Appendix C:

Eastland Port Maintenance Dredging 2019 Annual Report

Eastland
Port

Maintenance Dredging Liaison Group Annual Report 2019

October 2019

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1 Background

Annual infill experienced in the Gisborne Harbour Navigation Channel is in the region of 60,000m^3 to 80,000m^3 and about 20,000 m^3 in the Inner Harbour

Historical reports indicate infill rates of 4,500m^3 per month and 54,000m^3 per year with infill in the channel and up to 14,300m^3 to be expected after extreme weather events.

The Inner Harbour infill is primarily transported through holes in the training wall, breakwater, the port entrance between Butler's wall and the outer breakwater and the Kaiti basin stream. There has been no dredging in the Inner Harbour.

If the channel is not maintenance dredged, then the excess from the channel migrates into the shipping basin (turning circle).

The dredging material from Gisborne is very fine sandy silt and is retained in suspension for a considerable period. Stratification tests indicate that the port dredge Pukunui holds up to 220m^3 of actual dredged material in its 480m^3 hopper when full of combined water and dredged material.

The area encompassing the northern side of the Breakwater and extending out 300m towards the navigation channel is noted as the primary area of infill. Sedimentation in the channel is caused by longshore currents migrating sand and silt eastwards from Waikanae Beach. The main infill is silt sedimentation from the Turanganui River which returns 60ppm in suspension.

Sedimentation rates vary widely on a daily basis due to the effect of the swell period and tides, however the average rate of sedimentation is averaged at 107m^3 per day with exceptional rates of 378m^3 experienced during Cyclone Bola in 1988.

2 General

Eastland Port Ltd dredging records commenced in 2003 and these records confirm that only maintenance dredging has been carried out and only the outer disposal site has been used for the disposal of dredged material. (CPl98015 Coastal Permit to Deposit Maintenance Dredge Material to the waters of the Coastal Marine Area).

In order to maintain promulgated depths for commercial shipping, maintenance dredging has been conducted in 2000 (Pelican), 2003 (New Era), 2006 (New Era), 2009 (Kawatiri), 2011 (Kawatiri), 2015 (Brage R), & 2016/17 (Kawatiri) Nov 2017 (Albatross), (GPK) Dec 2017. In addition, the Eastland Port dredge Pukunui operates all year round.

Table 1 - Maintenance Dredging Records (Annual volumes (1 July to 30 June)

	Pukunui	New Era	Kawatiri	Brage R	Albatross	GPK
2003	22,400 m^3	60,000 m^3				
2004	31,650 m^3					
2005	16,500 m^3					
2006	20, 100 m^3	57,000 m^3				
2007	57,000 m^3					
2008	52,000 m3					
2009	110,800 m3		20,825 m^3			

	Pukunui	New Era	Kawatiri	Brage R	Albatross	GPK
2010	95,100 m^3					
2011	106,300 m^3		31,900 m^3			
2012	79,200 m^3 (Includes 1,500 m3 capital)					
2013	82,480 m^3 (Includes 3,000 m^3 capital)					
2014	62,080 m^3					
2015	38,200 m^3			40,500 m^3		
2016	41,440 m^3					
2017	31,080 m^3		45,600 m^3		18,161 m^3	1000 m^3
2018	51,550 m^3					
2019	16,490 m^3					

2.1 Heavy Metals

Analysis by Hill Laboratories of Hamilton shows levels are well below consent limits. Last analysis was completed in August 2014. See report attached.

Table 2 - Heavy Metals Consent Limits (May 2014)

		Inner mg l kg	Butlers Wall mg l kg	Mid Ch mg l kg
Cadmium	1	0.073	0.068	0.041
Chromium	100	10.6	12.9	10.9
Copper	81	12.3	10.7	6.7
Lead	66	9.1	7.4	6.0
Mercury	0.21	0.036	0.053	0.030
Zinc	160	56	49	41

Figure 1 - Port Layout

Disposal Grounds

The near shore disposal site that extended along the line of Waikanae Beach has not been used by Eastland Port during the 201 year.

Dredging operations have only been undertaken within the areas defined in the consent CP198011 - (Navigation channel and swing basin).

Dredged materials have been disposed of in an even manner over the outer disposal area.

Hydrographic bathymetrical surveys completed March 1999, January 2005, August 2007, 2009, & 2017 & 2019, show no reduction of water depth at the outer disposal site or surrounding area.

Note: Daily dredging records are available on request.

