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CHINA HARBOUR ENGINEERING COMPANY LTD.



中交水运规划设计院有限公司
CCCC Water Transportation Consultants Co., Ltd

FIRST PHASE OF JAMAICA PORTLAND CONTAINER TERMINAL

STATEMENT FOR CHANGING OF ENGINEERING SURVEY & GEOTECHNICAL INVESTIGATION

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Section 1 - Justification

1. After further investigation CHEC will require more information to do the design and modelling simulation, resulting in the change in the size of the **previous** project;
2. The **previous** engineering survey is based on the original chart (Edition Number: 2, Edition Date: 29th, April 2004). Considering possible changes in channel depth in recent years the direction and location may be changed due to the result of numerical simulation. Thus CHEC will need to expand the engineering survey to make the amount of dredging clear and cover the entire possible range of channel.
3. Upon further research, in order to achieve more effective borehole data, **CHEC** will increase the number and locations of boreholes (Section 2.2 has details). In addition, the direction and location of channel may be changed due to the result of numerical simulation since the number of boreholes in the sea would have increased.
4. Respond to potential fine variability of the latter projects (eg. Fine change of the direction of the channel, etc);
5. Cost reason (avoid repeated work of engineering survey and geotechnical investigation).

Section 2 - The Main Change

2.1 Engineering Survey

2.1.1 Topographic Survey

The Topographic survey has been extended for the following reasons.

The **previous** area of topographic survey was 5.27 km², the **new area** is 5.89 km².

2.1.2 Bathymetric Survey

The Bathymetric survey has been extended for searching the most appropriate channel.

The **previous** area of bathymetric survey was 3.83 km²; the **new area** is 44.08 km².

2.1.3 Coordinates

The overall scope of the **previous** survey covers the connecting portion from point A1-A18 (For details, refer to the attached drawing Fig.1). The coordinates are shown as follows:

Table2.1 **The List of Previous Survey Scope**

Control point	LONG.	LAT.
A1	77° 03' 6.8" W	17° 57' 5.0" N
A2	77° 03' 1.0" W	17° 56' 48.2" N
A3	77° 03' 17.0" W	17° 54' 12.1" N
A4	77° 03' 59.6" W	17° 53' 39.5" N
A5	77° 04' 42.4" W	17° 52' 30.0" N
A6	77° 04' 41.3" W	17° 51' 38.2" N
A7	77° 05' 26.0" W	17° 47' 57.2" N
A8	77° 05' 7.7" W	17° 47' 47.2" N
A9	77° 05' 7.2" W	17° 48' 20.6" N
A10	77° 04' 27.4" W	17° 51' 37.4" N
A11	77° 04' 10.7" W	17° 52' 3.6" N
A12	77° 04' 12.0" W	17° 52' 8.3" N
A13	77° 03' 46.0" W	17° 52' 50.5" N
A14	77° 04' 6.0" W	17° 53' 1.6" N
A15	77° 03' 48.2" W	17° 53' 30.2" N
A16	77° 03' 1.4" W	17° 54' 6.0" N
A17	77° 02' 46.1" W	17° 56' 51.3" N
A18	77° 02' 53.5" W	17° 57' 13.2" N

The overall scope of **new area** survey covers the connecting portion from point A1-A18 (For details, refer to the attached drawing Fig.2). The coordinates are shown as below:

Table2.2**The List of this time Survey Scope**

Control point	Coordinate	
	LONG.	LAT.
A1	77° 3' 6.86" W	17° 57' 5.37" N
A2	77° 3' 1.15" W	17° 56' 48.92" N
A3	77° 3' 17.04" W	17° 54' 13.86" N
A4	77° 4' 2.09" W	17° 53' 39.48" N
A5	77° 3' 48.44" W	17° 53' 31.76" N
A6	77° 3' 1.47" W	17° 54' 7.98" N
A7	77° 2' 46.17" W	17° 56' 52" N
A8	77° 2' 53.73" W	17° 57' 13.46" N
A9	77° 3' 5.57" W	17° 53' 7.63" N
A10	77° 3' 48.15" W	17° 51' 57.41" N
A11	77° 4' 57.55" W	17° 47' 50.94" N
A12	77° 4' 38.28" W	17° 47' 19.5" N
A13	77° 5' 13.37" W	17° 47' 0.31" N
A14	77° 5' 53.59" W	17° 48' 10.14" N
A15	77° 5' 46.81" W	17° 53' 11.97" N
A16	77° 4' 6.77" W	17° 53' 48.85" N
A17	77° 2' 26.93" W	17° 42' 10.96" N
A18	77° 1' 46.56" W	17° 42' 36.02" N

2.1.4 Scale

The **previous** Topographic Survey and Bathymetric Survey drawings were prepared in 1:2000 scale.

