



Silt Curtain Deployment Plan

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0	01/03/10	Submission for Approval	Cecil Cheng	P C Chan
Rev	Date	Status	Prepared By	Reviewed and Approved By Construction Manager



俊和 - 中國中鐵聯營

CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

Wan Chai Development Phase II

Central - Wan Chai Bypass at Wan Chai East

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1.0 Introduction

The purpose of this deployment plan is to illustrate the general layout, the construction programme, details on the design, operation and maintenance of the silt curtains to be installed for the dredging and filling works of “Wan Chai Reclamation” as recommended in the approved EIA report (Registration No.:AEIAR-125/2008). Chun Wo - CRGL Joint Venture is responsible for the installation, operation, maintenance and removal of the silt curtain.

2.0 List of documentation to be referenced

- 2.1 Particular Specification, the relevant clauses and our remarks for the marine ground investigations is listed as follows for ease of references.

PS Clause No.	Relevant Remarks
PS Appendix 25.4	EP No. EP-356/2009 Clause 2.8 refers. The silt curtain deployment plan shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information and recommendation contained in the approved EIA Report

3.0 General Layout of Silt Curtain (SD-Hanging Type) by Phases

- 3.1 The deployment of Silt Curtain would be divided in to Phases based on the locations of works and the working period, the details of the phasing are as follow:

Phase 1:

The silt curtain shall be deployed in 2 modes. This 1st mode is designed for general marine works from 0700 to 2200 and the 2nd mode is designed for the overnight dredging and rockfilling works from 2200 to 0600. The deployment of hanging type silt curtain in these 2 modes will be operated for 2 months from 17 September 2010 to 16 November 2010 as per CNP no. CW-RS0817-10. In the period of overnight dredging and rockfilling, the additional semi-circular geotextile will be deployed surrounding the silt screen frame installed at the intake ports of Wan Chai pumping station and Sun Hung Kai Centre. The detailed information regarding the hanging type silt curtain deployment refers to the attachment in Appendix A. The precautionary measurement to prevent the disturbance of the existing marine sediment is that the lower part of the hanging type silt curtain would be lifted up by using the preset nylon ropes or strings as shown in the sketch in Appendix E. The part of the bottom of silt curtain would be lifted up by using the nylon rope with diameter of 25mm connected to the lifting hook of the derrick lighter. Once the bottom part of the silt curtain to be lifted to the top part of the silt curtain, the nodes would be made to tie the lifted up part of the curtain resulting in the silt curtain in “bow tie shape” as shown in the sketch attached in Appendix E. After the completion of the action as aforesaid, the silt curtain in “bow tie shape” would be towed to the designated locations by using tug boat so that no disturbance of the ambient marine deposit happens in the course of towing. The procedures for the erection and removal of the additional hanging type silt curtain tied to the anchors are illustrated in Appendix E. For minimization of disturbance of seabed sediment in the course of overnight



dredging works, this framed silt curtain will be deployed down to the seabed during dredging operation and will be lifted in such manner that the disturbance of seabed marine deposit is minimized.

Phase 2a:

Dredging to be carried out to remove marine deposits from existing seabed to reach the proposed dredging level within Zone A area. (approximate 15 days)

Phase 2b:

Dredging to be carried out to remove marine deposits from existing seabed to reach the proposed dredging level within Zone B area. (approximate 14 days)

Phase 2c:

Rock fill placing would be carried out at the dredged area to form a level platform upto -6mPD for the installation of temporary concrete blocks seawall upto +3.6mPD. Infill of public fill material will be placed upto -1mPD within the temporary sheetpile wall. Reclamation fill are then placed from dredged level up to proposed formation level at approximate +3.5mPD inside the WCR2. (approximate 123 days)

Phase 2d:

Dredging to be carried out to remove marine deposits from existing seabed to reach the proposed dredging level for the installation of Precast Caisson Seawall 2X. Rock fill placing would be carried out at the dredged area to form a level platform upto -6.65mPD for the installation of concrete seawall blocks upto -2.6mPD. (approximate 37 days)

Phase 3:

Silt Curtain to be deployed for the reclamation works of WCR4 and TWCR4 for approximate 10 months, anticipated from April 2012 to January 2013.

Phase 4:

Silt Curtain to be deployed for the reclamation works of WCR3 for approximate 11 months, anticipated from February 2014 to January 2015.

Phase 5:

Silt Curtain to be deployed for the construction of permanent seawall blocks near reclamation works of WCR4, the removal of temporary reclamation TWCR4 and the reinstatement of original seabed. The silt curtains to be deployed for approximate 6 months, anticipated from March 2016 to August 2016.

- 3.2 The layout plans for deployment of silt curtains during different Phases and its general arrangement should refer to Appendix A. To suit the site condition and with reference to the tidal range, the silt curtain would be extended to as close to the seabed level as practicable.
- 3.3 The working procedure for installation of silt curtain should refer to Appendix C.



- 3.4 Regarding the emergency plan for the stakeholders of the pumping station intake ports in the proximity of the overnight dredging area, JV's front line staff will closely communicate with the stakeholders immediately and the dredging works will be stopped in case the sediment spillage from the enclosed type framed silt curtain is happened during dredging works. At the same instant, additional silt curtain will be provided enclosing the pumping station intake in order to cease jeopardising the pumps in the pumping station.
- 3.5 Phase 1a is the Phase for reclamation work after the installation of precise seawall block, caisson and pump station except for the marine access at the east end. Silt curtain is required to enclose the marine access as stated in EPD condition. Upon 80% completion of the reclamation work, the marine access will be closed and filled up with precast concrete block to high water level, anticipated from February 2011 to March 2011.
- 3.6 In order to prevent muddy water from going out of the precast concrete block / caisson, additional silt curtain is prepared on site at Pet Garden. If muddy water is found going out of the concrete block / caisson, silt curtain will be set up around the source to block the muddy water from spreading out. Silt curtain in T6 and T7 will not open for transportation so as to reduce the chance for muddy water for going out. Additional silt curtain shall also be deployed to prevent muddy water escape from the marine access.
- 3.7 The maintenance procedure for silt curtain is as follow:
1. Site supervisors should be responsible to inspect the condition of the silt curtain daily during the course of marine works. An inspection checklist will be prepared and filled in by site supervisors. All checklists should be kept on site for record purpose. A template of checklist is attached on Appendix D.
 2. If silt curtain is found to be damaged and repairing works are identified if necessary, all marine works at within 50m from the location of silt curtain would be temporary suspended. The silt curtain would be lifted up from sea by chain block pulley system, the whole/part of (depends on damaged condition) silt curtain would be replaced. In case of repairing damaged floats, temporary suspension of marine works should not imply.
 3. The suspended marine works as above-mentioned would only be resumed after satisfactorily repairing of the damaged silt curtain.
 4. As a regular maintenance, refuse or debris around the silt curtain would be collected on daily basis to avoid adverse effect to marine plants as well as to the public.
 5. Spare silt curtain sheets and the associated material would be stored on site to maintain for prompt replacement in case of any damages observed.



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6. Prior to removal of the silt curtain, site supervisor should closely monitor with the marine plant's operators to ensure no marine works should be carried out at within 50m from the location of silt curtain maintenance.

4.0 Deployment Schedule

- 4.1 The deployment schedule of the silt curtain could refer to the table below. It is prepared based on the Initial Works Programme and may subject to changes to reflect the actual site progress:

Phasing	Anticipated Installation Works		Silt Curtain to be Maintained until	Anticipated Removal by (b)	Total Duration, days = (b) - (a)
	From (a)	To			
Phase 1 (completed)	1 May, 2010	15 May, 2010	15 November, 2010	22 November, 2010	205
Phase 1a (completed)	8 February, 2011	31 March, 2011	31 March, 2011	31 March, 2011	51
Phase 2a (completed)	06 Mar 2012	21 Mar 2012	21 Mar 2012	21 Mar 2012	15
Phase 2b (completed)	22 Mar 2012	05 Apr 2012	05 Apr 2012	05 Apr 2012	14
Phase 2c (completed)	06 Apr 2012	07 Aug 2012	07 Aug 2012	07 Aug 2012	123
Phase 2d	29 Nov 2012	8 Jan 2013	8 Jan 2013	8 Jan 2013	37
Phase 3	15 August, 2012	31 Jan, 2013	31 January, 2013	31 January, 2013	169
Phase 4	18 February, 2014	4 March, 2014	5 January, 2015	12 January, 2015	328
Phase 5	1 April, 2015	14 April, 2015	20 August, 2015	27 August, 2015	148

- 4.2 Silt Curtain would be installed at least 28 days prior to the commencement of dredging works, the silt curtain would only be removed upon completion of filling works at each Phase.



5.0 Construction Programme.

5.1 The Works Programme for the project is enclosed in Appendix B.

6.0 Technical Details

6.1 The technical details on the design, operation and maintenance of the silt curtains are enclosed in Appendix C: SD Type configuration with Impervious silt curtain (Brand: MakMax) and hanging type installation method would be adopted for our project.

7.0 Appendices

- 7.1 Appendix A – Layout Plan for Silt Curtain Deployment at Different Phases
- 7.2 Appendix B – Works Program
- 7.3 Appendix C – Technical Details of the Silt Curtain
- 7.4 Appendix D – Daily Checklist Template & Significant information regarding the over Night Dredging
- 7.5 Appendix E – Sequence of Erection and Removal of the Hanging Type Silt Curtain & the Connection and Lifting Up Details of the Hanging Type Silt Curtain



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CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

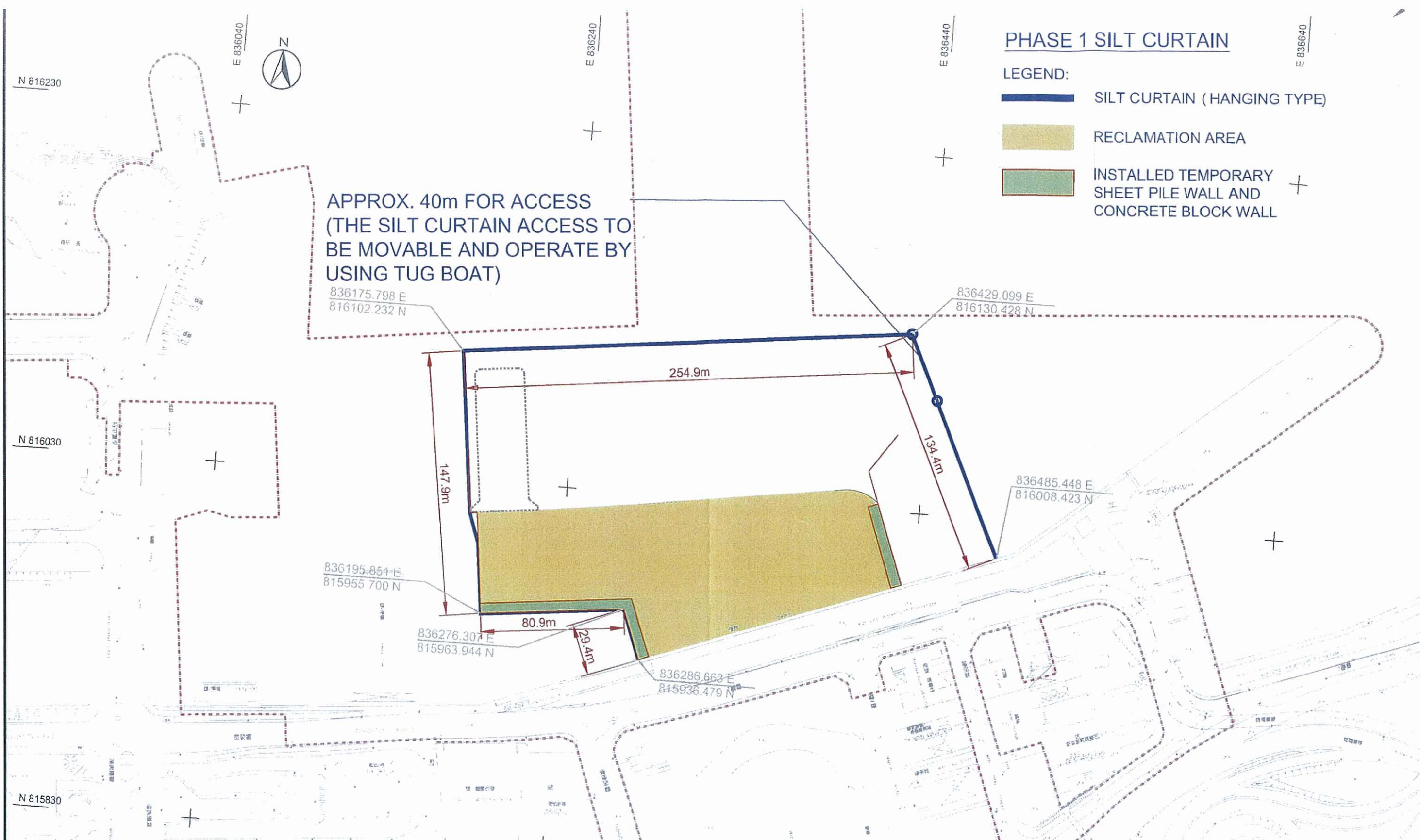
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7.1 Appendix A

Layout Plan for Silt Curtain Deployment at Different Stages



CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	REV.	DATE	DESCRIPTION	DRG. TITLE: SILT CURTAIN ARRANGEMENT - PHASE 1	SCALE	1:2000	CAD REF.			
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PROJECT CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST					DRAWN	MC PUN	DESIGNED	---	DRG. NO. CWCRJV/HK200902/SK0017	REV. D
					CHECKED	WAFFERY LAU	APPROVED	---		

