

Appendix D



Hebe Haven Yacht Club Development - Sediment Quality Report (September 1997)

Hebe Haven Yacht Club

HEBE HAVEN YACHT CLUB DEVELOPMENT

Sediment Quality Report

September 1997

HALCROW CHINA LIMITED

Hebe Haven Yacht Club

HEBE HAVEN YACHT CLUB DEVELOPMENT

Sediment Quality Report

September 1997

Prepared by : Mr Peter Ngai, Project Manager

Mr Martin Mannion, Design Team Leader

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Halcrow China Ltd, 23/F Central Plaza, 18 Harbour Road, Wanchai, Hong Kong
Tel: 2802 9228 Fax: 2827 8352

**Hebe Haven Yacht Club
Hebe Haven Yacht Club Development**

Sediment Quality Report

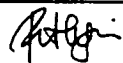
September 1997

Doc No: RW/HHYC/005

Serial No:

Contents Amendment Record

This report has been issued and amended as follows:

Issue	Revision	Description	Date	Signed
1	0		September 1997	

Revisions to the document to be marked thus: |

1 INTRODUCTION

Hebe Haven Yacht Club is located on the western shore of Pak Sha Wan, near Sai Kung, New Territories. The Club propose to improve their existing cramped facilities by means of a development comprising :

- reclamation of some 4,392m² of land for hardstanding for boat storage and repair (see Drawings no. HHYC/H/001, 002 and 008);
- provision of boat removal/transport facility such as boat hoist;
- provision of approximately 46 no. berths in pontoon marina facility (see Drawing no. HHYC/H/001);
- associated dredging of pontoon area to increase water depth for boat access (see Drawing no. HHYC/H/004).

The dredging required is over an area some 100 metres by 70 metres at the pontoon area with existing seabed level of 0 to -2mPD. The depth will be increased to -2.25mPD, therefore dredging of up to 2 metre thickness of seabed at some locations will be required. The total estimated volume to be dredged is approximately 12,000m³.

This report summarises the records of sampling and the results of testing of marine mud vibrocore samples taken in October/November 1996. Testing and sampling was in accordance with Works Branch Technical Circular No. 22/92 and classification of test results was in accordance with Technical Circular No. (TC) No. 1-1-92.

2 LOCATION OF SEDIMENT SAMPLING

Liaison with EPD confirmed that testing in accordance with Works Branch Technical Circular No. 22/92 was appropriate in this case. Samples were taken between 0 and 2.5m below seabed at four borehole locations (MB1, MB2, MB3, MB4) between 30 October 1996 and 19 November 1996. The sample locations are shown in Drawing No. HHYC/H/004 together with the proposed dredging layout. An EPD representative visited site to witness the sampling.

The samples recovered were stored in air tight containers in chilled conditions using ice and immediately delivered to the laboratory for testing. A complete set of tests to determine metal content by atomic absorption spectroscopy were carried out.

3 RESULTS

The analytical methods used for detecting trace metals in the sediment samples were in accordance with the procedures outlined in Table A1 'Analytical Methodology' of Works Branch Technical Circular No. 22/92. Laboratory testing was carried out in accordance with the American Public Health Association (APHA) testing standards 3111 x 3112B and the American Society for Testing Materials (ASTM) D3974-81 (Practice B).

The results of tests are given in Table 3.1 and the assessment criteria in Table 3.2

4 CONCLUSIONS

The Environmental Protection Department Technical Circular No. (TC) NO 1-1-92 classifies dredged sediments according to their level of contamination by toxic metals. The sediments in Hebe Haven may generally be classified as Class A "Uncontaminated" as shown in Table 3.1 which requires no special dredging, transport or disposal methods beyond those which would normally be applied for the purpose of ensuring compliance with EPD's Water Quality Objectives, or for the protection of sensitive receptors near the dredging or disposal areas.

