Pakiri Sands Multibeam Echo-Sounder Survey December 2018

Report of Survey

Prepared for Kaipara Ltd



Unit 4, 517 Mt. Wellington Highway, Auckland, New Zealand T: +64 (0)9 9486491 E: cad@surveyworx.co.nz Survey Worx Ltd: Report Dec 2018

Report status

Version	Date	Status	Approved by
Rev3	23.05.2019	Approved for release	CJH
Rev2	03.04.2019	Approved for release	CJH
Rev1	28.03.2019	Approved for release	CJH
Rev0	16.01.2019	Approved for release	CJH

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1. CHARTLET

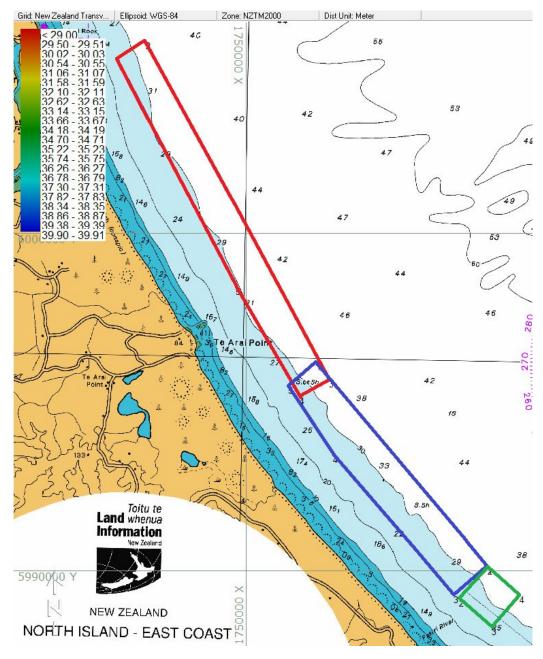


Figure 1: Locations and extents of survey areas.

Control Site in green, Area 1 in blue and Area 2 in red all surveyed on 07.12.2018

2. INTRODUCTION

Kaipara Ltd commissioned SurveyWorx Ltd (SWX) to undertake a hydrographic survey of three areas offshore of Pakiri beach, New Zealand. The survey was performed on the 7th of December 2018, using a WASSP WMB 3250 Multibeam and SMC IMU108 motion sensor mounted on vessel Ten Seventy. The purpose of the survey was to acquire bathymetric datasets as requirements for Kaipara Ltd's resource consents for sand extraction.

The 3 areas to survey were, from South to North (Figure 1):

- "Control Site". an approximately 1280m x 1280m square area adjacent to Area 1, defined as per recommendations. Boundaries of the area are listed in Table 1.
- "Area 1". Survey as part of Environmental monitoring Management Plan (EMMP) requirements.
- "Area 2". Survey as part of Environmental monitoring Management Plan (EMMP) requirements.

2.1. Survey operations

Instruments were installed aboard Ten Seventy during 2015. The sensors (WASSP, GPS antenna and motion sensor) were positioned on mounts manufactured specifically for the installation of the equipment by Electronic Navigation Limited. Data for system calibration (sonar head angle Offsets, and GPS latency, i.e. patch test) were acquired on the 27th of October, 2015, over and around a reef located north of Waiheke Island.

Control Site Area 1 and Area 2 was surveyed on the 7th of December 2018. There was a northerly 0.2m swell on site. The magnitude of the heave movement of the vessel was known to be within tolerances of the motion sensor. Conditions were well suited to completing the survey.

It was chosen to complete the entire survey in two long days approximately 24hours rather than multiple trips

Data was acquired along north south lines starting in the southern corner farthest from shore heading north. Line spacing was set to increase regularly with each line from 120m (offshore) to 90m (inshore) in order to ensure slight overlap of outer beams. Some 10 lines were planned in area 2 for a total distance of 111,884 m. 3 crosslines per area was acquired for quality control and assessment of potential errors in tidal corrections or sonar head angle offsets.

Figure 1 shows the extent of the survey areas.

Table 1. Shows the control site boundaries used to cross reference against other surveys

2.2. Survey Results December 2018

Whilst bearing in mind the accuracies of the adopted survey a comparison was made to the dataset received from a previous survey completed in 2015 for Area 2 and 2011 for Area 1 and the Control Site. The results are illustrated in the accompanying drawings numbered 2957-705-1 1 of 13 and 2 of 13. The variance in bathymetry to the previous surveys are shown with the accompanying long sections 3 of 13 to 13 of 13. This is by way of 7 longsections shown at 2km intervals along the area.

Bound point location	Latitude (WGS84)	Longitude (WGS84)
South	36° 14.209' S	174°45.014' E
East	36° 13.760' S	174°44.358' E
West	36° 13.721' S	174°45.524' E
North	36° 13.275' S	174°44.874' E

Table 1: Control Site Boundaries

3. GEODETIC CONTROL

The survey was carried out using the standard GPS datum and geographic coordinate system (WGS 84, based on the GRS 80 spheroid). The entire survey was undertaken in network, using radio base stations. No geodetic controls on land were used.

4. DIGITAL SURVEYING SYSTEMS

The WASSP was operated from a survey computer running WASSP Controller software.

The data output by the WASSP firmware on the network (including soundings, position and motion sensor data) were recorded and processed with Hypack/Hysweep 2010 survey software. The original datagrams were recorded in the Simrad .all format, while the processed data were recorded in the .asc file types.

5. POSITION FIXING SYSTEMS

Vessel position was measured by a Trimble R6 model 3 GPS receiver, computing a Network (RTK GPS) solution from radio corrections. Data were sent in the NMEA 0183 format (GGA, ZDA, VTG, and HDT tags) to the WASSP Processing Unit and the survey computer by serial ports. Good quality GPS data was received during the entire survey.

6. BATHYMETRY

Bathymetry data were acquired with the WASSP. No other echo sounder was used during this survey. The WASSP typically transmits a pure tone pulse of 160 kHz and 150 ms long within a swath of120° (across-track) per 1.5° (along-track), at a ping rate varying with water depth. On receive, the signal is sampled at a rate of 15 kHz, and 224beams are formed using the Fast Fourier Transform (FFT) algorithm. The receiving beam width in the across-track plane varies with the beam steering angle from 1.5°at normal incidence up to 3.0°at 60°.

No squat and settlement trials using total station were carried out for preparation to this survey. An estimation of the dynamic draught of the vessel was measured by computing the mean difference between data acquired (1) at survey speed and (2) while static, over a flat calibration area near compass dolphin (Port of Auckland). The measured difference was 0.06 m. and also from detailed design drawings for the boat

Vessel attitude and heave during survey were measured by a SMC IMU 108 3250 motion sensor, and input directly into the WASSP Processing Unit for integration by

the WASSP firmware. Sea conditions at time of acquisition were within tolerances of the motion sensor.

7. SONAR

No sidescan sonar was used during the survey.

8. SEABED SAMPLING

No seabed sampling was conducted during the survey.

9. SEABED TOPOGRAPHY AND TEXTURE

The seabed on all areas surveyed is known to consist principally in sand. Bedforms could be expected in places, as well as dredging marks on Area 2.

10. TIDES AND SOUNDING DATUM

No tidal station or pole was used for this survey. Tidal corrections were obtained from tide models provided by Electronic Navigation Limited. These corrections are referred to MSL. In order to keep with previous surveys this methodology was adopted.

11. TIDAL STREAMS

No tidal streams observations were carried out.

12. WRECKS AND OBSTRUCTIONS

No wrecks and obstructions observations were carried out.

13. LIGHTS AND BUOYS

No light sectors or buoys were present in the survey area.

14. COASTLINE, TOPOGRAPHY AND CONSPICUOUS OBJECTS

NIL

15. SAILING DIRECTIONS AND NOMENCLATURE

NIL

16. RADIO STATIONS

NIL

17. ANCILLARY OBSERVATIONS

No additional observations were made.

18. COMPARISON TO PREVIOUS DATA SETS

A comparison in bathymetry is made to previous surveys of the area and cross referenced to illustrate the depth of the sea floor within the subject site.

This was completed in civil 3d (a survey software package) and drawings and associated long sections were produced to illustrate the relationship between surveys (refer to Drawing 2957-705-01 to 13).

The comparison is displayed in longsection form to illustrate the relative difference in the sea floor from previous surveys to current conditions. The results show there has not been an average change in bathymetry exceeding 1.5m over Area1 or 2 as well as the control site. In addition large areas of possible accretion were also noted in places as well as erosion.

ANNEX A: ACCOMPANYING DOCUMENTS

The following digital data accompany this report of survey:

Bathymetry in XYZ ASCII files. XY in New Zealand Transverse Mercator and Z referenced to MSLSWX. Data sets are separated for the three areas and provided as all soundings, gridded at 1-m resolution and gridded at 5-m resolution.

Cad drawing: by Survey Worx Limited numbered 2957-705-01

ANNEX B: DIGITAL SURVEYING SYSTEMS

The WASSP system was operated from the vessel Ten Seventy at a cruising speed of approximately 6 to 7 knots in average. Vessel attitude and heave were measured by a SMC IMU 108 motion sensor. Vessel position was measured by a Trimble R6 model 3 GPS receiver, computing a RTK solution from radio corrections. Sound- celerity profiles were acquired using an Applied Microsystems Ltd SVPlus.

The data ws acquired with Hypack/ Hysweep 2010 survey software and recorded in both the Simrad .all format and the Hypack .hsx format. Tides corrections were provided by tide models supplied by Electronic Navigation Limited.

ANNEX C: ACCURACY OF SOUNDINGS & HORIZONTAL POSITIONS OF SOUNDINGS

An estimate of the sounding error budget for the survey is listed below. The estimates provided are for soundings gathered at minimum, intermediate, and maximum depth levels and are developed on system accuracies for 60° angle (outer beams). LINZ accuracy standards are indicated for information, but contract did not specify any standard to meet.

	Source of error	Depth in meters							
		30 m	35 m	40 m					
а	Draught Setting	0.05	0.05	0.05					
b	Variation of Draught	0.05	0.05	0.05					
с	Sound Velocity	0.12	0.13	0.15					
d	Spatial Variation in SV	0.1	0.1	0.1					
е	Temporal Variation in SV	0.05	0.05	0.05					
f	Application of Measured SV	0.05	0.05	0.05					
g	Depth Measurement (Instrument)	0.3	0.32	0.35					
h	Depth Measurement (Resolution)	0.01	0.01	0.01					
Ι	Heave	0.2	0.2	0.2					
j	Settlement and Squat	0.2	0.2	0.2					
k	Roll, Pitch and Seabed Slope	NA	NA	NA					
I	Tidal Readings	0.5	0.5	0.5					
m	Co-Tidal Correction	NA	NA	NA					
n	Tide Corrections	0.05	0.05	0.05					
0	Trace Reading	NA	NA	NA					
	Total Standard Error $\sqrt{a^2 + b^2 +}$	0.82	0.83	0.84					
	LINZ accuracy standards								
	MB Special	0.34	0.36	0.39					
	MB-1	0.5	0.54	0.59					
	MB-2	0.67	0.72	0.78					
	MB-3	0.84	0.9	0.98					

Table 2: Sounding Error Budget

Notes:

- a: No bar check was carried out. Worst-case value estimated from total station measurements standard error, and static waterline visual estimation.
- b: Estimation from change in tank contents.
- c: Based on SV-plus accuracy.
- d, e: Worst-case estimation considering size of survey area and frequency of SV casts.

- f: SV applied in WASSP WMB3250 and in post-processing with Hypack.
- g, h.:Estimations from WASSP WMB3250 sounding accuracy from WASSP document, using outer beams.
- I: Significant errors in heave measurements due to sea conditions at time of acquisition (see report).
- J: Maximum error in dynamic draught estimation procedure.
- K: Not applicable. Single-beam only.
- I: Significant potential error as tide models were used instead of measurements. Maximum error estimated from comparison between lines and cross-lines.
- M: Not applicable. Tide models were used.
- N: tide data sampled at 6 minutes. Interpolation is done by Hypack software.
- O: Not applicable. Soundings were derived digitally.