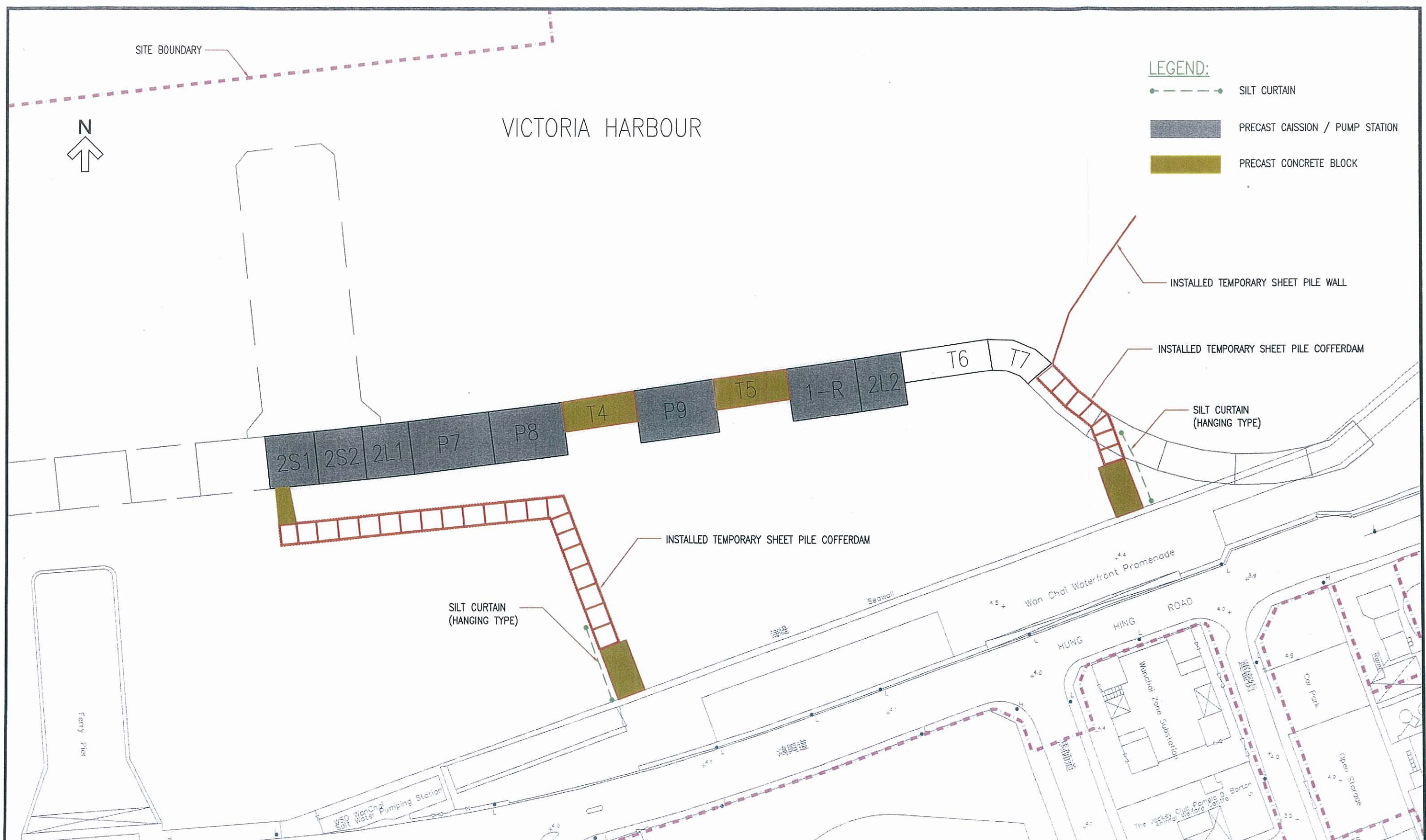
SITE BOUNDARY



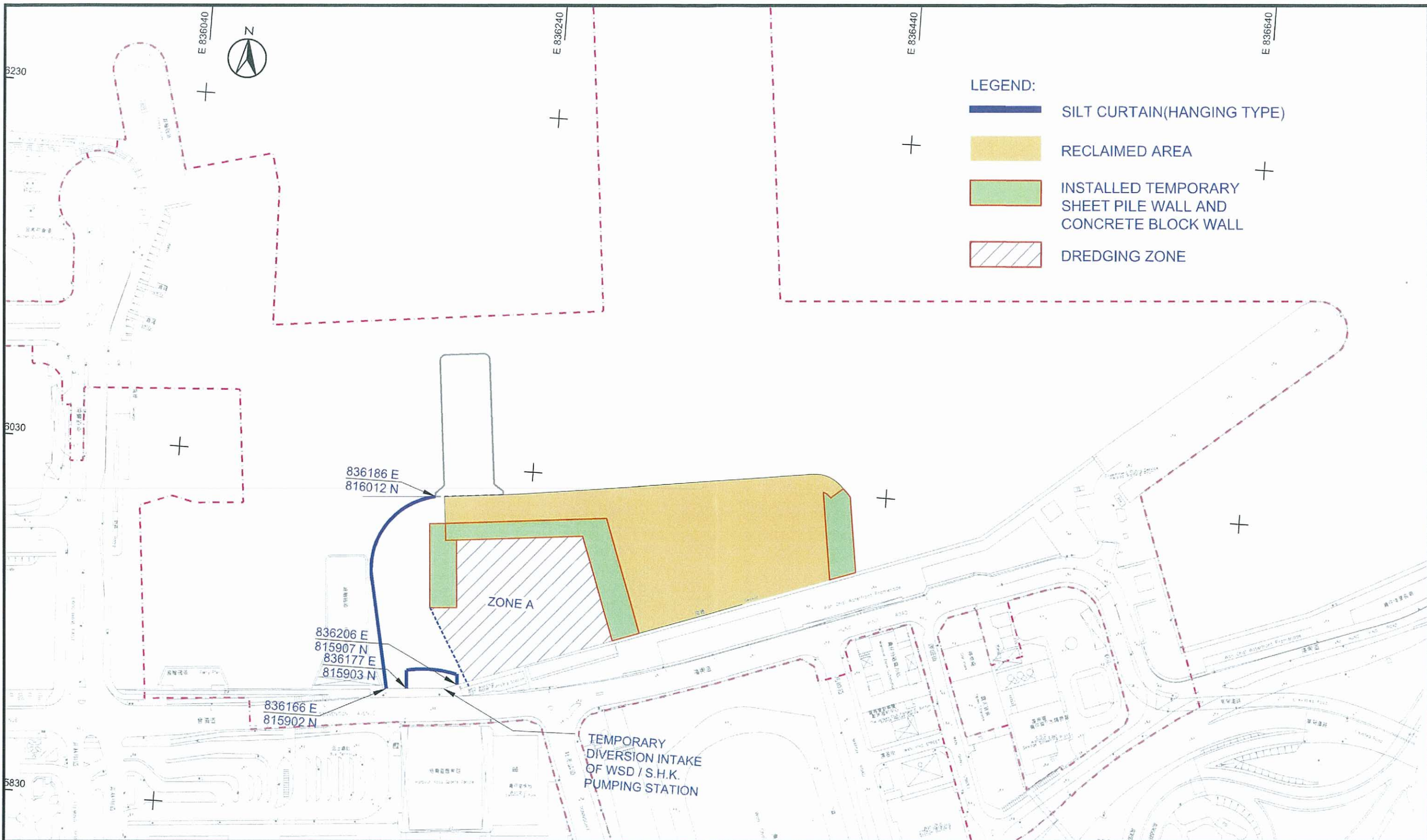
VICTORIA HARBOUR

LEGEND:

- SILT CURTAIN
- PRECAST CAISSON / PUMP STATION
- PRECAST CONCRETE BLOCK



CONTRACTOR 俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	REV.	DATE	DESCRIPTION	DRG. TITLE: SILT CURTAIN ARRANGEMENT PHASE 1a	SCALE	1:1000 (A3)	CAD REF.	CW-CR/ENG/ENG-0467					
	A	11 JAN 2011	MINOR REVISION		DATE	5 JAN 2011		DRAWN	M.S. SIN	DESIGNED	V. TONG	DRG. NO.	CWCRJV/HK200902/SK0363 REV. C
	B	12 JAN 2011	MINOR REVISION		CHECKED	V. TONG	APPROVED	---					
PROJECT CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST	C	17 NOV 2011	MINOR REVISION										



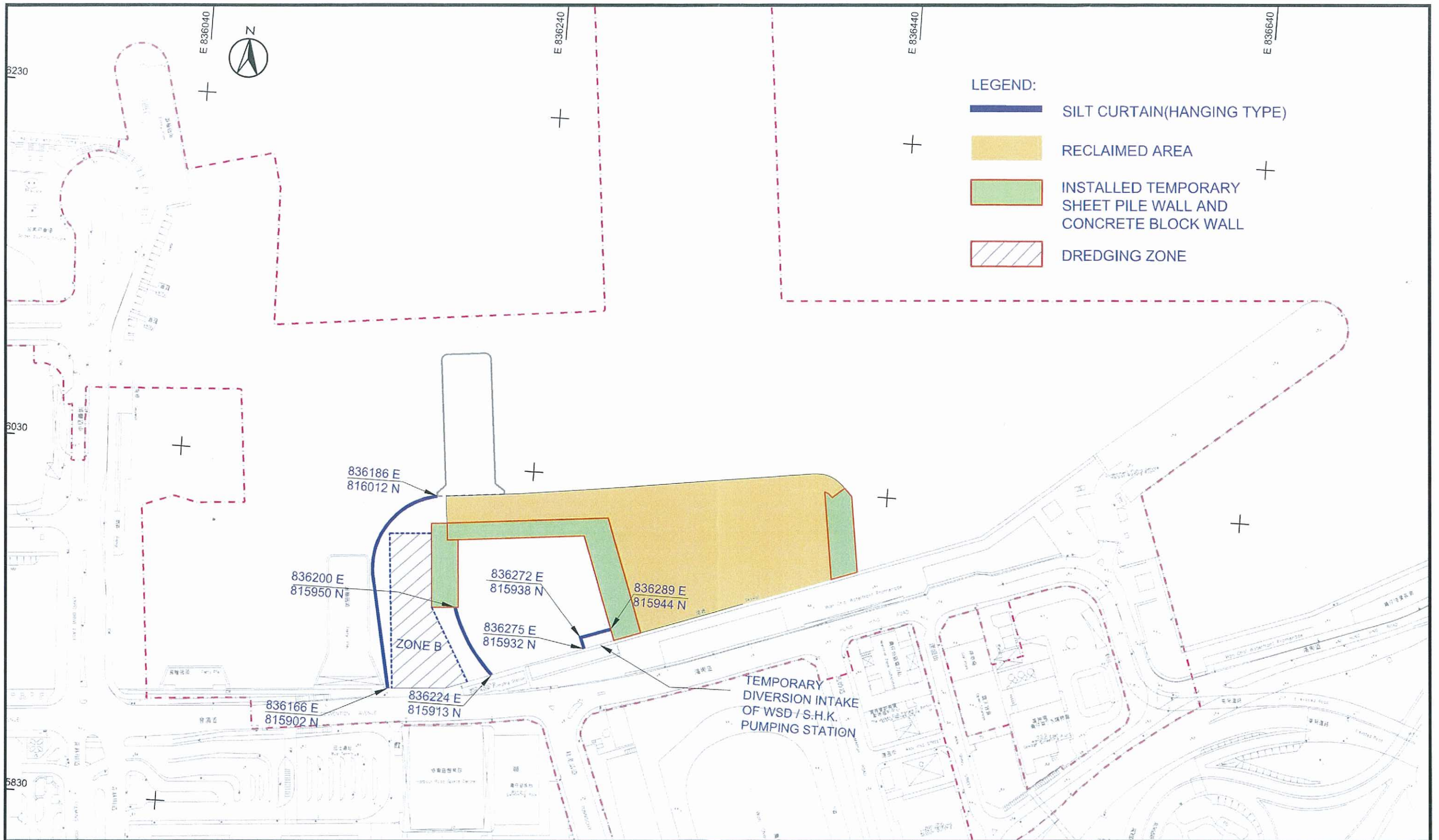
- LEGEND:**
- SILT CURTAIN(HANGING TYPE)
 - RECLAIMED AREA
 - INSTALLED TEMPORARY SHEET PILE WALL AND CONCRETE BLOCK WALL
 - DREDGING ZONE

<p>CONTRACTOR</p> <p>俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE</p>	<p>REV.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;"> </td><td style="width: 5%;"> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>							<p>DATE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;"> </td><td style="width: 5%;"> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>							<p>DESCRIPTION</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;"> </td><td style="width: 5%;"> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>						
<p>PROJECT</p> <p>CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST</p>																					

DRG. TITLE:

**SILT CURTAIN ARRANGEMENT - PHASE 2a
(FOR DREDGING IN ZONE A)**

SCALE	1:2000	CAD REF.			
DATE	06 JAN 2012				
DRAWN	---	DESIGNED	---	DRG. NO.	REV.
CHECKED	---	APPROVED	---	CWCRJV/HK200902/SK0952	—



- LEGEND:**
- SILT CURTAIN(HANGING TYPE)
 - RECLAIMED AREA
 - INSTALLED TEMPORARY SHEET PILE WALL AND CONCRETE BLOCK WALL
 - DREDGING ZONE

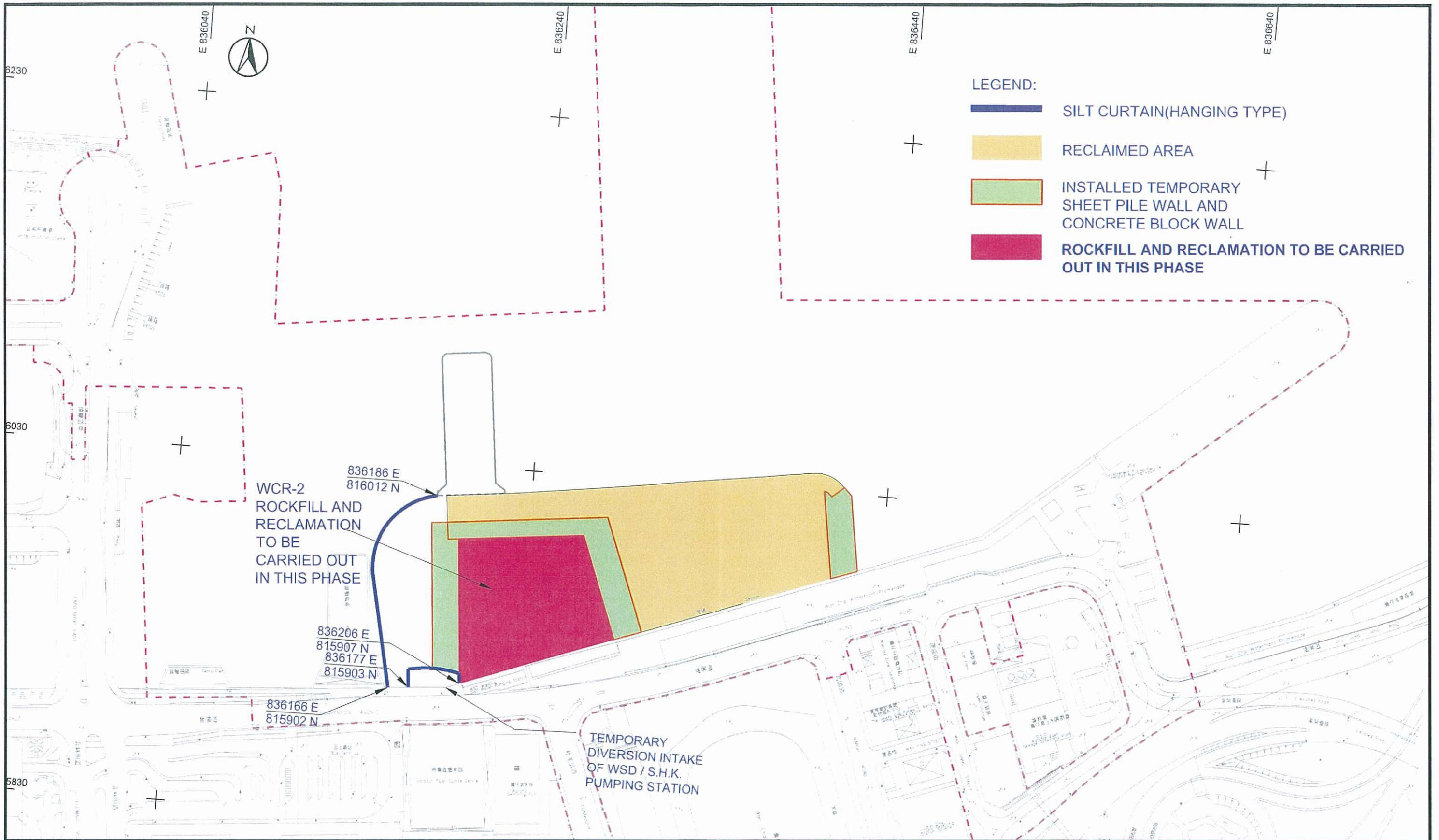
CONTRACTOR
 俊和 - 中國中鐵聯營
 CHUN WO - CRGL JOINT VENTURE

PROJECT
 CONTRACT NO. HK/2009/02
 WAN CHAI DEVELOPMENT PHASE II -
 CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST

REV.	DATE	DESCRIPTION

DRG. TITLE:
 SILT CURTAIN ARRANGEMENT - PHASE 2b
 (FOR DREDGING IN ZONE B)

SCALE	1:2000	CAD REF.	
DATE	06 JAN 2012		
DRAWN	---	DESIGNED	---
CHECKED	---	APPROVED	---
		DRG. NO.	
		CWCRJV/HK200902/SK0953	
		REV.	



LEGEND:

- SILT CURTAIN(HANGING TYPE)
- RECLAIMED AREA
- INSTALLED TEMPORARY SHEET PILE WALL AND CONCRETE BLOCK WALL
- ROCKFILL AND RECLAMATION TO BE CARRIED OUT IN THIS PHASE

WCR-2
ROCKFILL AND
RECLAMATION
TO BE
CARRIED
OUT
IN THIS PHASE

TEMPORARY
DIVERSION INTAKE
OF WSD / S.H.K.
PUMPING STATION

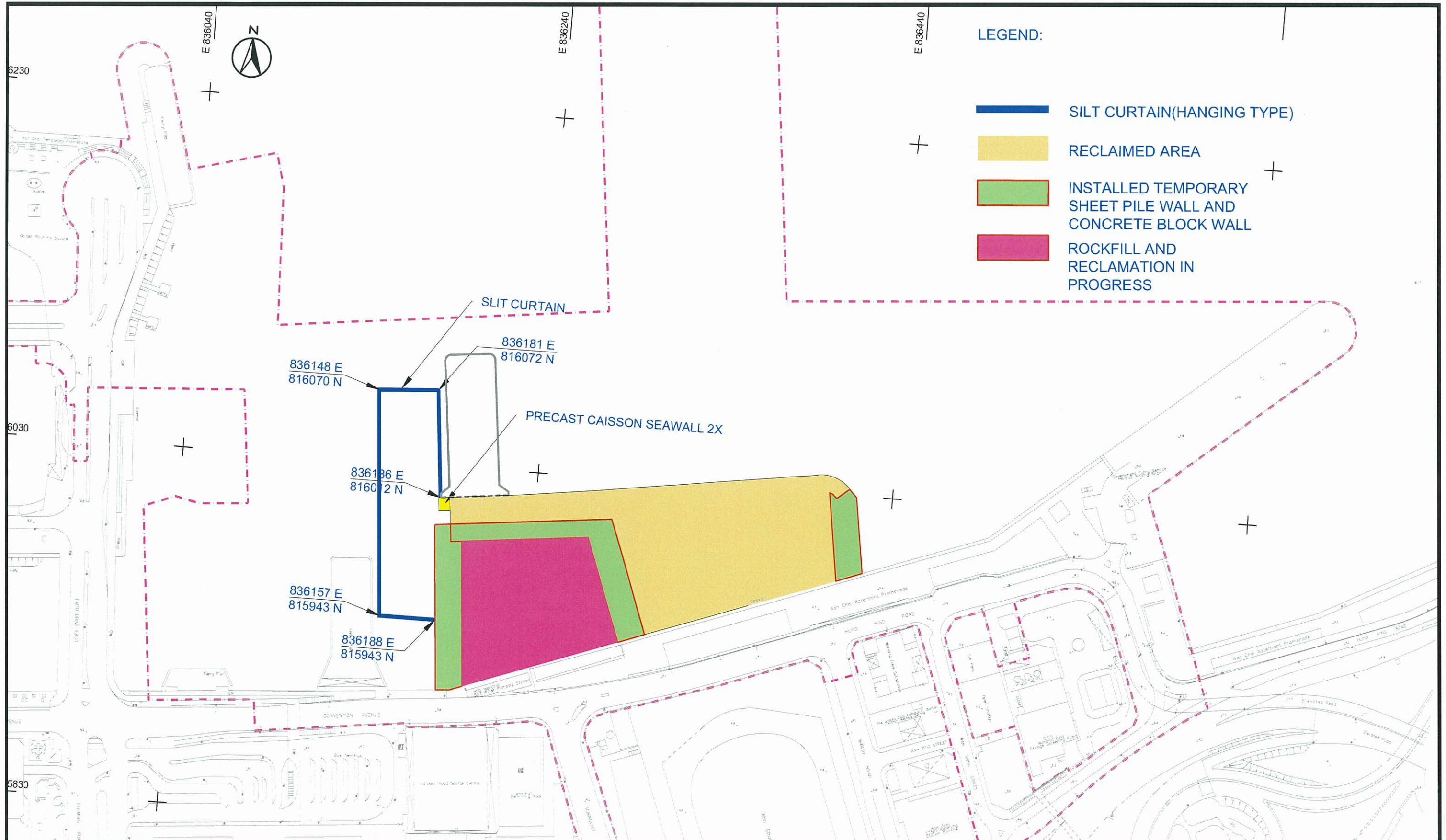
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REV.	DATE	DESCRIPTION