Two samples (MB2, 2.0 to 2.5m and MB3, 0 to 1.0m) fall marginally within Class B zinc contents. The limit for zinc concentrations is 150 mg/kg and the sample result for both samples (MB2 and MB3) was 150 mg/kg. This compares to values in the range 49 to 82 for the other samples.

Therefore it is considered that the mud in the area to be dredged should be treated as uncontaminated for disposal purposes. Discussions with EPD have confirmed that treatment as uncontaminated is appropriate in this case.

**Table 3.1
Sediment Sample Results**

Sample No.	Depth (metres)	Pollutant Concentration (mg/kg)						
		Copper	Cadmium	Chromium	Lead	Nickel	Zinc	Mercury
MB1	0-1.0	18.0	<0.2	5.0	12.0	1.1	49	<0.05
MB2	2-2.5	1.4	<0.2	4.6	6.1	<1.0	150	<0.05
MB3	0-1.0	33.0	<0.2	25.0	36.0	3.8	150	0.09
MB4	0-1.0	18.0	<0.2	9.9	16.0	1.6	82	<0.05

**Table 3.2
Assessment Criteria**

	Copper	Cadmium	Chromium	Lead	Nickel	Zinc	Mercury
Class A	0 - 54	0 - 0.9	0 - 49	0 - 64	0 - 34	0 - 140	0 - 0.7
Class B	55 - 64	1.0 - 1.4	50 - 79	65 - 74	35 - 39	150 - 190	0.8 - 0.9

APPENDIX A
LABORATORY TEST RESULTS

Our Ref. No. : 960999EN70048

TEST REPORT ON ANALYSIS OF SOIL

Client : Bachy Soletanche Group

Project : Site Investigation and Survey Works for Hebe Haven Yacht Club Development

Sample description : Four nos. of submitted soil samples

Tests required :

1. Copper content
2. Cadmium content
3. Chromium content
4. Lead content
5. Nickel content
6. Zinc content
7. Mercury content

Date received : 19/12/1996

Date completed : 09/01/1997

Methods used :

- 1-6. In House Method E-T-026E
7. In House Method E-T-027D

MATERIALAB LIMITED5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun,
N.T., Hong Kong.Tel : (852) 2450 8233
Fax : (852) 2450 6138**Materialab****HOKLAS**
REGISTRATION NO. 15

Our Ref. No. : 960999EN70048

Page 2 of 2

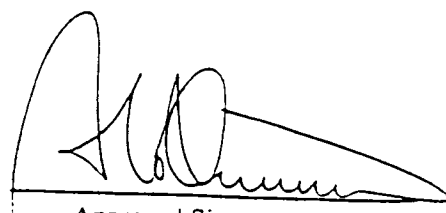
Results :

Sample Identification	Copper Content mg/kg	Cadmium Content mg/kg	Chromium Content mg/kg	Lead Content mg/kg	Nickel Content mg/kg	Zinc Content mg/kg	Mercury Content mg/kg	Classification of contamination level (*)
MB1 0-1.0m	18	<0.2	5.0	12	1.1	49	<0.05	A
MB2 2.0-2.5m	1.4	<0.2	4.6	6.1	<1	150	<0.05	B
MB3 0-1.0m	33	<0.2	25	36	3.8	150	0.09	B
MB4 0-1.0m	18	<0.2	9.9	16	1.6	82	<0.05	A