22. ANNEX D: SURVEY PLAN LONG SECTIONS

23. ANNEX E: ECHOSOUNDER AND MOTION SENSOR DATA SHEETS



SEE IT ALL

WMB-3230 / WMB-5230 / WMB-3250 Specifications

	WMB-3230	WMB-3250							
Concert									
General Frequency	160 kHz	80 kHz	160 kHz						
Specified Depth Capability	2m - 200m +	10m - 500m +	2m - 200m +						
Maximum Range Scale	400m	800m	300m						
Output Power	40 W to 1 kW	40 W to 1 kW							
Effective Beam Width (arthwartships x fore-aft)		120° x 4°							
Beam Spacing		20° @ 1.07° beams	Equi-Angular / Equi-Distant						
Electronic Beam Width		x 1.07° over 120°	224 beams x 0.54° over 120°						
Max Ping Rate (Pings Per Second) Maximum Resolution	16 (@ 10m range) 7.5cm	16 (@ 10m range) 15cm	48 (@ 10m range) 7.5cm						
(height of smallest target detectable at nadir)	7.5011	15011	7.5011						
CW Pulse Duration (ms)	0.1, 0.2, 0.5, 1.0, 2.0	0.2, 0.5, 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0	0.1, 0.2, 0.5, 1.0, 2.0						
Advance speed		Slow – fast (5 speeds).	012, 012, 013, 110, 210						
Beamforming		Digital							
Roll Correction (Accuracy based on sensor used)		Yes	Yes						
Pitch Correction		th correction only	Yes						
Heave Correction		th correction only	Yes						
Ships Reference Corrections	Partial - dept	th correction only	Yes						
Sound Speed Correction		Surface only							
Bottom Detections GPS Interface		Amplitude & Phase NMEA0183							
Tide Correction		Prediction based on tide stations							
Hydrographic Compliance*	N/A	N/A	IHO Order 1a						
* Requires appropiate sensors									
Display Modes									
Acoustic		Sonar view							
Acoustic		Single / Triple beam view							
Acoustic		Sidescan view							
Mapping		2D and 3D mapping (Colour/mono)							
Advanced Mapping	Fish, Chart, Backscatter	r & Contour Overlay options	Watercolumn, Chart,& Contour Overlay options						
Display Windows	2 Display windows (Acoustic & Charting), with	User-configured 1/2/3-way split-panels per window	Accoustic Display (1): 1/2/3/4-way split-panels;						
	(maximu	Navigator Display (2): 1/2 way split-panels (User-							
	configured)								
Tools									
General	Zoom, Pan, Vertical Scale, Goto, Add Measure, Profile Window								
Marks	At Vessel/Cursor/Ship. Colour, Type, Name Options								
Ship Database Management	Centre on ship, North Up, Head Up, Show/Hide Track Record, Edit & Export capability								
Hardware									
Transducer	Suit	s In-hull tank mount / Pole Mounting, with 5/10/20m	cable*						
		gland optional; excludes pole assembly or tank asser							
Transceiver (BTxR)	Black box	or mounting)							
Processor	High Performance Marine Pro	High Performance Advanced Ruggedized Fanless							
		Marine Processor with keyboard and trackball							
Diselas Biastra									
Display Monitors Display Monitors	Single Display installation: FHD (1920x1080)	Dual Monitor configuration recommended.							
Display Wolficols	monitor installation is recommer	Minimum resolution: 1024x768							
*Not included (local supply)		Willingth resolution. 10248708							
Power Supply									
Transceiver	24 VDC, 70 W	24 VDC, 150 W	24 VDC, 70 W						
	9-30 VDC, ~ 1	5 Amp @ 24 VDC	9-32 VDC						
Processor			(Optional external AC-DC adaptor available)						
Dimensions & Weight	222 462 22	500 040 400	220, 450, 20						
Transducer Dimensions (LxWxH, mm) Transducer Weight	330 x 168 x 98 15 kg with standard 10m cable	533 x 340 x 133 39 kg with standard 20m cable	330 x 168 x 98 15 kg with standard 10m cable						
Transceiver (BTxR) Dimensions (LxWxH, mm)	15 kg with standard 10m cable	535 x 221.5 x 180	15 kg with standard 10m cable						
Transceiver (BTxR) Weight		555 x 22215 x 160							
Processor Dimensions (WxDxH, mm)	279 x	230 x 205 x 75							
Processor Weight		5.7kg	3.8kg						
Environmental									
Temperature		0 to 40° C.							
Relative Humidity	5 to 95% non condensing.								
Data Interface									
Input*	and the first strategic to be a set of the s	NMEA0183 & RS232							
*WASSP requires (3rd party) position, heading, roll, pitch and hea	ve data for electronic beam compensation/stabil WMB-3230	ization (not included - local supply). See your local W/ WMB-5230	ASSP expert for more information/clarification. WMB-3250						
	WIWIB-5250	WIVID-5230	WIVIB-5250						
3rd Party Software Compatibility									
Software Interfaces*		Olex	HYPACK/HYSWEEP®						
	S	odena	QINSy®						
	N	1axSea TZ	GSF logging						
*			MaxSea TZ						

Requires WASSP Interface Module & Excludes 3rd Party Software (contact your local supplier for software component pricing)

Specifications subject to possible change without notice.



WASSP Ltd.

65 Gaunt Street Westhaven PO Box 5849 Auckland New Zealand

 Phone:
 +64-9-373 5595

 Fax:
 +64-9-379 5655

 Email:
 sales@wassp.com

 Website:
 www.wassp.com



SMC IMU-10 Range Motion Sensors



SMC has developed its IMU-10 range of Motion Sensors to meet the requirements of the hydrographic and marine sectors. The IMU range provides high accuracy motion measurement data in dynamic environment in all areas from small hydrographic vessels to large oil rigs in all weather conditions.

Key Specifications

- Roll & Pitch 0.03° (RMS) Dynamic Accuracy
- Heave 5 cm or 5 %
- Accelerations / Velocities
- Inputs, Velocity and Heading
- Various Industry Protocols NMEA
- 2 years warranty



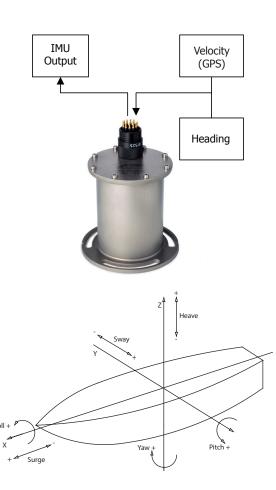
The SMC IMU uses solid state gyros and accelerometers to provide real time motion measurements with high dynamic accuracy even during accelerations. RS232 or RS422 outputs with RS232 velocity and heading inputs for aiding furing vessel turns. High quality titanium design, construction and assembly produce an IMU with an extremely high reliability in the most demanding marine environment.

Every SMC IMU is individually calibrated and tested, inside a calibration machine with a controlled temperature environment between 0 and +55 degrees Celsius.

The SMC IMU is supplied with a data distribution unit, cables and windows based software for ease of set up and configuration. The configuration software enables the user to configure the IMU parameters for the installation.

The SMC IMU is available in a variety of design and depth options.





SMC IMU Motion Sensors

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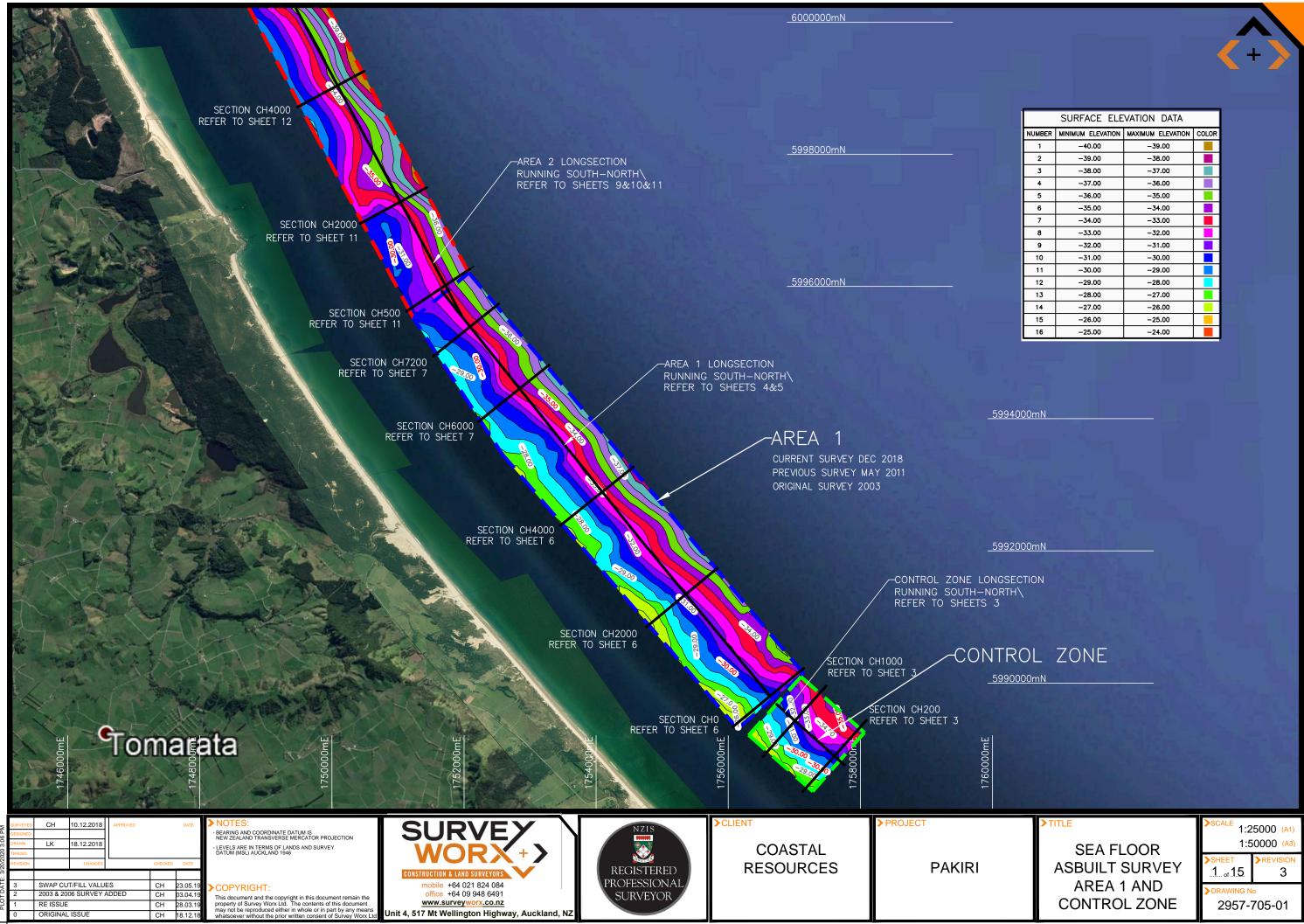


IMU-10x

Technical Specifications	IMU-106	IMU-107	IMU-108					
Roll / Pitch	N/A	Yes	Yes					
Accelerations X, Y, Z	N/A	Yes	Yes					
Roll / Pitch Accelerations X, Y, Z Heave Performance Angle Accuracy static Angle Accuracy Dynamic Description Angle Resolution Angle Resolution Heave Angle range Roll/Pitch Heave range Heave Accuracy Acceleration accuracy Communications IMU Configuration Software Dutput Signal Protocol Communications Interface Physical Dimensions for IMU-10x (W x H) Weight Housing Material Environmental Temperature (absolute max) Mounting Orientation Power requirements MTBF (computed) Depth rating Standard Warranty & Support Bundled Delivery	Yes	N/A	Yes					
Performance								
Angle Accuracy static	N/A	0.02º RMS	0.02º RMS					
Angle Accuracy Dynamic @ ±5° simultaneous roll and pitch	N/A	0.03º RMS	0.03º RMS					
Resolution Angle	N/A	0.001°	0.001°					
Resolution Heave	0.01m	N/A	0.01m					
Angle range Roll/Pitch	± 30°	± 30°	± 30°					
Heave range	±10m	N/A	±10m					
Heave Accuracy	5cm or 5%	N/A	5cm or 5%					
Acceleration accuracy	N/A	0.01 m/s ² RMS	0.01 m/s ² RMS					
Communications								
IMU Configuration Software	The IMU is shipped with SMC	C configuration windows softwa	are allowing on site setup					
Output Signal Protocol	Multiple, user selectable Output Protocols ASCII NMEA and binary							
Communications Interface	2 x RS232 External inputs, (r	nalog with remote converter (c not available on all models) RMA, VTG, VBV, VHW; Headir	. ,					
Physical								
Dimensions for IMU-10x (W x H)	tube Ø89, mounting plate Ø1	.34, flange Ø110) x 127						
Weight	~2 kg							
Housing Material	Titanium							
Environmental								
Temperature (absolute max)	0° to +55° Celsius (-10° to -	+65°); Storage Temperature -4	10° to +65° Celsius					
Mounting Orientation	Vertical or Horizontal mounti	ng (factory set)						
Power requirements	12 - 30 VDC; 2 W							
MTBF (computed)	50 000 hours							
Depth rating	IP66 (standard); IP68 30 me							
Standard	Complies with the IEC 60945							
Warranty & Support								
Warranty	2-year Limited Hardware & S	·						
Support	Free Technical & Hardware s	upport						
Bundled Delivery								
Junction Box	Multiple Input & Output Coni including 10 m cable	nection Case,						
	-							

