered to be “less than average for Wellington region IBI scores” (Joy 2004), which indicates species richness and/or habitat are severely impacted. However, the National Policy Statement for Freshwater Management (NPS-FM, 2020) classifies the fish community as: “Moderate integrity; Habitat and/or migratory access are reduced and show some signs of stress” (Table 2-9).

The spawning and migration of inanga mainly occurs between March and November, while the peak of upstream migration of eels is from December to March. As indicated by the migratory calendar, the expected fish community is likely to occupy the proposed work site throughout the whole year (Table 3-4, Table 3-5). Although the affected reach has a limited capacity to support inanga spawning due to heavy modifications, stream works during the spawning period of inanga (March to June) may affect adjacent spawning habitats upstream. Stream works conducted between January and February would therefore at least impact upstream and downstream migration. However, given the low instream value and limited spawning habitat it would be possible to conduct the works between January and July as long as adequate temporary fish passage is provided through the construction area.

Table 3-3 The predicted probability of occurrence for fish species in the Tikotu Stream, (FENZ, Leathwick et al. 2008), including conservation status (Dunn et al. 2018). Only species with a probability of occurrence greater than 0.3 have been included.

Common name	Scientific name	Conservation status (Dunn et al. 2018)	Predicted probability of occurrence (NZ Reach 9004286)
Shortfin eel	*Anguilla australis*	Not Threatened	0.98
Inanga	*Galaxias maculatus*	At Risk - Declining	0.90
Longfin eel	*Anguilla dieffenbachii*	At Risk - Declining	0.61
Common bully	*Gobiomorphus cotidianus*	Not Threatened	0.31
Gambusia	*Gambusia affinis*	Introduced and naturalised	0.37

Table 3-4 Fish data captured from fish surveys conducted within Tikotu Stream (NZFFD).

Location	NZ Reach ID	Year	Organization	Common name	Scientific name
Tikotu Stream	9004286	2020	Cardno	Longfin eel	*Anguilla dieffenbachii*
				Shortfin eel	*Anguilla australis*
				Elver (unidentified eel)	*Anguilla* spp.
				Inanga	*Galaxias maculatus*
				Common bully	*Gobiomorphus cotidianus*
Tikotu Stream	N/A	2020	Cardno	Longfin eel	*Anguilla dieffenbachii*
				Shortfin eel	*Anguilla australis*
				Elver (unidentified eel)	*Anguilla* spp.
				Inanga	*Galaxias maculatus*
				Common bully	*Gobiomorphus cotidianus*

Table 3-5 Migration range (blue) and peak (green) of expected fish species. Table reproduced from MPI, 2015.

Common Name	Scientific Name	Direction	Life Stage	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Shortfin eel	*Anguilla australis*	Upstream	Juvenile												
		Down	Adult												
Longfin eel	*Anguilla dieffenbachii*	Upstream	Juvenile												
		Down	Adult												
Inanga	*Galaxias maculatus*	Upstream	Juvenile												
		Down	Larvae*												
Common bully	*Gobiomorphus cotidianus*	Upstream	Juvenile												
		Down	Larvae												

* *Only present within the lower reaches of rivers and streams.*

Table 3-6 Spawning range (blue) and peak (green) of expected fish species. Table reproduced from MPI, 2015.

Common Name	Scientific Name	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
Inanga	*Galaxias maculatus*												
Common bully	*Gobiomorphus cotidianus*												

3.4 Macroinvertebrate Assessment

Clapcott & Snelder (2013) developed a model to predict the Macroinvertebrate Community Index (MCI) scores and EPT taxa[1] richness for New Zealand stream reaches. These predictions are based on different metrics on (upstream) landuse, stream characteristics and geology. The model produces predicted values for an unimpacted/historic scenario (referred to as “pristine”) and likely/current scenario (referred to as “actual”).

For the Tikotu Stream the model predicts an expected MCI score of 116.3 and observed score of 79.5. These predictive scores indicate severe levels of pollution where mild levels of pollution would be expected if the stream reach was unimpacted (Table 2-7). This is reflected in the number of the predicted EPT taxa richness (generally regarded as sensitive species) which decreases from 9 to 2 between expected to observed predictions. The model predictions concur with a study conducted by Kingett Mitchell Ltd (2005). The study found that the Tikotu Stream macroinvertebrate community reflects poor water quality conditions. The species macroinvertebrate community did not include any EPT taxa and was dominated by pollutant tolerant species (oligochaetes (segmented worms), Platyhelminthes (flatworms), Hirudinea (leeches) and crustaceans. Both the field study (Kingett Mitchell Ltd 2005) and the model predictions (Clapcott & Snelder 2013) show significant impacts to water quality and instream habitats within the affected reach.

Table 3-7 Observed and expected MCI and EPT values for Tikotu Stream (NZ reach 9004286), (Clapcott et al. 2013).

Predicted field	Expected	Observed
MCI score	116.3 (good)	79.5 (poor)
EPT taxa richness (rounded)	9	2

3.5 Avifauna

The eBird database includes records for 53 species (between 2002 and present) within a 2km radius of the proposed worksite. None of the species are restricted to the Paraparaumu area and all occur throughout New Zealand, (Figure 2-1 and Table 2 in **Error! Reference source not found.**).

During the site visit, a total of 11 bird species were noted (0 and Figure 3-4). Within and immediately adjacent to the footprint, small flocks (up to about six) of sparrows (*Passer domesticus*) were noted using several of the pohutukawa trees (flocks noted in at least three different trees), Eurasian blackbird (*Turdus merula*) on the grass beneath pohutukawa trees, and silvereyes (*Zosterops lateralis*) were also occasionally heard in pohutukawa trees. All other bird species noted at the site comprised small numbers (one to three) of birds flying overhead and included red-billed gull (*Larus novaehollandiae*), variable oystercatcher (*Haematopus unicolor*), southern black-backed gull (*Larus dominicanus*), and starling (*Sturnus vulgaris*). More birds and bird species were seen on the beach near the stream mouth, despite frequent disturbance from people walking or vehicles driving along the beach (0).

Two of these species have conservation status of At Risk-Declining (red-billed gull, and white-fronted tern (*Sterna striata*)) and a third is classed as At Risk-Recovering (variable oystercatcher) is recovering. All other indigenous bird species observed are classed as Not Threatened. The introduced species comprise Eurasian blackbird, house sparrow common starling and mallard (*Anas platyrhynchos*).

[1] Refers to taxa from the Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) groups of which the majority of species are regarded as sensitive species.

a) b)

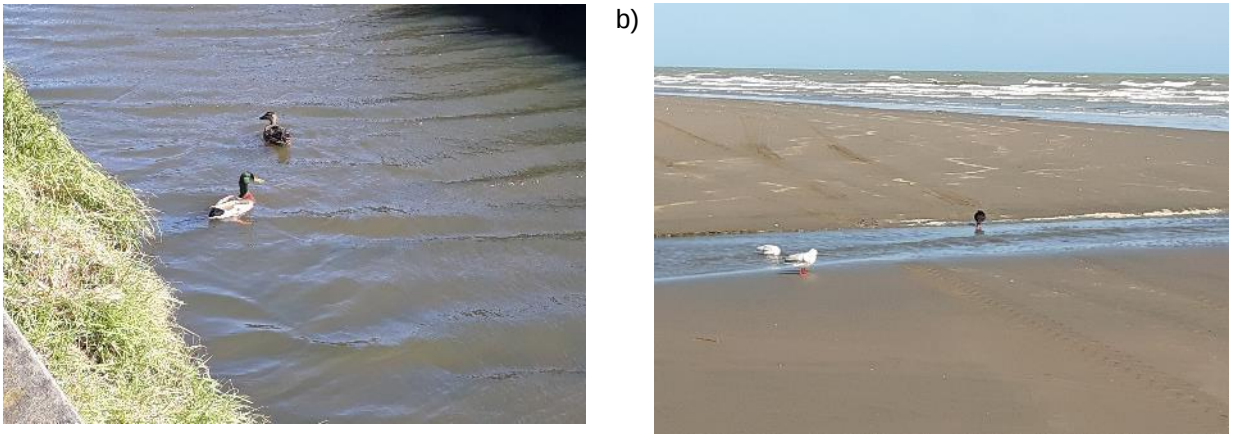

Figure 3-4 a) A pair of mallards was seen in the Tikotu Stream; b) red-billed gulls and a variable oystercatcher drinking from the Tikotu Stream where it flows across the Paraparaumu beach.

Table 3-8 List of bird species noted during the site visit.

Common name	Scientific name	Conservation status *Based on Roberts et al. (2016)*	Habitat range (NZ Birds Online)
Common starling	*Sturnus vulgaris*	Introduced and Naturalised	In all open country, on the coast, and in towns excluding alpine areas and native forest
Eurasian blackbird	*Turdus merula*	Introduced and Naturalised	Urban gardens, parklands, farms and orchard, lowland indigenous forests
House sparrow	*Passer domesticus*	Introduced and Naturalised	Arable farming and human habitation, including towns and cities
Little shag	*Phalacrocorax melanoleucos*	Not Threatened	Coastal and freshwater habitats, including lakes, rivers, ponds and streams
Mallard	*Anas platyrhynchos*	Introduced and Naturalised	Urban streams, public parks, farm drains, slow flowing rivers, lowland lakes, reserviors, alpine tarns, and estuaries
Red-billed gull	*Larus novaehollandiae*	At Risk- Declining	Coastal locations, river mouths and sandy and rocky shores
Silvereye	*Zosterops lateralis*	Not Threatened	Urban areas, farmlands, orchards, indigenous and exotic forests, scrublands
Southern black-backed gull	*Larus dominicanus*	Not Threatened	Estuaries and harbours, rocky and sandy shores and riverbeds
Variable oystercatcher	*Haematopus unicolor*	At Risk- Recovering	Sandy beaches, sand spits, dunes, shell banks, rocky shorelines, and gravel beaches
Welcome swallow	*Hirundo neoxena*	Not Threatened	Most habitats excluding dense forest or alpine areas
White-fronted tern	*Sterna striata*	At Risk- Declining	Coastal locations, shingle river beds, sand dunes, stacks and cliffs

The avian community identified during the field survey within the proposed worksite or immediate vicinity is representative of an urban environment in close proximity to the coast. All the species noted as using the site were common, not threatened, species with large local populations used to human disturbance and changes to their environment. The species noted as using the proposed worksite are unlikely to be affected by the construction of this building due to being further away from the construction site but also because they are habituated to some disturbance by human and vehicle activity. (Figure 3-2). In addition, the proposed

building will not protrude over the top of existing pohutukawa and therefore shall not substantially change the flight path of birds.