The **new**, Topographic Survey and Bathymetric Survey drawings are prepared in 1:2000, 1:5000 and 1:10000 scales. Specifically, there is 3.25 km² in 1:2000 scale, 33.42 km² in 1:5000 scale, and 13.3 km² in 1:10000 scale.

2.1.5 Coordinates System

The coordinates systems were not changed.

2.1.6 Elevation System

The elevation system was not changed.

2.2 Geotechnical Investigation

2.2.1 Number and Location

There are 26 boreholes based on the **previous** design location layout, 5 boreholes are on land, 4 boreholes are on Goat Island, the others 17 boreholes are in the offshore area. The **previous** boreholes location layout is illustrated in Fig. 3.

According to the engineering design requirement, the **new** number of boreholes has now changed to 27, but the 5 boreholes on land remain at the same location. Only one borehole will be done on Goat Island, while the other 21 boreholes will be location in the sea. The new boreholes location layout is illustrated in Fig. 4.

The comparison of the **previous** and **the new** boreholes are illustrated in Fig. 5.

2.2.1 Coordinates

The coordinates of **previous** boreholes are shown as follows:

Table2.3 (a) The Coordinates of Previous Boreholes

NAME	LONG.	LAT.
ZK01	77° 05' 10.3" W	17° 48' 39.7" N
ZK02	77° 04' 48.3" W	17° 50' 29.2" N
ZK03	77° 05' 4.0" W	17° 51' 59.4" N
ZK04	77° 04' 34.6" W	17° 51' 42.9" N
ZK05	77° 04' 5.2" W	17° 51' 26.4" N
ZK06	77° 04' 46.8" W	17° 52' 27.5" N
ZK07	77° 04' 17.3" W	17° 52' 11.2" N
ZK08	77° 03' 47.9" W	17° 51' 54.4" N
ZK09	77° 04' 29.5" W	17° 52' 55.7" N
ZK10	77° 04' 0.0" W	17° 52' 39.1" N
ZK11	77° 03' 30.5" W	17° 52' 22.7" N
ZK12	77° 04' 12.1" W	17° 53' 24.0" N
ZK13	77° 03' 42.7" W	17° 53' 7.2" N
ZK14	77° 03' 13.3" W	17° 52' 50.8" N
ZK15	77° 03' 41.2" W	17° 53' 44.3" N
ZK16	77° 03' 14.7" W	17° 54' 4.8" N
ZK17	77° 03' 0.67" W	17° 54' 46.73" N
ZK18	77° 02' 58.9" W	17° 55' 9.0" N
ZK19	77° 02' 56.0" W	17° 55' 41.4" N
ZK20	77° 02' 53.1" W	17° 56' 13.9" N
ZK21	77° 02' 49.5" W	17° 56' 45.9" N
ZK22	77° 04' 40.9" W	17° 52' 24.3" N
ZK23	77° 04' 35.0" W	17° 52' 21.0" N
ZK24	77° 04' 29.0" W	17° 52' 17.6" N
ZK25	77° 04' 23.3" W	17° 52' 14.3" N
ZK26	77° 04' 11.4" W	17° 52' 7.6" N

The coordinates of **the new** boreholes are shown as follows:

Table2.3(b) The Coordinates of This Time Boreholes

NAME	LONG.	LAT.
L01	77° 2' 48.07" W	17° 56' 43.78" N
L02	77° 2' 51.62" W	17° 56' 11.61" N
L03	77° 2' 54.65" W	17° 55' 39.63" N
L04	77° 2' 57.31" W	17° 55' 7.08" N
L05	77° 2' 59.21" W	17° 54' 45.35" N
Q01	77° 3' 8.33" W	17° 54' 7.91" N
Q02	77° 3' 23.97" W	17° 53' 54.64" N
Q03	77° 3' 40.51" W	17° 53' 42.86" N
X01	77° 4' 48.55" W	17° 53' 15.15" N

