ENVIRON

Ref.: AACWBIECEM00_0_1299L.11 4 May 2011

By Post and Fax (2566 2192)

China State Construction Engineering (Hong Kong) Ltd.
29/F, China Overseas Building
139 Hennessy Road
Hong Kong

Attention: Mr. K. Y. Leung

Dear Sir,

Re: FEP-06/364/2009/A
Contract No. HY/2009/15
Central – Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)
Noise Management Plan (Revision 0)

Reference is made to your submission of the Noise Management Plan (Revision 0 dated 29 April 2011) to us through E-mail on 29 April 2011 for our review and comment.

Please be informed that we have no further comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 2.9 of FEP-06/364/2009/A.

Please feel free to contact the undersigned should you have any queries.

Yours sincerely,

David Yeung
Independent Environmental Checker

c.c.	HyD	Mr. Jones Lai	by fax: 2714 5289
	CEDD	Mr. Patrick Keung	by fax: 2577 5040
	AECOM (CWB)	Mr. Peter Poon	by fax: 3529 2829
	AECOM	Mr. Kelvin Cheng	by fax: 2691 2649
	LAM	Mr. Raymond Dai (ETL)	by fax: 2882 3331

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Lam Geotechnics Limited
Ground Investigation & Instrumentation Professionals

華益土力有限公司

Ref : G1001/CS/L345/FEP-06/364/2009/A
Date : 4 May 2011

China State Construction Engineering (Hong Kong) Ltd.
29/F, China Overseas Building,
139 Hennessy Road, Hong Kong

Attn: Mr. K. Y. Leung

Dear Sir,

FEP-06/364/2009/A
Contract No. HY/2009/15
Central- Wan Chi Bypass – Tunnel (Causeway Bay Typhoon Shelter Section)
Noise Management Plan (Revision 0)

Referring to your submission of the captioned plan (Revision 0 dated 29 April 2011) received through email on 29 April 2011, we have reviewed your submitted details and hereby certify this submission in accordance with Condition 2.9 of Further Environmental Permit no. FEP-06/364/2009/A.

Should you have any enquiry, please feel free to contact the undersigned at 2839 5666.

Yours faithfully,

Raymond Dai
Environmental Team Leader

c.c.	*CEDD*	*- Mr. Patrick Keung*	*(By Fax: 2577 5040)*
	HyD	*- Mr. Jones Lai*	*(By Fax 2714 5289)*
	AECOM CWB	*- Mr. Peter Poon*	*(By Fax: 3529 2829)*
	AECOM WDII	*- Mr. Frankie Fan*	*(By Fax: 2587 1877)*
	ENVIRON	*- Mr. David Yeung*	*(By Fax: 3548 6988)*

11/F, Centre Point, 181-185 Gloucester Road, Wanchai, Hong Kong
Tel: (852) 2882-3939 Fax: (852) 2882-3331
Website: www.lamgeo.com Email: info@lamgeo.com

CONTRACT HY/2009/15

CENTRAL – WAN CHAI BYPASS
TUNNEL (CAUSEWAY BAY TYPHOON SHELTER SECTION)

Noise Management Plan

Submission Status: For Approval

Revision	Description	Date
0	1st submission	29 April 2011

Prepared by:	Kelven Yip		29/04/2011
	Environmental Supervisor	Signature	Date
Checked by	Samuel Tsui		29/04/2011
	Environmental Officer	Signature	Date
Approved by:	Simon Tang		29/04/2011
	Contractor's Representative	Signature	Date

LIST OF CONTENT

1.0 Introduction

Central – Wan Chai Bypass – Tunnel (Causeway Bay Typhoon Shelter Section) (Contract No.: HY/2009/15) – as a part of the "temporary reclamation works including associated dredging works in Wan Chai Development Phase II (WDII) area" which is covered in the Environmental Permit No. EP-364/2009/A and Further Environmental Permit No. FEP-06/364/2009/A. Under the Part C of the EP, a noise management plan in order to fulfill the EP condition. Please refer to the site layout on Appendix A (The scale of layout is 1:1000).