3.6 Lizards

There is a single record for a common grass skink (observed in 1967) within one kilometer of the Gateway Project site (Department of Conservation 2019).

No lizards or signs of lizards were noted during the site visit. The habitat within the footprint is considered to be very poor for lizards due to ongoing management (e.g. grass mowing and landscaping, Figure 3-2), a high degree of habitat fragmentation, frequent disturbance by humans and a lack of micro-habitats (under-wood, under stones, fallen tree-trunks, basking sites, crevices etc.).

Within the vicinity of the proposed works, remnant dune and wharaiki, were identified as the most likely lizard habitat; however, these areas are not within the proposed footprint and therefore will not be affected (Figure 3-5).

a)  b) 

Figure 3-5 Dune habitat located to the west of proposed construction site.

3.7 Receiving Marine Environment

The receiving marine environment of the Tikotu Stream mainly consists of fine sand, with areas of dead seashells and woody debris. The channel at the stream mouth was approximately 3m wide and 25cm deep and did not have any complexity. The marine area is a uniform and flat sandy shore, lacking any complexity (Figure 3-6). A blue bottle (*Physalia physalis*; man o'war jellyfish) was seen on the beach.

a)  b) 

Figure 3-6 Views of the receiving marine environment of the Tikotu Stream: (a) sandy beach and (b) the mouth of Tikotu Stream

4 Ecological Impact Assessment

4.1 Current Ecological Value of the Site

The Tikotu Stream and the adjacent terrestrial environment are considered to have low ecological values due to significant levels of modification, lack of habitat for indigenous species, low flora and fauna diversity and ongoing contaminant input (the stream) and disturbance by people.

4.2 Potential effects

Stream area construction works and landscaping

The proposed Kāpiti Coast "Gateway" development will likely have temporary moderate effects on the aquatic habitat associated with landscaping in and around the stream, and replacement of the pedestrian bridge. The proposed construction works will likely require temporary diversion of the flow from the work area to the downstream end of the worksite. This is to allow the work area to be exposed during construction. To ensure fish passage throughout construction works a diversion pipeline or channel would be required down one side of the Tikotu Stream worksite. The direct disturbance from stream works is expected to occur during the construction phase, with the possibility of having small-scale post-construction residual effects (e.g. minor sedimentation) for a few weeks. Given the current characteristics of the stream and relatively minor extent of the proposed construction works, it is expected the ecological values will recover to a similar state compared to the current within months after completion of the landscaping and construction works.

Riparian Planting

Riparian planting along the stream is expected to result in a permanent positive effect on the aquatic habitat and in-stream biota. The stream will have increased possibilities to provide stream shading and better temperature control due to riparian planting. The replacement of the wooded retaining wall will result in a similar situation compared to the current condition and will limit the connection between the in-stream habitat and the riparian zone, important for amongst others inanga spawning.

Replacement of pedestrian bridge

The current design of the pedestrian bridge (Appendix A) does not interact with the instream habitat much. The supporting pillars are located outside the stream and beyond the wooded retaining walls. Interaction between the bridge structure and the Tikotu Stream will be minimal. It is therefore not expected that the proposed pedestrian bridge will have any effect the ecological values of the Tikotu Stream.

Terrestrial construction works

Most of the proposed construction area currently consists of a sealed car park or pedestrian paths, with negligible ecological value or fauna habitat. The remainder of the potentially affected terrestrial habitat comprises mown grass beneath pohutukawa trees. The mown grass has low habitat value for lizards and indigenous bird species. The pohutukawa trees are proposed to be retained, although one tree would be relocated, while dune habitat with a relatively higher ecological value is located outside the works footprint. It is expected that the proposed development will have a small to negligible effect on the present terrestrial habitat values and resident and local avian populations.

4.3 Minimisation of potential effects

Based on the current available information, the following measures are advised to minimise the adverse effects from the proposed works:

- Stream works can be conducted between January and July as long as adequate temporary fish passage is provided through the construction area. Ideally works would take place in January and February.
- Prior to the commencement of work, fish barriers should be placed upstream and downstream of the proposed work area to avoid fish entering the particular reach during the construction phase;
- Prior to the commencement of work, suitability qualified ecologists should conduct fish rescue from the proposed work area (between fish barriers), and relocate these to a suitable upstream habitat;
- A temporary stream diversion should be in place during the proposed works;
- Stream works should be completed as quickly as possible, to reduce the stress on biotic communities;
- Sound sediment control methods should be implemented to protect highly sensitive fish species (e.g. inanga) known to utilise the Tikotu Stream;
- Any excavated streambank should be stabilised as soon as possible;
- Riparian planting is recommended to provide additional protection for the stream banks and support spawning of species such as inanga;
- A post-construction survey by a suitably qualified ecologist should assess adequate ecological structure and functioning of the reconstructed and re-instatement stream reach and associated riparian zone;
- Prior to the removal of the temporary stream diversion, fish should be rescued from the temporary diversion channel by a suitably qualified ecologist;
- Upon completion of the work, fish and habitat information should be provided to KCDC and passed on to Greater Wellington Regional Council (GWRC) and Ātiawa ki Whakarongotai Charitable Trust;
- A barrier (e.g. super silt fence) between the dune habitat and the construction site should be erected before works commence and maintained during the construction phase. This will prevent potential lizard migration into the construction site and serve as an additional protective boundary for the dune habitat; and
- If any lizards are observed on the construction site during the works, works should be stopped, the sightings are to be reported to KCDC and the work methodology (lizard management plan) should be revised in consultation with an ecologist. A management plan should be approved by DOC and implemented before works can be resumed.

4.4 Overall effects assessment

The potential ecological effects from the proposed works are described for the different ecological aspects in Table 4-1. This table summarises the habitat type and the associated ecological value, and then assesses the timescale and magnitude of the potential effects. If the recommendations in Section 4.3 are implemented then the overall level of potential effects in the last column can be achieved (Table 4.1). Based on the current design information and existing ecological state, the Gateway Project could result in a small net gain level of ecological values.

Table 4-1 Assessment of potential effects[2] on habitats within or adjacent to the proposed the Gateway Project.

			Potential effects			
Site	**Habitat type**	**Ecological value**	**Description**	**Timescale**	**Magnitude**	**Overall level of effect**
Tikotu Stream	Perennial stream	Low	Disturbance of aquatic habitat associated with landscaping of the development area and replacement of the pedestrian bridge.	Temporary	Moderate	Low
Tikotu Stream	Perennial stream	Low	Riparian planting.	Permanent	Positive	Net Gain
Tikotu Stream	Perennial stream	Low	Replacement of pedestrian bridge.	Permanent	Low	Low
The mouth of Tikotu Stream and receiving marine environment	Marine	Low	Minor sediment discharge during the construction phase.	Temporary	Low	Very Low
Construction footprint; ground habitat	Car park, mowed grass	Low	Replacement of tar sealed parking area, mowed grass with a building and deck.	Permanent	Moderate	Low
Construction footprint; aboral habitat	Pohutukawa trees	Moderate	Building erected adjacent to trees. Building roof will remain below canopy height.	Permanent	Low	Low
Adjacent dune habitat	Dune	Moderate	Increased recreational activity.	Permanent	Low	Low

[2] As per as per EIANZ 2018.

5 Conclusion and Recommendations

The proposed instream works associated with the Kāpiti Coast Gateway Project involve major landscaping on the stream banks, replacement of wooded retaining walls, replacement of the current pedestrian bridge and planting of the riparian zones. Overall, the proposed works are likely to cause long-term beneficial improvements on the instream habitat, ecological functioning and surrounding riparian zone, and less than minor adverse effects on the terrestrial habitat.

The spatial extent of the proposed work is significantly smaller than the extent of the stream reach that would be occupied by occurring fish communities. Therefore, the proposed work is unlikely to adversely affect the fish population in the long-term. Moreover, the lack of sufficient riparian cover and timber retaining structures has decreased the ecological value compared to an unmodified stream.

Predicted and observed ecological values indicate that the aquatic ecosystem of the Tikotu Stream is moderately impacted, with moderately polluted water quality and degraded aquatic habitat. These impacts are reflected in the fish and macroinvertebrate community indexes, of which the majority consist of pollutant tolerant species. Nonetheless, the Tikotu Stream supports fish communities of two “At Risk-Declining” species.

Provided construction work is well managed, the proposed works will have less than a minor adverse effect on the aquatic ecosystem of Tikotu Stream during the construction phase. The long-term effect of the stream bank re-contouring and riparian zone planting will likely be positive (net gain).

Taken into consideration that the proposed buildings will remain below the canopy of the pohutukawa trees and the adjacent dune habitat will be untouched during the construction works, it is expected that the proposed development will have a less than minor effect on the present terrestrial habitat and avian community.