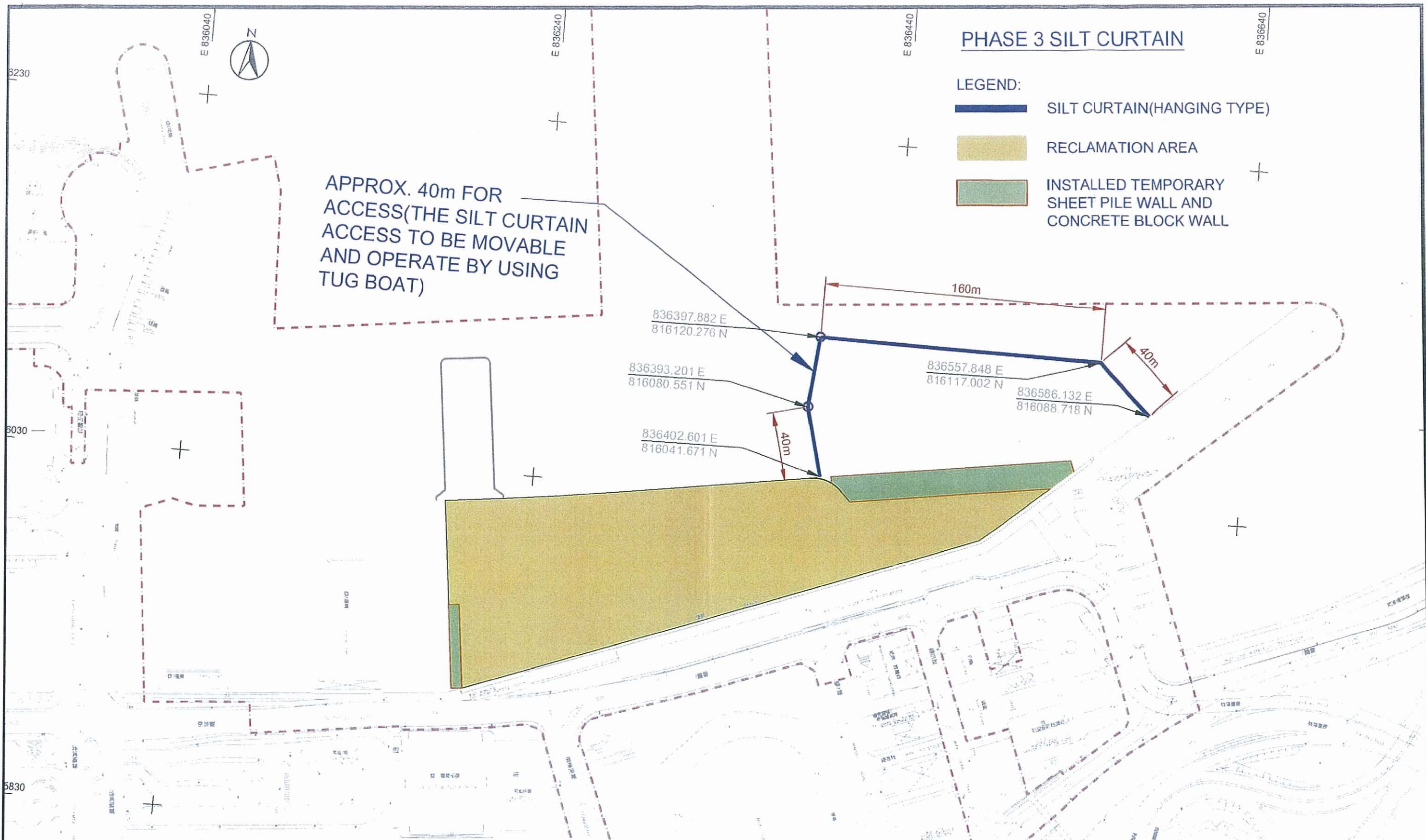
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**SILT CURTAIN ARRANGEMENT - PHASE 2c
(FOR ROCKFILLING AND RECLAMATION)**

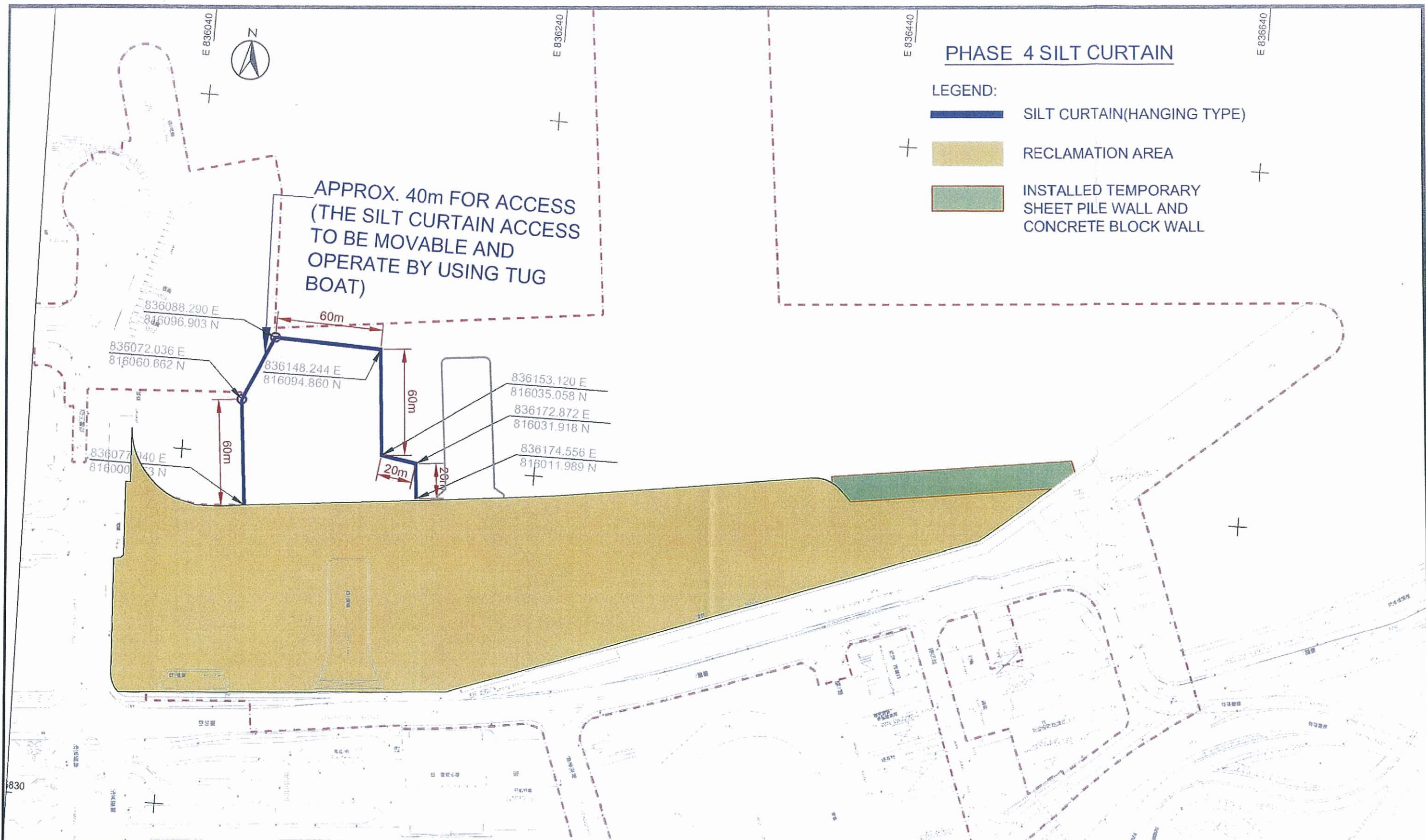
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		REV.	



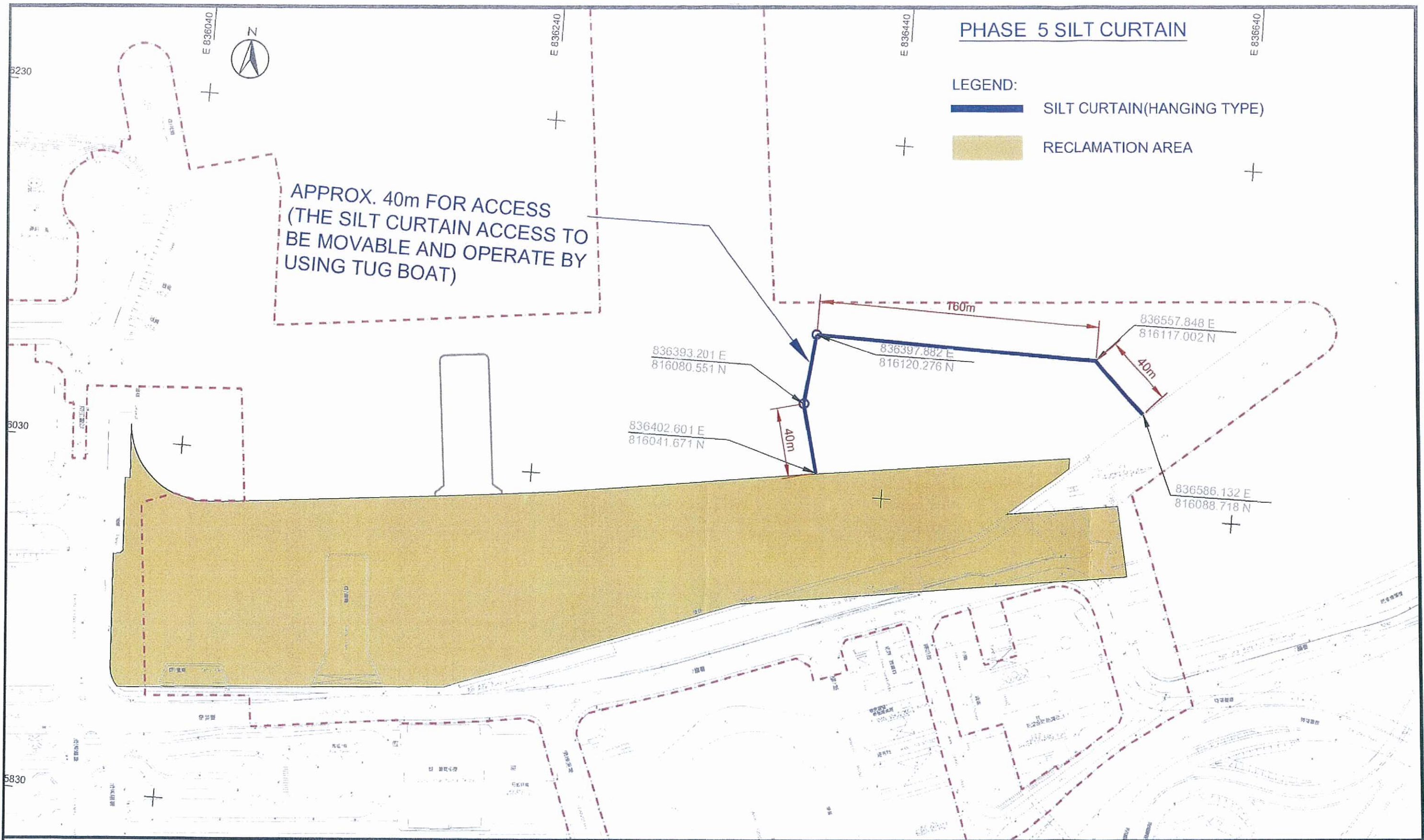
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CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	REV.	DATE	DESCRIPTION	DRG. TITLE: SILT CURTAIN ARRANGEMENT - PHASE 3	SCALE	1:2000	CAD REF.	
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CONTRACTOR 俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	REV.	DATE	DESCRIPTION	DRG. TITLE: SILT CURTAIN ARRANGEMENT - PHASE 4	SCALE	1:2000	CAD REF.	
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					CHECKED	WAFFERY LAU	APPROVED	---
					DRG. NO.	CWCRJV/HK200902/SK0020		REV. A



PHASE 5 SILT CURTAIN

LEGEND:

- SILT CURTAIN(HANGING TYPE)
- RECLAMATION AREA

APPROX. 40m FOR ACCESS
(THE SILT CURTAIN ACCESS TO
BE MOVABLE AND OPERATE BY
USING TUG BOAT)

<p>CONTRACTOR</p> <p>俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE</p>	REV.	DATE	DESCRIPTION	<p>DRG. TITLE:</p> <p style="text-align: center; font-size: 1.2em;">SILT CURTAIN ARRANGEMENT – PHASE 5</p>	SCALE	1:2000	CAD REF.				
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				CHECKED	WAFFERY LAU	APPROVED	---				



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7.2 Appendix B

Works Program



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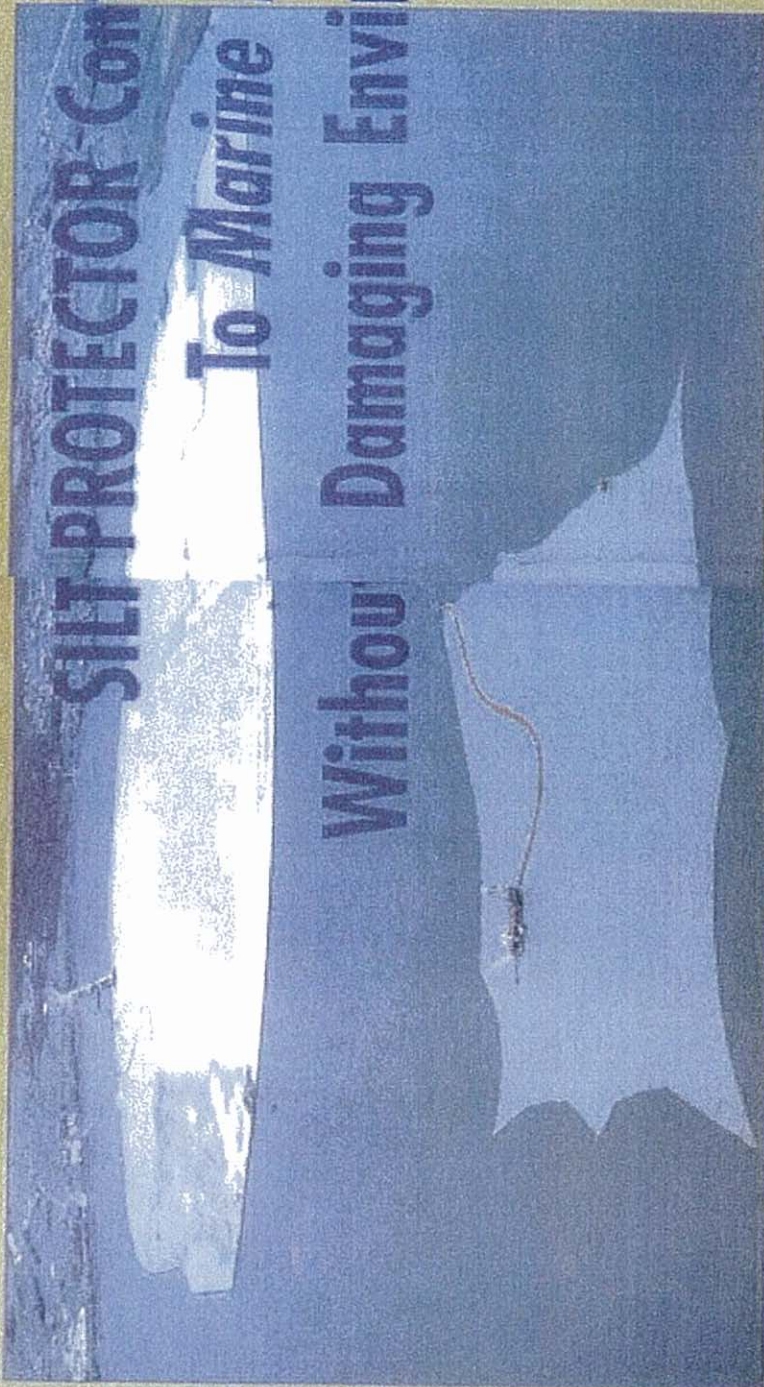
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7.3 Appendix C

Technical Details of the Silt Curtain

SILT PROTECTOR Contributes To Marine Projects Without Damaging Environment



Function of Silt Protector

Silt Protector is a flexible membrane product that has been designed to physically prevent diffusion of pollution generated in dredging or reclamation works on the seabed or rivers.