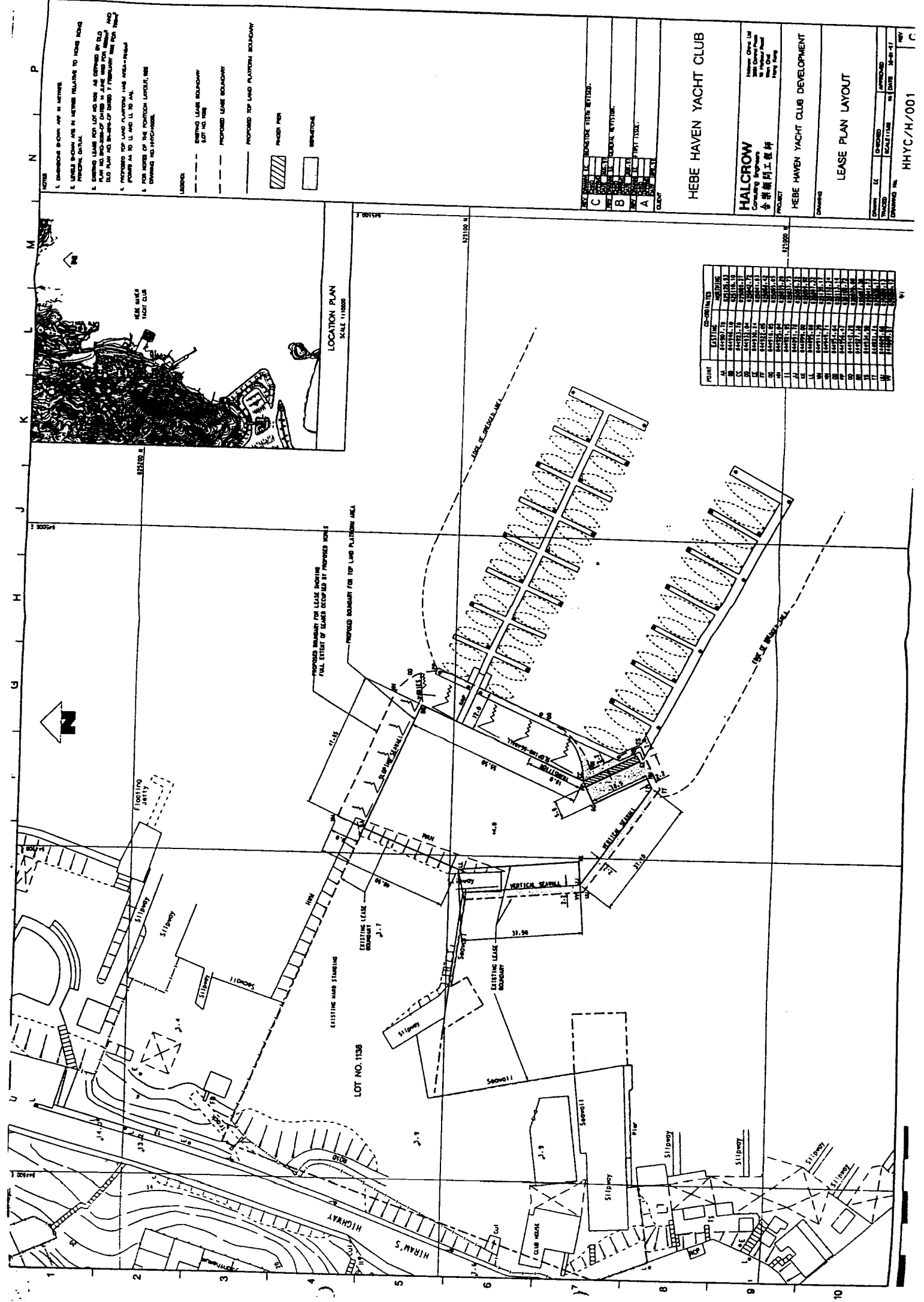
- Remarks :
- Results are based on mass of sample dried at 103-105°C.
 - Testings of the seven heavy metals contents of sediment are accredited by HOKLAS.
 - * The classification of contamination level of sediment is an opinion of the laboratory, based on the following table issued by EPD and is not covered under the HOKLAS accreditation

Table 1 - Classification of Sediments by Metal Content (mg/kg dry weight)