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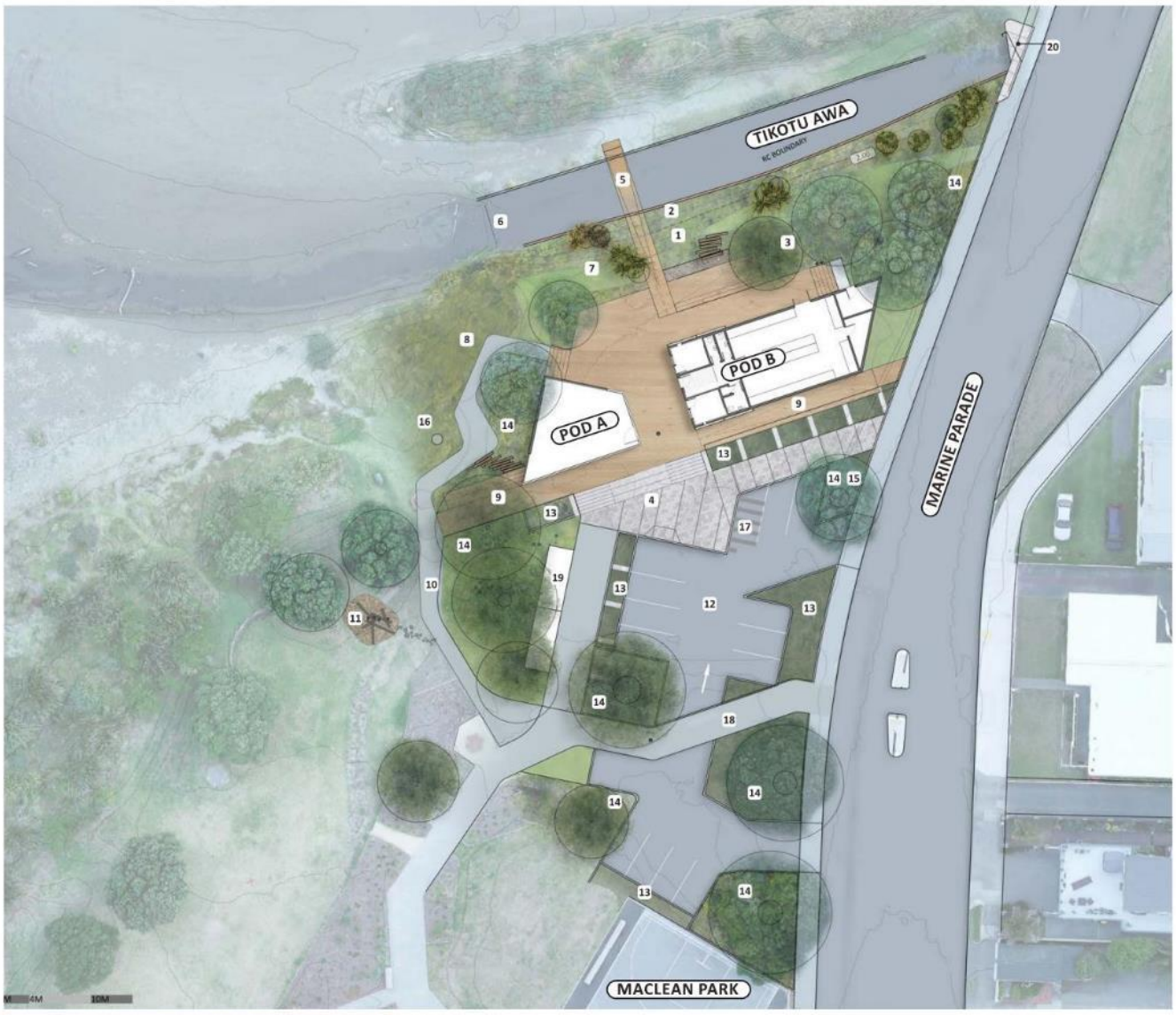
APPENDIX

A

DESIGN SKETCHES

DRAWING RC 1.02
PROPOSED SITE PLAN



LANDSCAPE SITE PLAN L1.00 | 1:400 @A3

20.11
Kapiti Gateway
Resource Consent
Revision 02
15 May 2020

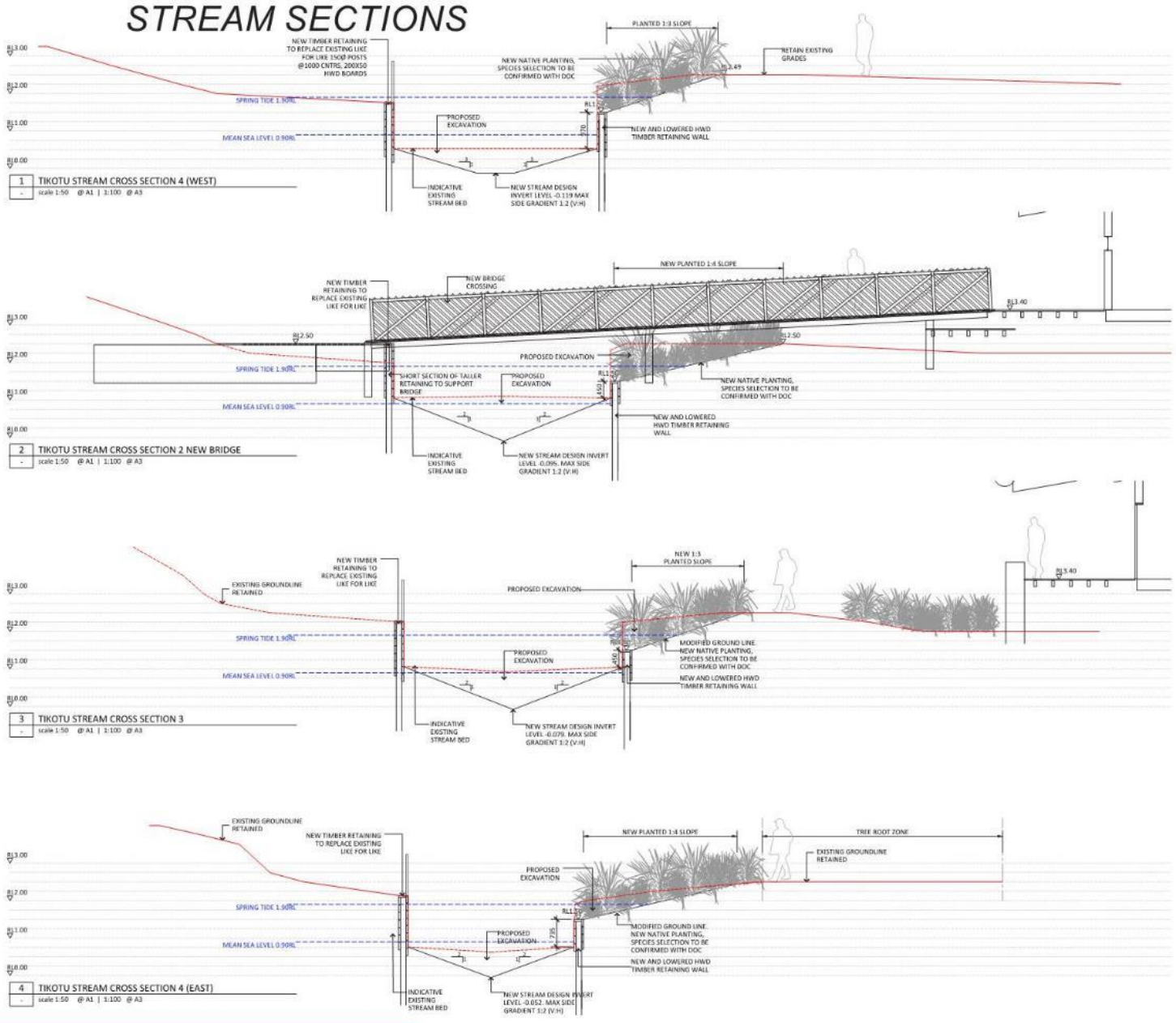
FINISHES | 1:400 @ A3

- CONCRETE PAVING
- ASPHALT PAVING
- DRIFTWOOD PATH
- LIMECHIP PAVING
- PLAY SURFACE
- LAWN
- RAIN / RIPARIAN GARDEN
- COASTAL GARDEN
- STREAM EDGE PLANTING

KEY | SITE PLAN

1 UPPER STREAM EDGE PLANTING
2 LOWER STREAM EDGE PLANTING
3 SUNKEN RIPARIAN GARDEN
4 ENTRY
5 BRIDGE ACCESS
6 NEW DEBRIS BARRIER
7 LAWN AREA
8 TE TAUIHU (POTENTIAL ARTWORK)
9 RAMPED ACCESS
10 PATHWAY
11 DRIFTWOOD PLAY EQUIPMENT
12 NEW CAR PARK (14# NO. TOTAL)
13 RAINGARDEN PLANTING
14 COASTAL GARDEN PLANTING
15 RELOCATED POHUTUKAWA TREE
16 POUWHENUA
17 SHUTTLE BUS PARK
18 EXISTING SHARED PEDESTRIAN/CYCLE PATH
19 CONTAINER POP - RETAIL/ F&B
20 POTENTIAL FUTURE 'CLIP-ON' FOOTPATH EXTENSION - CANTILEVERED DECK OVER EXISTING CULVERT HEAD WALL

DRAWING RC - L2.03
STREAM SECTIONS



STREAM SECTIONS L2.03 | 1:100 @A3

20.11
Kapiti Gateway
Resource Consent
Revision 02
15 May 2020

APPENDIX B

SPECIES OBSERVATIONS

Table 1: Vascular plant species noted within and adjacent to the proposed project site.

Common name	Scientific name	Conservation status de Lange et al. (2018)
Bachelor's button	*Cotula coronopifolia*	Not Threatened
Harakeke	*Phormium tenax*	Not Threatened
Karo	*Pittosporum crassifolium*	Not Threatened (not native of Kapiti Coast)
Kowhangatara	*Spinifex sericeus*	Not Threatened
Pohutukawa	*Metrosideros excelsa*	Not Threatened (not native of Kapiti Coast)
Pukio	*Carex secta*	Not Threatened
Shore bindweed	*Calystegia soldanella*	Not Threatened
Taupata	*Coprosma repens*	Not Threatened
Whaririki	*Phormium cookianum*	Not Threatened
Catchweed bedstraw	*Galium aparine*	Introduced and Naturalised
Coastal wattle	*Acacia sophorae*	Introduced and Naturalised
Common sow-thistle	*Sonchus oleraceus*	Introduced and Naturalised
Fennel	*Foeniculum vulgare*	Introduced and Naturalised
Fescue species	*Festuca* sp.	Introduced and Naturalised
Gravel groundsel	*Senecio skirrhodon*	Introduced and Naturalised
Ice plant	*Carpobrotus edulis*	Introduced and Naturalised
Indian hawthorn	*Rhaphiolepis indica*	Introduced and Naturalised
Kikuyu grass	*Cenchrus clandestinus*	Introduced and Naturalised
Lupin	*Lupinus arboreus*	Introduced and Naturalised
Marram	*Ammophila arenaria*	Introduced and Naturalised
Phoenix palm	*Phoenix canariensis*	Introduced and Naturalised
Wild radish	*Raphanus raphanistrum*	Introduced and Naturalised

Table 2: Avian species recorded within 2 km radius of the construction site, collated from eBird 2020.