X02	77° 4' 19.61" W	17° 53' 25.18" N
D01	77° 4' 24.53" W	17° 52' 34.77" N
D02	77° 4' 1.02" W	17° 52' 21.44" N
D03	77° 4' 10.6" W	17° 53' 4.17" N
M01	77° 4' 32.84" W	17° 52' 20.73" N
M02	77° 4' 20.94" W	17° 52' 14.07" N
M03	77° 4' 9.63" W	17° 52' 7.56" N
M04	77° 3' 57.51" W	17° 52' 0.81" N
M05	77° 4' 41.3" W	17° 52' 25.6" N
C01	77° 4' 22.6" W	17° 51' 59.49" N
C02	77° 4' 40.94" W	17° 51' 55.67" N
C03	77° 4' 16.7" W	17° 51' 41.34" N
H01	77° 4' 32.74" W	17° 51' 36.3" N
H02	77° 4' 45.75" W	17° 50' 32.38" N
H03	77° 4' 58.48" W	17° 49' 28.99" N
H04	77° 5' 8.27" W	17° 48' 40.82" N
H05	77° 2' 35.98" W	17° 43' 9.21" N
H06	77° 2' 19.93" W	17° 42' 42.59" N

Note: The final coordination for the above might be adjusted slightly depending on the software used for the bathymetric survey.