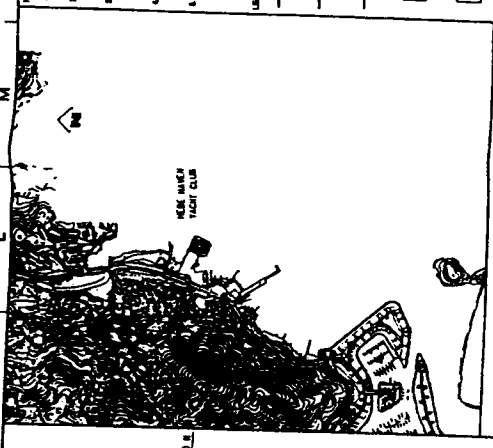
	Cd	Cr	Cu	Hg	Ni	Pb	Zn
Class A	0.0-0.9	0-49	0-54	0.0-0.7	0-34	0-64	0-140
Class B	1.0-1.4	50-79	55-64	0.8-0.9	35-39	65-74	150-190
Class C	1.5 or more	80 or more	65 or more	1.0 or more	40 or more	75 or more	200 or more

Supervised by : K.F. Wong Certified by : 
Approved Signatory : K.M. HoDate : 9/1/97

DRAWINGS



- NOTES
1. DIMENSIONS SHOWN ARE IN METRES.
 2. LEVELS SHOWN ARE IN METRES RELATIVE TO HIGH WANG PREVIOUS DATUM.
 3. EXISTING LEASE FOR LOT NO. 1138 IS AS SHOWN IN OLD PLAN NO. BOC-156-1-2 DATED 14 JUNE 1986 FOR BLDG AND OLD PLAN NO. BOC-156-1-2 DATED 7 FEBRUARY 1986 FOR STAIRING POWER IN TO LL AND LL TO ANL.
 4. PROPOSED TOP LAND PLATFORM AREA AREA=16414.18 SQ M.
 5. FOR MORE OF THE POSITION LOCATED, SEE DRAWING NO. HHC-1023592.
- LEGEND
- - - EXISTING LEASE BOUNDARY (LOT NO. 1138)
 - - - PROPOSED LEASE BOUNDARY
 - - - PROPOSED TOP LAND PLATFORM BOUNDARY
 - [Hatched Box] PAVED AREA
 - [White Box] IMPAVED AREA



NO.	DATE	DESCRIPTION	BY	CHECKED
A	17.11.88	ISSUED FOR TENDERS		
B	17.11.88	REVISED TENDERS		
C	17.11.88	FOR CLIENT'S REVIEW		

CLIENT

HEBE HAVEN YACHT CLUB

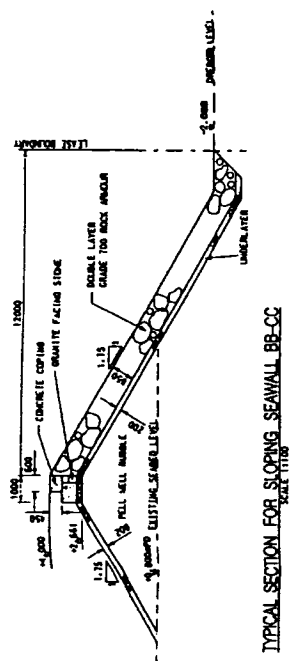
HALCROW
Consulting Engineers
香港測量師公會
PROJECT: HEBE HAVEN YACHT CLUB DEVELOPMENT

DRAWING NO. HHC-1023592
DATE: 17.11.88

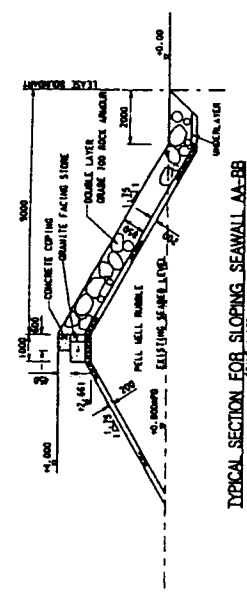
LEAVE PLAN LAYOUT

POINT	COORDINATES
AA	483510.10
AB	483510.10
AC	483510.10
AD	483510.10
AE	483510.10
AF	483510.10
AG	483510.10
AH	483510.10
AI	483510.10
AJ	483510.10
AK	483510.10
AL	483510.10
AM	483510.10
AN	483510.10
AO	483510.10
AP	483510.10
AQ	483510.10
AR	483510.10
AS	483510.10
AT	483510.10
AU	483510.10
AV	483510.10
AW	483510.10
AX	483510.10
AY	483510.10
AZ	483510.10