The pollution (fine particles) should be locally stored by barrier, organisms (increase the stability in the bottom) including reducing the breaking of lakes, difficult and reducing groundwater discharge. The Silt Protector prevents diffusion of pollution mainly because it uses a physical means without using chemicals that will be the cause of the secondary pollution.

The Silt Protector typically consists of the curtain section that is made of synthetic active (mainly polyethylene), the flap that holds the curtain in the water and the covering section for fixing the end of a specified location.



Models and Features

The Silt Protector consists of several types that are individually subdivided into some parts so that the user is able to select units best suited to specific site conditions and work items. The Silt Protector can be used individually or separately, or by combining the units.

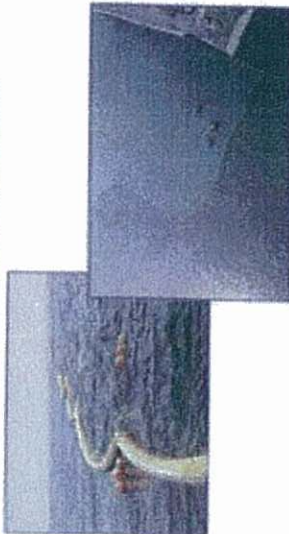
Fixed Hanging Type Silt Protector

This type is used the most frequently. It basically consists of floats on the surface and curtain and weight chain below the surface. One span of this product is 20m long. It is secured to the bottom through anchor ropes and anchors at every 10.5m point.

The anchor ropes are steel wire type or synthetic fiber type, and anchors are concrete blocks, usually.

When this product is used under high wave conditions, the curtain with the vertical length of 10m or less is used and spreading type is used together in many cases. When water is low, the curtain of 20m long or more may be used.

This fixed hanging type Silt Protector is classified into four types, A, B, C and D so that it type best suited to a specific application can be identified.



General site condition for hanging fixed type

Type	Applicable site conditions	Standard specifications		
		Float size (mm)	Curtain material	Chain weight (kg/m)
A	Area outside of Impoverisher • Wave height: 1.5m or less • Width of curtain: 0.5m/float or less	600	JPC-8100 or JPC-8200	10
B	Wide area inside of Impoverisher or inside of gate float • Wave height: 1.0m or less • Width of curtain: 0.2m/float or less	400	JPC-8100 or JPC-8200	5
C	Area with moderate water inside of Impoverisher • Wave height: 0.5m or less • Width of curtain: 0.1m/float or less	300	JPC-8100 or JPC-8200	5
D	Shallow or wide shallow area or canal at inlet • Wave height: 0.5m or less • Width of curtain: 0.10m/float or less	300	JPC-8100	3

• Remarks
• Standard unit length is 20m
• Anchor is not included in the unit

EFFECT

Silt Protector generally provides the following effects on prevention of diffusion of pollution in the sea.

Acceleration of settlement of silt by interference of particles

Installation of the Silt Protector suppresses diffusion of the pollution and makes the soil particles interfere with each other to accelerate their settlement.

Reduction of distance required to settle the silt

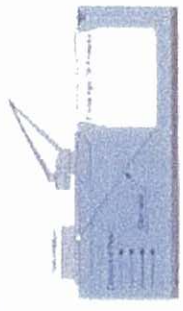
Installation of the Silt Protector as shown narrows the settlement reach, resulting in minimizing the diffusion of pollution after the use.



More Types

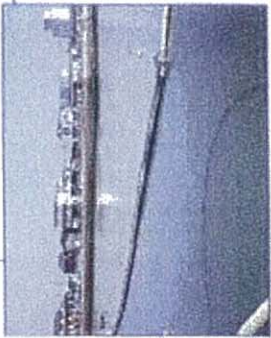
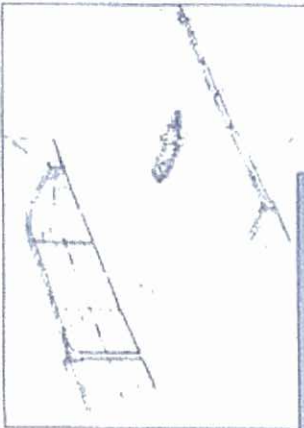
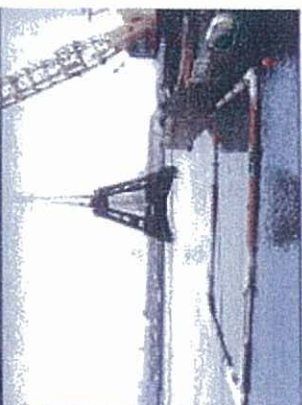
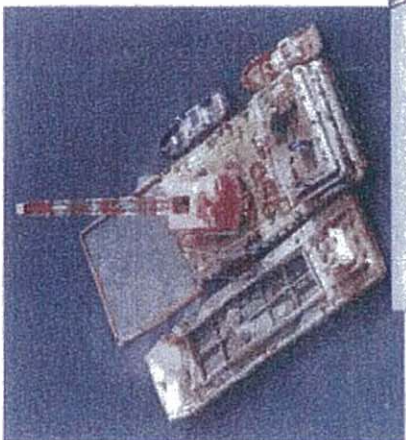
● Frame Type Silt Protector

This type has been designed to reduce local pollution caused by the grab dredging. It consists of fixed, loosely discharge pipes are used; curtains and ballast at the bottom. Modification may be added as necessary. Many of this type is made so that the length of the curtain can be changed according to the depth by using an wind and winch rope. The length of the curtain is made less than 2m for easier used on the grab dredger.



● Combined installation

Frame type Silt Protector is, in many cases, installed together with hanging type to avoid turbid water when dredger moves, sucking up curtain. For deep sea like 20m water depth combined installation of hanging type and standing type is sometimes used. In case, boat passing is necessary, sinkable hanging type is used for open part.



● Standing Type Silt Protector

The Standing type Silt Protector has been developed to prevent diffusion of bottom in dredging or dumping of soil. This type consists of an anchor (usually steel H beam) is used; curtain and float that pulls up the curtain with its buoyancy. The diameter of generally used float is 300mm (square type), and one span of this type is 20m long. In more cases, this type is used together with the hanging type product.

● Sinkable Hanging Type Silt Protector

The sinkable hanging type Silt Protector is used when it is necessary to make an entrance/out for the passage of vessel that enter into or exit from the reconstruction area. The fundamental construction of the sinkable hanging type Silt Protector is similar to the fixed hanging type Silt Protector except that the float is inflatable. The float is hollow and is made of synthetic rubber.

When making this unit deeper on the water, the float is inflated by charging it with air that can be compressed in a very short time. This unit can be sunk immediately by deflating the float. The typical case of application of the Silt Protector is the reconstruction of artificial island.

Application

Type of work

- Dredging**
 - Cutter suction dredging
 - Grab dredging
 - Hopper suction dredging

Offshore dumping

- From hopper barge
- From hopper suction dredger

Reclamation

- Submergence by dikes
- Seepage through

Cross Section



Pollution Removal Rate (%)

$$\begin{aligned} & 70 - 10 && \times 100 = 78.6 \\ & 60 - 12 && \times 100 = 80.0 \\ & 50 - 12 && \times 100 = 76.0 \\ & 40 - 12 && \times 100 = 81.3 \\ & 30 - 12 && \times 100 = 81.3 \end{aligned}$$

Upper layer, all side

$$\frac{51.0 - 14.0}{81.0} \times 100 = 95.1$$

Upper layer, right side

$$\frac{30.4 - 14.1}{16.3} \times 100 = 61.3$$

Middle layer, all side

$$\frac{77.0 - 20.0}{37.0} \times 100 = 40.3$$

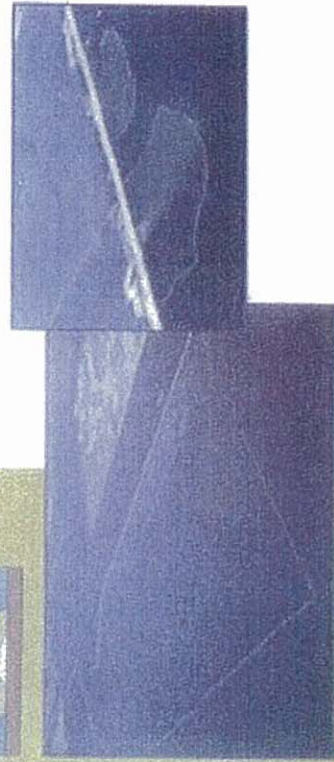
Lower layer, right side

$$\frac{20.1 - 10.1}{35.1} \times 100 = 48.4$$



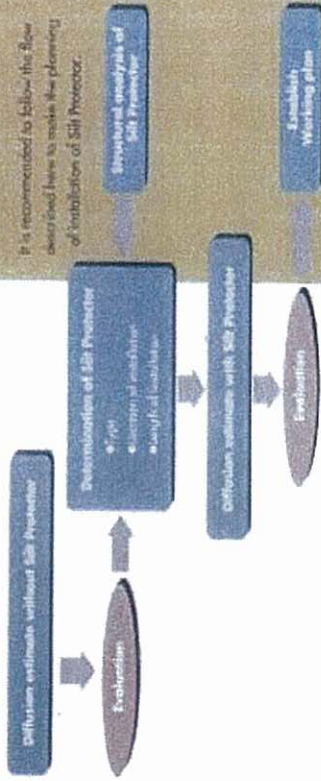
$$\begin{aligned} & 172 - 0 && \times 100 = 04.0 \\ & 200 - 97 && \times 100 = 81.0 \end{aligned}$$

Pollution removal rates shown in the above table are data taken from actual sites



Examination Flow

It is recommended to follow the flow described here to make the planning of installation of Silt Protector.



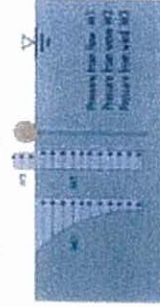
Structural Analysis

The specifications for the Silt Protector to be used are determined based on the external conditions of the site such as wave height, current speed, water depth and depth of water by using a specified structural calculation.

Design conditions

The design external force, W , applied to the Silt Protector is divided into the following three types of horizontal pressures.

- Wind velocity
- Current velocity
- Wave height
- Wave period
- Bottom soil
- Period of use
- Water depth
- Tidal range



Diffusion Estimate

Long Kyoto Corporation theoretically estimates the diffusion of pollution in case the Silt Protector is used, and affect of Silt Protector.

Typical diffusion of pollution



Estimate conditions

- Area of work
- Work item
- Dredging rate
- Working hours
- Operation period
- Soil state
- Larger value of JS
- Current velocity
- Water depth

Examination

Installation

● Installation works for Fixed Hanging Type Silt Protector

Preparation

- Preparation of working yard
- Stacking outdoor blocks
- Laying materials to the site

Assembling on the land

- Inspection
- Series connection of spools
- Temporary holding up of curtains

Installation works on the sea

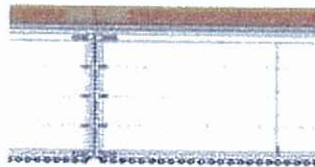
- Loading on the barge
- Towing barge
- Fixing anchor blocks
- Installing Silt Protector



- ✦ Membrane Structures
- ✦ TM (Taiyo Multipurpose)
Truss Space Frame Systems
- ✦ Civil Engineering Products
- ✦ Tent Warehouses
- ✦ Container Systems
- ✦ Engineering,
Fabrication&Construction

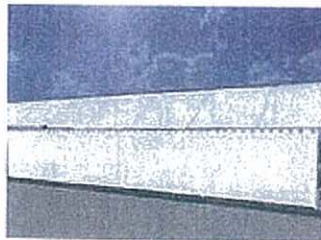


[top](#) | [about us](#) | [design](#) | [products](#) | [effect](#) | [installations](#)
[A type](#) | [B type](#) | [C type](#) | [D type](#) | [SD type](#)



STANDARD PRODUCT

- A type for open sea
 - B type for semi-open sea
 - C type for sheltered sea
 - D type for calm sea
 - SD type for calm sea for short period
- ← specifications are linked from above navigation bar



STANDING TYPE FOR DEEP SEA

For deep sea more than 10m, in many cases, it is effective to use 2 separate curtain systems. One curtain is hung down from sea surface and another curtain stand on sea bottom. By this combination of 2 curtains very deep sea like 20m depth can be covered and protected effectively.

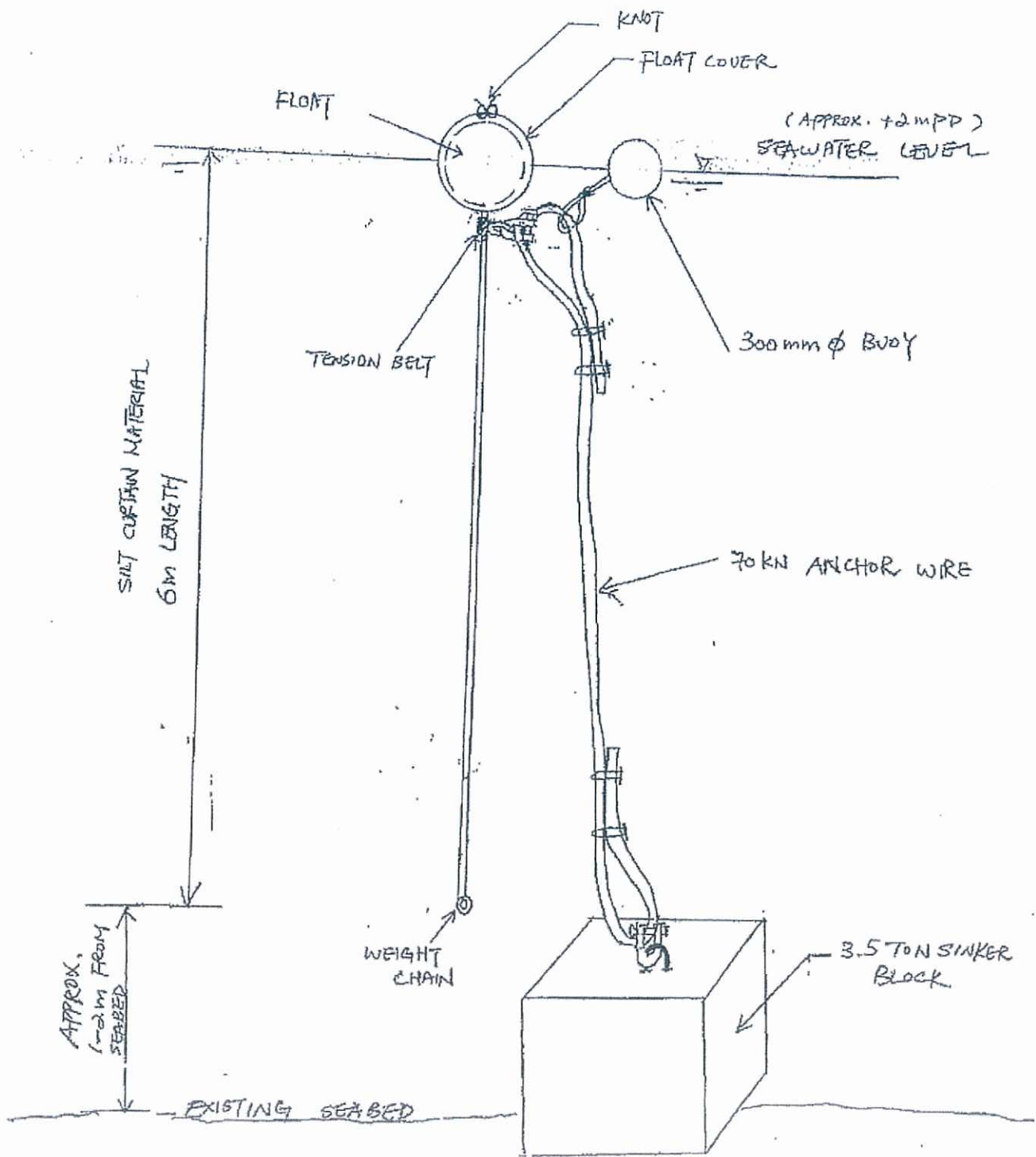


FRAME TYPE FOR GRAB DREDGER

For local protection during grab dredging, silt curtains are hung down from square shape steel pipe frame in which grab works. When grab dredger moves, curtains are usually lucked up by winch.