3 Maintenance dredging and discharge tracks

Dredge spoil from all locations in the channel and swing basin are transferred via the dredge in a straight line starting from the seaward end of the shipping channel to the offshore spoil ground centred on a position approximately 38° 42.8”S 178°59.3’E.

Dredge spoil is dispersed evenly over the spoil ground and as seen from the soundings of that area in 2018 the depths have not significantly changed since the previous report.

Gisborne Spoil ground tracks 20189829 document attached as Appendix 2.

4 Notes

No complaints have been received by Eastland Port Ltd regarding dredging operations.

Environmental sediment sampling, using a Smith McIntyre grab, within and surrounding the outer disposal site was completed in September 2013, showing no adverse effects.

4.1 Future proposals being considered by Eastland Port Ltd.

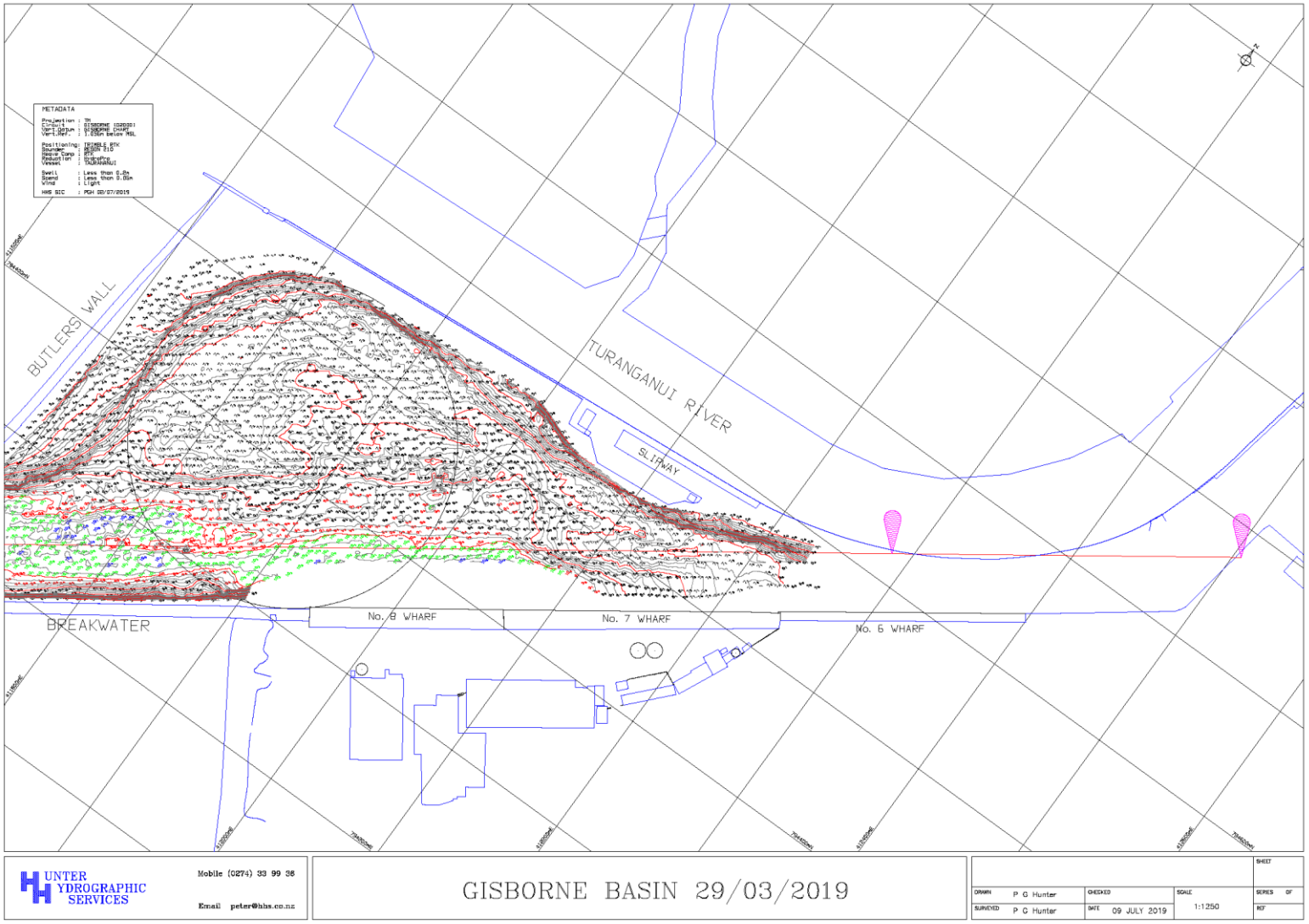
Twin Berth project. www.twinberth.nz

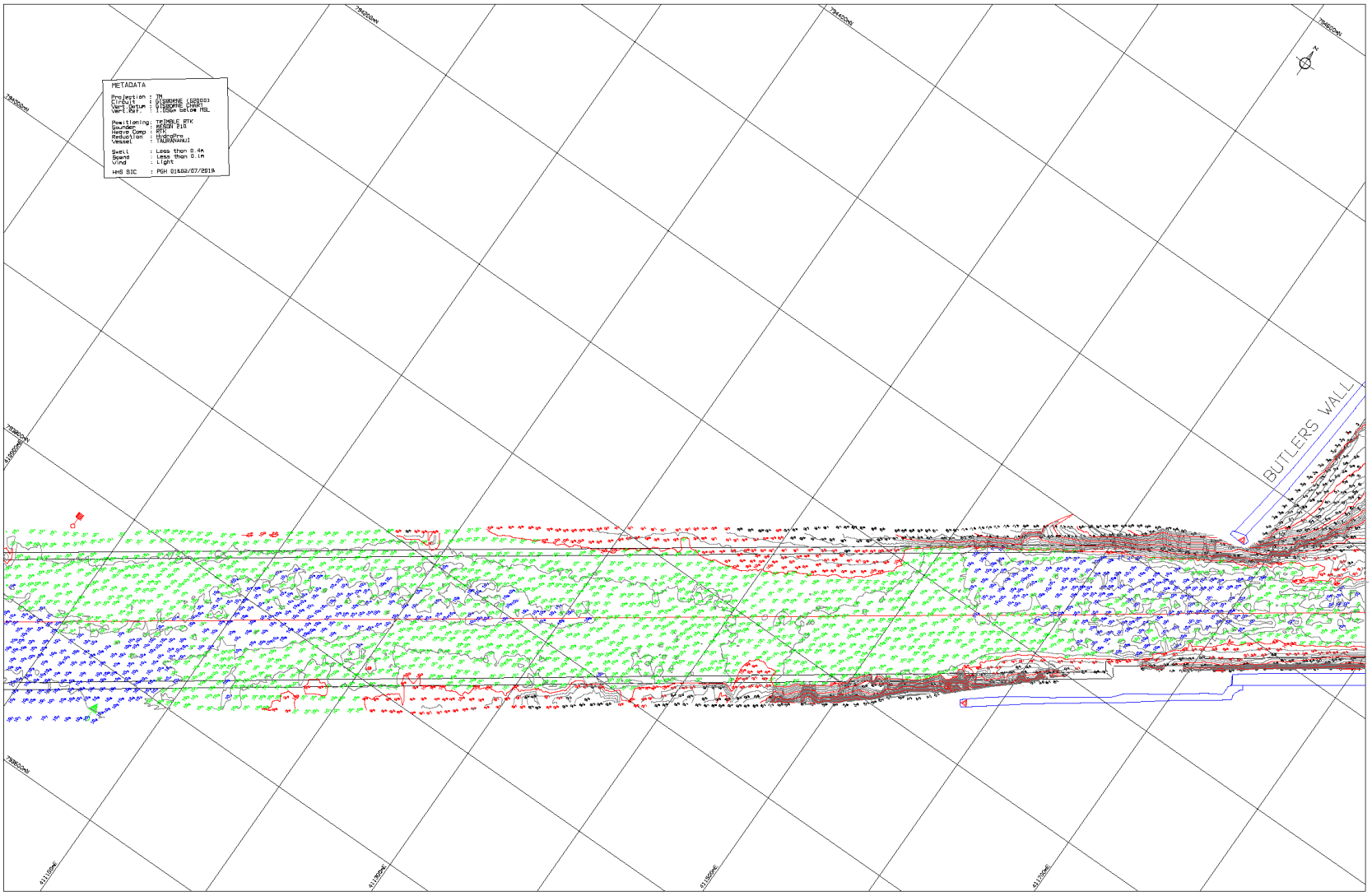
Chris Kaye pp Brett McPhee

Marine Manager / Assistant Marine Manager

29 October 2019

Appendix 1 – Bathymetric Survey 29/03/19 & 02/07/19




METADATA
Projection : TM
Vert/Datum : GISBORNE (CHART)
Vert.Ref. : 1.05M+ Below MSL
Positioning: TRIMBLE RTK
Sounder : ATLAS
Heave Comp : ATLAS
Reduction : TAURANGAUI
Vessel :
Swell : Less than 0.4M
Sound : Less than 0.1M
Wind : Light
HHS DIC : PGH 01:02/07/2019
BUTLERS WALL
HUNTER HYDROGRAPHIC SERVICES
Mobile (0274) 339 936
Email Peter@hhs.co.nz
GISBORNE MIDDLE ENTRANCE 02/07/2019
SHEET
DRAWN P Hunter
CHECKED
SCALE 1:1250
SERIES OF
SURVEYED P Hunter
DATE 09 July 2019
REF

Appendix 2 - Annual hydrographic and side-scan sonar surveys of the Offshore Spoil Disposal Ground