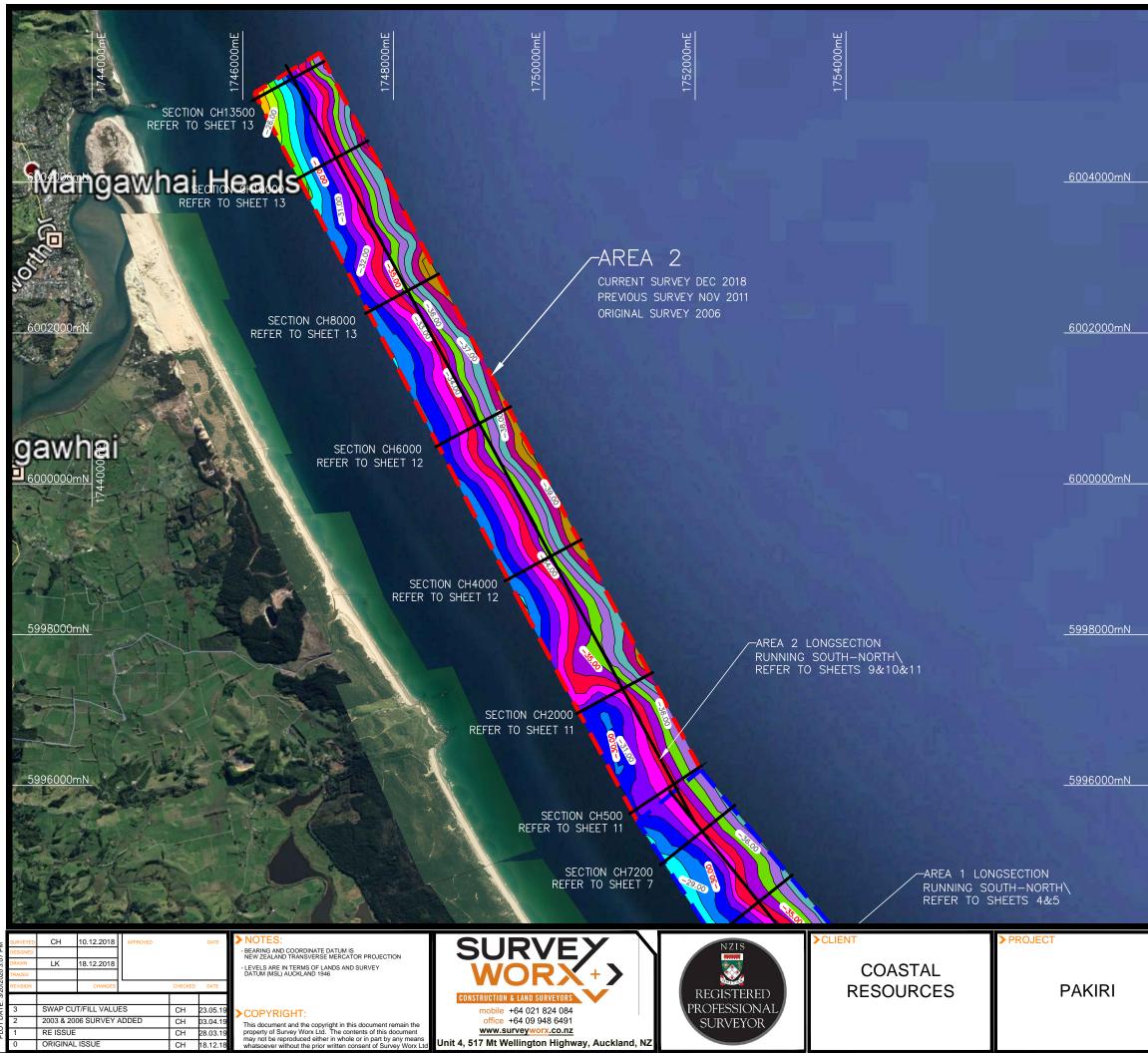


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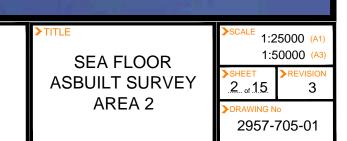
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	SURFACE ELE	VATION DATA	
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR
1	-40.00	-39.00	
2	-39.00	-38.00	
3	-38.00	-37.00	
4	-37.00	-36.00	
5	-36.00	-35.00	
6	-35.00	-34.00	
7	-34.00	-33.00	
8	-33.00	-32.00	
9	-32.00	-31.00	
10	-31.00	-30.00	
11	-30.00	-29.00	
12	-29.00	-28.00	
13	-28.00	-27.00	
14	-27.00	-26.00	
15	-26.00	-25.00	
16	-25.00	-24.00	



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SURFACE ELEVATION DATA										
NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR							
1	-40.00	-39.00								
2	-39.00	-38.00								
3	-38.00	-37.00								
4	-37.00	-36.00								
5	-36.00	-35.00								
6	-35.00	-34.00								
7	-34.00	-33.00								
8	-33.00	-32.00								
9	-32.00	-31.00								
10	-31.00	-30.00								
11	-30.00	-29.00								
12	-29.00	-28.00								
13	-28.00	-27.00								
14	-27.00	-26.00								
15	-26.00	-25.00								
16	-25.00	-24.00								



20/2020 3:07 PM	SURVEYED DESIGNED DRAWN TRACED REVISION	CH	10.12.2018 18.12.2018 CHANGES		CHECKED	DATE DATE	NOTES: BEARING AND COORDINATE DATUM IS NEW ZEALAND TRANSVERSE MERCATOR PROJECTION LEVELS ARE IN TERMS OF LANDS AND SURVEY DATUM (MSL) AUCKLAND 1946	SURVEY WORX+>	NZIS	COASTAL RESOURCES	>project PAKIRI
PLOT DATE: 3/2	2 1			-	СН	23.05.19 03.04.19 28.03.19 18.12.18	COP TRIGHT. This document and the copyright in this document remain the property of Survey Worx Ltd. The contents of this document may not be reproduced either in whole or in part by any means.	CONSTRUCTION & LAND SURVEYORS mobile +64 021 824 084 office +64 09 948 6491 www.surveyworx.co.nz Unit 4, 517 Mt Wellington Highway, Auckland, NZ	REGISTERED PROFESSIONAL SURVEYOR	RESOURCES	FANINI
	FILE P	PATH: P:\CO	ASTAL RESOL	JRCES\PAKIRI [DEC 18\29	57-705-01	REV3.DWG				

CONTROL ZONE

FOR CONTROL ZONE_X CH 1000 SCALE: 2000 / 100 																					
DIFFERENCE 2011 v 2018			-0.13	0.00	60.0-	-0.09	-0.09	-0.16	-0.06	-0.10	-0.22	-0.07	-0.08	-0.03	-0.08	0.00	-0.13	-0.04	0.12		
DEC 2018 SURVEY			-27.88	-28.29	-28.76	-29.07	-29.40	-29.73	-30.03	-30.32	-30.60	-30.86	-31.17	-31.48	-31.83	-32.15	-32.45	-32.70	-32.94	-33.33	
MAY 2011 SURVEY			-27.75	-28.29	-28.67	-28.98	-29.31	-29.57	-29.97	-30.22	-30.38	-30.79	-31.09	-31.45	-31.75	-32.15	-32.32	-32.66	-33.05	-33.38	
CHAINAGE	20	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	006	950	1000	

FOR CONTROL ZONE_X CH 200 SCALE: 2000 / 100 DATUM: -36.00																					
DIFFERENCE 2011 v 2018		-0.13	-0.29	-0.28	-0.25	-0.08	-0.09	-0.07	0.20	0.17	0.0	-0.07	-0.10	-0.07	-0.19	0.07	-0.08	0.02		77.0	-0.17
DEC 2018 SURVEY		-27.83	-28.28	-28.70	-29.00	-29.32	-29.59	-29.97	-30.06	-30.35	-30.63	-30.91	-31.26	-31.66	-31.97	-32.22	-32.57	-32.89			-33.55
MAY 2011 SURVEY		-27.70	-27.99	-28.41	-28.75	-29.24	-29.50	-29.90	-30.27	-30.52	-30.71	-30.84	-31.16	-31.59	-31.78	-32.29	-32.49	-32.91	0 2 1	- 20.20	-33.38
CHAINAGE	20	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	006	0 1 1 0	005	1000

FOR CONTROL ZONE_LONSECTION SCALE: 2000 / 100 DATUM: -34.00		=																		
DIFFERENCE 2011 v 2018		-0.17	-0.14	-0.04	0.06	-0.08	0.04	-0.09	-0.13	-0.08	-0.23	-0.09	-0.04	-0.02	-0.05	-0.06	-0.01	0.04	0.00	-0.02
DEC 2018 SURVEY		-32.01	-31.87	-31.77	-31.64	-31.79	-32.12	-32.81	-32.93	-32.89	-32.84	-32.82	-32.79	-32.65	-32.49	-32.32	-32.14	-31.97	-31.83	-31.68
MAY 2011 SURVEY		-31.84	-31.72	-31.73	-31.71	-31.71	-32.16	-32.72	-32.81	-32.80	-32.61	-32.72	-32.75	-32.63	-32.44	-32.25	-32.13	-32.01	-31.83	-31.66
CHAINAGE	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	006	950	1000

5	4			m	<u></u>		5
.54 0.03	.39 0.04	.23 -0.06	04 0.12	.94 0.13	.93 0.03	.90 -0.04	.89 -0.0
1050 -31.57 -31.54	1100 -31.43 -31.39	1150 -31.17 -31.23	1200 -31.17 -31.04	1250 -31.06 -30.94	1300 - 30.96 - 30.93	1350 - 30.86 - 30.90	0.84 -30
1050 - 3	1100 -3	1150 - 3	1200 -3	1250 -3	1300 - 3	1350 -3	1373 - 30.84 - 30.89 - 0.05
			ļ				
-0.07	0.06	0.10	0.26	0.17	_		
1050 -33.77 -33.84	1100 -34.23 -34.17	1150 - 34.63 - 34.53	1200 - 35.14 - 34.88	1250 - 35.45 - 35.28			
1050 -	1100	1150	1200	1250	1300	1350	
		į					
					<u> </u>		
0.08	0.10	0.38	-0.23	0.15			
-33.67	-34.00	-34.21		-34.81			
1050 -33.75 -33.67	1100 -34.10 -34.00	1150 - 34.59 - 34.21	200 -34.29 -34.52	1250 - 34.96 - 34.81			
1050	1100	1150	1200	1250	1300	1350	
	TITLE				SCALE		
	S				1	:2000 :4000	(A1) (A3)
			SURV D CRC		SHEET 3 of 15	>REV	ISION 3
		SEC			>DRAWING 2957	[™] 1-705-	01