[▲ ThisPage's Top](#)

Typical Drawing



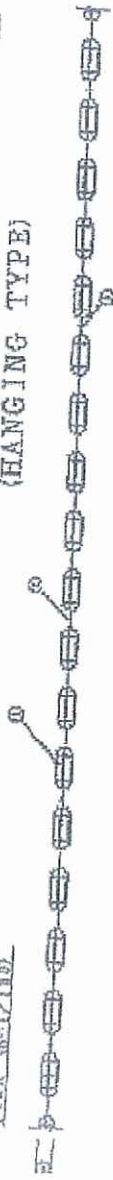
SECTION VIEW OF SILT CURTAIN INSTALLATION DETAILS

01.06.2010

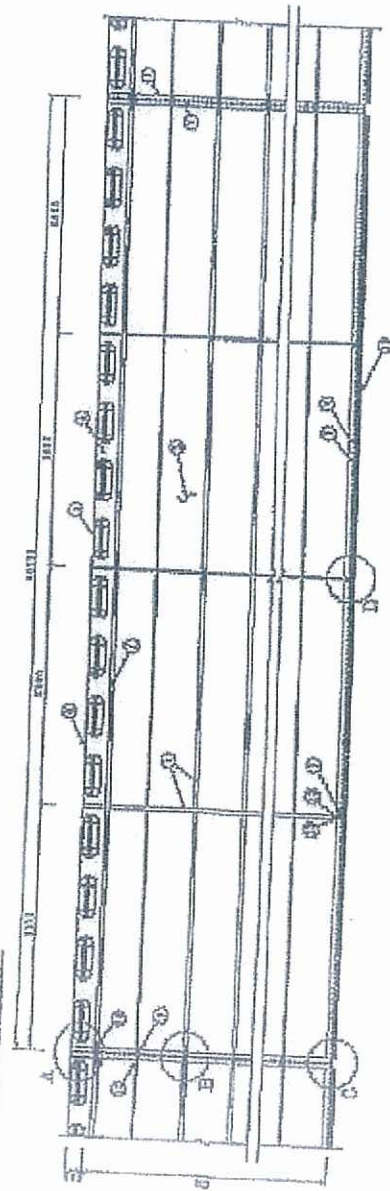
UNITED STATES GOVERNMENT

Silt Protector Specification (HANGING TYPE)

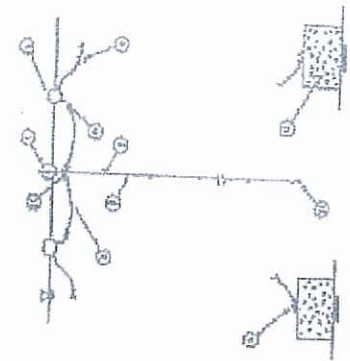
Plan (S=1/100)



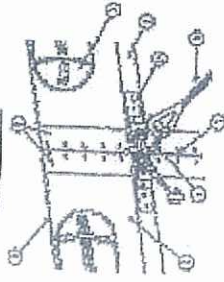
Side (S=1/100)



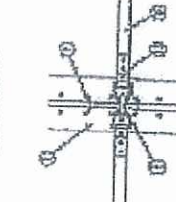
SECTION (S=1/100)



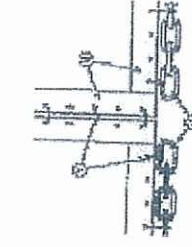
A Detail



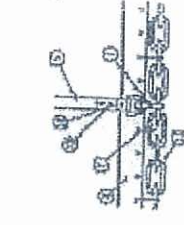
B Detail



C Detail



D Detail



Part-1

No.	Description
1	Frame
2	Lock
3	Support
4	Bar
5	Washer
6	Washer
7	Washer
8	Washer
9	Washer
10	Washer
11	Washer
12	Washer
13	Washer
14	Washer
15	Washer
16	Washer
17	Washer
18	Washer
19	Washer
20	Washer

No.	Description
21	Lock
22	Support
23	Bar
24	Washer
25	Washer
26	Washer
27	Washer
28	Washer
29	Washer
30	Washer
31	Washer
32	Washer
33	Washer
34	Washer
35	Washer
36	Washer
37	Washer
38	Washer
39	Washer
40	Washer

Part-2 (Installation)

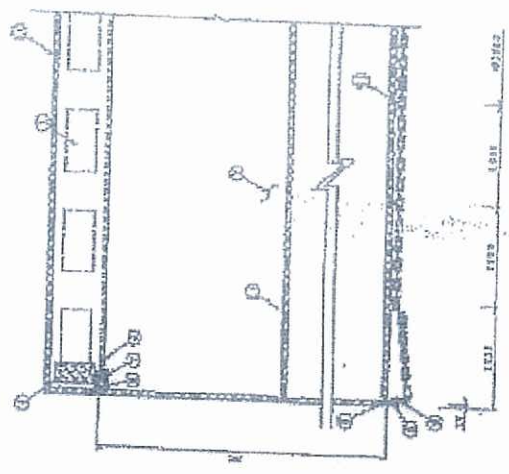
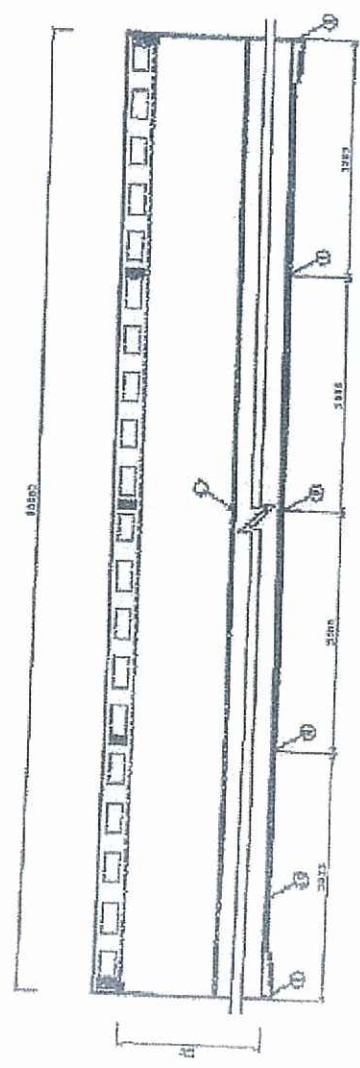
No.	Description
1	Lock
2	Support
3	Bar
4	Washer
5	Washer
6	Washer
7	Washer
8	Washer
9	Washer
10	Washer
11	Washer
12	Washer
13	Washer
14	Washer
15	Washer
16	Washer
17	Washer
18	Washer
19	Washer
20	Washer

DATE

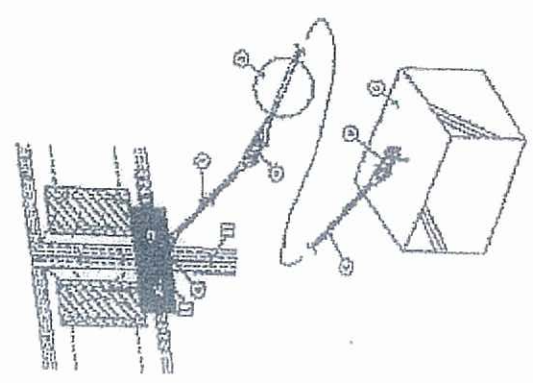
SILT PROTECTOR (SD TYPE)

SIZE P-2208

SCALE 1/4" = 1'-0"



Span Joint detail embayen



PARTS - I

No.	Description
1	Flat
2	Channel
3	Channel Rib
4	Channel Rib
5	Channel Rib
6	Channel Rib
7	Channel Rib
8	Channel Rib
9	Channel Rib
10	Channel Rib

PARTS - II (Installation)

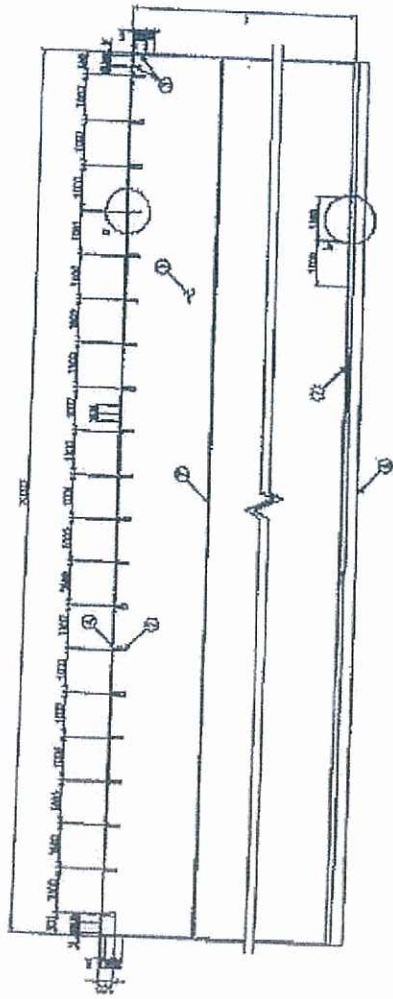
No.	Description
1	Flat
2	Channel
3	Channel Rib
4	Channel Rib
5	Channel Rib
6	Channel Rib
7	Channel Rib
8	Channel Rib
9	Channel Rib
10	Channel Rib

DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]
 DATE: [Date]
 PROJECT: [Project Name]
 SHEET NO.: [Sheet Number]

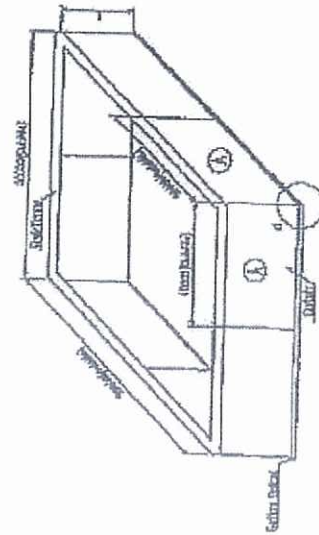
Frame Type Silt Protector SD (Grab Frame (2.0 m x 2.0 m))

Curtain (A) Sider s=1/SD
14 Sheet / Grab Frame (2.0m x 2.0m)

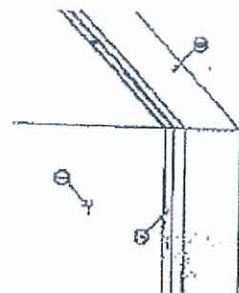
Curtain (A) Section s=1/SD
(4 Sheet / Grab Frame (2.0 x 2.0m))



General Construction of Frame Type Silt Ditch
Hanging From Grab Frame 5-Free



d detail



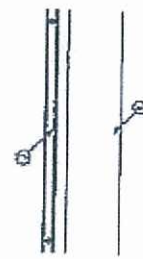
c detail



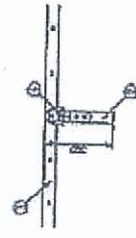
Curtain Joint detail



b detail



a detail



No.	Description
1	Curtain
2	Reinforcement Bar
3	Iron Bolt
4	Reinforcement Plate
5	Anchor Strap
6	Galvanneal Sheet
7	Flat Head

Form DTM ST PROSEK SD	
No.	1/2
Scale	1:50
Project	PROSEK
Location	PROSEK - DITP - SD
Date	



俊和 - 中國中鐵聯營
CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02
Wan Chai Development Phase II
Central - Wan Chai Bypass at Wan Chai East
Silt Curtain Deployment Plan

7.4 Appendix D

**Daily Checklist Template & Significant information
regarding the over night dredging and rockfilling works
in the interface area of WCR-1 & WCR-3**



俊和 - 中國中鐵聯營
CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02

Contract Title Wan Chai Development Phase II - Central - Wan Chai By Pass at Wan Chai East

Silt Curtain 每日檢查表

- 說明：
 ✓ = 滿意
 ✗ = 不滿意，須改善
 - = 不適用

位置：_____

日期：_____ 檢查員：_____

	星 期 一	星 期 二	星 期 三	星 期 四	星 期 五	星 期 六	星 期 日
整潔							
1. 沒有垃圾在架內 <i>不用</i>							
2. 沒有泥水在架內							
3. 已清理架內垃圾 <i>已清理</i>							
其他問題(請註明)：							
鐵架狀況							
1. 鐵架沒有損壞							
2. 鐵網沒有損壞							
3. 繫緊螺絲沒有鬆脫							
其他問題(請註明)：							
隔泥布狀況							
1. 隔泥布沒有損壞							
2. 沒有隔泥布在業主的隔泥網上							
3. 隔泥布沒有鬆脫							
其他問題(請註明)：							
簽署：							

RSS: _____

Significant information regarding the over night dredging and rockfilling works in the interface area of WCR-1 & WCR-3

Contact List for General Event and Contingency

CWCRGLJV (Main-Contractor):

Name of Person-in-charge	Position	Contact No.
Wong Hai Poi (Full-Time)	Foreman	6160 3837
Lee Kam Chuen (Emergency on Call)	Supervisor	6462 5096
Cecil Cheng (Emergency on Call)	Assistance Construction Manager	9225 7150
GARRY LAW (Emergency on Call)	Construction Manager	9408 1241
Cheung Wa Shing (Emergency on Call)	Sub-Agent	9493 3965

Kwan Sing Contractor Ltd. (Sub-Contractor):

Name of Person-in-charge	Position	Contact No.
Wong Kam Fuk	Foreman	9653 6245
Kwan Cheun Kow	Foreman	9166 5297
Fok	Coxswain of Sampan	9497 4739
勝嫂	Coxswain of Sampan	9701 2577

Star Ferry Pier at Wan Chai East:

Name of Person-in-charge	Position	Contact No.
Duty inspector in control room	Duty inspector	9869 5828

Tentative number of vessels to be implemented for the over night dredging works and rockfilling in the interface area of WCR-1 & WCR-3

- Dredger with 6m³ Grab × 1no. (for dredging only)
- Split type hopper barge × 1no. (for dredging only)
- Tug Boat (850Hp) × 1no. (for dredging only)
- Derrick Lighter × 1no. (for rockfilling only)
- Sampan × 2 nos. (for dredging/rockfilling)

Significant information regarding the over night dredging and rockfilling works in the interface area of WCR-1 & WCR-3

Tentative operation schedule for the over night dredging works in the interface area of WCR-1 & WCR-3

Time		Description of Works
From	To	
22:00	00:00	Relocate and deploy the silt curtain & mooring of vessels for the over night dredging & rockfilling works.
00:00	04:00	Carry out the overnight dredging & rockfilling works in the interface area of WCR-1 & WCR-3.
04:00	05:45	Reinstate the silt curtain to the original position and tow the working vessels off the interface area of WCR-1 & WCR-3 for the provision of 40m navigation channel for Daily Star Ferry Operation in east berth point.

Tentative working period

2 month (from 17th September 2010 to 16th November 2010) as allowed under CNP no. CW-RS0817-10.

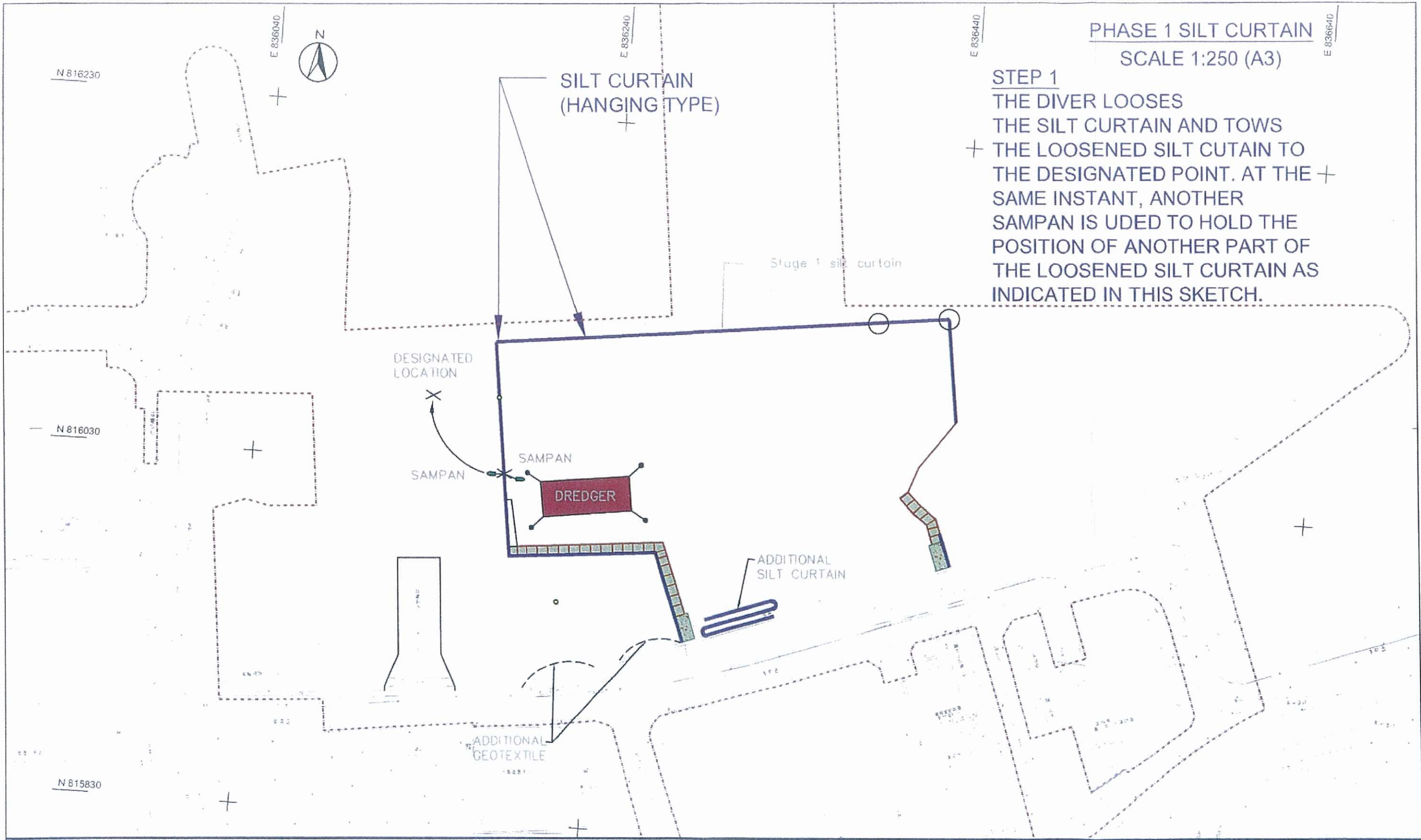


俊和 - 中國中鐵聯營
CHUN WO - CRGL JOINT VENTURE

Contract No. HK/2009/02
Wan Chai Development Phase II
Central - Wan Chai Bypass at Wan Chai East
Silt Curtain Deployment Plan

7.5 Appendix E

Sequence of Erection and Removal of the Hanging Type Silt Curtain & the Connection and Lifting Up Details of the Hanging Type Silt Curtain



PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

STEP 1
 THE DIVER LOOSES
 THE SILT CURTAIN AND TOWS
 THE LOOSENED SILT CURTAIN TO
 THE DESIGNATED POINT. AT THE
 SAME INSTANT, ANOTHER
 SAMPAN IS USED TO HOLD THE
 POSITION OF ANOTHER PART OF
 THE LOOSENED SILT CURTAIN AS
 INDICATED IN THIS SKETCH.