Year of latest record	Scientific name	Common name	Habitat range (NZ birds online)	Reported distribution range in New Zealand (NZ birds online)	Conservation status (Robertson et al, 2016)
2020	*Haematopus finschi*	South island pied oystercatcher	estuaries, harbors, and sandy beaches	throughout New Zealand	At Risk- Declining
2020	*Larus novaehollandiae*	Red-billed gull	coastal locations, river mouths and sandy and rocky shores	throughout New Zealand	At Risk- Declining
2020	*Larus dominicanus*	Southern black-backed gull	estuaries and harbours, rocky and sandy shores and riverbeds	throughout New Zealand	Not Threatened
2020	*Sterna striata*	White-fronted tern	coastal locations, shingle river beds, sand dunes, stacks and cliffs	throughout New Zealand	At Risk- Declining
2020	*Zosterops lateralis*	Silvereye	urban areas, farmlands, orchards, indigenous and exotic forests, scrublands	throughout New Zealand	Not Threatened
2020	*Turdus merula*	Eurasian blackbird	urban gardens, parklands, farms and orchard, lowland indigenous forests	throughout New Zealand	Introduced and Naturalised
2020	*Passer domesticus*	House sparrow	arable farming and human habitation, including towns and cities	throughout New Zealand	Introduced and Naturalised
2020	*Phalacrocorax varius*	Pied shag	coastal marine waters, harbours and estuaries, occasionally in freshwater lakes / ponds close to the coast	throughout New Zealand	At Risk- Recovering
2020	*Hirundo neoxena*	Welcome swallow	most habitats excluding dense forest or alpine areas	throughout New Zealand	Not Threatened
2020	*Sturnus vulgaris*	Common starling	in all open country, on the coast, and in towns excluding alpine areas and native forest	throughout New Zealand	Introduced and Naturalised
2020	*Haematopus unicolor*	Variable oystercatcher	sandy beaches, sand spits, dunes, shell banks, rocky shorelines, and gravel beaches	throughout New Zealand	At Risk- Recovering
2020	*Stictocarbo punctatus*	Spotted shag	coastal waters, rocky coasts and occasionallly at freshwater environments or enclosed estuaries	south island and parts of north island	Not Threatened
2020	*Carduelis carduelis*	European goldfinch	farmland, orchards, coastal vegetation, riverbeds, plantations and urban areas	throughout New Zealand	Introduced and Naturalised
2020	*Puffinus gavia*	Fluttering shearwater	coastal and marine areas, scrubland and forests in offhsore islands	northern and eastern north island and in the Cook Strait region	At Risk- Relict

Year of latest record	Scientific name	Common name	Habitat range (NZ birds online)	Reported distribution range in New Zealand (NZ birds online)	Conservation status (Robertson et al, 2016)
2020	*Phalacrocorax melanoleucos*	Little shag	coastal and freshwater habitats, including lakes, rivers, ponds and streams	throughout New Zealand	Not Threatened
2020	*Carduelis chloris*	European greenfinch	farmland, scrub, pine plantations, orchards and suburban parks and gardens	throughout New Zealand	Introduced and Naturalised
2019	*Morus serrator*	Australasian gannet	waters over the continental shelf, harbours, bays, estuaries, coastal islands, cliffs and beaches	throughout New Zealand	Not Threatened
2019	*Stercorarius parasiticus*	Arctic skua	coastal waters, harbours, sounds and estuaries	throughout New Zealand	Migrant
2019	*Alauda arvensis*	Eurasian skylark	farmland, dune fields, tussock grasslands and other open habitats	throughout New Zealand	Introduced and Naturalised
2019	*Turdus philomelos*	Song thrush	urban areas, farmlands, orchards and in lowland indigenous forests	throughout New Zealand	Introduced and Naturalised
2019	*Tadorna variegata*	Paradise shelduck	farmlands, river flats, mountains, bays, shorelines of lakes/ reserviors, urban grasslands and parks	throughout New Zealand	Not Threatened
2019	*Anas platyrhynchos*	Mallard	urban streams, public parks, farm drains, slow flowing rivers, lowland lakes, reserviors, alpine tarns, and estuaries	throughout New Zealand	Introduced and Naturalised
2019	*Larus bulleri*	Black-billed gull	braided or single-channel rivers, streams with gravel beds, farmlands, coastal shell banks, sandspits, lake-side marinas, reserviors ports	south island and parts of north island	Threatened - Nationally Critical
2019	*Anarhynchus frontalis*	Wrybill	rivers, river mouths, harbours, coastal lakes	eastern south island (beerding), southwestern north island, and harbours in northen north lsalnd (january - July)	Threatened - Nationally Vulnerable
2018	*Phasianus colchicus*	Common pheasant	grasslands, farmland, exotic forests, deciduous woodland, coastal shrubland and road verges	northern & western north island, Canterbury and Nelson areas	Introduced and Naturalised
2018	*Phalacrocorax carbo*	Black shag	coastal waters, estuaries, harbours, rivers, streams, lakes and ponds	throughout New Zealand	At Risk- Naturally Uncommon
2018	*Todiramphus sanctus*	Sacred kingfisher	coastal and inland freshwater habitats, farmlands with trees, and along river banks.	throughout New Zealand	Not Threatened

Year of latest record	Scientific name	Common name	Habitat range (NZ birds online)	Reported distribution range in New Zealand (NZ birds online)	Conservation status (Robertson et al, 2016)
2018	*Pachyptila turtur*	Fairy prion	oceans, coastal areas, short burrows or rock crevices on small islands	coastal waters around New Zealand, especially from Cook Strait southwards	At Risk- Relict
2018	*Acridotheres tristis*	Common myna	most modified environments, excluding dense forests	throughout the north island and offshore islands	Introduced and Naturalised
2017	*Hydroprogne caspia*	Caspian tern	open coastal shellbanks, sandspits, braided river beds and inland lakes	throughout New Zealand	Threatened - Nationally Vulnerable
2017	*Phalacrocorax sulcirostris*	Little black shag	harbours, lakes, braided rivers, muddy edges of inland and coastal inlets, and ponds.	Northland, Rotorua, Taupo, Wairarapa, Wellington and some parts of south island	At Risk- Naturally Uncommon
2017	*Puffinus carneipes*	Flesh-footed shearwater	well drained sites with sandy or clay soils, tall forest or low coastal shrubs such as taupata or kanuka	islands around northern New Zealand and in Cook Strait	Threatened - Nationally Vulnerable
2017	*Gerygone igata*	Grey warbler	trees or shrubs, woody vegetation, mid to high levels of the canopy	throughout New Zealand	Not Threatened
2017	*Gymnorhina tibicen*	Australian magpie	farmland with shelterbelts of pines, macrocarpas and gums, and urban habitats such as parks and golf-courses.	thorughout north island and some parts of south iosland	Introduced and Naturalised
2017	*Vanellus miles*	Spur-winged plover	wetland margins, riverbeds, lake shores, estuaries, beaches, farmlands, urban grasslands in urban parks and road verges	throughout New Zealand	Not Threatened
2017	*Coprotheres pomarinus*	Pomarine skua	sandy coastal beaches	some parts of north island and Chatham island	Migrant
2017	*Anthornis melanura*	Bellbird	native and exotic forest, scrub, farm shelter belts, urban parks and gardens	throughout New Zealand	Not Threatened
2016	*Cygnus atratus*	Black swan	lakes and larger constructed ponds, and also on estuaries	throughout New Zealand	Not Threatened
2016	*Platalea regia*	Royal spoonbill	estuaries, rivers, harbours, reeds, low shrubs, and steep rocky headlands	throughout New Zealand	At Risk- Naturally Uncommon
2016	*Circus approximans*	Swamp harrier	coastal fringe, estuaries, wetlands, pine forest, farmlands, large tracts of forest and in urban areas	throughout New Zealand	Not Threatened

Year of latest record	Scientific name	Common name	Habitat range (NZ birds online)	Reported distribution range in New Zealand (NZ birds online)	Conservation status (Robertson et al, 2016)
2016	*Branta canadensis*	Canada goose	farmlands near lakes or large ponds and forested mountain valleys	throughout south island and may parts in north island	Introduced and Naturalised
2016	*Anas gracilis*	Grey teal	shallow freshwater lakes, lagoons, swamps with extensive marginal cover, salt and brackish waters	throughout New Zealand	Not Threatened
2016	*Porphyrio melanotus*	Pukeko	sheltered fresh or brackish water, open grassy areas, roadside, drainage ditches, and margins of scrub or forested area	throughout New Zealand	Not Threatened
2016	*Himantopus himantopus*	Pied stilt	coastal wetlands, brackish estuaries, saltmarshe, freshwater lakes, swamps and braided rivers.	throughout New Zealand	Not Threatened
2016	*Pavo cristatus*	Peafowl	forest, forest edge, and agricultural land	throughout northisland and some parts of south island	Introduced and Naturalised
2013	*Puffinus bulleri*	Buller's shearwater	well-drained slopes in dry spongy soils, clay soils amongst rocks, under tall pohutukawa forest, *Astelia* or *Xeronema* patches on ridgetops, and low coastal shrubs	many areas of north island	At Risk- Naturally Uncommon
2013	*Egretta novaehollandiae*	White-faced heron	rocky shores, estuary mudflats, shallow edges of lakes, farm ponds, damp pasture, and sports fields in urban areas.	throughout New Zealand	Not Threatened
2013	*Egretta sacra*	Reef heron	rocky shores, rock pools, small rivulets of water, estuary mudflats, and sandy beaches	throughout New Zealand	Threatened - Nationally Endangered
2011	*Fringilla coelebs*	Chaffinch	exotic forests, indigenous forests, sub-alpine scrub, gardens, parks, orchards and farmland	throughout New Zealand	Introduced and Naturalised
2007	*Prunella modularis*	Dunnock	orchards, farms, suburban gardens, scrub and forests	throughout New Zealand	Introduced and Naturalised
2002	*Pachyptila salvini*	Salvin's prion	costal areas	west coast of the north island and Chatham island.	Migrant

APPENDIX C

SITE PHOTOGRAPHS

a)

b)

c)

d)

Figure 1. Upstream and downstream view of Tikotu Stream taken from…., (a,b). One of the pohutukawa trees that is in poor health, (c). searching for lizards or signs of lizards in potential habitats (d).

a)

b)

Figure 2. Assessment of bird and lizard habitats, (a,b).

Appendix 15
Tree Removal Methodology

Cuttriss
Surveyors. Engineers. Planners.

Customer Details:

Customer Name: **Kapiti Coast district Council** Contact: **Philip Stretton**

Contact phone: **027 555 4698** Email Address: **Philip.Stretton@kapiticoast.govt.nz**

Site Address: **Maclean Park Paraparaumu beach**

Invoice Address: **TBA**

Job Details:

Job Description: Relocating of 1 Pohutukawa tree
Removal of one Phoenix Palm

Transplant Methodology:
This is a brief overview to give an understanding of what is involved.
Before any excavation commences the trees will be treated with anti transpiration spray which will reduce the loss of moisture and stress on the trees while the relocation operation is carried out.
Excavate around each tree to create root balls of approximately 6-8 x the diameter of the main trunk, the root ball will be under cut using a wire cable and winch truck, Lifting frames will be attached to the root ball, this will hold the root ball together and allow us to lift the tree.
The tree will then be lifted with a Hiab crane into its new location. When the tree is planted in its new location, underground anchors and guys will be fixed across the root balls to ensure stability and minimise the risk of the trees becoming unstable.
Quality planting mix will be used as back fill around the root ball of the trees, the mulch will be applied over the entire root zone to the edge of the canopy which will assist in moisture control.