The purpose of this Noise Management Plan is to provide an evaluation of the potential noise impacts arising during construction phase of the project in the Causeway Bay Typhoon Shelter (CBTS) and ex-Wan Chai Public Cargo Working Area (ex-WCPCWA).

2.0 Environmental Legislation, Policies, Plans, Standards and Criteria

Noise impacts have been assessed in accordance with the criteria and methodology given in the Technical Memoranda (TM) made under the Noise Control Ordinance (NCO) and the Technical Memorandum on Environmental impact Assessment Process (EIAO-TM)

The NCO provides the statutory framework for noise control. Assessment procedures and standards are set out in the following Technical Memoranda:-

1. Technical Memorandum on Environmental impact Assessment Process (EIAO-TM);
2. Technical Memorandum on Noise from Construction Work other than Percussive Piling (GW-TM);
3. Technical Memorandum on Noise from Construction Work in Designated Areas (DA-TM); and
4. Technical Memorandum on Noise from Places other than Domestic Premises, Public Places or construction Sites (IND-TM).

3.0 Noise Limit

The NCO provides the statutory framework for noise control of construction work other than percussive piling using powered mechanical equipment (PME) between the hours of 1900 to 0700 or at any time on Sundays and a general holiday (that is, restricted hours). Noise control on construction activities taking place at other times is subject to the Criteria for Evaluating Noise Impact stated in Table 1B of Annex 5 in the EIAO-TM. The noise limit is 75dB(A)$L_{eq(30\ minutes)}$ at

the facades of dwellings and 70dB(A) $L_{eq(30\ minutes)}$ at the facades of schools (65dB(A) during examinations). The construction noise criteria are summarized in Table 1.

Table 1 Daytime Construction Noise Criteria

Uses	Noise Level in Leq (30-minutes), dB(A)
Domestic Premises	**75**
Educational Institution	**70**
Educational Institution (during examination)	**65**

Between 1900 and 0700 hours and all day on Sundays and public holidays, activities involving the use of powered mechanical equipment (PME) for use purpose of carrying out construction work is prohibited unless a Construction Noise Permit (CNP) has been obtained. A CNP may be granted provided that the Acceptable Noise Level (ANL) for the noise sensitive receivers (NSRs) can be complied with. ANLs are assigned depending upon the Area Sensitivity Ratings (ASRs). The corresponding basic noise levels (BNLs) for evening and night time periods are given in Table 2.

Table 2 Construction Noise Criteria for Activity other than Percussive Piling

Time Period	Basic noise Level (BNLs)		
	ASR A	ASR B	ASR C
Evening (1900 to 2300 hours)	60	65	70
Night (2300 to 0700 hours)	45	50	55

4.0 Identified Noise Sensitive Receivers (NSRs)

In order to evaluate the construction noise impacts from the project, representative noise sensitive receivers (NSRs) for this contract which are identified in the EIA report (Register No. AEIAR-125/2008) were selected for assessment and summarized in Table 3. The distances in below table refer to Appendix 4.1 of AEIAR-125/2008 and Appendix 4.2 of AEIAR-041-2001.

Table 3 Distances between Noise Sensitive Receivers and Construction Zone

NSRs	Use	Dist. from Closest Construction Works (m)	Zone
Elizabeth House (N6)	Residential	230	TPCWAE
		270	CHT
Marco Polo Mansion (N8)	Residential	215	TCBR1W

		280	TCBR3
		285	CHT
Belle House (N13)	Residential	230	TCBR1E
		280	TCBR2
Staff Quarters of FEHD (N15)	Residential	140	TCBR1E
		200	TCBR2
Harbour Heights (N17)	Residential	250	TCBR1E

5.0 Construction Noise

5.1 Construction Tasks

Below construction tasks will likely lead to emission of construction noise:

- Diaphragm wall, excavation, construction of slabs and backfilling in CWB tunnel construction; and
- Rock excavation at CWB tunnel (Cross Harbour Tunnel section)

5.2 Uses of Powered Mechanical Equipment (PME)

Type and number of powered mechanical equipment which would be used on site are referred to Appendix 4.5 of AEIAR-125/2008 and grouped according to different stage of works. Detailed list of PME and specific noise impact of individual construction task will be reviewed in relevant method statement(s) via submission to Engineer.