CLIENT	CONTRACTOR	俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE:	SCALE	1:2000	REF. TO DWG NO.	
	ENGINEER'S REPRESENTATIVE	PROJECT	SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 1)	DATE	22 SEPTEMBER 2010		Sheet 1 of 9
		CONTRACT NO. HK/2009/G2 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DRAWN	WAFFERY	DESIGNED	SKETCH NO
				CHECKED	---	APPROVED	---
							CWCRJV/HK200902/SK/RS/0001
							REV

PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

STEP 2

THE SAMPAN TOWS THE LOOSENED SILT CURTAIN TO THE DESIGNED LOCATION & THE TUG BOAT TOWS THE MOORING WIRE OF THE DREDGER WITH THE BUOY, FLASHING LIGHT AND FLAG TO THE DESIGNATED LOCATION WHERE THE MOORING WIRE AND BUOY ARE FIXED.

SILT CURTAIN
(HANGING TYPE)

Stage 1 silt curtain

SAMPAN

TUG BOAT

YELLOWISH MARKER BUOY
WITH YELLOWISH FLASHING LIGHT &
RED FLAG

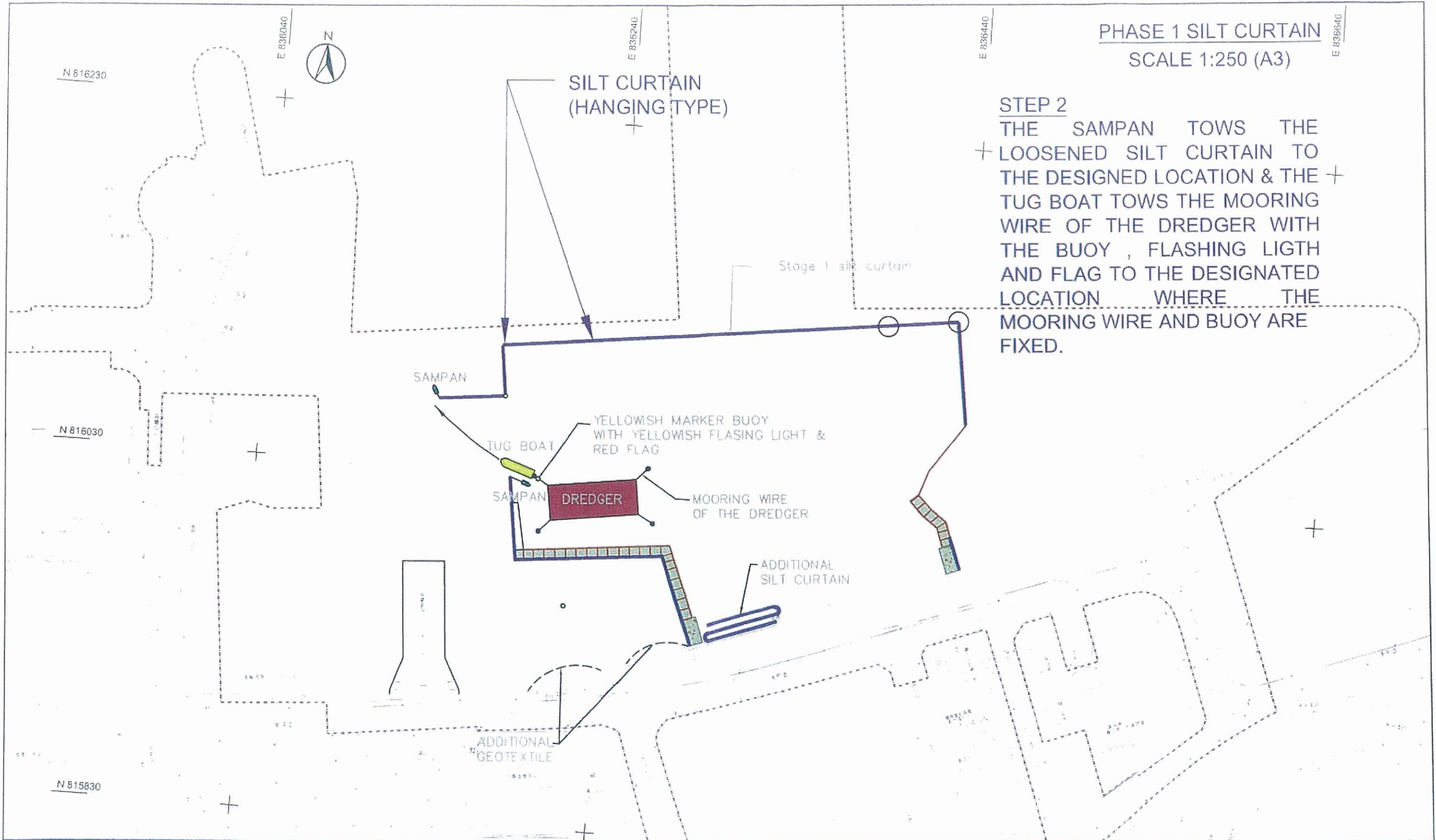
SAMPAN


DREDGER

MOORING WIRE
OF THE DREDGER

ADDITIONAL
SILT CURTAIN

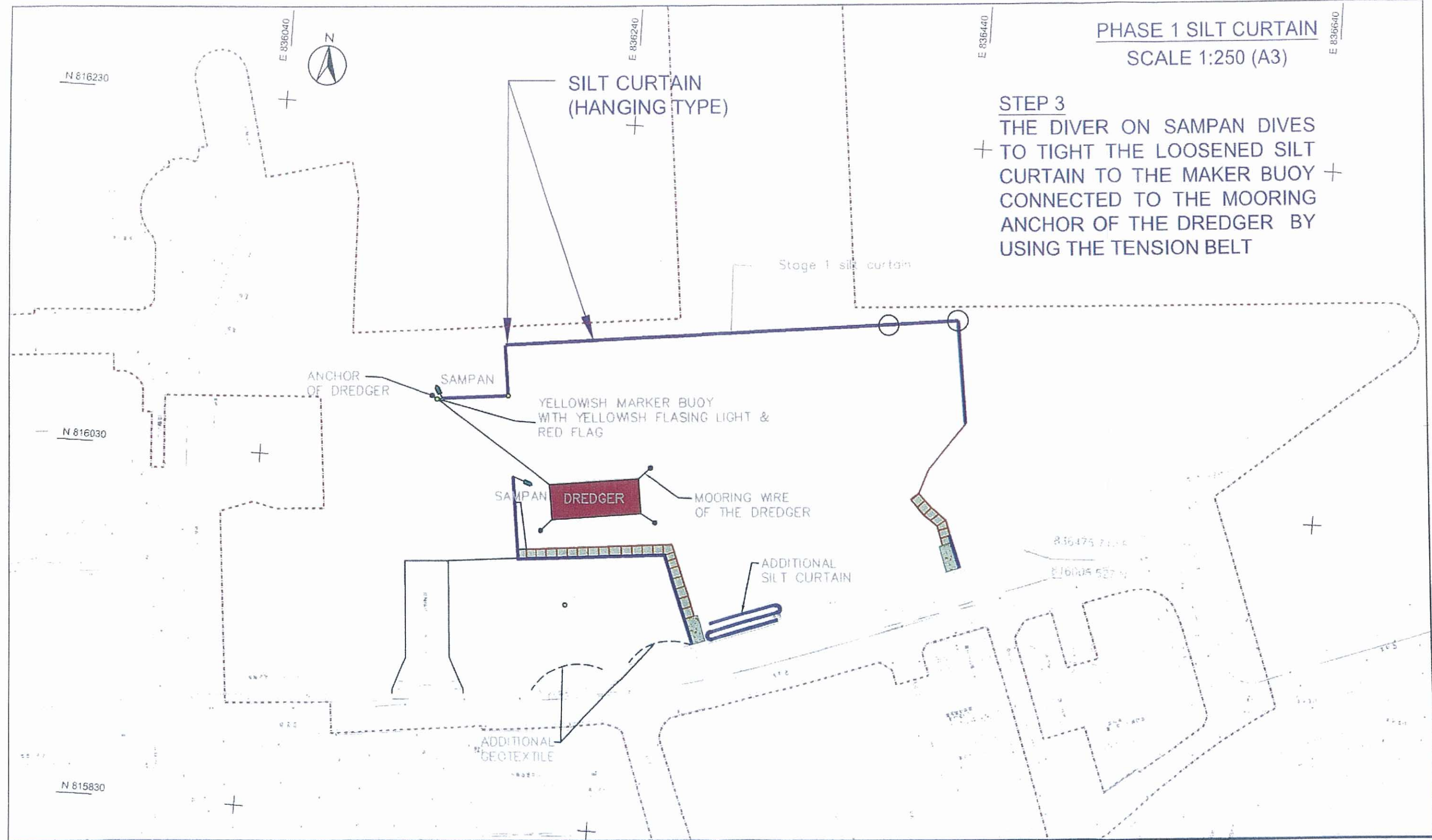
ADDITIONAL
GEOTEXTILE

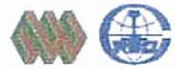


CLIENT	CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE: SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 2)	SCALE 1:2000	REF. TO DWG NO.
ENGINEER'S REPRESENTATIVE	PROJECT: CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DATE 22 SEPTEMBER 2010	Sheet 2 of 9
			DRAWN WAFFERY	DESIGNED
			CHECKED ---	APPROVED ---
				SKETCH NO ---
				REV ---
				CWCRJV/HK200902/SK/RS/0001

PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

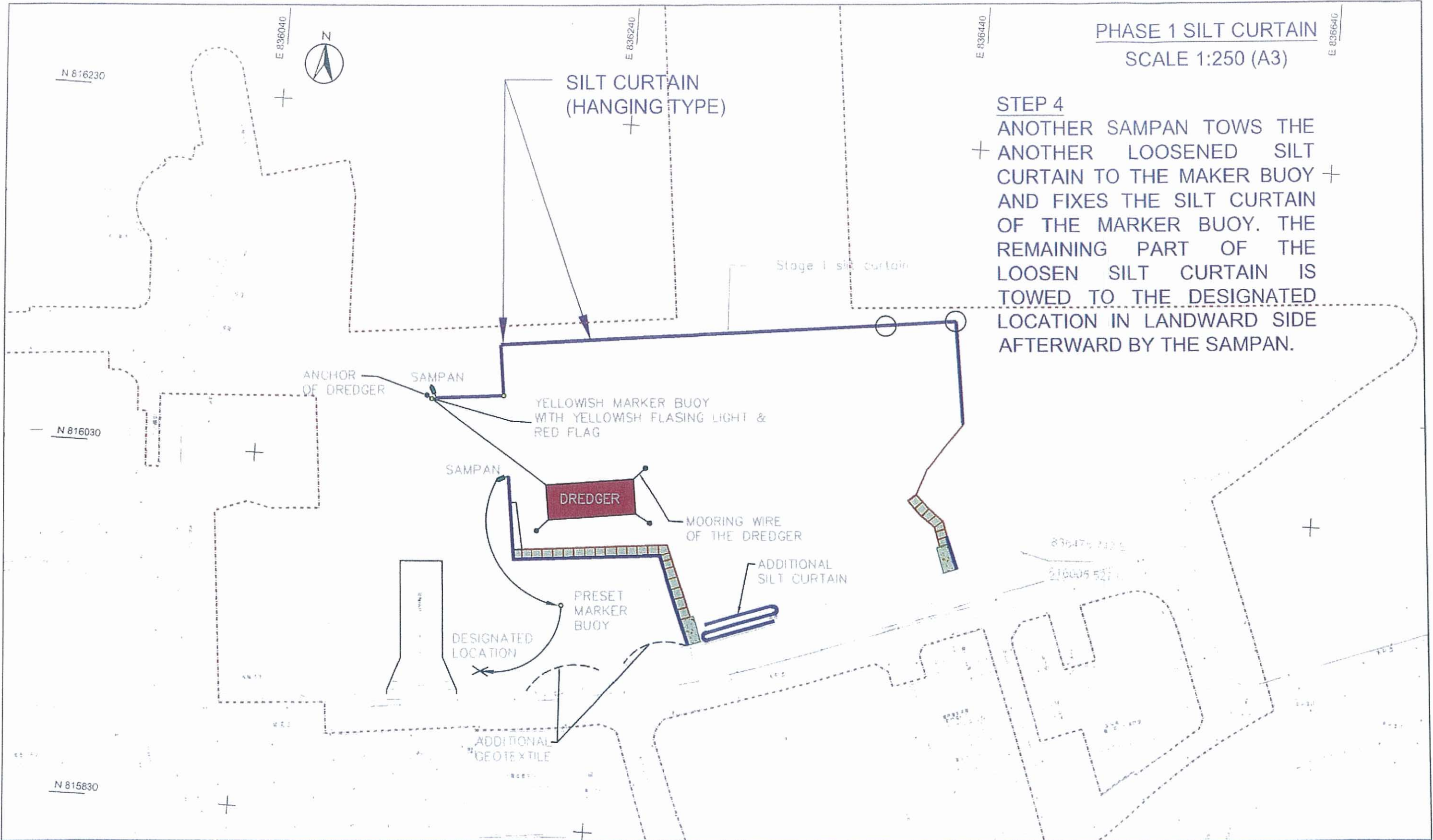
STEP 3
 + THE DIVER ON SAMPAN DIVES
 + TO TIGHT THE LOOSENED SILT
 + CURTAIN TO THE MAKER BUOY +
 + CONNECTED TO THE MOORING
 + ANCHOR OF THE DREDGER BY
 + USING THE TENSION BELT




CLIENT	CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE: SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 3)	SCALE 1:2000	REF. TO DWG NO.
ENGINEER'S REPRESENTATIVE	PROJECT: CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DATE 22 SEPTEMBER 2010	Sheet 3 of 9
			DRAWN WAFFERY	DESIGNED
			CHECKED ---	APPROVED ---
				SKETCH NO
				REV CWCRJV/HK200902/SK/RS/0001

PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

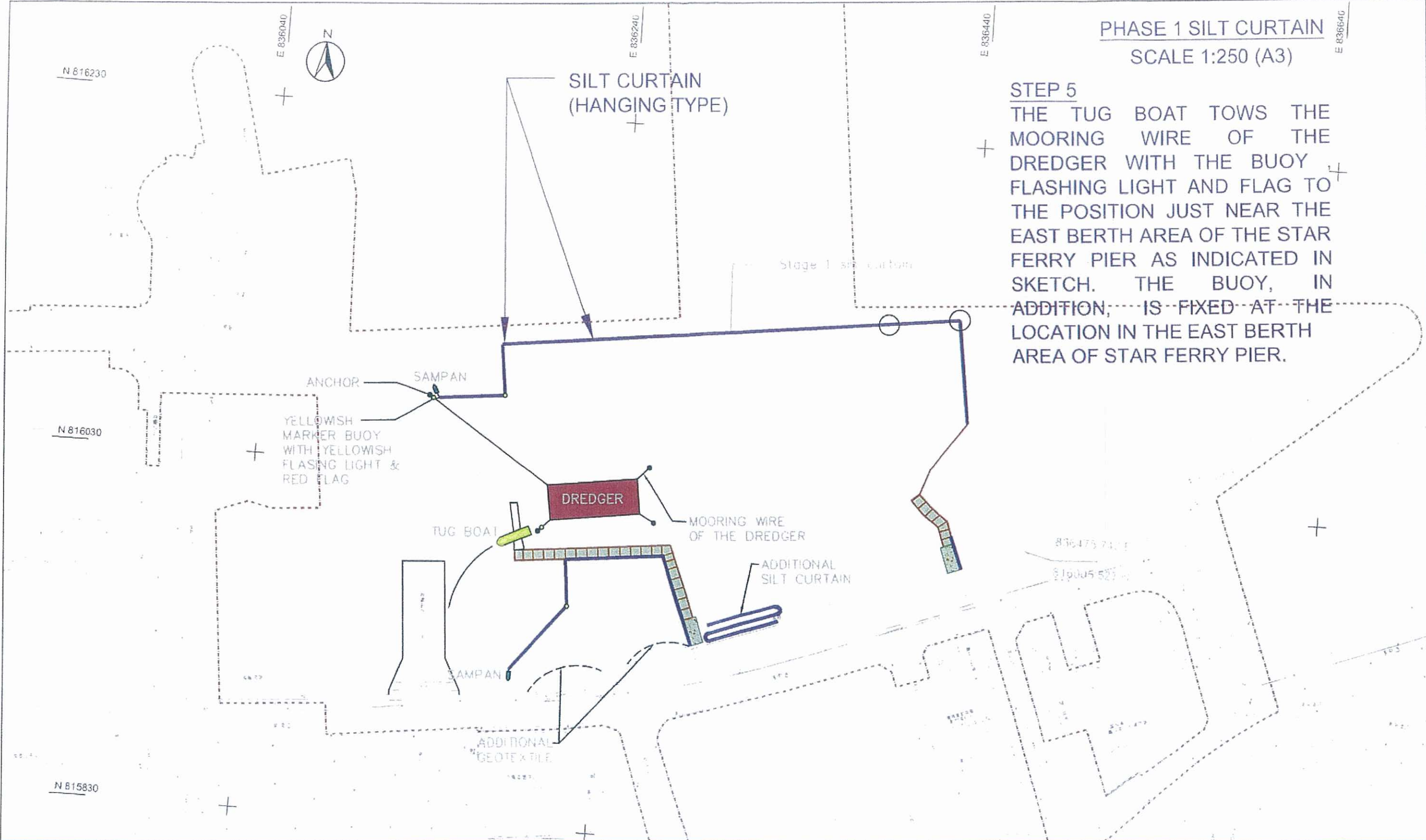
STEP 4
 + ANOTHER SAMPAN TOWS THE
 + ANOTHER LOOSENED SILT
 + CURTAIN TO THE MAKER BUOY
 + AND FIXES THE SILT CURTAIN
 + OF THE MARKER BUOY. THE
 + REMAINING PART OF THE
 + LOOSEN SILT CURTAIN IS
 + TOWED TO THE DESIGNATED
 + LOCATION IN LANDWARD SIDE
 + AFTERWARD BY THE SAMPAN.