Items included in this quotation

Establishment
Pedestrian/traffic management
Resource and frames
Site Supervisor
Transplant Labour
Truck 5 Ton
Komatsu 1.8-ton excavator
Crane/Operator
Lifting Dog man
Winch Truck
Ground Anchors
Soil
Mulch/compost
Tie downs

.

Success rate

I believe the transplant success rate is very high (80-90%), this is mainly due to the short distance we are having to move it and the minimal disturbance it is likely to have to the root ball.

Items not in allowed for in quotation:

Resource consents
Abandonment of part or all of project due to unforeseen services, soil profile or debris that prevents the relocation of trees.
Service locations

Underground Services:

Before any work can proceed potholes, need to be dug to establish what underground services are within the area to be excavated, if any services are located the depth needs to be identified? (This is not included in this quote, to be carried out by principal contractor).
If services run directly under the root balls and they are any less than 800mm deep this will impact the size of the root ball that can be transplanted, If the root ball size is smaller than the optimum size it may affect the success rate of the transplant.

Note:

If this quote is accepted, it is Treescape policy that we dig a test hole to determine whether or not the ground conditions are suitable for transplanting the tree, once the hole is dug we will report back the results and the likelihood of the success rate for the transplant.
Prepare and move the trees twice only no pre trenching is required.

Treescape limited are the country's leading specialist in the transplanting of large trees throughout New Zealand and all best practice methods are used. There is always an inherent risk involved in relocating trees. We will take all practical precautions to ensure the successful relocation of trees however certain mitigating factors are beyond our control such as pathogens, individual genetic stress tolerance of individual trees.

Phoenix Palm Removal Methodology

The palm will be felled onto the carpark area to the south under stop/go traffic management
The fronds will then be chipped, and the main trunk lifted on to a truck and removed.
The sump will be ground out and grindings removed when hole is dug for the Pohutukawa relocation.

Things of note on site:
(such as potential safety or environmental hazards)

Job Quotation: **Transplanting of 1 Pohutukawa**
Removal of one Phoenix Palm

Quotation	$ *NZD*
Subtotal	$11,260.00
GST	$1,689.75
Total	**$12,954.75**

Compliance Checklist:	*Yes / No / N/A*
Have the tree/s to be worked on been clearly identified? *E.g. with dazzle marks, photo or map?*	TBA
Have you asked/identified where the underground services are if excavation/digging is being carried out?	TBA
Do you have a copy of the written permission from the clients' neighbour if the work affects boundary trees?	TBA
Has the client been given a copy of Treescape's Terms and Conditions of Contract?	Yes

The customer must provide copies of all relevant compliance documentation (such as plans, licences and permits) before work can commence. These need to be sighted by the Project Manager and attached to the job sheet before work starts.

Project Manager Name: Jeremy Brown Signature: Phone: 027 494 0070

Customer Acceptance:

If this is an insurance claim, who is your insurer? My claim number is:

Quote Acceptance Name: Signature: Date:

Acceptance of this quote indicates that you accept the Treescape Terms and Conditions of Contract.

Thank you for the opportunity to quote

Treescape
Jeremy Brown
Project Manager
jeremyb@treescape.co.nz

TREESCAPE LIMITED | Terms and Conditions of Contract:

Treescape agrees to perform the work in a competent manner and in compliance with the specifications contained in the contract overleaf (page 1).

A. Arbitration

Should any dispute arise as to the interpretation of the contract, it shall be referred to arbitration in accordance with the Arbitration Act 1996 and its amendments. Any decision of the Arbitrator shall be final and binding, upon the parties.

B. Amendments

Amendments to the contract specifications and price must be made in writing and agreed upon by both parties.

C. Expiry of the Contract

Three (3) months after the submission of the contract, Treescape reserves the right to withdraw and re-price work, unless otherwise agreed in writing on acceptance of instructions from the customer.

D. Access

The customer accepts full responsibility for their driveways and paths and understands that to carry out work specified in the contract, it may be necessary to use heavy machinery that could cause damage to their driveways and paths. Treescape will not be liable for any damages caused to driveways or pathways.

E. Private Covenants and Boundaries

Investigation of private covenants and boundaries shall be the responsibility of the customer and no liability shall be attached to Treescape for a breach of any such covenant or boundary. The customer must obtain written permission from all tree owners prior to Treescape commencing work.

F. Underground Services

Unless a plan showing the exact location of underground pipes, wires, or cables has been forwarded to us by the customer prior to the formation of the contract, the Treescape shall be under no liability for any damage caused as a result of work performed under the contract to such pipes, wires, or cables, or any damage to property resulting there from. The customer shall be solely liable for any such damage. Treescape will, if required, call Dial Before U Dig for information relevant to the site before commencing work. Associated Dial Before U Dig costs are to be paid by the customer unless otherwise arranged.

G. Hidden Obstructions

Contracts for felling are based on the assumption that trees are free from metal, stone and other hidden obstructions. In the event of a tree being impossible to fell in the normal manner, Treescape reserves the right to requote accordingly.

H. Stump Grinding

Stump grinding involves the removal of the tree stump to a depth of 150mm, but does not include the removal of lateral roots or stump chippings, unless otherwise specified in the contract.

I. Firewood

Firewood left on site will be tidily stacked, and does not include ringing unless otherwise specified in the contract.

J. Transplanting

While Treescape will carry out best practice methods in relocating trees, Treescape cannot guarantee the survival of the relocated tree/s and will not be liable for any financial reimbursement for the cost of the relocation or for the loss of the tree/s.

K. Tree Preservation Orders, Conservation Areas and Tree Permits

The trees concerned in the contract may be protected by a local or regional authority. Where it is necessary to obtain resource consents and/or permits from the relevant authorities, it will remain the responsibility of the customer unless Treescape is authorised by the customer to carry out this service in the contract.

L. Fire / Rail Permits, Traffic Management, Erosion Control and Rail Clearance

The work concerned in the contract may trigger permits, licences, clearances, or plans from the local or regional authority. Where it is necessary to obtain further paperwork from the relevant authorities, it will remain the responsibility of the customer unless Treescape is authorised by the customer to carry out this service in the contract.

M. Historic Sites and Areas of Archaeological, Scientific, Environmental, Religious or Cultural Significance

It shall be the responsibility of the customer to fully investigate all matters pertaining to historic sites and areas of archaeological, scientific, environmental, religious or cultural significance; to obtain all necessary plans, permits and consents, and to supply Treescape with all supporting documentation arising from their investigations. Treescape accepts no liability for damage to any site or area of significance that was not fully disclosed to us at the time of quoting.

N. Complaints

The customer must raise any complaint or dispute about the Services within seven (7) days of the performance of the Services. If the customer does not do so, it has fully accepted the Services and cannot raise any complaint or dispute connected with them.

O. Payment

The customer must make full payment to Treescape within seven (7) days of the invoice date (time being of the essence). The customer cannot deduct or withhold any amounts for any reason whatsoever. If the customer does not pay Treescape in full by the due date then interest is payable on any unpaid amount at the rate of 1.5% per calendar month (or part thereof) until the calendar month in which actual payment is received (including after any intervening judgment), compounding monthly. Also the customer must pay to Treescape any and all costs charges and expenses suffered or incurred by Treescape connected with enforcing or attempting to enforce Treescape's rights and remedies against, or collecting payment from, the customer (including legal costs on a solicitor/client basis as those costs are incurred).

P. Suspension of Services

Treescape can suspend providing services to the Customer if the customer breaches any of its obligations to Treescape or anything happens that Treescape reasonably considers will cause or may cause delays, hazards, or any danger to the safety of any person. Treescape will have no liability if it suspends providing the services under this clause. This includes (but is not limited to) losses of profits and losses of opportunity.

If Treescape is undertaking services for the customer which would be defined as construction work under the Construction Contracts Act, then the provisions of that Act will also apply, in particular section 72, in substitution for the two paragraphs under this section.

Q. Force Majeure

Neither party shall be liable for any default due to any event beyond their reasonable control. This includes (but not limited to) fire, flood, storm, adverse weather conditions, an act of God, war, terrorism, strike, lock-out, industrial action.

R. Severability

If any of these terms and conditions or their application becomes invalid or unenforceable in any way, this does not mean that the remainder of these terms and conditions are affected and they will remain enforceable to the greatest extent permitted by law.

S. Rights Cumulative

Nothing in these terms limits any other rights and remedies available to any party.

T. Cancellation Fee

Treescape reserve the right to charge a cancellation fee to cover lost time and costs associated with the contract if less than 12 hours notice of cancellation is given. The customer must pay that fee in accordance with the payment terms above.

U. Insurance Cover

Treescape holds Third Party and Public Liability Insurance cover.

V. Limitation

Treescape's liability arising from or in connection with providing services to the customer will be limited to:

(a) Reasonable and reasonably foreseeable costs, claims, liabilities, damages or losses directly caused by Treescape's actions or omissions; and

(b) Reasonable and reasonably foreseeable indirect, consequential or special loss, loss of profits, loss of contract, loss of opportunity, loss of goodwill, loss of use, however arising, in each case to the extent that policies of insurance held by Treescape respond to such losses; and

(c) A maximum total limit under (a) and (b) above of [$2,000,000] in the aggregate.

Nothing in this clause affects your rights (if any) under the Consumer Guarantees Act 1993, unless you acquire services from Treescape for the purpose of a business, in which case you agree that the Consumer Guarantees Act 1993 will not apply and acknowledge that it is fair and reasonable that the parties are bound by this provision V.

Without limiting any liability or obligation expressly set out above, Treescape shall not be liable in connection with any head contract or variation between the customer and a third party unless Treescape has seen and agreed in writing to those terms.

If either party is found liable to the other (whether in contract, tort or otherwise), and the claiming party has contributed to the loss or damage, then the liable party shall only contribute to the extent of its proportionate liability.

Appendix 16
Objectives and Policies Assessment

Cuttriss
Surveyors. Engineers. Planners.