_																											
FOR AREA 1_LONGSECTION SCALE: 2000 / 100 DATUM: -35.00																											
DIFFERENCE 2011 v 2018	-0.09	-0.03	-0.07	-0.03	0.04	-0.03	-0.03	-0.02	-0.02	0.02	0.01	0.01	0.00	-0.06	-0.08	-0.05	0.07	-0.09	-0.11	0.06	-0.01	-0.01	-0.05	-0.05	-0.05	-0.07	-0.07
DIFFERENCE 2003 v 2011	-0.04	-0.03	-0.06	-0.05	-0.01	0.01	0.05	0.08	0.07	0.04	0.06	0.03	-0.01	0.00	-0.03	00.0	-0.05	0.01	0.09	-0.06	0.01	0.03	0.05	0.04	0.04	0.04	0.04
DEC 2018 SURVEY	-30.21	-30.32	-30.59	-30.73	-30.89	-31.21	-31.33	-31.36	-31.41	-31.48	-31.59	-31.63	-31.67	-31.71	-31.81	-31.94	-32.00	-32.00	-32.00	-32.00	-31.96	-31.76	-31.62	-31.54	-31.50	-31.48	-31.45
MAY 2011 SURVEY	-30.12	-30.29	-30.52	-30.71	-30.93	-31.18	-31.30	-31.35	-31.39	-31.50	-31.60	-31.64	-31.67	-31.66	-31.73	-31.89	-32.07	-31.91	-31.89	-32.06	-31.95	-31.76	-31.57	-31.49	-31.45	-31.41	-31.38
2003 SURVEY	-30.08	-30.26	-30.46	-30.66	-30.92	-31.19-	-31.35	-31.42	-31.46	-31.54	-31.66 -	-31.67	-31.66	-31.66	-31.70	-31.90	-32.02	-31.92	-31.98	-32.00 -	-31.96	-31.79	-31.62	-31.53	-31.49	-31.45	-31.42
CHAINAGE	50	100	150-	200	250 -	300	350 -	400	450	500	550 -	600	650 -	700	750 -	800	850 -	006	950 -	1000	1050 -	1100	1150 -	1200	1250 -	1300	1350 -

FOR AREA 1_LONGSECTION SCALE: 2000 / 100 DATUM: -35.00																											
DIFFERENCE 2011 v 2018	-0.07	-0.06	-0.06	-0.07	-0.08	-0.10	-0.08	-0.08	-0.05	-0.05	-0.04	-0.01	-0.03	-0.05	-0.05	-0.06	500-	2010	-0.03	-0.07	-0.09	-0.09	-0.11	-0.09	-0.10	-0.11	-0.09
DIFFERENCE 2003 v 2011	0.04	0.06	0.07	0.06	0.10	0.08	0.07	0.06	0.03	0.01	-0.01	-0.05	-0.03	-0.04	-0.02	-0.02		2	-0.02	-0.02	-0.01	-0.01	-0.01	-0.03	-0.02	-0.01	-0.03
DEC 2018 SURVEY 유	-31.43	-31.42	-31.41	-31.44	-31.43	-31.48	-31.50	-31.54	-31.57	-31.61	-31.66	-31.70	-31.74	-31.79	-31.83	-31.87	1 80	2	-31.94	-32.12	-32.27	-32.38	-32.47	-32.57	-32.65	-32.73	-32.78
MAY 2011 SURVEY	-31.37	-31.36	-31.35	-31.36	-31.35	-31.38	-31.42	-31.46	-31.52	-31.56	-31.61	-31.69	-31.72	-31.74	-31.77	-31.81	181	5	-31.90	- 32.05	-32.18	-32.29	-32.37	-32.47	-32.55	-32.62	-32.69
2003 SURVEY	-31.40	-31.42	-31.42	-31.43	-31.45	-31.47	-31.49	-31.52	-31.54	-31.58	-31.61	-31.64	-31.69	-31.70	-31.75	-31.79	1 84	8	-31.88	-32.03	-32.18	-32.28	-32.36	-32.44	-32.53	-32.61	-32.66
	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	1950	2000	2050	2100	2150	- Cocc	877	2250	2300	2350	2400	2450	2500	2550	2600	2650

_																													
FOR AREA 1_LONGSECTION SCALE: 2000 / 100 DATUM: -35.00																													
DIFFERENCE 2011 v 2018	-0.09	-0.09	-0.06	-0.07	-0.11	5	-0.14	-0.16	-0.20	-0.23	-0.26	-0.31		-0.30	-0.29	-0.27	-0.27	-0.25	-0.23	-0.22	-0.20	-0.22	-0.22	-0.23	-0.24	-0.25	-0.26	-0.21	-0.18
DIFFERENCE 2003 v 2011	-0.03	-0.02	-0.04	-0.04	-0.04		0.04	-0.01	-0.01	-0.03 -0.03	-0.01	-0.01		-0.02	-0.01	-0.01	-0.01	0.00	-0.01	-0.01	-0.03	-0.02	-0.04	-0.04	-0.04	-0.05	-0.04	-0.07	-0.09
DEC 2018 SURVEY	-32.78	-32.82	-32.84	-32.83	-32.83	3	-32.75	-32.71	-32.65	-32.59	-32.52	-32.48	2	-32.42	-32.39	-32.37	-32.40	-32.45	-32.52	-32.58	-32.64	-32.71	-32.78	-32.84	-32.90	-32.97	-33.02	-33.06	-33.10
MAY 2011 SURVEY	-32.69	-32.74	-32.78	-32.76	-32.72		-32.61	-32.55	-32.45	-32.36	-32.25	-32.17		-32.12	-32.10	-32.09	-32.12	-32.21	-32.29	-32.36	-32.44	-32.49	-32.56	-32.61	-32.66	-32.71	-32.77	-32.85	-32.92
2003 SURVEY	-32.66	-32.72	-32.74	-32.71	-37,69	2	-32.65	-32.54	-32.43	-32.33	-32.24	-32.16		-32.09	-32.09	-32.09	-32.12	-32.20	-32.28	-32.36	-32.41	-32.47	-32.53	-32.57	-32.62	-32.66	-32.72	-32.77	-32.83
CHAINAGE	2650	2700	2750	2800	2850	2027	2900	2950	3000	3050	3100	3150		3200	3250	3300	3350	3400	3450	3500	3550	3600	3650	3700	3750	3800	3850	3900	3950



►TITLE	>scale 1:2000 (A1)
SEA FLOOR ASBUILT SURVEY	1:4000 (A3)
LONG SECTION AREA 1	<u>.4.</u> of <u>15.</u> 3 → DRAWING No 2957-705-01

VISION		CHANGES		CHECKED	DATE	
	SWAP CU	T/FILL VALU	ES	СН	23.05.19	>COPYRIGHT:
	2003 & 200	06 SURVEY	ADDED	CH	03.04.19	
	RE ISSUE			CH	28.03.19	
)	ORIGINAL	ISSUE		СН	18.12.18	whatsoever without the prior written consent of Survey Worx Lto
FILE P	ATH: P:\COA	STAL RESOL	JRCES\PAKIRI DI	EC 18\295	57-705-01 F	REV3.DWG

NOTES

- LEVELS ARE IN TERMS OF LANDS AND SURVEY DATUM (MSL) AUCKLAND 1946







CLIENT COASTAL RESOURCES > PROJECT

PAKIRI

AREA 1

CH 10.12.2018

LK 18.12.2018

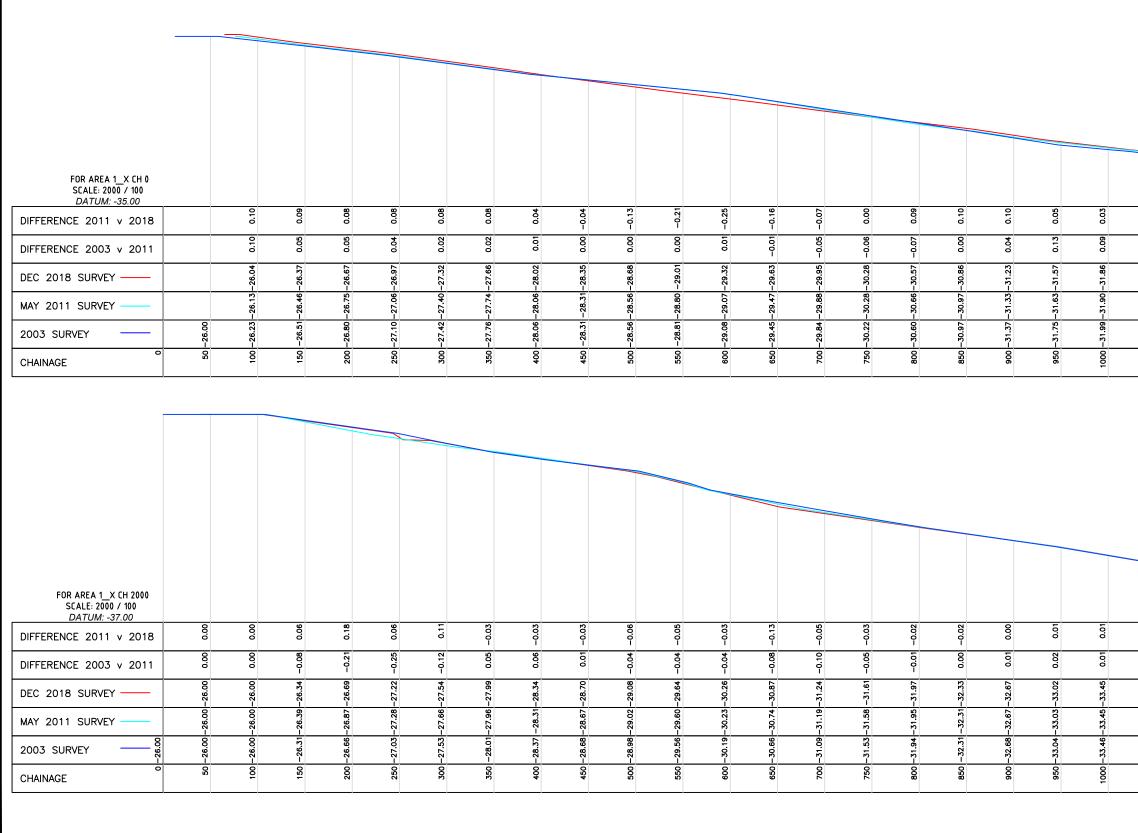
FOR AREA 1_LONGSECTION SCALE: 2000 / 100 DATUM: -35.00																								
DIFFERENCE 2011 v 2018	-0.05	-0.08	-0.14	-0.11	-0.08	-0.08	-0.06	-0.08	-0.11	-0.13	-0.18	-0.20	-0.21	ĉ			-0.1	-0.13	-0.12	- 11	0 C	00.01	-0.08	
DIFFERENCE 2003 v 2011	0.03	0.03	0.07	0.06	0.07	0.07	0.05	0.07	0.09	0.12	0.13	0.12	0.10	, c		2		0.10	0.08	0.08	0 0	òò	0.07	
DEC 2018 SURVEY %	-32.31	-32.32	-32.37	-32.39	-32.46	-32.56	-32.64	-32.71	-32.79	-32.86	-32.96	-33.01	-33.04	a0 11		1.00	- 33.13	-33.10	-33.07	-33.03	00	0 0 0	-32.97	
MAY 2011 SURVEY 8	-32.25	-32.24 -	-32.23	-32.28	-32.38 -	-32.48	-32.58-	-32.63	-32.68	-32.74	-32.78	-32.81	-32.83-	70 CF		- 72.32	- 32.99-	-32.96	-32.95	-32.92	50 CF		-32.89	
2003 SURVEY - 8	-32.29 -	-32.27 -	-32.30	-32.35	-32.45 -	-32.55	-32.63 -	-32.70	-32.77	-32.86 -	-32.92 -	-32.93	-32.93	10 01				-33.06	-33.03	-33.00		06.70	-32.96	-32.94
CHAINAGE	6700	6750 -	6800	6850 -	. 0069	6950	- 0002	7050 -	7100	7150 -	7200 -	7250 -	7300 -	1160		· · · · · · · · · · · · · · · · · · ·	. 006/	- 009Z	7650	- 0022	C L L	06//	7800	7850