Annex

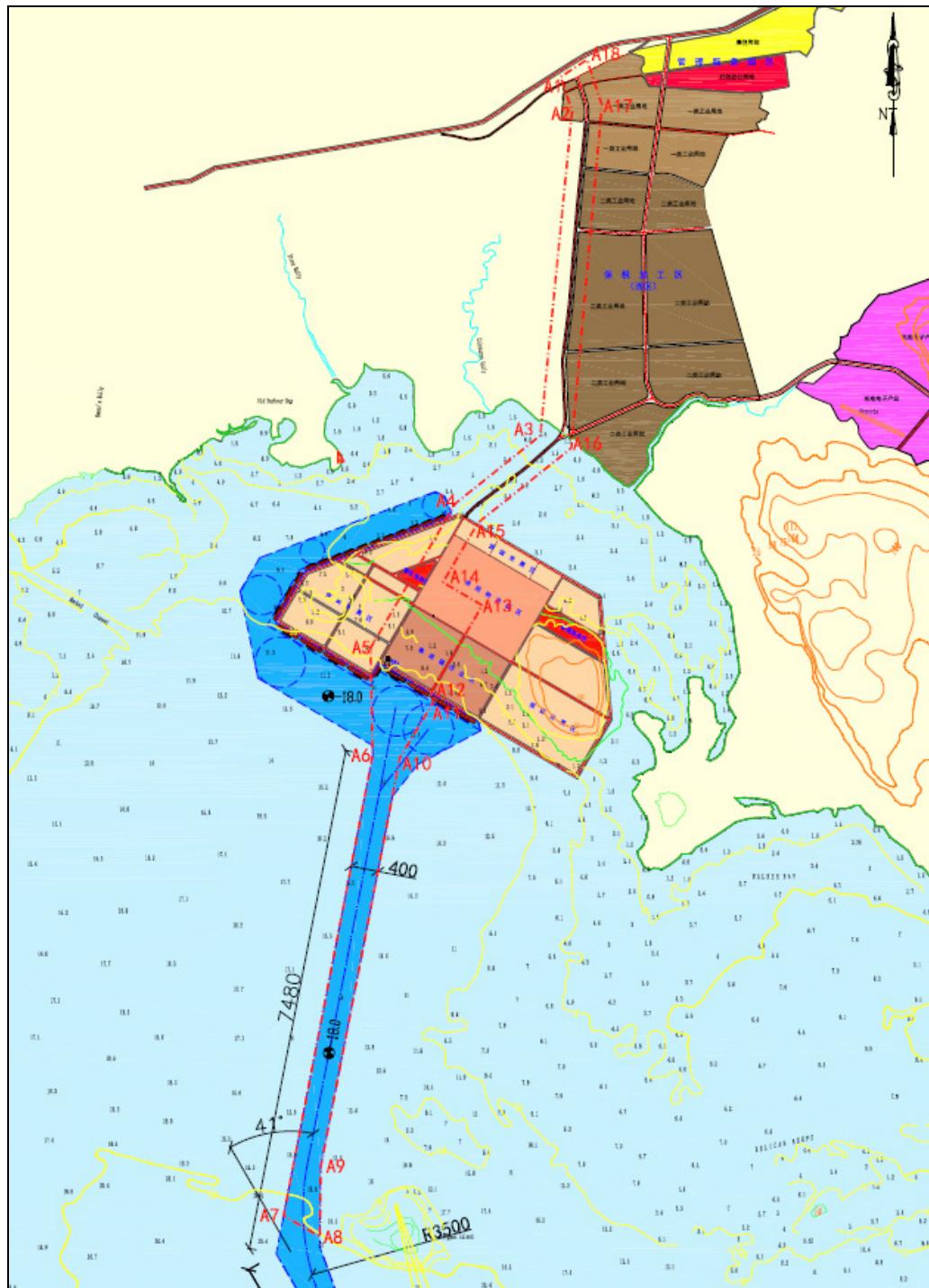


Fig. 1 The overall scope of the previous survey

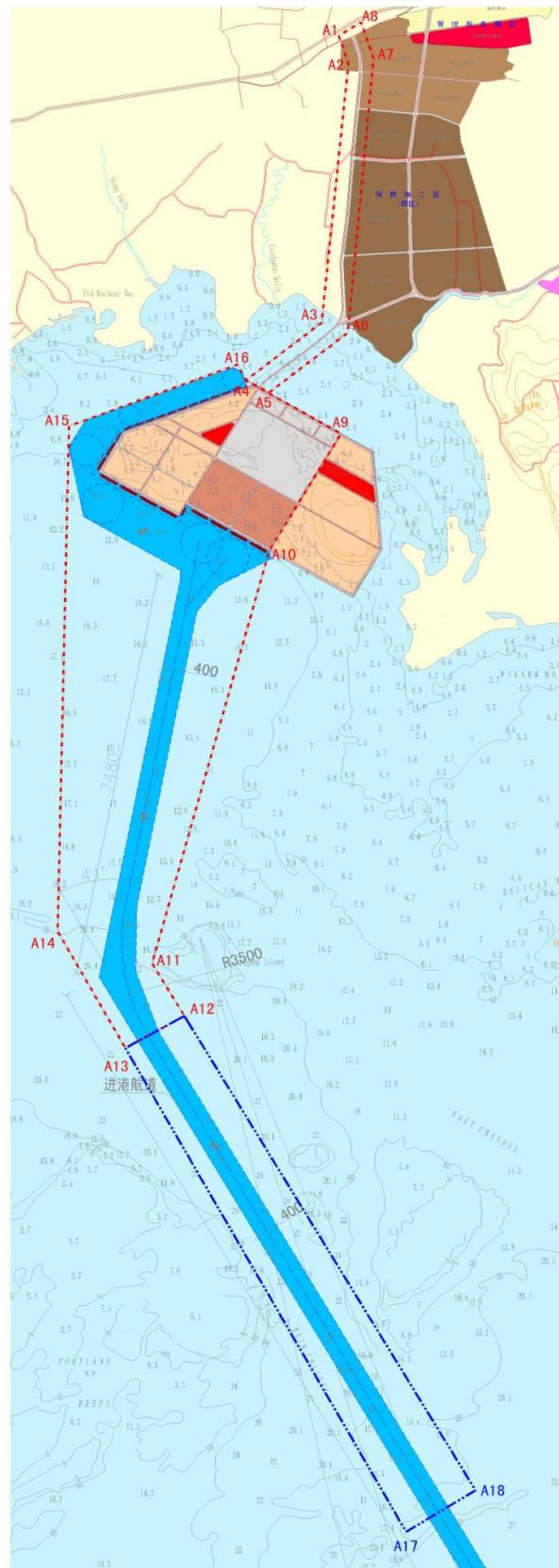


Fig. 2 The overall scope of the new survey