CLIENT	CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE: SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 4)	SCALE 1:2000	REF. TO DWG NO.
ENGINEER'S REPRESENTATIVE	PROJECT: CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DATE 22 SEPTEMBER 2010	Sheet 4 of 9
			DRAWN WAFERY	DESIGNED
			CHECKED ---	APPROVED ---
				SKETCH NO CWCJV/HK200902/SK/RS/0001
				REV ---

PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

STEP 5
THE TUG BOAT TOWS THE MOORING WIRE OF THE DREDGER WITH THE BUOY FLASHING LIGHT AND FLAG TO THE POSITION JUST NEAR THE EAST BERTH AREA OF THE STAR FERRY PIER AS INDICATED IN SKETCH. THE BUOY, IN ADDITION, IS FIXED AT THE LOCATION IN THE EAST BERTH AREA OF STAR FERRY PIER.



CLIENT	CONTRACTOR 俊和-中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE: SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 5)	SCALE 1:2000	REF. TO DWG. NO.
ENGINEER'S REPRESENTATIVE	PROJECT: CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DATE 22 SEPTEMBER 2010	Sheet 5 of 9
			DRAWN MAFFERY	DESIGNED
			CHECKED ---	APPROVED ---
				SKETCH NO. CWCJV/HK200902/SK/RS/0001
				REV -

PHASE 1 SILT CURTAIN

SCALE 1:250 (A3)

STEP 6

THE SAMPAN TOWS THE REMAINING LOOSENED SILT CURTAIN FROM THE LANDWARD SIDE TO THE FIXED YELLOWISH MARKER BUOY IN THE PROXIMITY OF THE EAST BERTH AREA OF STAR FERRY PIER.

SILT CURTAIN
(HANGING TYPE)

Stage 1 silt curtain

ANCHOR SAMPAN

YELLOWISH MARKER BUOY WITH YELLOWISH FLASHING LIGHT & RED FLAG

YELLOWISH MARKER BUOY WITH YELLOWISH FLASHING LIGHT & RED FLAG

DREDGER

MOORING WIRE OF THE DREDGER

YELLOWISH MARKER BUOY WITH YELLOWISH FLASHING LIGHT & RED FLAG

ANCHOR

SAMPAN

ADDITIONAL SILT CURTAIN

ADDITIONAL GEOTEXTILE

CLIENT

CONTRACTOR



俊和 - 中國中鐵聯營
CHUN WO - CRGL JOINT VENTURE

JOB TITLE:

SEQUENCE OF RELOCATION OF SILT CURTAIN
(STEP 6)

SCALE

1:2000

REF. TO DWG NO.

DATE

22 SEPTEMBER 2010

Sheet 6 of 9

ENGINEER'S REPRESENTATIVE

PROJECT

CONTRACT NO. HK/2009/02
WAN CHAI DEVELOPMENT PHASE II -
CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST

DRAWN

WAFERY

DESIGNED

SKETCH NO

REV

CHECKED

APPROVED

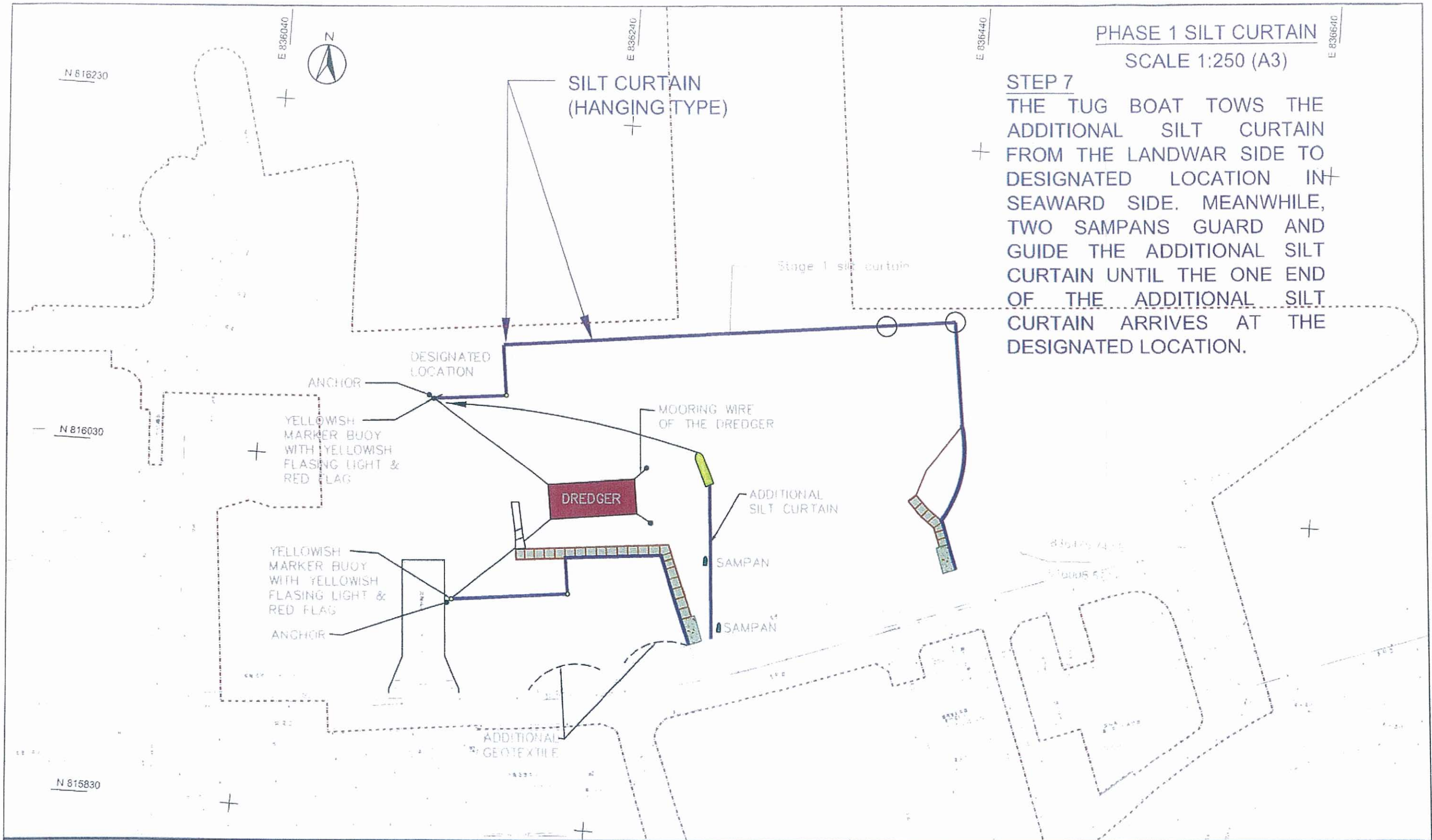
CWCRJV/HK200902/SK/RS/0001


PHASE 1 SILT CURTAIN

SCALE 1:250 (A3)

STEP 7

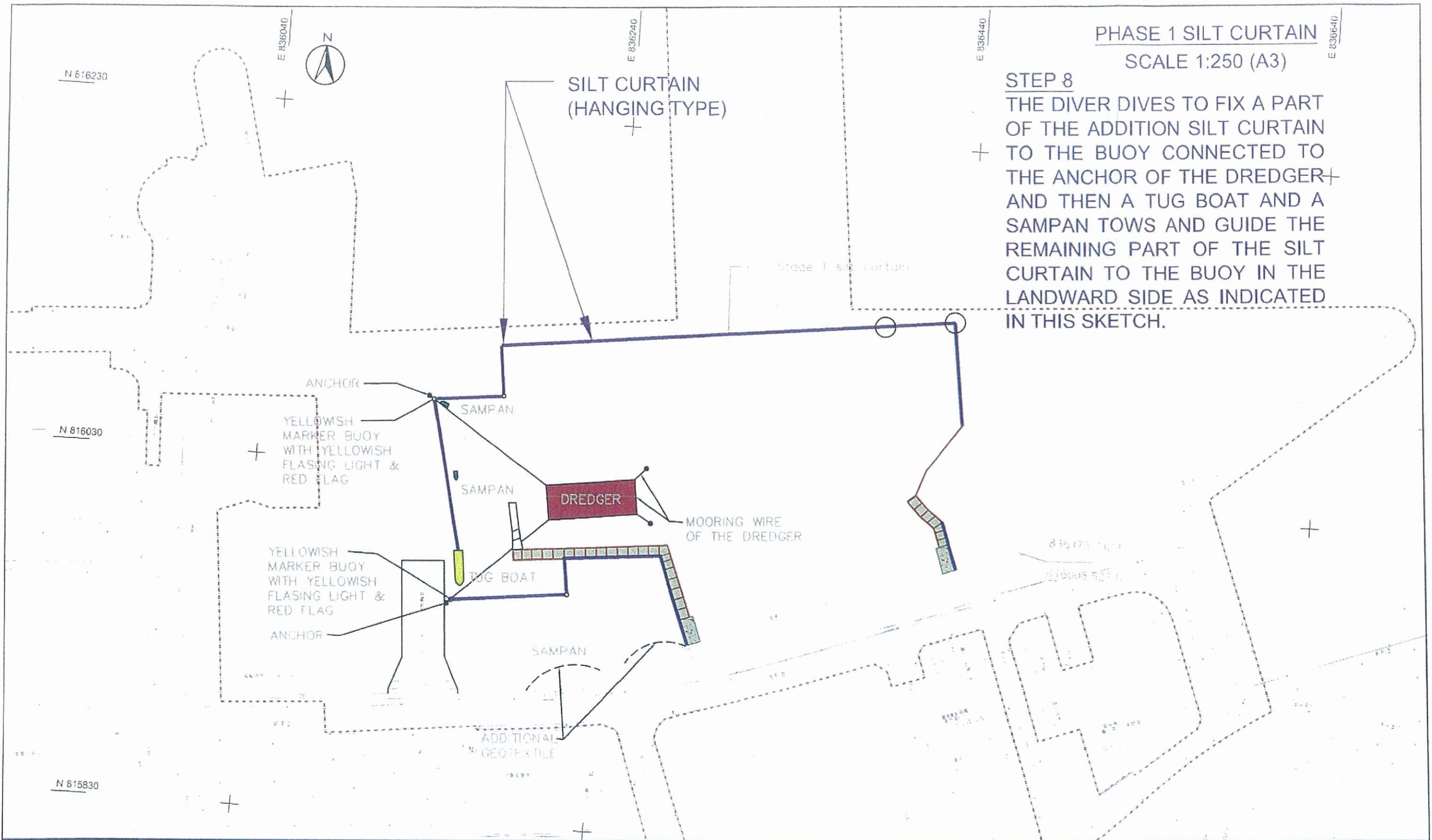
THE TUG BOAT TOWS THE ADDITIONAL SILT CURTAIN FROM THE LANDWARD SIDE TO DESIGNATED LOCATION IN SEAWARD SIDE. MEANWHILE, TWO SAMPANS GUARD AND GUIDE THE ADDITIONAL SILT CURTAIN UNTIL THE ONE END OF THE ADDITIONAL SILT CURTAIN ARRIVES AT THE DESIGNATED LOCATION.

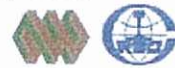


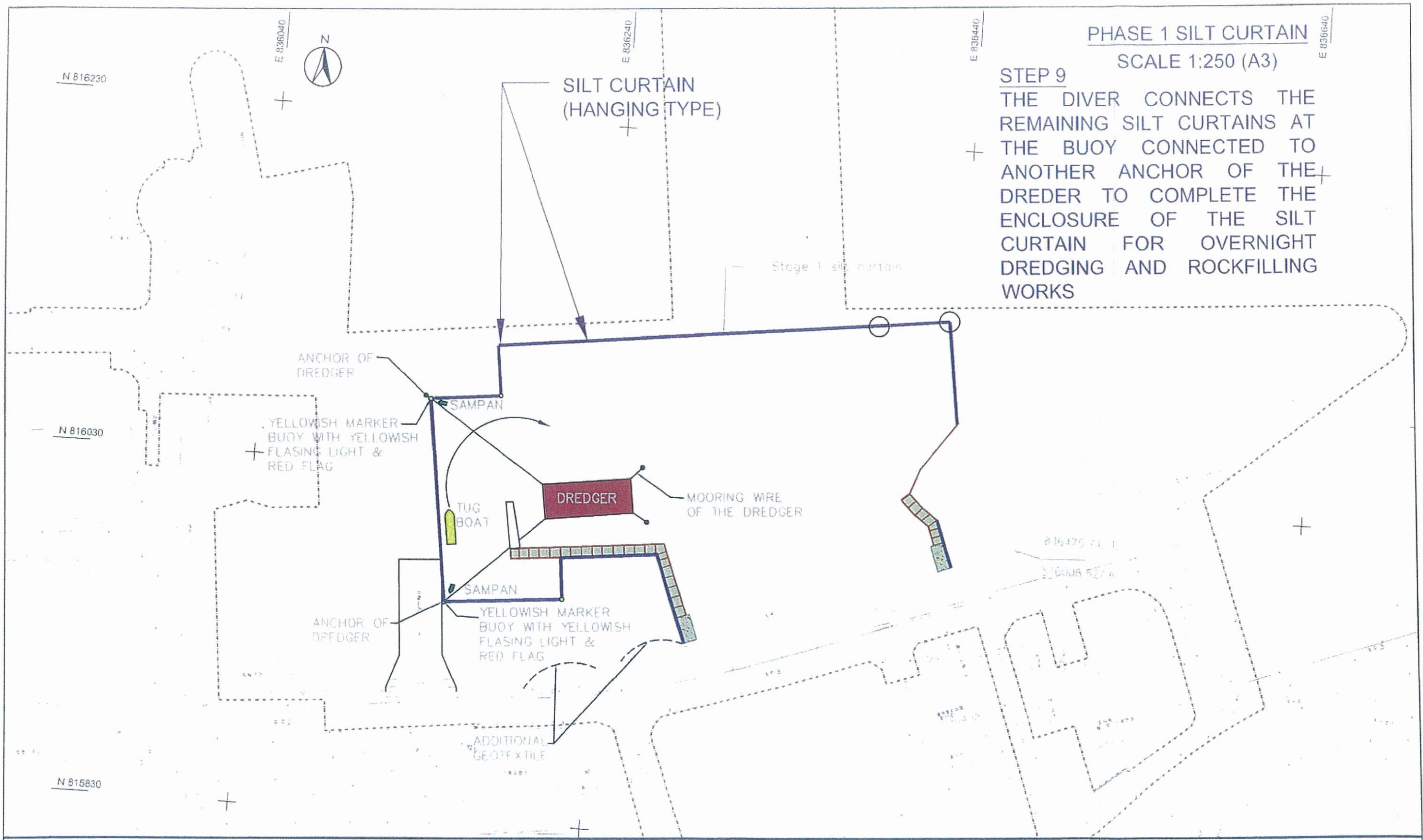
CLIENT	CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE: SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 7)	SCALE 1:2000	REF. TO DWG. NO.
ENGINEER'S REPRESENTATIVE	PROJECT CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DATE 22 SEPTEMBER 2010	Sheet 7 of 9
			DRAWN WAF:ERY	DESIGNED
			CHECKED ---	APPROVED ---
				SKETCH NO. CWCJRJV/HK200902/SK/RS/0001
				REV -

PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

STEP 8
THE DIVER DIVES TO FIX A PART OF THE ADDITION SILT CURTAIN TO THE BUOY CONNECTED TO THE ANCHOR OF THE DREDGER AND THEN A TUG BOAT AND A SAMPAN TOWS AND GUIDE THE REMAINING PART OF THE SILT CURTAIN TO THE BUOY IN THE LANDWARD SIDE AS INDICATED IN THIS SKETCH.