FOR AREA 1_LONGSECTION SCALE: 2000 / 100 DATUM: -35.00																									
DIFFERENCE 2011 v 2018 여	-0.20	-0.20	-0.20	-0.20	-0.19	-0.19	-0.18	-0.28	-0.36	-0.35	-0.23	-0.25	-0.34	-0.37	-0.49	0.43	-0.46	-0.34	-0.34	-0.32	-0.35	-0.29	-0.18	-0.10	-0.07
DIFFERENCE 2003 v 2011	0.02	0.03	0.04	0.04	0.02	0.03	0.02	0.06	0.07	0.04	0.02	0.02	0.0 80.0	80 0	0.07	0.06	0.10	0.0	0.07	0.01	0.01	0.00	0.02	0.03	0.01
DEC 2018 SURVEY - B	-32.41	-32.47	-32.55	-32.60	-32.66	-32.72	-32.78	-32.94	-33.14	-33.35	-33.46	-33.57	-33.78	33. R7	34.04	-34.05	-34.01	-33.90	-33.77	- 33.43	-33.21	-32.92	-32.57	-32.42	-32.36
MAY 2011 SURVEY 🛱	-32.22	-32.28	-32.35	-32.40	-32.48	-32.53	-32.61	-32.66	-32.78	-33.00	-33.23	-33.32	- 33.44	-33 50	- 33.55	-33.61	-33.55	-33.56	-33.43	-33.11	-32.86	-32.63	-32.40	-32.32	-32.28
2003 SURVEY	-32.24	-32.31	-32.38	-32.43	-32.49	-32.56	-32.63	-32.72	-32.85	-33.04	-33.25	-33.34	- 33.52	-33 67	-33.63	-33.68	-33.65	-33.64	-33.50	-33.12	-32.87	-32.63	-32.42	-32.35	-32.30
CHAINAGE B	5350	5400	5450	5500	5550	5600	5650	5700	5750	5800	5850	5900	0009	ROFO ROFO	6100	6150	6200	6250	6300	6400	6450	6500	6550	6600	6650

FOR AREA 1_LONGSECTION SCALE: 2000 / 100 DATUM: -35.00																				
DIFFERENCE 2011 v 2018 여	-0.20	-0.22	-0.26	-0.29	-0.30	-0.31	-0.33	-0.35	-0.35	-0.35	-0.32	-0.31	-0.30	-0.30	-0.33	-0.24	-0.26	-0.23	-0.31	-0.29
DIFFERENCE 2003 v 2011 약	-0.07	-0.04	-0.01	-0.01	-0.01	0.00	0.00	0.00	0.00	0.02	0.02	0.03	0.07	0.02	0.03	0.00	0.03	0.09	0.12	0.09
DEC 2018 SURVEY 2	-33.13	-33.17	-33.21	-33.22	-33.22	-33.21	-33.22	-33.22	-33.21	-33.18	-33.14	-33.10	-33.01	-32.91	-32.75	-32.47	-32.22	-31.95	-31.93	-31.94
MAY 2011 SURVEY	-32.94 -	-32.96 -	-32.95	-32.93	-32.91	-32.90	-32.88	-32.87	-32.87	-32.83	-32.82	-32.79	-32.72	-32.61	-32.41	-32.23	-31.96	-31.72	-31.62	-31.65
2003 SURVEY - 2003 SURVEY SURVEY 2003 SURVEY 2003 SURVEY 2003 SURVEY 2003 SURVEY 2003 SURV	-32.87	-32.92	-32.94 -	-32.92	-32.91	-32.89 -	-32.88	-32.87	-32.87	-32.85	-32.84 -	-32.82	-32.79	-32.63	-32.44	-32.23	-31.99	-31.81	-31.74 -	-31.75
CHAINAGE සි	4000 -	4050 -	4100 -	4150 -	4200	4250 -	4300 -	4350 -	4400 -	4450 -	4500	4550 -	4600 -	4650 -	4700	4750 -	4800 -	4850	4900 -	4950 -

<u> </u>	-0.27	-0.25	-0.24	-0.22	-0.22	-0.20	-0.18
2							
50.0	0.06	0.04	0.04	0.00	-0.01	-0.01	-0.01
+ 2 - 1 - 2 -	-31.95	-31.97	-31.98	-32.06	-32.15	-32.25	-32.33
2	-31.68	-31.71	-31.74	-31.84	-31.94	-32.05	-32.14
<u>, , , , , , , , , , , , , , , , , , , </u>	-31.75	-31.75	-31.78	-31.84	-31.93	-32.04	-32.14
0000+	5000	5050 -	5100	5150 -	5200	5250 -	5300 -
_							







SEA FLOOR	>SCALE 1:2000 (A1) 1:4000 (A3)
ASBUILT SURVEY	
CROSS SECTION AREA 1	>DRAWING № 2957-705-01

0.00	0.00	0.02	0.04	0.06	-0.02	-0.06	
0.00	0.04	0.08	0.08	0.02	0.05	0.07	
-33.88	-34.30	-34.70	-35.11	-35.51	-35.93	-36.43	
-33.88	-34.30	-34.72	-35.15	-35.57	-35.91	-36.37	
-33.88	-34.34	-34.80	-35.23	-35.59	-35.96	-36.44	76 80
1050	1100	1150	1200	1250	1300	1350	1 100

0.02	0.03	0.03	-0.02	-0.02	-0.06		
0.11	0.05	-0.02	-0.01	0.02	0.04		
-32.14	-32.49	-32.85	-33.30	-33.71	-34.22		
-32.15	-32.52	-32.88	-33.27	-33.69	-34.16		
-32.26	-32.57	-32.86	-33.27	-33.71	-34.21	-34.85	
1050	1100	1150	1200	1250	1300	1350	1388

ED ID	-	10.12.2018 18.12.2018 CHANGES		PPROVED	CHECKED	DATE	 NOTES: BEARING AND COORDINATE DATUM IS NEW ZEALAND TRANSVERSE MERCATOR PROJECTION LEVELS ARE IN TERMS OF LANDS AND SURVEY DATUM (MSL) AUCKLAND 1946 	SURVEY WORX+>	NZIS	COASTAL RESOURCES	> PROJECT PAKIRI
	SWAP CUT	T/FILL VALU	UES		СН	23.05.19	➤COPYRIGHT:	CONSTRUCTION & LAND SURVEYORS mobile +64 021 824 084	REGISTERED PROFESSIONAL	RESOURCES	T ANINI
	2003 & 200	6 SURVEY	ADD	DED	СН	03.04.19	This document and the copyright in this document remain the	office +64 09 948 6491	SURVEYOR		
	RE ISSUE				CH	28.03.19	property of Survey Worx Ltd. The contents of this document	www.surveyworx.co.nz			
	ORIGINAL	ISSUE			CH	18.12.18	whatsoever without the prior written consent of Survey Worx Ltd	Unit 4, 517 Mt Wellington Highway, Auckland, NZ			

AREA 1

FOR AREA 1_X CH 6000 SCALE: 2000 / 100																											
DATUM: -39.00 DIFFERENCE 2011 v 2018	0.00	0.02	-0.08	60.0	0.12	0.14	-0.16	-0.13	0.08	0.03	0.05	0.03	-0.22	-0.41	-0.35	0.34	-0.31	-0.22	0.10	-0.0 ,	0.04	-0.04	-0.02	-0.01	0.0	-0.02	
DIFFERENCE 2003 v 2011	0.00	-0.03	-0.07	- 0.05	-0.01	-0.01	-0.01	-0.01	0.03	0.02	0.02	0.03	0.02	0.02	0.04	- 60.0	0.11	0.08	0.04	0.0	0.05 -	0.07	0.11	0.11	0.11	0.03 -	
DEC 2018 SURVEY	-28.00	-28.11	-28.66	-29.13	-29.50	-29.86	-30.11	-30.36	-30.59	-30.83	-31.27	-31.79	-32.47	-33.09	-33.44	-33.80	-34.14	-34.47	-34.80	-35.15	-35.53	-35.92	-36.30	-36.68	-37.08	-37.62	
MAY 2011 SURVEY	-28.00	-28.12	-28.59	-29.04	-29.38	-29.72	-29.96	-30.22	-30.52 -	-30.86	-31.32	-31.81-	-32.25 -	-32.68	-33.09 -	-33.46 -	-33.83	-34.25	-34.70	-35.11-	-35.49	-35.88 -	-36.28 -	-36.67	-37.08	-37.60	
2003 SURVEY	-28.00	-28.09	-28.52	-29.00	-29.37	-29.71	-29.94	-30.21	-30.55	-30.88	-31.35	-31.85	-32.27	-32.70	-33.13	-33.55	-33.94	-34.34	-34.74	-35.15	-35.55	-35.95	-36.39	-36.78	-37.19	-37.63	-38.00
CHAINAGE	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	006	950	1000	1050	1100	1150	1200	1250	1300	1350

FOR AREA 1_X CH 4000 SCALE: 2000 / 100 DATUM: -39.00																				
DIFFERENCE 2011 v 2018	0.26	0.20	0.13	0.03	0.00	-0.16	-0.12	-0.14 -0.15	- m	-0.47	-0.35	-0.22	-0.20	-0.15	-0.04	-0.02	0.00	0.02	-0.01	-0.03
DIFFERENCE 2003 v 2011	-0.13	-0.11	-0.09	-0.02	0.03	0.11	0.00	-0.09 -0.04	-0.0	-0.03	-0.04	-0.06	0.02	0.04	0.02	0.07		900	0.12	0.16
DEC 2018 SURVEY ۲۵ ۲۵	-27.57	-27.82	-28.08 -28.33	-28.58	-28.83	-29.26	-29.75	-30.30 -30.79	-31.48	-32.14	-32.56	-32.99	-33.95	-34.40 -34.85	-35.33	-35.80	-36.26	-37.20	-37.64	-38.13
MAY 2011 SURVEY \$	-27.83	-28.02	-28.20 -	-28.61	-28.83	-29.10	-29.63	-30.16 - -30.64 -	-31.13	-31.67	-32.21	-32.77 - -33.27 -	-33.75	-34.25 - -34.78 -	-35.29 -	-35.78	-36.26	- 37.22 -	-37.63	-38.09
2003 SURVEY	-27.70	-27.92	-28.11-	-28.59	-28.86	-29.21	-29.63 -	-30.07 -	-31.13	-31.64 -	-32.18	-32.70 - -33.23 -	-33.77	-34.29 - -34.79 -	-35.31	-35.85 -	-36.34 -	- 37.28 -	-37.75 -	-38.25
CHAINAGE	150	200	300 -	350	400	450	200	220 - 220 -	650	- 100	750 -	800	006	950 -	1050 -	1100	1150-	1250	1300 -	1350 -

TITLE

	.000 (A1) .000 (A3)
SHEET 7. of 15	►REVISION
>DRAWING N 2957-7	。 705-01

FOR AREA 1_X CH 7200 SCALE: 2000 / 100 DATUM: -39.00																					
DIFFERENCE 2011 v 2018		-0.17	-0.05	-0.10	-0.04	0.03	0.08	0.13	0.12	-0.02	-0.05	-0.16	-0.20	-0.03	-0.04	-0.05	0.06	0.14	0.07	-0.06	
DIFFERENCE 2003 v 2011		0.07	0.04	0.11	0.11	0.05	0.03	0.05	0.06	0.00	0.06	0.12	0.19	0.15	0.07	-0.01	0.04	0.08	0.13	0.20	
DEC 2018 SURVEY	ĺ	-28.60	-28.81	-29.06	-29.36		-30.02 -30.35	-30.68	-31.07	-32.03	-32.45	-32.88	-33.28 -33.66	-34.04	-34.53	-35.03	-35.48	-35.92 -36.38	-36.87	-37.43	
MAY 2011 SURVEY		-28.43	-28.73	-28.96	-29.32	-29.73	-30.10 -30.45	8.O	-31.18	-32.01	-32.36	-32.71	-33.08	-34.01	-34.49	-34.98	-35.54	-36.07 -36.53	-36.93	-37.37	
2003 SURVEY	-28.19	-28.50	-28.77	-29.07	-29.43		-30.13 -30.47		-31.24	-32.01	-32.42	-32.83	-33.27	-34.16	-34.57	-34.97	-35.58	-36.15 -36.60	-37.06	-37.57	- 38.00
CHAINAGE	50	100	150	200	250	300	350 400	450	500	600	650	700	750 800	850	006	950	1000	1050	1150	1200	1250 - 1263 -