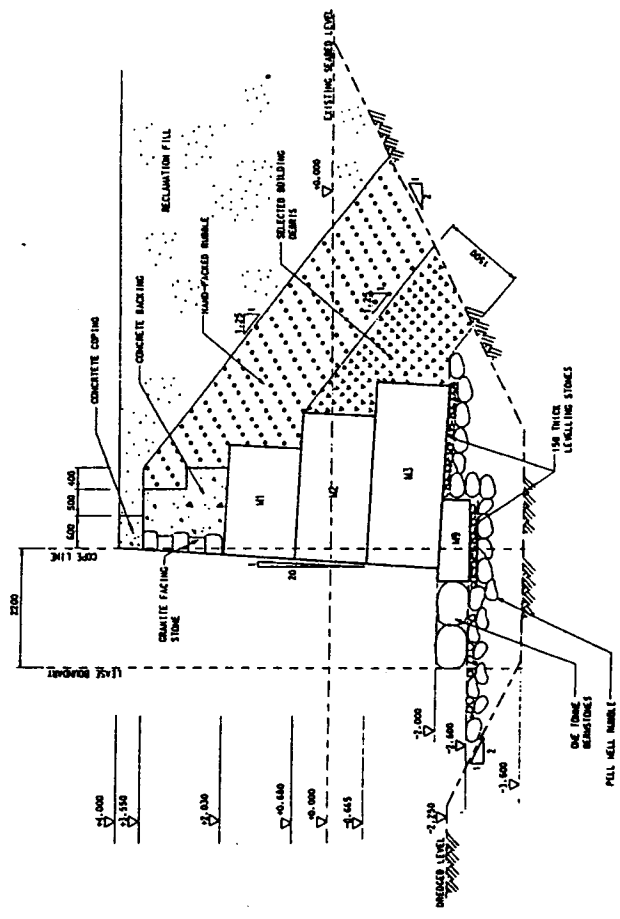
NOTES
 1. ALL DIMENSIONS ARE SHOWN IN METRES AND ALL LEVELS ARE SHOWN IN METRES RELATIVE TO HONG KONG MEAN SEA LEVEL.
 2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NO. H/0000.
 3. CROSS SECTION DETAILS AND APPROXIMATE SUBJECT TO REVISED DESIGN.