6.0 Mitigation of Environmental Impacts

In order of further reduce the noise impacts to NSRs during normal daytime working hours, it is still recommended that the following noise reduction measures shall be considered as far as practicable during construction.

6.1 Quality Powered Mechanical Equipment (QPME)

For the following construction tasks of the project, it is considered necessary to adopt quiet PME:

- Diaphragm wall, excavation, construction of slabs and backfilling in CWB tunnel construction; and
- Rock excavation at CWB tunnel (Cross Harbour Tunnel section)

Uses of the following types of QPME will be considered during the construction phase of this project to reduce noise impacts:

- Bulldozer, wheeled/tracked
- Excavator, wheel/tracked
- Loader, wheeled/tracked
- Asphalt paver
- Road roller
- Roller, vibratory
- Power rammer (petro)
- Compactor, vibratory
- Crane, mobile
- Generator

6.2 Diaphragm Walls Construction

For the construction of diaphragm walls within Portions I, II, IV and VI (see Appendix C), temporary noise barriers (5 m in height) with cantilevered upper portion (3.5 m in length) within 5 m from any static or mobile plant. Unless otherwise agreed by the Engineer Representative, the temporary noise barriers shall consist of barrier material with a surface mass of not less than 14 kg/m^2 with 25 mm thick internal sound absorptive lining to achieve the maximum screening effect.

6.3 Other Mitigation Measures

The following good practices will be adopted when practical to alleviate noise impacts:

- All PMEs to be used on site should be properly maintained;
- Mobile plants should be sited as far as away from NSRs as possible;
- Plants shall be avoided to start up all engines simultaneously;
- Install direct noise mitigation measures including silencers, acoustic louvers and movable acoustics enclosure where necessary; and
- PMEs known to emit noise strongly in one direction should, where possible, be orientated so that the noise is directed away from the nearby NSRs.

7.0 Appendices

Appendix A – Location Plan for Noise Sensitive Receivers
Appendix B – Construction Schedule
Appendix C – Portions of Site

Appendix A – Location Plan for Noise Sensitive Receivers

LEGEND:

WORKS AREA

SITE BOUNDARY

N6 NOISE SENSITIVE RECEIVER AT ELIZABETH HOUSE
N8 NOISE SENSITIVE RECEIVER AT MARCO POLO MANSION
N13 NOISE SENSITIVE RECEIVER AT BELLE HOUSE
N15 NOISE SENSITIVE RECEIVER AT STAFF QUARTERS OF FEHD
N17 NOISE SENSITIVE RECEIVER AT HARBOUR HEIGHTS

TCBR1E
TCBR2
TCBR3
TCBR4
TCBR1W
TPCWAW
TPCWAE

250m
140m
200m
230m
280m
280m
215m
285m
230m

(N17)
(N15)
(N13)
(N8)
(N6)

銅鑼灣避風塘
CAUSEWAY BAY TYPHOON SHELTER

吉列島
KELLETT ISLAND

貨物裝卸處
Cargo Handling Basin

維多利亞公園
Victoria Park

中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGRG. (HONG KONG) LTD.