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>TITLE SEA FLOOR		.000 (A1) .000 (A3)
ASBUILT SURVEY	SHEET 8. of 15	►REVISION 3
CROSS SECTION AREA 1	>DRAWING N 2957-7	。 705-01

Γ																													
FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																													
DIFFERENCE 2015 v 2018											-0.21	-0.16	-0.14	- - - -	-0.13	-0.13	-0.12	-0.17	-0.20	-0.22	20 0		-0.21	-0.21	-0.1	-0.14	-0.11	-0.09	-0.10
DIFFERENCE 2006 v 2015											0.21	0.21	0.23	100	12.0	0.22	0.21	0.21	0.20	0.18	0 17		0.13	0.13	0.10	0.06	0.06	0.04	0.07
DEC 2018 SURVEY											-33.67	-33.66	-33.63	C3 22	-33.62	-33.60	-33.58	-33.63	-33.65	-33.67	33.67			-33.61	-33.57	-33.50	-33.40	-33.30	-33.19
NOV 2015 SURVEY											-33.47	-33.50	-33.49	07 22	- 33.49	-33.47	-33.46	-33.45	-33.44	-33.45	C4 77	1		-33.40	-33.40	-33.36	-33.29	-33.21	-33.09
2006 SURVEY	-33.05	-33.17	;	-33.30	-33.35	-33.40	-33.46	-33.55	-33.60	-33.64	-33.68	-33.71	-33.72	07 22	- 33./0	-33.69	-33.67	-33.67	-33.64	-33.62	1 50		00.00-	-33.53	-33.49	-33.42	-33.35	-33.25	-33.16
CHAINAGE	20	100	į	150	200	250	300	350	400	450 -	200	550	600	0	650	200	750	800	850	006	U U U U U U U U U U U U U U U U U U U	2	10001	1050	1100	1150	1200	1250	1300 -

FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																							
DIFFERENCE 2015 v 2018 여	-0.05	-0.02	-0.07	-0.12	-0.15	-0.16	-0.14	-0.10	-0.08	-0.03	0.00	0.03	0.0	-0.14	80.0-	-0.12	-0.09	-0.07	-0.02	-0.03	-0.02	0.00	-0.06
DIFFERENCE 2006 v 2015	0.04	0.06	0.11	0.13	0.13	0.14	0.11	0.13	60.0	0.04	0.06	0.07	0.0	0.06		0.01	-0.01	-0.14	-0.01	0.04	0.07	0.06	0.08
DEC 2018 SURVEY	-33.09	-32.97	-32.89	-32.83	-32.75	-32.66	-32.57	-32.57	-32.62	-32.74	-32.82	-32.99	20.00	-33.73	16.00 16.45-	-34.70	-34.99 -35.21	-35.71	-35.74	-35.83	-35.86	-35.88	-35.88
NOV 2015 SURVEY ខ្ល	-33.04	-32.95	-32.82	-32.71	-32.61	-32.50	-32.43	-32.47	-32.54	-32.71	-32.82	-33.02	20.00-	- 33.59	-34.03	-34.58	-34.89 -35.11	-35.64	-35.72	-35.80	-35.84	-35.88	-35.83
2006 SURVEY	-33.08	-33.01	-32.93	-32.84	-32.74	-32.64	-32.55	-32.60	-32.64	-32.75	-32.88	-33.09	80.00-	-33.65	-34.24	- 34.59	-34.92 -35.10	-35.27	-35.71	-35.84	-35.91	-35.94	-35.90
CHAINAGE	1350	1400	1450	1500	1550	1600	1650	1700	1750	1800	1850	1900	DORI	2000	2000	2150	2250	2350	2400	2450	2500	2550	2600

FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																				
DIFFERENCE 2015 v 2018	-0.12	-0.19	-0.18 -0.04	0.07	-0.01 -0.16	-0.18	-0.22	-0.12	-0.10	-0.11	-0.13	-0.16	-0.18	-0.14	-0.18	-0.14	0.13	0.18	0.15	0.05
DIFFERENCE 2006 v 2015	0.14	0.10	0.13	-0.01	0.03	0.13	0.15	0.0	0.04	0.03	0.03	0.05	0.09	0.00	0.09	0.06	-0.01	0.01	0.00	0.02
DEC 2018 SURVEY	-35.75	-35.70	-35.49 -35.27	-35.04	-34.91 -34.81	-34.71	-34.61	-34.40 -34.40	-34.34	-34.32	-34.30	-34.31 -34.29	-34.31	- 34.29	-34.43	- 34.49	-34.63	-34.76	-34.87	-35.02
NOV 2015 SURVEY	-35.64	-35.51	-35.31 -35.22	-35.11	-34.90 -34.64	-34.53	-34.39	- 34.28	-34.24	-34.21	-34.17	-34.15	-34.13	-34.14	-34.24	-34.35	-34.49 -34.76	-34.94	-35.02	-35.07
2006 SURVEY	-35.78	-35.61	-35.43 -35.26	-35.10	-34.93 -34.75	-34.66	-34.54	- 34.37	-34.28	-34.24	-34.20	-34.20 -34.21	-34.22	-34.23	-34.34	- 34.41	-34.75	- 34.95	-35.03	-35.09
CHAINAGE	2650	2700	2750 2800	2850	2900	3000	3050	3150 3150	3200	3250	3300	3350 3400	3450	3500	3600	3650	3750	3800	3850	3900



➤TITLE		.000 (A1)
SEA FLOOR ASBUILT SURVEY	1:4 ▶SHEET 9_of 15	REVISION 3
LONG SECTION AREA 2	>DRAWING N 2957-7	。 705-01

FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																										
DIFFERENCE 2015 v 2018	-0.11	-0.23	-0.24	-0.25	-0.27	-0.26	-0.22	-0.20	-0.07	0.03	0.06	0.0	-0.05	-0.12	-0.14	-0.21	-0.21	-0.16	-0.15	-0.12	-0.09	-0.07	-0.04	0.01	0.14	0.03
DIFFERENCE 2006 v 2015	0.03	0.03	0.05	0.06	0.06	0.06	0.07	0.05	0.04	0.05	0.03	0.02	0.00	0.00	-0.01	0.01	0.03	-0.02	-0.01	0.00	-0.01	-0.07	-0.09	-0.11	-0.12	-0.04
DEC 2018 SURVEY — 🙀	-35.24	-35.41	-35.44	-35.46	-35.49	-35.49	-35.40	-35.32	-35.11	-34.92	-34.82	-34.80	-34.78	-34.78	-34.76	-34.76	-34.76	-34.76	-34.75	-34.75	-34.77	-34.79	-34.82	-34.84	-34.86	-35.04
NOV 2015 SURVEY k	-35.12	-35.17 -	-35.19 -	-35.22 -	-35.22	-35.24 -	-35.18 -	-35.12	- 35.04	-34.95	-34.87 -	- 34.80 -	-34.73 -	- 34.66 -	- 34.62 -	-34.55 -	- 34.54 -	-34.59 -	-34.61	-34.63 -	-34.68 -	-34.72	-34.78	-34.85	-35.00 -	-35.07
2006 SURVEY 8	-35.15 -	-35.21	-35.24 -	-35.27	-35.29 -	-35.30 -	-35.25 -	-35.16 -	-35.08 -	-34.99	-34.90	- 34.81	-34.73	- 34.66 -	-34.61-	-34.56-	-34.57 -	-34.57	-34.60	-34.63	-34.67 -	-34.65 -	-34.69	-34.73	-34.87	-35.03
CHAINAGE g	3950 -	4000	4050 -	4100 -	4150 -	4200 -	4250 -	4300 -	4350 -	4400 -	4450 -	4500	4550 -	4600 -	4650	4700 -	4750 -	4800	4850 -	4900	4950 -	2000	5050 -	5100 -	5150 -	5200 -
FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																										
DIFFERENCE 2015 v 2018	-0.17	-0.26	-0.28	-0.06	0.05	0.07	0.02	0.03	0.00	-0.17	-0.23	-0.20	-0.13	0.02	0.00	-0.03	-0.05	-0.02	0.00	-0.07	-0.07	-0.17	-0.18	-0.16	-0.13	-0.12
DIFFERENCE 2006 v 2015 수	0.00	0.0	0.02	-0.04	-0.02	0.01	-0.02	0.03	-0.06	0.08	0.13	0.09	0.04	0.00	0.00	0.0	0.01	-0.01	-0.05	-0.02	-0.01	0.06	0.06	0.04	0.00	-0.01
DEC 2018 SURVEY —— 🙀	-35.31	-35.55	-35.70	-35.83	-35.91	-35.98	-36.06	-35.97	-35.90	-35.77	-35.59	-35.41	-35.22	-35.00	-34.95	-34.90	-34.84	-34.77	-34.70	-34.63	-34.54	-34.52	-34.50	-34.48	-34.48	-34.49
۱۹۷۲ 2015 SURVEY ایج	- 35.14 -	-35.28 -	-35.42 -	-35.77 -	- 35.95	-36.05	-36.08 -	-36.00	-35.90 -	-35.59 -	-35.36 -	-35.21	-35.08 -	-35.03	-34.95 -	-34.87 -	- 34.80 -	-34.75	-34.70	-34.56	-34.48	-34.34 -	-34.32	-34.32	-34.35	-34.37
2006 SURVEY 8	-35.14 -	-35.28 -	-35.44 -	-35.73 -	-35.93 -	-36.06	-36.06	-36.03	-35.85	-35.67	-35.49 -	- 35.29 -	-35.12 -	-35.02 -	- 34.95 -	-34.87	-34.80 -	-34.74	-34.64 -	-34.54 -	-34.47	-34.40	-34.38	-34.35-	-34.36 -	-34.36 -
CHAINAGE	5250 -	5300 -	5350 -	5400 -	5450	5500 -	5550 -	5600	5650 -	5700 -	5750 -	5800 -	5850 -	2300	5950 -	6000	6050	6100	6150 -	6200	6250 -	6300 -	6350 -	6400	6450 -	6500 -
FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00			2				5		5		6	0		-	N	5	*	4		10	ω	6				2
	0.12	0.18	-0.25	-0.15	-0.08	0.0	0.03		-0.05	-0.05	-0.09	0.05	0.0-	0.0	1 0.02	1 0.03	1 0.04	0.04	0.04	3 0.05	0.06	1 -0.03	-0.05	-0.0	1 -0.07	0 -0.05
DIFFERENCE 2015 v 2018 9	1	1					-	~			0	E E	0.00	0.00	-0.0	0.01	-0.01	-0.01	0.02	0.03	0.02	-0.01	0	63	0.01	
	0.02	1 -0.03 -(- 0.01	6 -0.01	2 -0.01	-0.01	0.01	0.02	0.03	-0.02	-0.01	00.0	0		Ĭ		1					<u>٦</u>	-0.01	-0-		0.00
DIFFERENCE 2006 v 2015 위	1	1	3-34.53 -0.01	1-34.36	4 - 34.22 - 0.01	- 34.03 -	9-33.85 0.01	1-33.70	2-33.57 0.0	0-33.45 -0.0	1-33.40	1-33.39	t - 33.43 0	3-33.45 0	9 - 33.46 -(-33.50	1-33.56	7 - 33.63 -	2 - 33.69 0	9 - 33.75 0	9 - 33.83 0	2 - 34.05 -0	1-34.19	3 - 34.32 -0.	8 - 34.45 0	2 - 34.67 0.0
DIFFERENCE 2015 v 2018 DIFFERENCE 2006 v 2015 DEC 2018 SURVEY NOV 2015 SURVEY	-34.38 -34.51 -0.02 -	1	7-34.28-34.53 -0.01	1 - 34.21 - 34.36	- 34.14 - 34.22 -	3-34.04 -34.03 -0.01	-33.89 - 33.85	-33.71 -33.70		- 33.40 - 33.45 -	-33.31 -33.40 -	-33.31 -33.39	1-33.34 -33.43 0	t	3 - 33.49 - 33.46	-33.53 -33.50	- 33.61 - 33.56 -	3-33.67 -33.63 -	-33.72 -33.69	-33.79 -33.75	-33.89 -33.83	1-34.02 -34.05 -	-34.11-34.19 -) - 34.23 - 34.32 -0.		-34.62 -34.67
DIFFERENCE 2006 v 2015 9	0.02	1	6650 - 34.27 - 34.28 - 34.53 - 0.01	.21-34.36	6750 - 34.13 - 34.14 - 34.22 - 0.01	- 34.03 -	8850 - 33.90 - 33.89 - 33.85 0.01	1-33.70		45	.31-33.40 -	.31 - 33.39	7150 -33.34 -33.34 -33.43 0	7200 - 33,44 - 33,43 - 33,45 0	7250 - 33.48 - 33.49 - 33.46	-33.50	1-33.56	7400 - 33.66 - 33.67 - 33.63 -	72 -33.69		83	7600 -34.01 -34.02 -34.05 -0	7650 - 34.09 - 34.11 - 34.19 - 0	7700 - 34.20 - 34.23 - 34.32 - 0.		7800 - 34.62 - 34.62 - 34.67 0.0