OBJECTIVES AND POLICIES OF THE PROPOSED DISTRICT PLAN

The relevant objectives and policies of the Proposed District Plan for this application are considered to be:

DO – District Objectives	
DO – District Objectives	**Assessment**
DO-O1 – Tāngata Whenua To work in partnership with the tāngata whenua of the District in order to maintain kaitiakitanga of the District's resources and ensure that decisions affecting the natural environment in the District are made in accordance with the principles of Te Tiriti o Waitangi (Treaty of Waitangi).	The governance group consists of member(s) of Te Āti Awa ki Whakarongotai and Ngāti Toa Rangatira and have been involved in the decision-making processes prior to resource consent being sought. The design of the Kāpiti Gateway also incorporates links to the historic and cultural connections to the site for Iwi. Along with patterns on the building's façade and pavement, artworks such as carved pouwhenua and a waharoa are included in the project. Initial consultation with iwi has been undertaken and project specific Cultural Impact Assessments are currently being complied. The Paraparaumu Beach Golf Club works have been confirmed outside of this process and are not on a site identified in the Proposed District Plan as being of historical or cultural significance.
DO-O2 – Ecology and Biodiversity To improve indigenous biological diversity and ecological resilience through: a. protecting areas of significant indigenous vegetation and significant habitats of indigenous fauna; b. encouraging restoration of the ecological integrity of indigenous ecosystems; c. enhancing the health of terrestrial and aquatic ecosystems; and d. enhancing the mauri of waterbodies.	The proposal site is currently a sealed carpark surrounded by mature pohutukawa (including one diseased) and grassed areas. It is considered the landscaping proposed to be undertaken will restore the natural environment by re-introducing native species endemic to the Kāpiti Coast. Additionally, it is considered that these works will restore the ecological integrity and health of the Tikotu Stream.
DO-O4 – Coastal Environment To have a coastal environment where: a. areas of outstanding natural character and high natural character, outstanding natural features and landscapes, areas of significant indigenous vegetation and significant habitats of indigenous fauna are identified and protected; b. areas of outstanding natural character and high natural character are restored where degraded;	The proposal is not located within an area of outstanding natural character and high natural character, outstanding natural features and landscapes, areas of significant indigenous vegetation or significant habitats of indigenous fauna are identified in the Proposed District Plan. In saying this, the development will continue to facilitate public access along the coast and through Maclean Park, while providing for passive recreational use. Vehicle access has been maintained as existing. The proposal includes the provision of a carpark separate entry and exit points and will not impede

c. the effects of inappropriate subdivision, use and development are avoided, remedied, or mitigated; d. public access to and along the coast to facilitate active and passive recreational use is maintained and enhanced while managing inappropriate vehicle access; and **e.** inappropriate development does not result in further loss of coastal dunes in the area mapped as the coastal environment.	on the existing vehicular access to the beach. No land modifications are proposed or required to the natural coastal dunes to the west of the buildings.
DO-O5 – Natural Hazards To ensure the safety and resilience of people and communities by avoiding exposure to increased levels of risk from natural hazards, while recognising the importance of natural processes and systems.	The project site is shown to be subject to 1 in 100 year natural flood hazards; ponding and stream corridor. While minimal works will be required within the ponding hazard this has been assessed as a permitted activity. The earthworks within the stream corridor will have positive effect in that water flows will be less impeded and reduce the potential for erosion. The built environment will remain above the flood hazards. There are no existing flood mitigation structures within close proximity to the site which could be affected by the proposal.
DO-O7 – Historic Heritage To protect historic heritage in the District for the social, cultural and economic wellbeing of the Kāpiti Coast community and future generations, including: a. supporting the contribution of historic heritage features and their values to the identity, character and amenity of places and landscapes; b. recognising and protecting tāngata whenua historic heritage, including waahi tapu and other places and areas significant to Māori; and **c.** providing for appropriate use and development of natural and physical resources with historic heritage values, while ensuring any adverse environmental effects are avoided, remedied or mitigated.	The design of the Kāpiti Gateway also incorporates links to the historic and cultural connections to the site for Iwi. Along with patterns on the building's façade and pavement, artworks such as carved pouwhenua and a waharoa are included in the project.
DO-O8 – Strong Communities To support a cohesive and inclusive community where people: a. have easy access and connectivity to quality and attractive public places and local social and community services and facilities; b. have increased access to locally produced food, energy and other products and resources; c. have improved health outcomes through opportunities for active living or access to health services; and d. have a strong sense of safety and security in public and private spaces.	The proposed Kāpiti Gateway will be located in a public space (Maclean Park) and will be accessible to all. It is within walking distance of the Paraparaumu Beach town centre, which includes local eateries and motel accommodation. The Kāpiti Gateway aims to attract visitors to the Kāpiti Coast District assisting in the economic well-being of the local community and wider district.

DO-O9 – Landscapes, Features and Landforms To protect the District's identified outstanding natural features and landscapes from inappropriate subdivision, use and development; and a. maintain or enhance the landscape values of special amenity landscapes and identified significant landforms; and b. avoid, remedy or mitigate adverse effects of earthworks on natural features and landforms	The proposed development will facilitate a hub for the current tour operators to provide services to get visitors to Kāpiti Island, this is considered an appropriate use of this land. The proposal will not impact on the special amenity landscape ensuring the values of this area are maintained.
DO-O11 – Character and Amenity To maintain and enhance the unique character and amenity values of the District's distinct communities so that residents and visitors enjoy: a. relaxed, unique and distinct village identities and predominantly low-density residential areas characterised by the presence of mature vegetation, a variety of built forms, the retention of landforms and unique community identities; b. vibrant, lively town centres supported by higher density residential and mixed use areas; c. neighbourhood centres, village communities and employment areas characterised by high levels of amenity, accessibility and convenience; d. productive rural areas, characterised by openness, natural landforms, areas and corridors of indigenous vegetation, and primary production activities; and **e.** well managed interfaces between different types of land use areas (e.g. between living, working and rural areas and between potentially conflicting land uses, so as to minimise adverse effects.	The Kāpiti Gateway development is relatively modest in size and has been designed to ensure that amenity values of the local environment are maintained. The proposed building has a comparatively compact footprint and is lower in height than what can be constructed on the site as a permitted activity. The proposed activity associated with the building is an existing activity which is generally undertaken outside of a designated building. The amenity values of the local area will be maintained through the design of the development, the hours of operation, the proposed on-site and off-site car parking, and the proposed landscaping.
DO-O14 – Access and Transport To ensure that the transport system in the District: a. integrates with land use and urban form and maximises accessibility; b. improves the efficiency of travel and maximises mode choice to enable people to act sustainably as well as improving the resilience and health of communities; c. contributes to a strong economy; d. avoids, remedies or mitigates adverse effects on land uses; e. does not have its function and operation unreasonably compromised by other activities; f. is safe, fit for purpose, cost effective and provides good connectivity for all communities; and	The proposal has been assessed by a traffic engineer. The traffic engineer considers that the proposal can achieve the required carparks plus provide those that are removed by the construction of the building. Marine Parade and Kāpiti Road will be able to accommodate the additional traffic demand arising from the proposal. Given these findings, it is considered that the proposal maintains the traffic safety of the local environment.

g. provides for the integrated movement of people, goods and services.	
DO-O15 – Economic Vitality To promote sustainable and on-going economic development of the local economy, including the rural sector, with improved number and quality of jobs and investment through: a. encouraging business activities in appropriate locations within the District, principally through differentiating and managing various types of business activities both on the basis of the activity, and the potential local and strategic effects of their operation; b. reinforcing a compact, well designed and sustainable regional form supported by an integrated transport network; c. enabling opportunities to make the economy more resilient and diverse; d. providing opportunities for the growth of a low carbon economy, including clean technology; e. minimising reverse sensitivity effects on business activities, including primary production activities; and f. enhancing the amenity of Working Zones; while: g. ensuring that economic growth and development is able to be efficiently serviced by infrastructure; h. encouraging commercial consolidation and the co-location of community services and facilities primarily within the Paraparaumu Sub-Regional Centre and Town Centres; and: i. managing contamination, pollution, odour, noise and glare, associated with business activities, including primary production activities.	The proposed development will be located within an existing public space and will provide employment opportunities. Kāpiti Gateway will also provide a destination for visitors to the Kāpiti Coast district and support tourism to the area, which is within proximity to local shops, eateries, and accommodation. Appropriate measures have been incorporated into the design of the development to ensure that the amenity values of the local environment are maintained.
DO-O17 – Open Spaces/Active Communities To have a rich and diverse network of open space areas that: a. is developed, used and maintained in a manner that does not give rise to significant adverse effects on the natural and physical environment; b. protects the District's cultural, ecological and amenity values, while allowing for the enhancement of the quality of open space areas; c. supports the identity, health, cohesion and resilience of the District's communities; and d. ensures that the present and future recreational and open space needs of the District are met.	The Kāpiti Gateway building will not give rise to any significant advese effects on the natural or physical environments. Its aim is to contribute to education of the surrounding environment and Kāpiti Island and the knowledge of the history of the site. A gateway will provide for the present and future recreational needs of the District.

BA – Business Activities	
BA – Business Activities	**Assessment**
BA-P2 – Retail, Commercial and Industrial Activities not within Centres or Other Working Zones A. Retail activities located outside of the District Centre Zone, Town Centre and Local Centre Zones; commercial activities located outside of the Working Zones; and industrial activities located outside of the Working Zones, will be avoided where: a. they may, either individually or cumulatively, disperse retail and commercial activity to the detriment of the efficient operation, function, viability and sustainability of the District's centres, especially the District Centre Zone; b. the proposed retail activity serves a market beyond the daily convenience needs of the immediate local residential neighbourhood; c. they are an inefficient use of existing infrastructure; d. there are more than minor actual or potential adverse effects on amenity values, local environmental quality or infrastructure capacity; e. the proposed activity compromises the efficient operation of infrastructure; or f. the activity has the potential to generate adverse reverse sensitivity effects on permitted activities. B. In determining whether or not retail, industrial or commercial activities outside of these zones are appropriate, particular regard will be given to the following considerations: a. whether or not the activities adversely affect the function, role, viability and vitality of the centres and other Working Zones; b. whether or not the activities are an efficient use of infrastructure; c. the location, scale and intensity of the proposed activities; d. the location, size and design of the proposed buildings, and any visual or landscape mitigation proposed; e. the effects on the safety of and access to the local transport network;	The Kāpiti Gateway will provide for 105m^2 of retail within an Open Space Zone. However, the proposed activity is related to the operation of tours to Kāpiti Island. As such, it is considered that in this location the activity will not be to the detriment of the nearby Town Centre and instead increase the numbers of visitors to the Kāpiti Coast and therefore visitors to these local shops, eateries, and accommodation destinations. The amenity values of the local area will be maintained through the design of the development, the hours of operation, the proposed on-site car parking, and the proposed landscaping. As part of the proposal the existing stormwater pipe that transects the site will be rerouted and upgraded. The traffic engineer considers that the proposal can achieve the required carparks plus provide those that are removed by the construction of the building. Marine Parade and Kāpiti Road will be able to accommodate the additional traffic demand arising from the proposal.