TYPICAL SECTION FOR SLOPING SEAWALL BB-CC
 SCALE 1:100



TYPICAL SECTION FOR SLOPING SEAWALL AA-BB
 SCALE 1:100



TYPICAL SECTION FOR VERTICAL SEAWALL
 SCALE 1:100

REV	DATE	DESCRIPTION
B	10/11/97	REVISION
A	10/11/97	REVISION
1	10/11/97	ISSUE
0		CLEAR

HEBE HAVEN YACHT CLUB

HALCROW
 Halcrow Group Ltd
 200 Canton Road
 Kowloon, Hong Kong
 香港顧問工程師

HEBE HAVEN YACHT CLUB DEVELOPMENT

TYPICAL SEAWALL SECTIONS

DRAWN	CC	CHECKED	AS	APPROVED	BY
ISSUED	AS	SCALE	AS SHOWN	DATE	28-01-97
DRAWING NO.	HHYC/H/002				REV
	B				

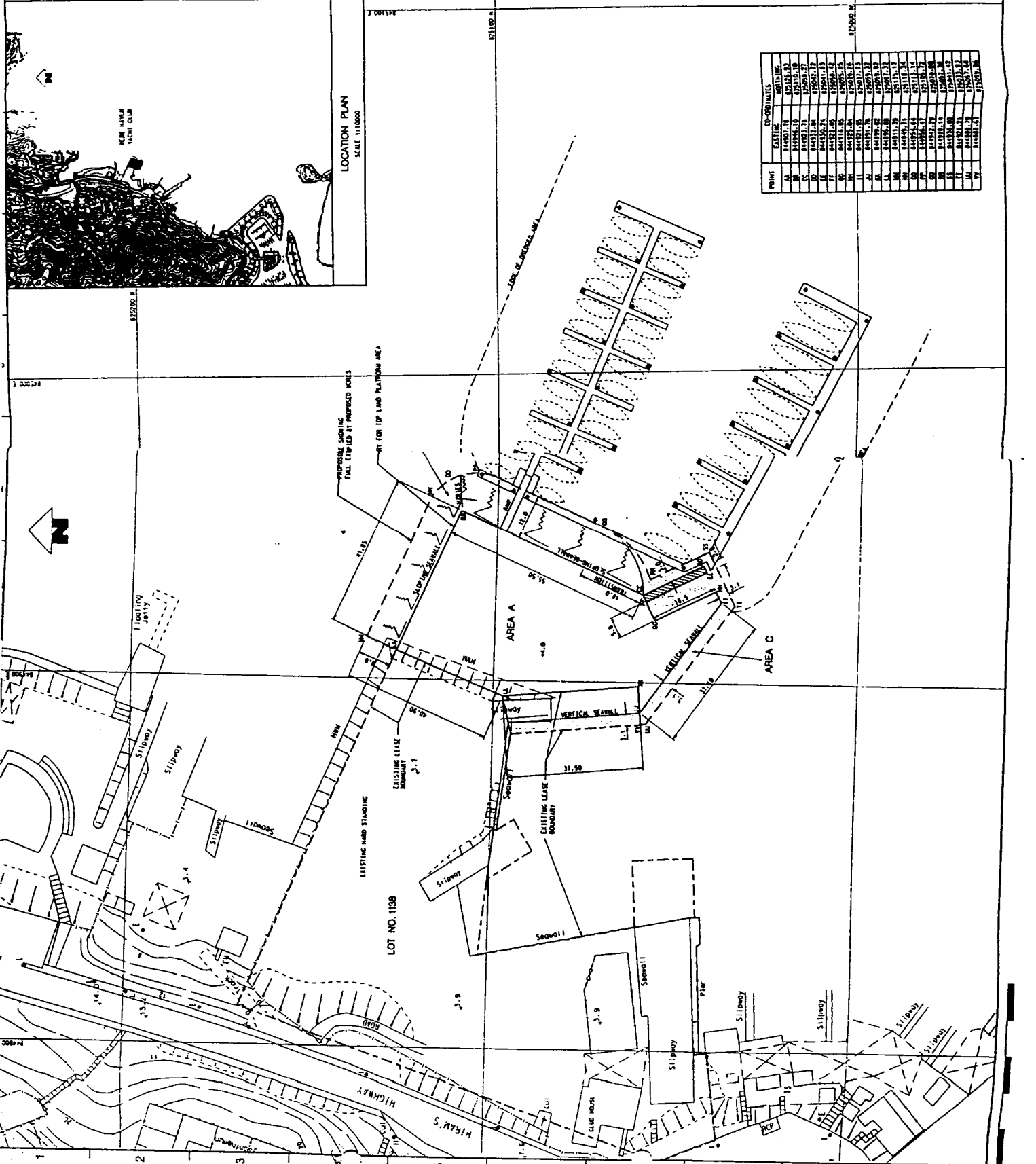
NOTES
 1. DIMENSIONS SHOWN ARE IN METERS
 2. LEVELS SHOWN ARE IN METERS RELATIVE TO HONG KONG PRINCIPAL DATUM
 3. PLANNING LEASE FOR LOT NO. 103B IS GRANTED BY DLO PLAN NO. HKB-93-28 DATED 26 AUG 1993 FOR 75 YEARS DLO PLAN NO. HKB-93-28 DATED 7 FEBRUARY 1993 FOR 75 YEARS
 4. PROPOSED TOP LAND PLATFORM HAS AREA=35947 SQM
 5. FOR NOTES OF THE PROPOSED LANDS, SEE DRAWING NO. HHC0008.