Highways Department
CONTRACT NO. HY/2009/15
CENTRAL–WAN CHAI BYPASS –TUNNEL
(CAUSEWAY BAY TYPHOON SHELTER SECTION)

TITLE
LAYOUT PLAN FOR
NOISE SENSITIVE RECEIVERS
(FEP-04/364/2009/A)

DRG. NO.
CWBT/EPD/024

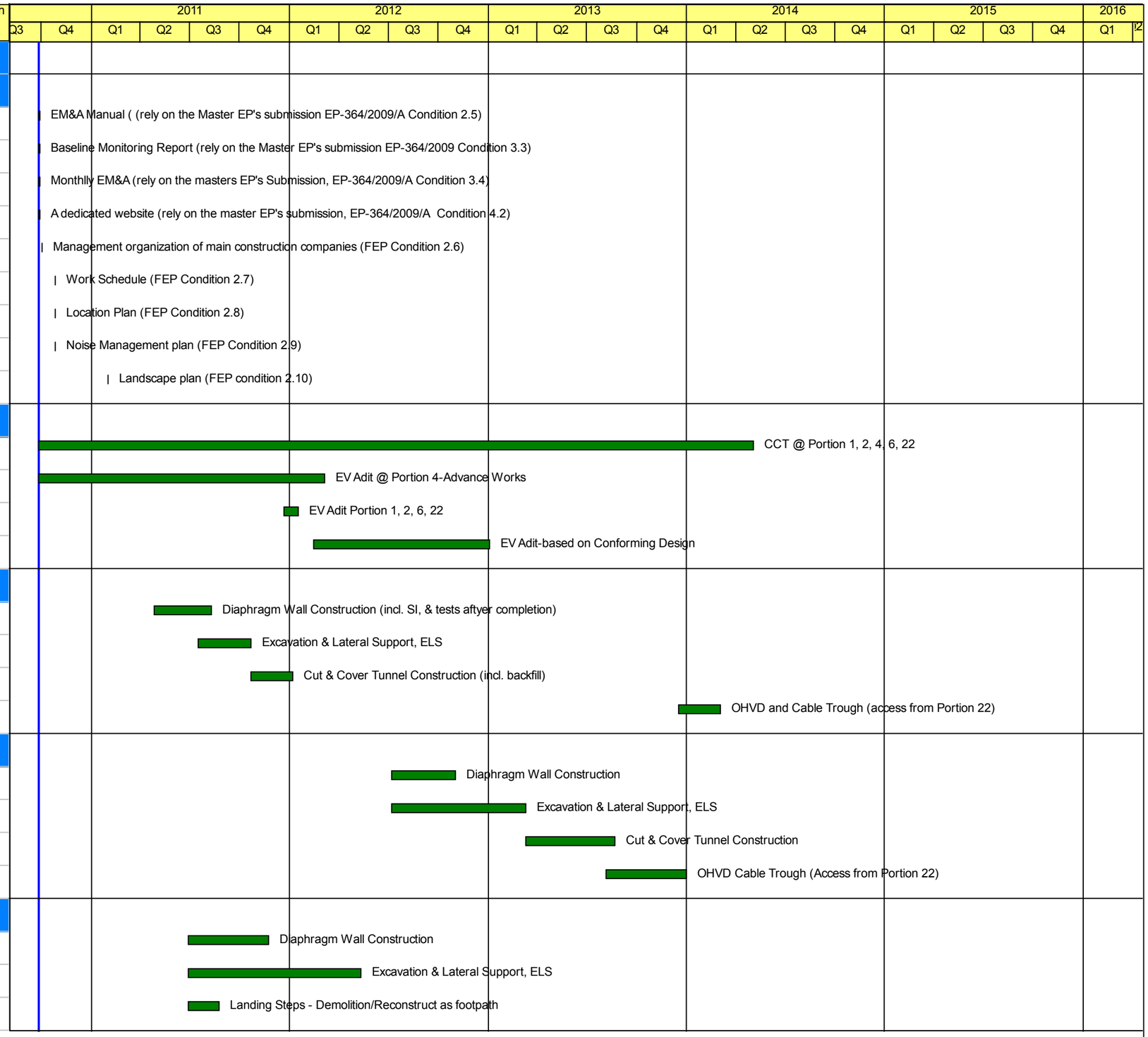
SCALE
1:1000 @ A0

STATUS

DIMENSIONS ARE IN MILLIMETERS

Appendix B – Construction Schedule

Activity Name	Original Duration	Planned Start	Planned Finish
HY/2009/15 - CWB TUNNEL (CBTS SECTION)			
SUBMISSIONS COMPLYING WITH EPs			
EM&A Manual ((rely on the Master EP's submission EP-364/2009/A Condition 2.5)			
Baseline Monitoring Report (rely on the Master EP's submission EP-364/2009 Condition 3.3)			
Monthlly EM&A (rely on the masters EP's Submission, EP-364/2009/A Condition 3.4)			
A dedicated website (rely on the master EP's submission, EP-364/2009/A Condition 4.2)			
Management organization of main construction companies (FEP Condition 2.6)	1d	02-Oct-10	02-Oct-10
Work Schedule (FEP Condition 2.7)	1d	27-Oct-10	27-Oct-10
Location Plan (FEP Condition 2.8)	1d	27-Oct-10	27-Oct-10
Noise Management plan (FEP Condition 2.9)	1d	27-Oct-10	27-Oct-10
Landscape plan (FEP condition 2.10)	1d	31-Jan-11	31-Jan-11