f. the design and capacity of proposed access and car parking for staff, customers, visitors and service/delivery vehicles; g. the hours of operation, including the timing and frequency of delivery/service vehicles; h. the effects on local character and amenity values; i. the effects of nuisance effects (including noise, odour, light, glare and dust); j. whether or not any proposed signage would be distracting to motorists, or dominating or detracting from the amenity of the surrounding environment; and k. whether the industrial activity requires a rural location or depends on the location of a natural resource.	
UFD – Urban Form and Development	
UFD – Urban Form and Development Policies	**Assessment**
UFD-P7 – Accessibility Subdivision, land use and development will be undertaken in a manner which enables all urban residences to have access to public open space within a distance of 400 metres.	The proposal will be undertaken within an existing public open space within 400m of residential properties.
UFD-P9 – Esplanades New subdivision, land use and development will be undertaken in a manner that maintains or enhances the conservation values, recreational opportunities and public access to and along the margins of rivers and the coast through the provision of esplanade reserves, esplanade strips and access strips in appropriate locations and of appropriate sizes and widths to suit their purpose. Esplanade reserves will be provided in accordance with the criteria of Schedule 8.1 in Chapter 8.	No esplanade reserves or strips are required by this proposal.
UFD-P10 – Cycleway, Walkway and Bridleway Network Council will ensure the continued development and maintenance of a public cycleway, walkway and bridleway network as part of the wider open space network in co-operation with relevant stakeholders, linking residential areas with open space, schools, commercial and community facilities, public transport nodes and important natural areas.	The proposal incorporates the construction of a new bridge, which will replace the existing bridge over the Tikotu Stream. Beyond this existing connection, the new building and proposed landscaping will provide for suitable connections to the existing cycleway and walkway network through Maclean Park and to the north towards Manly Street and Kāpiti Road.

UFD-P11 – Amenity Values A. New subdivision, land use and development within reserves and areas of significant scenic, ecological, cultural, scientific and national importance will provide for the amenity values of these areas, including (but not limited to) values associated with: a. a sense of openness and visual relief from more intensive urban areas; b. indigenous vegetation; c. significant landforms; and d. natural character. B. New subdivision, use and development of land outside of the areas identified in (A.) above will be undertaken in a manner that does not compromise the amenity values of those areas.	The Kāpiti Gateway development is relatively modest in size and has been designed to ensure that amenity values of the local environment are maintained. The proposed building has a comparatively compact footprint and is lower in height than what can be constructed on the site as a permitted activity. The proposed activity associated with the building is an existing activity which is generally undertaken outside of a designated building. The amenity values of the local area will be maintained through the design of the development, the hours of operation, the proposed on-site car parking, and the proposed landscaping. In section 4.2 it has been assessed that amenity effects will be less than minor.
NE – Natural Environment	
NE – Natural Environment Policies	**Assessment**
NE-P6 – Eco-tourism Enable eco-tourism activities that complement the protection and/or enhancement of areas of significant indigenous vegetation or significant habitats of indigenous fauna (including ecological sites and rare and threatened vegetation species) and contribute to the vitality and resilience of the District's economy, while avoiding, remedying or mitigating adverse effects on the environment.	The Kāpiti Gateway will enable more robust biosecurity measures to meet today's biosecurity threats such as Kauri die-back, myrtle-rust and Argentinian ants. Kāpiti Island will be better protected from current and future threats. Additionally, the building will be used to provide education on the natural experience of the stream environment and contribute to improved knowledge, water quality, and natural values of the stream.
NFL – Natural Features and Landscapes	
NFL – Natural Features and Landscapes Policies	**Assessment**
NFL-P2 – Special Amenity Landscapes Subdivision, use and development in special amenity landscapes will be located, designed and of scale and character that maintains or enhances the values of the landscape areas identified in Schedule 3.5 of this Plan and taking into account existing land uses including primary production.	The application property is located within the Southern Beaches special amenity landscapes. It is considered that the minimal earthworks around the building and carpark, in conjunction with the stream reshaping will maintain the overall dune landform and special amenity landscape values.

EW – Earthworks	
NFL – Natural Features and Landscapes Policies	**Assessment**
EW-P1 – Earthworks All earthworks activities will: a. be managed to protect geological features identified in Schedule 3.6 from disturbance; and b. be sympathetically located and of a scale that protects the values of outstanding natural features and landcapes identified in Schedule 3.4; and c. avoid or mitigate erosion and off-site silt and sediment runoff to the Council's reticulated stormwater system and waterbodies.	Earthworks will be managed to protect any potential waahi tapu and archaeological values and will ensure that coastal environment effects (such as erosion) is minimised. Mitigation will be in place to ensure silt and sediment do not enter Council's reticulated stormwater system or the Tikotu Stream. More generally, the earthworks will facilitate the occupation of the land in an apt matter that is considered practical, efficient and appropriate for the site.
CE – Coastal Environment	
CE – Coastal Environment Policies	**Assessment**
CE-P3 – Preservation of Natural Character Preserve natural character in the coastal environment, and protect it from inappropriate subdivision, use and development, including by: a. avoiding adverse effects of activities on natural character in areas of outstanding natural character; b. avoiding significant adverse effects, and avoiding, remedying or mitigating other adverse effects of activities on natural character in all other areas of the coastal environment; c. reinstating dunes which function as natural buffers where practicable; d. providing managed public access ways to the beach and foreshore and limiting damage to dunes from unmanaged access; e. regulating encroachment of permanent structures and private uses onto the beach or public land; f. removing existing unnecessary structures and associated waste materials from the beach; g. retaining a natural beach and foreshore including a dry sand beach where practicable.	The proposal is geared towards remedying any adverse effects from natural and human induced effects within the coastal environment. The application ensures that active measures are put in place to encourage natural re-generation and rehabilitation of the coastal environment.

CE-P5 – Amenity and Public Access Maintain and enhance amenity values in the coastal environment, such as open space and scenic values, and provide opportunities for recreation and the enjoyment of the coast, including the enjoyment of a high tide dry beach by the public. Public access to and along the coast will be maintained and enhanced while minimising any significant adverse effects on the public's use and enjoyment of the coast.	This consent seeks to maintain and enhance amenity values and public access in the coastal environment, through the inclusion of a new foot bridge and continuation of cycleway and walkway networks through Maclean park. The proposal comprises of measures that will ensure that the public's use and enjoyment of the coast is not adversely affected.
CE-P7 Natural Dunes Natural dune systems will be protected and enhanced (including through restoration) and natural dune function will be enabled where practicable.	This proposal does not involve any modifications to the natural dunes. Planting is proposed which comprises native species endemic to the Kāpiti Coast district providing enhancement to the dune and park areas.
OSZ – Open Space Zone	
OSZ – Open Space Zone Policies	**Assessment**
OSZ-P2 – Recreational Activities Subdivision, use and development of land in Open Space Zones and the Private Recreation and Leisure Zone will recognise and provide for the community's wide range of recreational needs	This consent is for an activity that will provide for the community's wide range of recreational needs, and the needs for visitors to Kāpiti Island and the wider Kāpiti Coast District.
OSZ-P3 – Activities (General) Activities in the Open Space Zones that may result in adverse environmental effects will be avoided unless: a. the activities meet the recreational or open space needs of the community; and b. the associated effects will be remedied or mitigated. Where such activities are proposed in Open Space Zones, specific consideration will be given to: a. the extent to which the activity provides a recreational or open space value (including cultural values) that is not available or which is underprovided within the identified catchment area for the activity; b. the appropriateness and effectiveness of any mitigation or remediation measures proposed, including the need (if any) for ongoing or regular management;	The Kāpiti Gateway project is considered to meet the recreational needs of the community and has been assessed as having less than minor effects. The design of the building will take into account cultural values of the Te Uruhi area and local Iwi. This location is suitable for its main purpose as a biosecurity building for tours to Kāpiti Island, and therefore its proximity to the boat launching area is valuable. The proposed activity is also planned for in the Reserve Management Plan.

c. the appropriateness of the particular open space in which the activity is proposed, including whether it is better suited to an alternative location; d. whether or not the activity would preclude future adaptive uses of the open space area; and e. whether or not the activity would unduly limit or preclude public access.	
OSZ-P4 – Buildings and Structures New buildings and structures will be designed, located and constructed in a manner which does not reduce the overall quality of the District's Open Space Zones, while recognising that some buildings and structures can enhance recreational and open space values. Where new buildings or structures are proposed in open space zones, specific consideration will be given to: a. the appropriateness – including the relationship to the surrounding environment – of the purpose, number, size and location of new buildings and structures; b. the extent to which any building or structure – including its design and appearance – positively contributes to, or detracts from, recreational and open space amenity, and cultural, ecological and landscape values; c. whether any proposed building or structure unduly precludes or limits public access; and d. any cumulative effects, including from proliferation of buildings and structures in a given open space area.	Due to the sensitive design, carful use of materials and scale it is considered that the overall design of the building will not reduce the overall quality of the District's Open Space Zones. This is supported by being located on an existing carpark and constructed with materials of neutral and coastal tones. This chosen location is suitable for connections to the boat launching area and direct connections to Kāpiti Island.
OSZ-P6 – Indigenous Biodiversity Opportunities to enhance indigenous biodiversity will be identified and implemented through the subdivision, use and development of Open Space Zones.	This policy supports the proposed landscaping to enhance the proposed development and health of the Tikotu Stream.
NH – Natural Hazards	
NH – Natural Hazard Policies	**Assessment**
NH-P3 – Managing Activities in Natural Hazard Prone Areas In areas identified on the District Plan Maps, new subdivision, use and development will be managed in a way that avoids increasing risks from natural hazards. Subdivision, use and development will be allowed only where	The proposed buildings are capable of providing development that will not increase the natural flood hazard shown to be present on site. The proposed floor level is above the 1 in 100 year event. Additionally, the proposed earthworks within the stream corridor will widen the stream loosening the

it can be shown that any potential increase in risk exposure on or beyond the land itself has been avoided, remedied or mitigated.	restriction of flood waters to flow. There are no existing flood mitigation structures within close proximity to the application site and the proposal will not redirect floodwater onto adjoining properties. Earthquake hazards are also appropriately managed.
NH-P6 – Public Open Space The potential to mitigate natural hazards and climate change impacts will be considered in relation to the provision, acquisition and development of new land for public open spaces and reserves.	The proposal is within existing public open space and will not increase the risks to human life or material damage.
INF-GEN – Infrastructure, Services and Associated Resource Use	
INF-GEN – Infrastructure, Services and Associated Resource Use Policies	**Assessment**
INF-GEN R2 – Reverse Sensitivity Reverse sensitivity effects on infrastructure from subdivision, land use and development will be avoided, as far as reasonably practicable, by ensuring that: a. infrastructure corridors are identified and effects upon those corridors from subdivision, land use and development are considered in all resource management decision-making; b. change to existing activities does not increase their incompatibility with existing infrastructure; c. the establishment of, or changes to, sensitive activities are avoided, and incompatible buildings and structures within the National Grid Yard and subdivision within the National Grid Subdivision Corridor are appropriately managed, to ensure that the operation, maintenance, upgrading and development of the National Grid is not compromised; d. safe separation distances are maintained near gas transmission gas pipelines and telecommunications facilities; e. any new planting does not prevent the operation of existing infrastructure; f. all parties are aware of constraints under other regulations, including the Electricity (Hazards from Trees) Regulations 2003, NZS/AS 2885 Pipelines – Gas and Liquid Petroleum, NZS 5258:2993 Gas Distribution Network, and the New Zealand Code of Practice for Electrical Safe Distances (NZECP 34:2001); and	It is considered that the proposed development is compatible with the surrounding land uses and that there will be no reverse sensitivity effects on it.