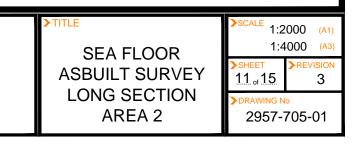


TITLE	
SEA FLOOR	
ASBUILT SURVEY	
LONG SECTION	
AREA 2	

	000 000	(A1) (A3)
SHEET 10 of 15	≯ REV	3
>DRAWING N 2957-7		01

FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																										
DIFFERENCE 2015 v 2018	-0.04	-0.06	-0.07	-0.07	-0.14	-0.17	-0.22	-0.17	-0.18	-0.12	-0.09	-0.04	-0.01	-0.05	-0.02	0.07	0.14	0.11	0.17	0.13	0.12	0.04	-0.05	-0.12	-0.04	-0.04
DIFFERENCE 2006 v 2015	0.03	0.02	0.04	0.03	0.03	0.09	0.13	0.15	0.12	0.09	0.07	0.04	0.00	-0.02	0.03	0.01	0.01	0.02	0.00	0.03	0.02	0.02	0.01	0.01	-0.01	0.03
DEC 2018 SURVEY — 🙀	-34.93	-35.22	.35.35	.35.45	-35.56	.35.64	.35.72	-35.71	.35.68	.35.62	35.54	-35.41	.35.22	-35.03	.34.67	-34.35	-34.05	-33.90	.33.77	-33.80	-33.94	-34.11	.34.27	-34.35	-34.30	-34.16
NOV 2015 SURVEY	.34.88 -	35.16-	35.28	.35.38 -	-35.43	.35.47 -	35.50 -	35.54 -	35.50 -	.35.49 -	35.45	35.37	-35.21	34.98	34.65 -	-34.41	-34.19	-34.01	33.94 -	-33.94 -	34.06	34.14 -	34.22	34.23	34.26	34.12 -
2006 SURVEY	-34.92	35.18 -	-35.31-	-35.42 -	-35.45 -	-35.56 -	35.64 -	-35.69	-35.61-	-35.59 -	35.52 -	-35.41	-35.21	34.95	34.68 -	- 34.42	-34.20	34.03 -	- 33.94 -	-33.96 -	34.08	34.16 -	34.23 -	-34.24	-34.25	-34.15-
	7850 -	- 0062	7950	8000	8050	8100	8150 -	8200	8250 -	8300	8350 -	8400 -	8450 -	8500	8550 -	8600	8650 -	8700 -	8750 -	8800	8850	0068	8950	0006	9050	9100
																ļ					ļ				l	
FOR AREA 2_LONGSECTION SCALE: 2000 / 100 DATUM: -37.00																										
DIFFERENCE 2015 v 2018	-0.04	-0.03	-0.08	-0.07	-0.03	-0.02	0.04	0.04	0.02	0.03	0.05	0.05	0.04	0.00	-0.02	-0.05	-0.02	0.00	0.03	0.06	0.06	0.05	0.04	0.01	-0.03	0.05
01FFERENCE 2006 v 2015	0.08	0.06	0.07	0.06	0.03	0.05	0.07	0.06	0.07	0.05	0.03	0.02	0.00	0.00	0.00	0.00	-0.01	0.00	0.01	0.01	0.03	0.04	0.07	60.09	0.06	2
EC 2018 SURVEY — 🦉	-33.99	-33.83	-33.68	-33.51	-33.31	-33.13	-32.94	-32.89	-32.90	-32.92	-32.93	-32.94	-32.98	-33.03	-33.07	-33.10	-33.08	-33.03	-32.97	-32.91	32.86	-32.82	-32.77	-32.71	32.64	
NOV 2015 SURVEY	-33.95	-33.80	-33.60	-33.43	33.28	-33.11-	-32.98	-32.93 -	-32.92	-32.95	-32.97	-33.00	-33.02	-33.03 -	- 33.04	-33.05 -	-33.06	-33.03 -	-33.00	-32.97	-32.91	-32.86	-32.81	-32.72	-32.61	
2006 SURVEY ;	-34.03	-33.86 -	-33.68	-33.50	-33.30	-33.16	-33.05	-32.99 -	-32.99 -	-33.00	-33.00	-33.01	-33.02	-33.03	-33.04	-33.05 -	-33.04	-33.03	-33.01	-32.98	-32.94	-32.90	-32.88	-32.80	-32.67	93 CF
	9150 -	9200 -	9250 -	9300 -	9350 -	9400	9450 -	9500 -	9550 -	- 0096	9650 -	6700	9750 -	- 0086	9850 -	- 0066	9950 -	10000 -	10050	10100 -	10150 -	10200 -	10250 -	10300 -	10350 -	00101
FOR AREA 2_LONGSECTION SCALE: 2000 / 100																										
DATUM: -37.00 DIFFERENCE 2015 v 2018 우	-0.03	0.03	0.05	0.04	-0.02	0.03	0.00	0.02	0.04	0.03	0.02	0.06	0.02	0.05	0.04	0.11	0.16	0.09								
DIFFERENCE 2006 v 2015	0.05	0.04	0.06	0.08	0.03	0:01	0.04	0.05	0.06	0.1	0.04	0.01	0.01	0.00	0.04	-0.01	0.02	0.00								
DEC 2018 SURVEY	32.37 (2.12	.85	69.	.47	31.18	30.86	0.66	0.46	0.25	30.15 (30.07 -	50.17	30.31	30.57 (30.76	0.87	0.97								
NOV 2015 SURVEY	2.35 - 3:	2.15 - 3	1.89 - 31	1.65 - 31	1.45 - 31	31.15-3	0.86 - 3	0.63 - 3	0.42 - 3	0.22 - 3	0.14 - 3	0.13 - 30	0.19 - 30	30.37 - 3	0.60 - 3	0.87 - 3	1.03 - 30	1.06 - 3								
2006 SURVEY	2.39 - 3	2.20 -3	1.96 -3	1.73 -3	1.47 3	1.16-3	0:00	0.68 - 3	0.48 - 3	0.32 - 3	0.18	0.12 - 30	30.21 - 30	30.37 - 30	0.64 <u>-</u> 3	0.87 - 3	31.01-3	1.06 -3								
CHAINAGE	10450 - 3:	10500 -33	0550 -3	10600 -3	0650 -3	10700 -3	10750 - 30	10800 -30	10850 -3(0060	10950 - 30	1000 - 3(11050 -3	11100 -30	11150 - 30	11200 - 30	11250 -3	11300 -3	11350	11395						
	5	5	1	9	1	9	10	5	10	1	9	=	1	=	Ŧ	=		=	1	÷						

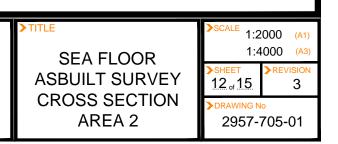


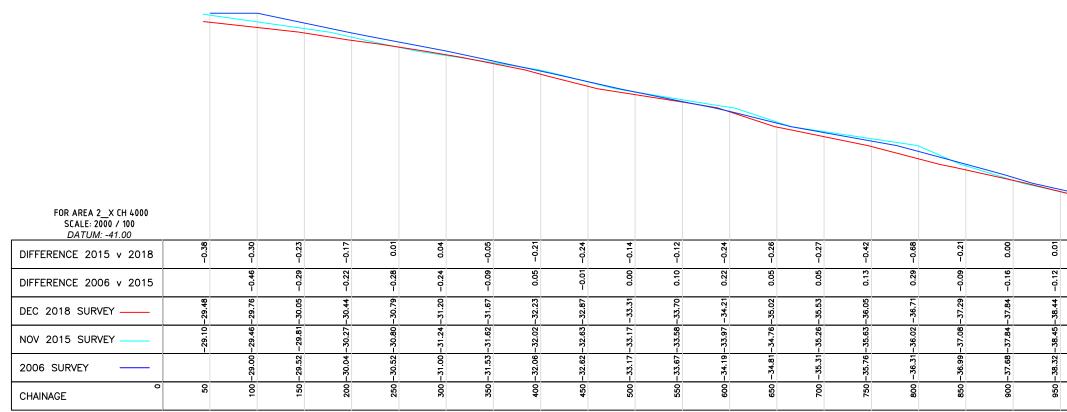


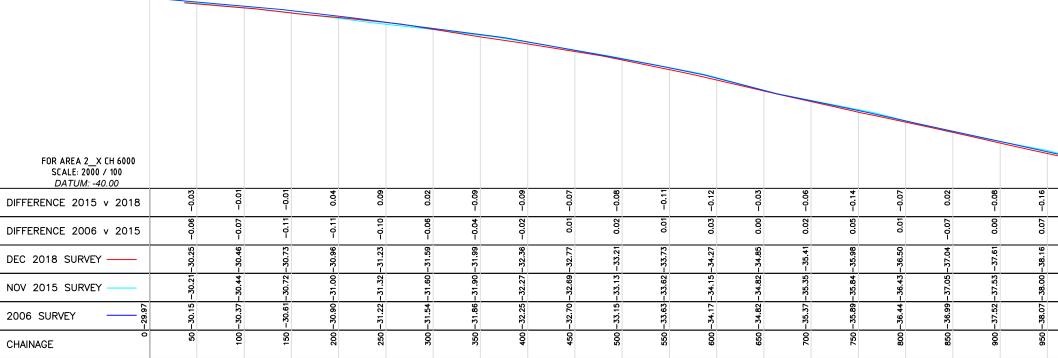


FOR AREA 2X CH 2000 SCALE: 2000 / 100 DATUM: -40.00																							
DIFFERENCE 2015 v 2018	-0.01	-0.04	-0.06	-0.09	-0.08	0.0	-0.06	-0.09	-0.19	-0.08	-0.09	-0.19	-0.23	-0.12	-0.16	-0.20	-0.12	-0.10	-0.10	-0.07	-0.01	0.01	
DIFFERENCE 2006 v 2015		-0.01	-0.06	-0.01	-0.01	-0.01	0.01	0.12	0.05	60.0	0.14	0.10	0.11	0.05	-0.05	-0.17	-0.14	-0.05	-0.06	-0.07	-0.05	-0.05	
DEC 2018 SURVEY	-30.98	-30.98	-30.97	-30.94	-30.97	-31.00	-31.06	-31.23	-31.70	-31.92	-32.26	-32.75	-33.29	-33.81	-34.55	-35.28	-35.86	-36.53	-37.20	-37.91	-38.42	-38.92	
NOV 2015 SURVEY	-30.97 -	-30.94	-30.91-	-30.84 -	-30.89 -	-31.00-	-31.00 -	-31.14 -	-31.51	-31.83	-32.17 -	-32.57 -	-33.06 -	-33.69	-34.39 -	-35.08 -	-35.74 -	-36.42 -	-37.11-	-37.84	-38.41	-38.93 -	
2006 SURVEY	· · ·	-30.93	-30.85	-30.83	-30.88 -	- 30.99 -	-31.02	-31.26-	-31.57	-31.93	-32.31	-32.67 -	-33.17 -	-33.75 -	-34.34	-34.92	-35.60	-36.38 -	-37.05	-37.77	-38.36	- 38.89 -	-39.31
CHAINAGE	50	100	150	200	250 -	300	350	400	450	200	550	600	650	700	750 -	800	850	006	950	1000	1050	1100	1145