CLIENT	CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE:	SCALE	1:2000	REF. TO DWG NO.
ENGINEER'S REPRESENTATIVE	PROJECT: CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST	SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 8)	DATE	22 SEPTEMBER 2010	Sheet 8 of 9
			DRAWN	WAF-ERY	DESIGNED
			CHECKED	---	APPROVED
					SKETCH NO CWCJV/HK200902/SK/RS/0001
					REV ---



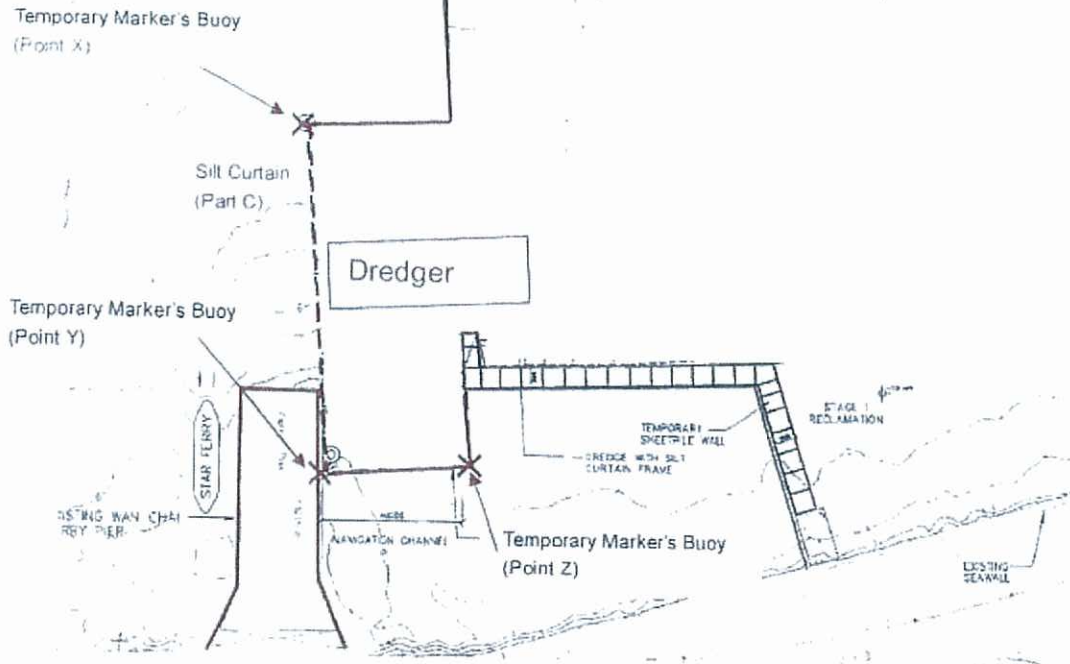
PHASE 1 SILT CURTAIN
SCALE 1:250 (A3)

STEP 9
 THE DIVER CONNECTS THE REMAINING SILT CURTAINS AT THE BUOY CONNECTED TO ANOTHER ANCHOR OF THE DREDGER TO COMPLETE THE ENCLOSURE OF THE SILT CURTAIN FOR OVERNIGHT DREDGING AND ROCKFILLING WORKS

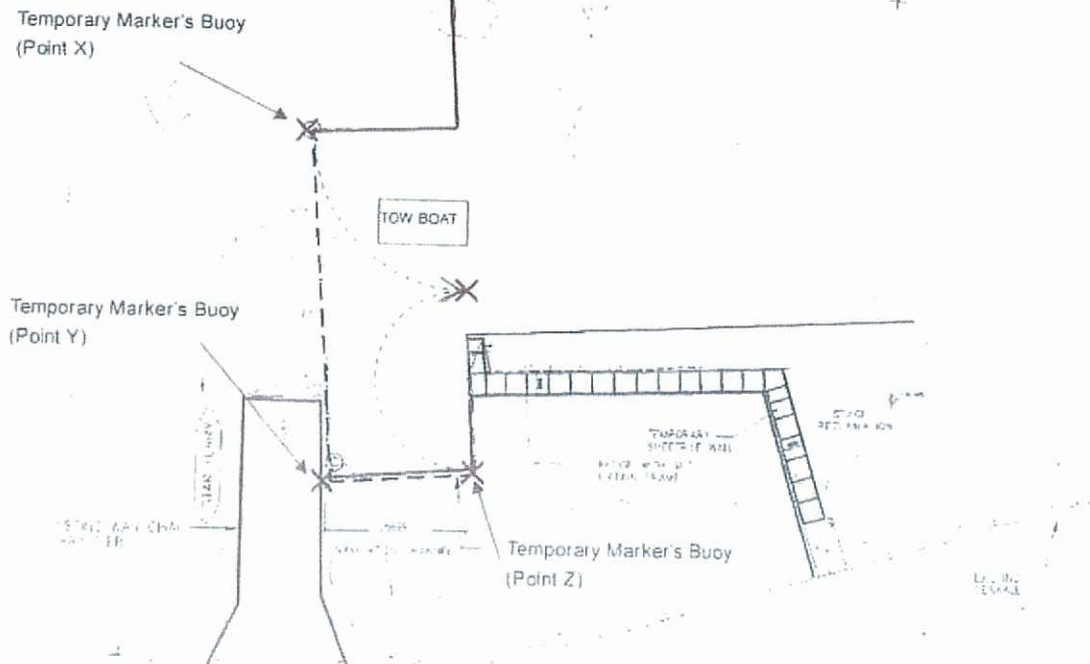
CLIENT	CONTRACTOR  俊和 - 中國中鐵聯營 CHUN WO - CRGL JOINT VENTURE	JOB TITLE: SEQUENCE OF RELOCATION OF SILT CURTAIN (STEP 9)	SCALE 1:2000	REF. TO DWG NO.
ENGINEER'S REPRESENTATIVE	PROJ. NO. CONTRACT NO. HK/2009/02 WAN CHAI DEVELOPMENT PHASE II - CENTRAL - WAN CHAI BYPASS AT WAN CHAI EAST		DATE 22 SEPTEMBER 2010	Sheet 9 of 9
			DRAWN WAFFERY	DESIGNED
			CHECKED ---	APPROVED ---
				SKETCH NO. CWCJRJV/HK200902/SK/RS/0001
				REV ---

Working Sequence of Removal of Temporary Silt Curtain and Reinstatement of Existing Silt Curtain

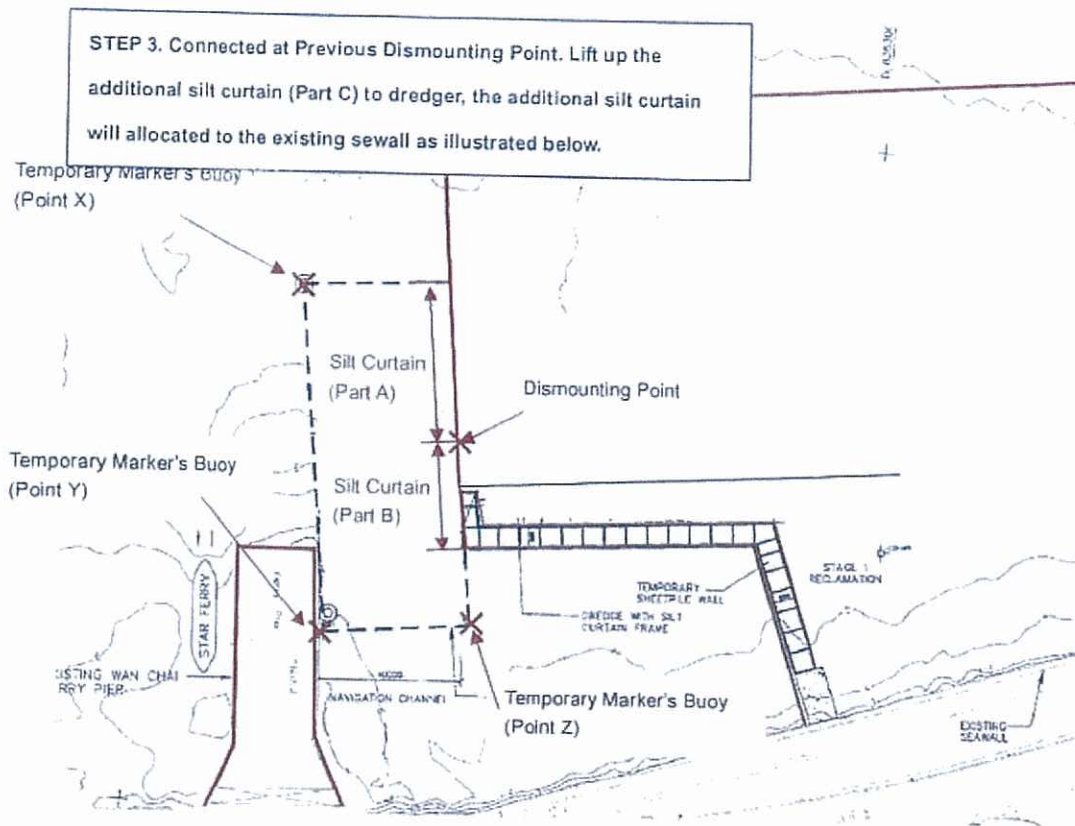
STEP 1. Dismount Silt Curtain (Part C) which is towed to the Dredger, Temporary Marker Buoy will be Picked Up by Dredger.

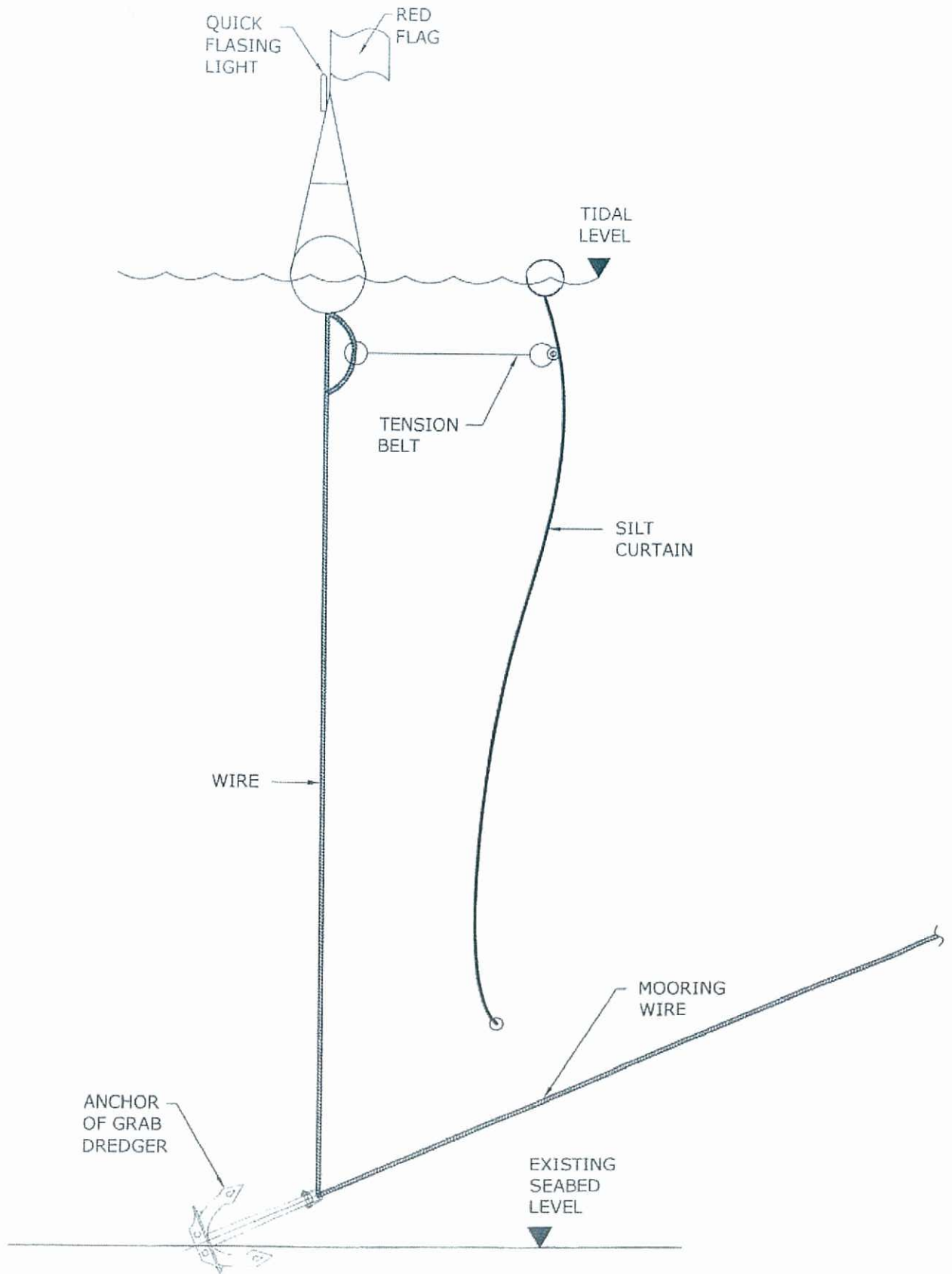


STEP 2. Tow and Fix the Silt Curtain (Part A and Part B) back to Original Alignment of Existing Silt Curtain.

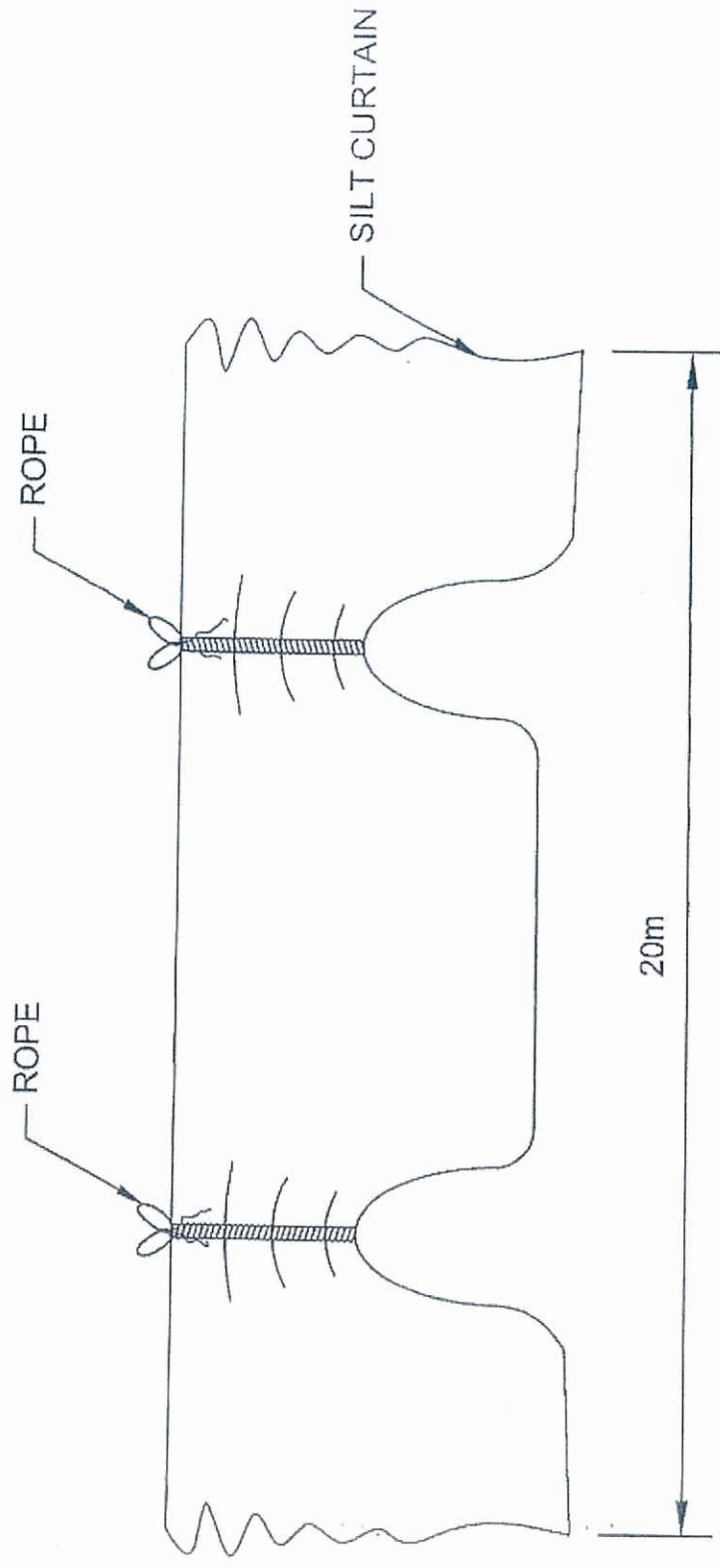


Working Sequence of Removal of Temporary Silt Curtain and Reinstatement of Existing Silt Curtain





TYPICAL CONNECTION DETAIL
BETWEEN THE ANCHOR, FLOATING
MARKER BUOY AND SILT CURTAIN



LIFTING UP DETAILS OF SILT CURTAIN IN THE COURSE
OF SILT CURTAIN INSTALLATION