LEGEND
 --- EXISTING LEASE BOUNDARY (LOT NO. 103B)
 --- PROPOSED LEASE BOUNDARY
 --- PROPOSED TOP LAND PLATFORM BOUNDARY
 ▨ PIER PERM
 □ MERRIMORE
 A PROPOSED LEASE AREA
 B AREA A PLATFORM (35947 SQM)
 C AREA B PLATFORM (59398 SQM)
 D AREA C PLATFORM (59398 SQM)

PROPOSED LEASE AREA
 A
 B
 C

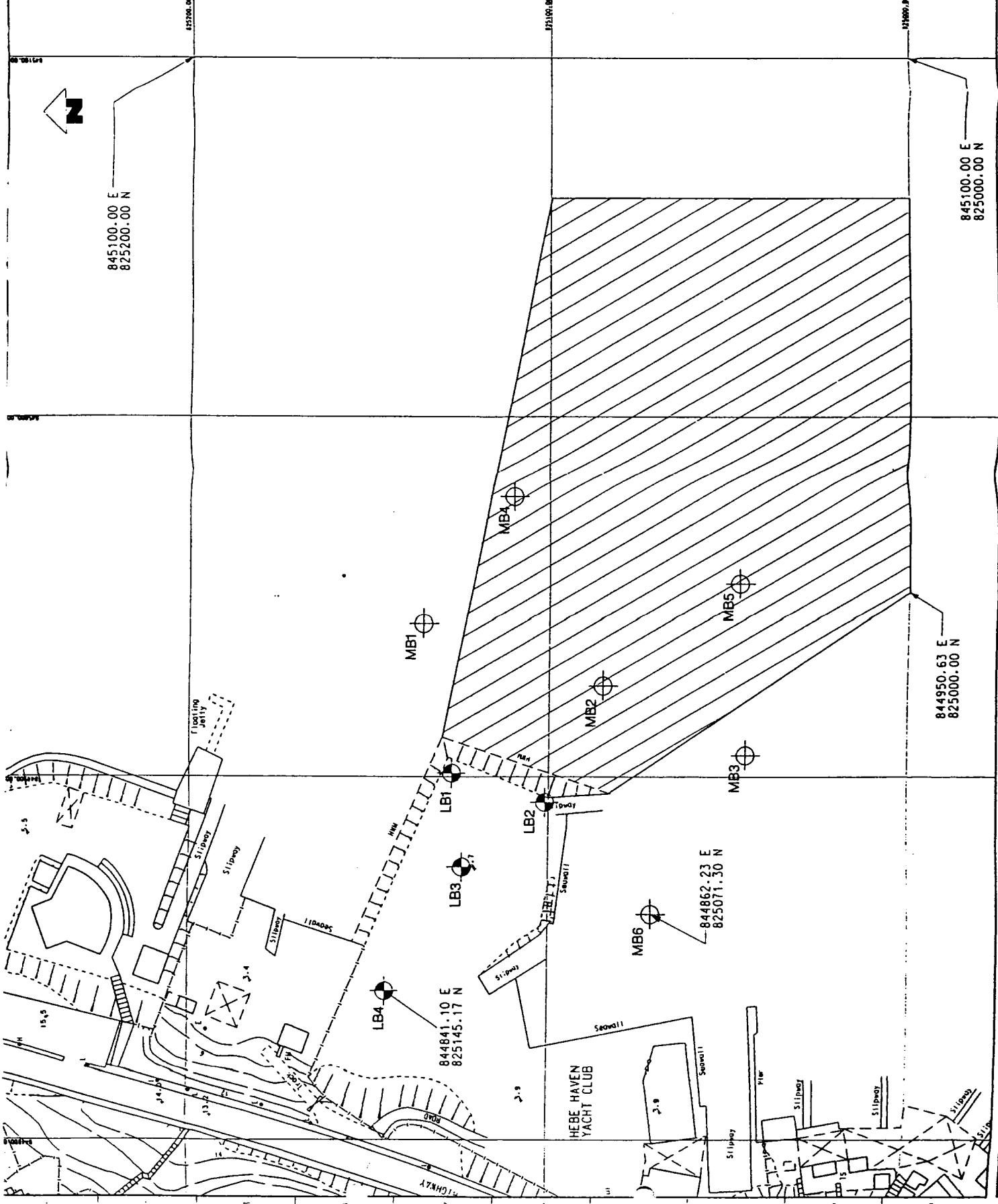
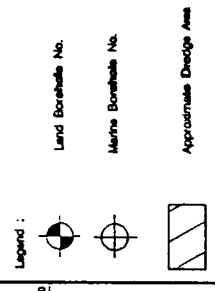
HEBE HAVEN YACHT CLUB
 HIALCROW
 CONSULTING ENGINEERS
 合洲顧問工程行
 HONG KONG