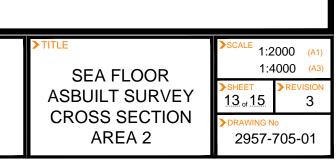
FOR AREA 2 _X CH 500 SCALE: 2000 / 100 DATUM: -38.00																						
IFFERENCE 2015 v 2018		0.05	0.07	0.04	0.00	-0.02	-0.05	-0.07	-0.11	-0.17	-0.19	-0.21	-0.29	-0.19	0.07	-0.12	-0.31	-0.38	-0.12	0.05	0.13	0.24
IFFERENCE 2006 v 2015		-0.33	-0.17	-0.12	-0.08	-0.04	0.00	0.04	0.09	0.18	0.21	0.25	0.38	0.26	-0.02	0.01	0.03	0.06	-0.20	-0.35	-0.38	-0.41
EC 2018 SURVEY		-31.00	-31.11	-31.26	-31.42	-31.58	-31.74	-31.88	-32.06	-32.31	-32.58	-32.84	-33.17	-33.60	-34.01	-34.51	-35.01	-35.40	-35.80	-36.17	-36.49	-36.78
OV 2015 SURVEY		-31.05	-31.17	-31.30	-31.43	-31.56	-31.69	-31.82	-31.95	-32.14	-32.39	-32.63	-32.88	-33.41	-34.08	-34.39	-34.70	-35.02	-35.68	-36.21	-36.62	-37.03
2006 SURVEY	-30.31	-30.72	-31.01	-31.18	-31.35 -	-31.52 -	-31.68	-31.85 -	- 32.04 -	-32.32	-32.60 -	-32.88 -	-33.26	-33.67	- 34.06 -	-34.40	-34.74 -	-35.08 -	-35.48	-35.86	-36.24 -	-36.62 -
CHAINAGE	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	006	950	1000	1050	1100





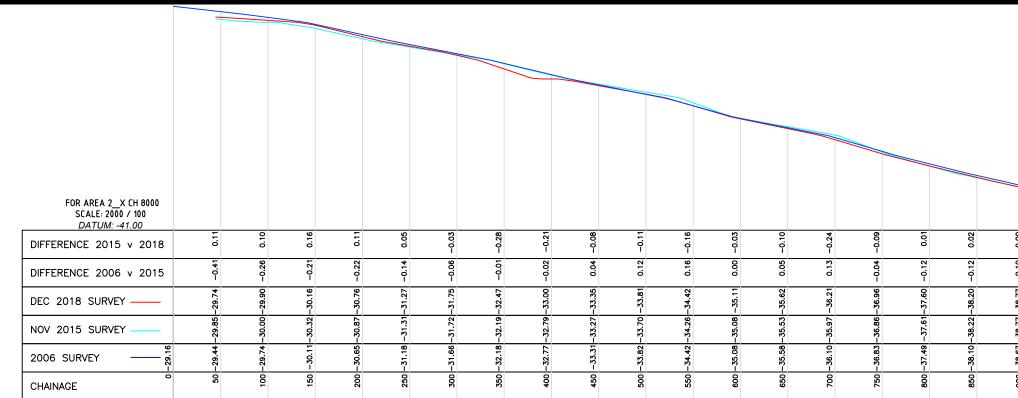


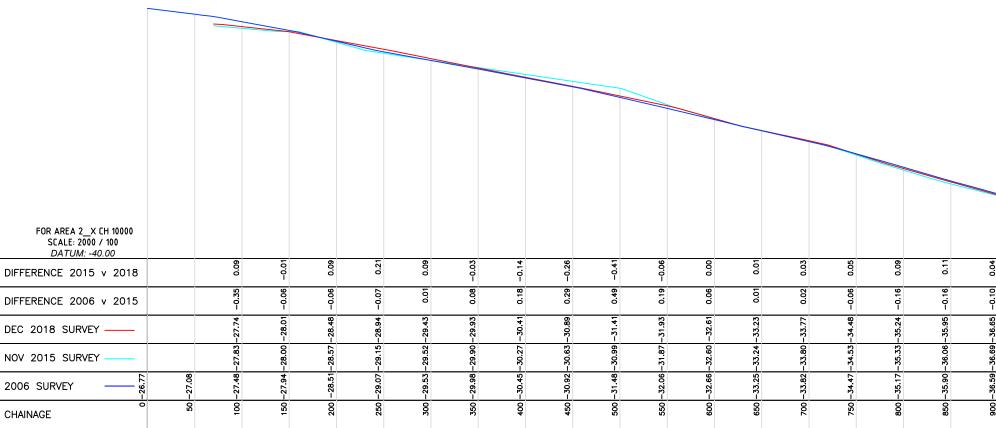




-0.01	0.11		
-0.06	-0.14		
-38.69	-39.15		
-38.68	-39.26		
1000 -38.62 -38.68 -38.69	1050 -39.12 -39.26	-39.61	1124 - 39.84
1000	1050	1100	1124

-0.03	-0.01	0.03	
-0.12	-0.11	-0.12	
-39.01-39.04	-39.55	-40.06	
-39.01	-39.54	-40.09	
1000 -38.89	1050 - 39.42 - 39.54 - 39.55	1100 -39.97 -40.09 -40.06	1147 -40.65
1000	1050	1100	1147

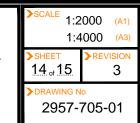






0.00	-0.04	0.00	0.00	
-0.10	-0.08	0.00	0.00	
900 -38.67 -38.77 -38.77	-39.48	-40.00	-40.00	
-38.77	950 - 39.36 - 39.44 - 39.48	1000 -40.00 -40.00	1050 -40.00 -40.00	
-38.67	-39.36	-40.00	-40.00	
006	950	1000	1050	1098

0.04	0.06	0.04	0.00		
-0.10	-0.18	-0.23	0.00		
-36.65	-37.54 -37.48	-38.50 -38.46	-39.00		
-36.69		-38.50	00.65-00.65-		
900 - 36.59 - 36.69 - 36.65	-37.36	1000 - 38.27	- 39.00	1100 - 39.00	1112 - 38.98
800	950	1000	1050	1100	1112



SEA FLOOR
ASBUILT SURVEY
CROSS SECTION
AREA 2

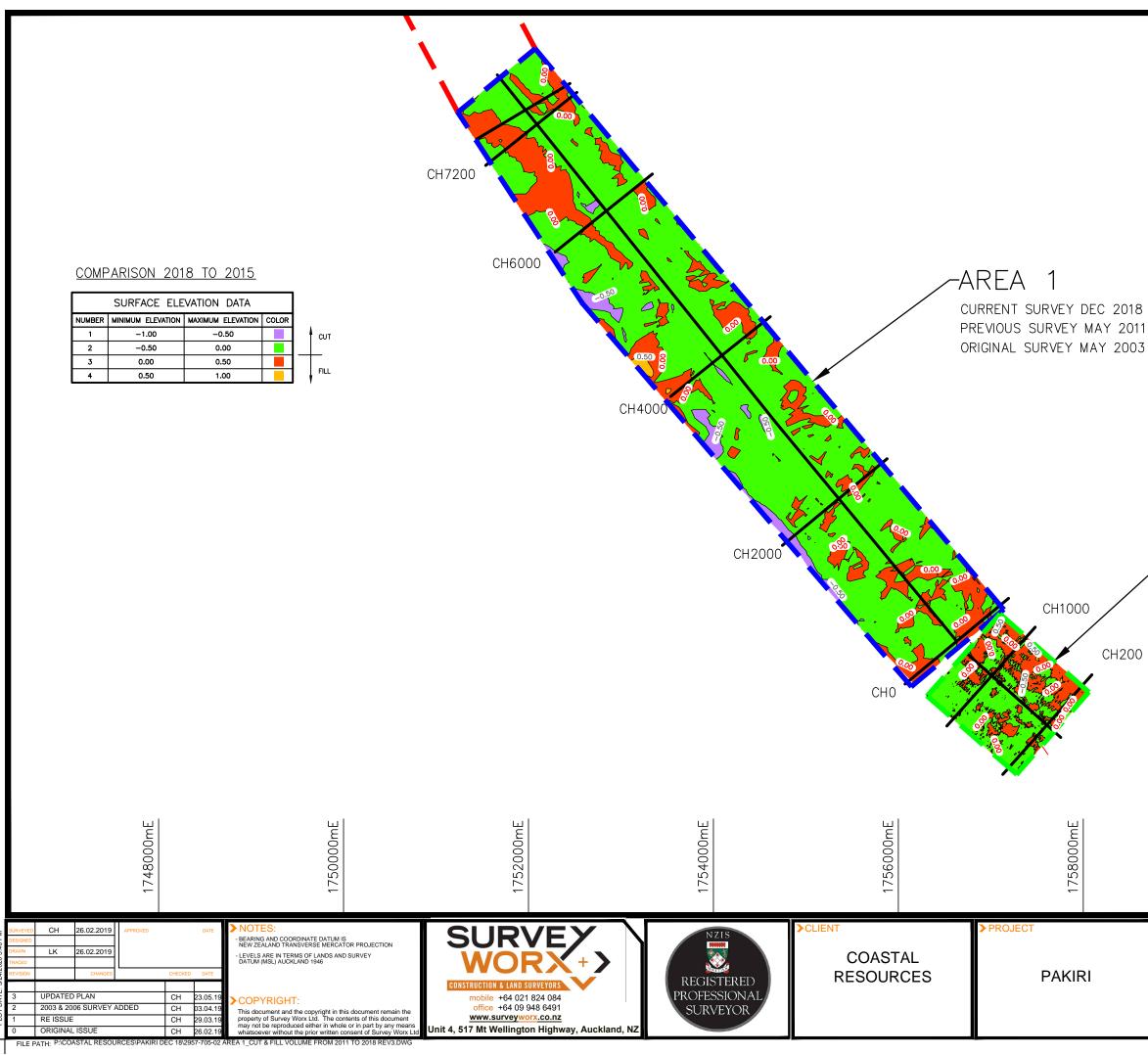
TITLE

FOR AREA 2_X CH 13500 SCALE: 2000 / 100 DATUM: -38.00																				
DIFFERENCE 2015 v 2018			0.39	-0.07	-0.1	-0.15	-0.12	-0.06	-0.08	-0.13	-0.13	0.06	0.07	-0.01	0.06	.00	0.13	80 C	0.16	
DIFFERENCE 2006 v 2015				- 0.04	0.03	0.08	0.04	0.00	0.03	0.14	0.19	0.04	0.01	0.04	-0.23	-0.20	-0.21	0 1 1 0 1 0	-0.37	
DEC 2018 SURVEY		-24.99	-25.	1	-26.63	-27.08		-28.17	-28.65	-29.16	-29.94	-30.63	-31.31	-31.95	-32.86	-33.50	-34.17	-35.00	-35.89	
NOV 2015 SURVEY			-26.00	-26.10	-26.52	-26.93	-27.52		-28.56	-29.03	-29.81	-30.68	-31.38	-31.95	-32.92	- 33.59	-34.30	- 35 10 -	-36.05	
2006 SURVEY	-			-26.06 -	-26.55	-27.01-		-28.10	-28.60	-29.18	-30.00	-30.72	-31.39	-31.99	-32.69		-34.09	-34 91	-35.67	
CHAINAGE	2	00	150	200	250	300	350	400 1	450	200	550	600	650	700	750	008	850	006	950	



0.07	0.02 -0.01	
-0.18	0.02	
1000 - 36.30 - 36.48 - 36.42 - 0.18	-36.91	
-36.48	1050 - 36.93 - 36.90 - 36.91	-37.00
-36.30	-36.93	
1000	1050	1082







5994000mN

5992000mN

CONTROL ZONE CURRENT SURVEY DEC 2018

5988000mN 1760000mE TITLE 1:20000 (A 1:40000 (A CUT AND FILL FROM 2011 TO 2018 3 1 of 1 AREA 1 AND CONTROL ZONE 2957-705-02







6004000mN

<u>6002000mN</u>

<u>6000000mN</u>

5998000mN