g. suitable standards are in place adjacent to the transport network (including railways).	
INF-MENU – Managing Effects on Network Utilities	
INF-MENU – Managing Effects on Network Utilities Policies	**Assessment**
INF-MENU-R18 – Stormwater Quantity and Quality The adverse effects of stormwater runoff from subdivision and development, in particular cumulative effects, will be minimised. The following assessment criteria will be applied when considering resource consent applications for subdivision and development: a. whether there is capacity of in Council's existing infrastructure; b. the extent to which the capacity and environmental values of watercourses or drains and the associated catchment areas will be compromised; c. the extent to which development styles and stormwater management methods mimic natural, pre-development runoff patterns; d. the extent to which riparian vegetation is protected and enhanced; e. whether minimal vegetation loss in riparian areas associated with development is achieved; f. the extent to which water quality is ensured to enhance and maintain aquatic ecosystem health; g. the extent to which a healthy aquatic system is maintained, including maintenance of sufficient flows and avoidance of unnatural fluctuations in flows; h. the extent to which degraded, piped or channelled streams are restored and realigned into a more natural pattern; i. where practicable, the extent to which low impact design, including on-site disposal of stormwater, soft engineering or bioengineering solutions and swales within the legal road are used; j. the extent to which straightening and piping of streams is avoided.; and k. the extent to which the adverse effects of stormwater runoff, in particular cumulative effects, from subdivision and development will be minimised.	The proposal is designed to be hydraulically neutral, through the use of soakpits and rain gardens. It is not proposed to use Council's reticulated infrastructure, however the works include the rerouting and upgrading of the existing 225mm stormwater pipe which transects the site. The Tikotu Stream will be widened and planted in an attempt t naturalise the stream mouth.
TR-PARK – Parking	

TR-PARK – Parking Policies	Assessment
TR-PARK-P8 – Parking All new subdivision and development shall provide for safe vehicular and pedestrian access and appropriate vehicle parking areas by: a. providing parking numbers, layouts and dimensions consistent with parking standards; b. supplying adequate off street parking to meet the demand of the land use while having regard to the following factors: i. the intensity, duration location and management of the activity. ii. the adequacy of parking in the location and adjacent areas. iii. the classification and use of the road (as per transport network hierarchy in Appendix 11.2), and the speed restrictions that apply. iv. the nature of the site, in particular its capacity to accommodate parking. v. the characteristics of the previous activity that utilised the site; c. taking effects on neighbouring areas into account when designing the location, layout and number of parking spaces (including car and cycle parks and disability car parks; d. ensuring the location, layout and number of disability carparks and cycle parks is safe, user-friendly and appropriate.; and e. achieving a balance between encouraging mitigation of parking overflow effects (e.g. shared use of car parking), and discouraging car-based travel through use of travel plans.	The new carparking areas will achieve compliance with Council's Subdivision and Development Principles and Requirements 2012, and provide adequate on-site, and off-site parking. The traffic engineer considers that the proposal can achieve the required carparks plus provide those that are removed by the construction of the building. Marine Parade and Kāpiti Road will be able to accommodate the additional traffic demand arising from the proposal.
TR – Transport	
TR – Transport Policies	**Assessment**
TR-P7 – Cycling, Walking and Bridleway Links and Safety Subdivision, use and development will be as far as practicable, located and designed to make walking, cycling and the use of bridleways safer, more enjoyable and convenient in accordance with the Crime Prevention Through Environmental Design (CPTED) Guidelines set out in Appendix 5.5 and the following principles: a. new street linkages will provide safe pedestrian access to shops and services and public transport nodes; b. subdivision and development will:	The key directive of this policy is to provide community connections and a variety of transport modes without adversely affecting the environment. I consider the proposal is in keeping with this with the construction of a new foot bridge over the Tikotu Stream and appropriate walkway connections through Maclean Park, to the north towards Manly Street and east across Marine Parade. The new walkway will provide safe connections to the existing walkways for locals and visitors to the area.

i. enable cycle and pedestrian routes, both on and off road, which offer good continuity; ii. avoid large blocks that severe connectivity; and iii. consider opportunities to provide bridleways in suitable locations; and c. development will provide for convenient cycle parking facilities in centres; and d. pedestrian and cycle routes will have well designed and built facilities including surface conditions, lighting, signage and passive surveillance from adjacent development.	
CF – Community Facilities	
CF – Community Facilities Policies	**Assessment**
CF-P1 – Development and Operation The development and operation of a range of community facilities, including alterations and additions, will be provided for where significant adverse effects on neighbourhood amenity values and on traffic safety and efficiency are avoided.	The proposal represents a new community facility within Maclean Park where the adverse effects have been assessed as less than minor on neighbouring properties and to the wider community.
CF-P3 – Neighbourhood Amenity The scale, layout and design of community facilities will protect the character and amenity of the neighbourhood by: a. ensuring daylight access to adjoining sites is not reduced; b. avoiding the impacts of building bulk and overshadowing on surrounding residential areas, including its outdoor living areas; and c. providing a level of amenity consistent with the surrounding landscape character.	While the proposed development will encroach the height recession plane in regards to the eastern road boundary, it is considered that the development will not reduce daylight access to any useable outdoor spaces. The overall site coverage and gross floor area of property may be exceeded, however the design and overall footprint of the Kāpiti Gateway will not overshadow the neighbouring residential areas to the east and north. The development is relatively modest in size and has been designed to ensure that amenity values of the local coastal environment are maintained.
CF-P4 – Assessment Criteria The following assessment criteria will be applied, as appropriate, when considering resource consent applications for discretionary and non-complying activities relating to the development and operation of community facilities: a. the objectives and policies for character, amenity, landscape and transport and access relating to the zone in which the facility is located; b. the suitability of the site and the extent to which alternative sites, zones or locations have been considered;	The proposal is assessed against the criteria of Policy 11.41; a. the proposal has been assessed against the relevant objectives and policies for character, amenity, landscape and transport and access relating to the zone and this assessment has found the proposal to be in general alignment with these. b. the proposed project site is the preferred option as outlined in the Maclean Park Management Plan. Past feasibility studies have considered alternative options, however, for several reasons were not suitable. This site provides an

c. whether the activity provides any positive effects to the neighbourhood and wider community, including the extent to which the land use may enhance the amenity of the area; d. whether the scale and intensity of the activity is compatible with surrounding land uses (including noise and hours of operation); e. the potential of the activity to generate significant traffic, parking demand, or visitor numbers, and its impact on the transport network; f. the accessibility of the site for people with disabilities; g. the ability of any proposed buildings to be integrated with the character of the site and locality and whether they are in keeping with the scale and appearance of adjoining residential area; h. the potential for the activity to generate adverse impacts in terms of traffic safety, noise, odour, dust, glare or vibration and the extent to which mitigation options have been evaluated; i. whether the activity is adequately serviced, and can avoid or mitigate any adverse effects it may have on existing infrastructure services; j. the potential cumulative impacts having regard to the presence of similar activities located in the vicinity or activities with similar effects; and k. the extent to which the activity contributes to the survival of Māori as a distinct culture and people	appropriate built structure within a modified area of Maclean Park. There is direct access to the boat launch at Paraparaumu Beach, which is the location for tours to depart for Kāpiti Island. The proposed buildings will not impede on existing recreational spaces within the park, and will continue the cycleway and walkway networks through Maclean Park and to the north. c. the proposal is considered to provide positive effects to the neighbourhood and wider community by increasing the number of visitors to the Kāpiti Coast District. In turn, these visitors will boost the economic well-being of local shops, accommodations and activities of the community. d. the hours of operation, noise, amenity, light, and scale of the proposal is considered compatible with the surrounding area, including the Town Centre Zone to the south. e. the traffic engineer considers that the proposal can achieve the required carparks plus provide those that are removed by the construction of the building. Marine Parade and Kāpiti Road will be able to accommodate the additional traffic demand arising from the proposal. f. the proposed building, carpark, decks, walkways, and bridge are designed to be accessible for everyone. g. the Kāpiti Gateway development is relatively modest in size and has been designed to ensure that amenity values of the local environment are maintained. The proposed building has a comparatively compact footprint and is lower in height than what can be constructed on the site as a permitted activity. h. the application has concluded that the proposal will generate effects that are less than minor in terms of traffic safety, noise, odour, dust, glare or vibration and the extent to which mitigation options have been evaluated i. the proposal can be adequately serviced by Councils reticulated water supply and sewage disposal networks. Rain gardens are proposed to ensure the development is hydraulically neutral. j. given the application site is within the Open Space Zone, it is considered highly unlikely that similar building will be constructed within the Maclean Park boundaries. The proposed building can be utilised for temporary events,

	which would need to seek their resource consents individually and be assessed on a case-by-case basis. k. the governance group consists of member(s) of Te Āti Awa ki Whakarongotai and Ngāti Toa Rangatira and have been involved in the decision-making processes prior to resource consent being sought. The design of the Kāpiti Gateway also incorporates links to the historic and cultural connections to the site for Iwi. Along with patterns on the building's façade and pavement, artworks such as carved pouwhenua and a waharoa are included in the project.