PROJECT: HEBE HAVEN YACHT CLUB DEVELOPMENT
 DRAWING NO.: HHYC/H/008
 DATE: 11-01-97
 SCALE: 1:1000



POINT	ESTIMATED COORDINATES	Easting	Northing
AA	848501.78	250201.15	
AB	848506.10	250181.70	
AC	848523.78	250201.15	
AD	848531.84	250201.15	
AE	848536.91	250201.15	
AF	848541.98	250201.15	
AG	848547.04	250201.15	
AH	848552.11	250201.15	
AI	848557.17	250201.15	
AJ	848562.24	250201.15	
AK	848567.30	250201.15	
AL	848572.37	250201.15	
AM	848577.43	250201.15	
AN	848582.50	250201.15	
AO	848587.56	250201.15	
AP	848592.63	250201.15	
AQ	848597.69	250201.15	
AR	848602.76	250201.15	
AS	848607.82	250201.15	
AT	848612.89	250201.15	
AU	848617.95	250201.15	
AV	848623.02	250201.15	
AW	848628.08	250201.15	
AX	848633.15	250201.15	
AY	848638.21	250201.15	
AZ	848643.28	250201.15	
BA	848648.34	250201.15	
BB	848653.41	250201.15	
BC	848658.47	250201.15	
BD	848663.54	250201.15	
BE	848668.60	250201.15	
BF	848673.67	250201.15	
BG	848678.73	250201.15	
BH	848683.80	250201.15	
BI	848688.86	250201.15	
BJ	848693.93	250201.15	
BK	848698.99	250201.15	
BL	848704.06	250201.15	
BM	848709.12	250201.15	
BN	848714.19	250201.15	
BO	848719.25	250201.15	
BP	848724.32	250201.15	
BQ	848729.38	250201.15	
BR	848734.45	250201.15	
BS	848739.51	250201.15	
BT	848744.58	250201.15	
BU	848749.64	250201.15	
BV	848754.71	250201.15	
BW	848759.77	250201.15	
BX	848764.84	250201.15	
BY	848769.90	250201.15	
BZ	848774.97	250201.15	

Notes
 1. This topographical plan is reproduced from the Government Survey Map and should be used for reference only.



PROJECT	HEBE HAVEN YACHT CLUB DEVELOPMENT
CLIENT	HEBE HAVEN YACHT CLUB
DESIGNED BY	HALCROW
SCALE	AS SHOWN
DATE	11 FEB 1997
PROJECT NO.	HHYC/H/004
REVISION	
DATE	
BY	
CHECKED	
DATE	
BY	
CHECKED	
DATE	
BY	