EAST VENTILATION ADIT			
CCT @ Portion 1, 2, 4, 6, 22	1315d	27-Sep-10	03-May-14
EV Adit @ Portion 4-Advance Works	526d	27-Sep-10	05-Mar-12
EV Adit Portion 1, 2, 6, 22	26d	22-Dec-11	16-Jan-12
EV Adit-based on Conforming Design	323d	15-Feb-12	02-Jan-13
TCBR1E (TS1 Area)			
Diaphragm Wall Construction (incl. SI, & tests aftyer completion)	107d	26-Apr-11	10-Aug-11
Excavation & Lateral Support, ELS	99d	16-Jul-11	22-Oct-11
Cut & Cover Tunnel Construction (incl. backfill)	78d	22-Oct-11	07-Jan-12
OHVD and Cable Trough (access from Portion 22)	76d	18-Dec-13	03-Mar-14
TCBR2 + TCBR3 (TS2 Area)			
Diaphragm Wall Construction	118d	06-Jul-12	31-Oct-12
Excavation & Lateral Support, ELS	248d	06-Jul-12	10-Mar-13
Cut & Cover Tunnel Construction	164d	11-Mar-13	21-Aug-13
OHVD Cable Trough (Access from Portion 22)	150d	05-Aug-13	01-Jan-14
TCBR1W (TS4 Area)			
Diaphragm Wall Construction	148d	28-Jun-11	22-Nov-11
Excavation & Lateral Support, ELS	319d	28-Jun-11	11-May-12
Landing Steps - Demolition/Reconstruct as footpath	40d	28-Jun-11	23-Aug-11



◆ Milestone
◆ Milestone
Remaining Work
Critical Remaining Work
Actual Work

China State Construction Engineering (Hong Kong) Ltd.