Fig. 3 The previous boreholes location layout



Fig. 4 The new boreholes location layout

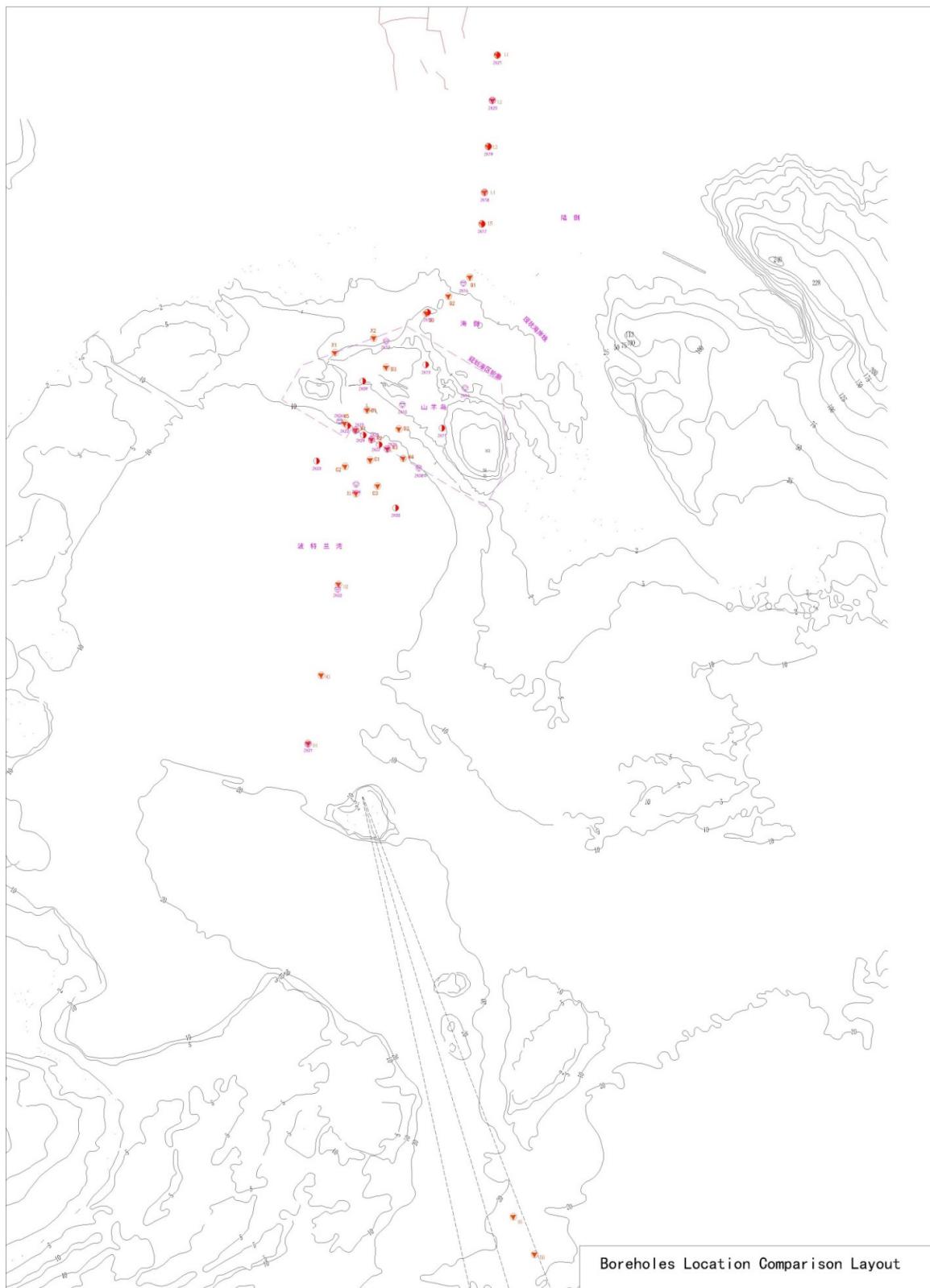


Fig. 5 The comparison of the previous and new boreholes