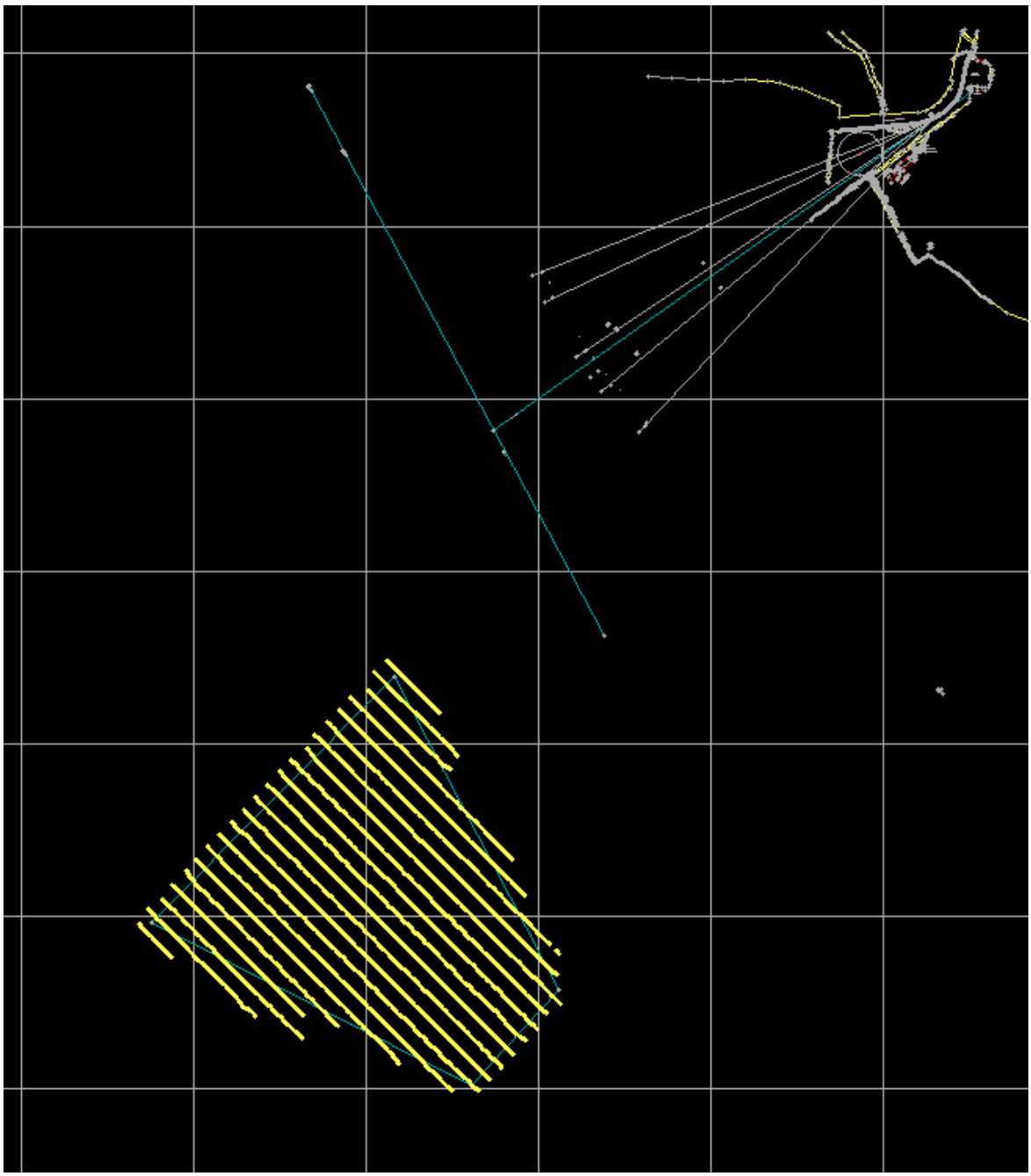


Figure 2 - Sounding Run Lines

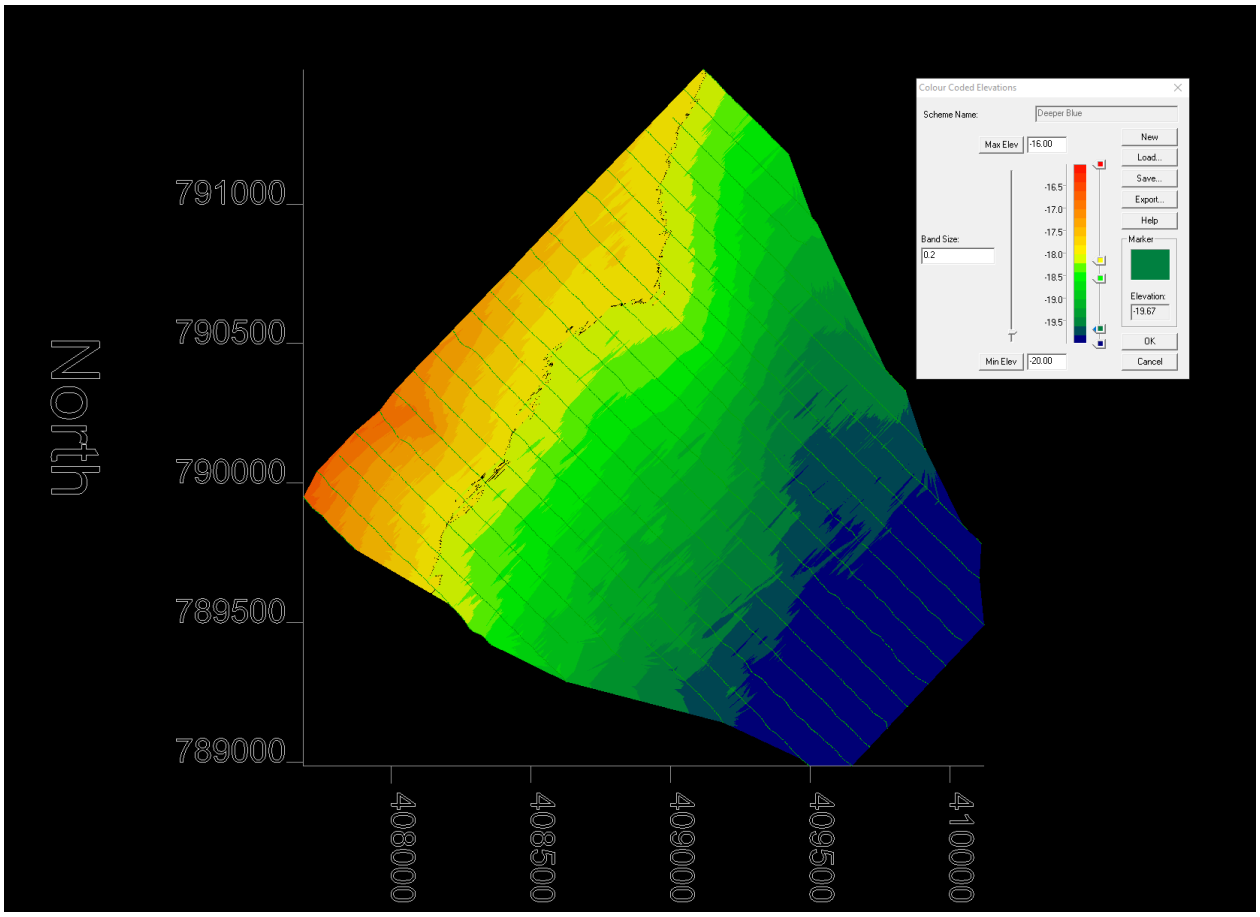


Figure 3 - Spoil ground bathymetry

Appendix 3 – Hill Laboratories Sediment Analysis Report 2014

Appendix 4 - Maintenance Dredging Sediment Testing Report April 2019

End of document

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Eastland Port

Eastland Port Ltd., 1 Kaiti Beach Road
PO Box 1048, Gisborne 4040, New Zealand

Tel 06 868 5139 | Fax 06 867 8563 | info@eastland.nz | eastland.nz