Contract No. HY/2009/15 - Central Wan Chai By Pass - Tunnel

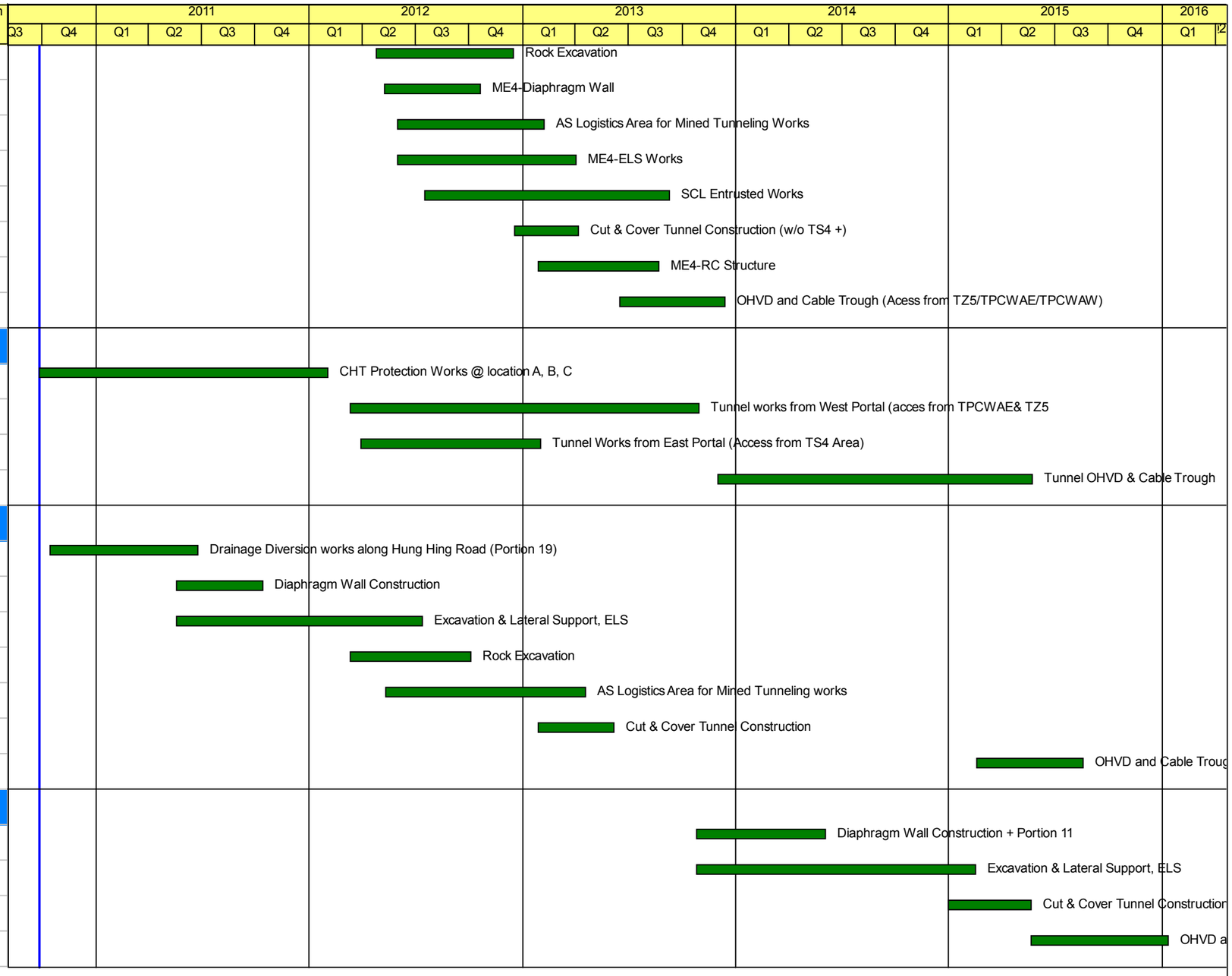
(CBTS Section)

Prepared by William Caluza

Date	Revision	Checked	Approved
14-Mar-11	Revision C	ST	KL
	File: 0001a		
	(Layout:HY/2009/15: CWB - Summary)		

中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENG'RG. (HONG KONG) LTD.

Activity Name	Original Duration	Planned Start	Planned Finish
Rock Excavation	235d	25-Apr-12	15-Dec-12
ME4-Diaphragm Wall	114d	10-May-12	19-Oct-12
AS Logistics Area for Mined Tunneling Works	174d	01-Jun-12	07-Feb-13
ME4-ELS Works	212d	01-Jun-12	02-Apr-13
SCL Entrusted Works	291d	18-Jul-12	09-Sep-13
Cut & Cover Tunnel Construction (w/o TS4 +)	111d	17-Dec-12	06-Apr-13
ME4-RC Structure	146d	28-Jan-13	21-Aug-13
OHVD and Cable Trough (Acess from TZ5/TPCWAE/TPCWAW)	180d	17-Jun-13	13-Dec-13
MINED TUNNEL			
CHT Protection Works @ location A, B, C	342d	27-Sep-10	01-Feb-12
Tunnel works from West Portal (acces from TPCWAE& TZ5	418d	12-Mar-12	30-Oct-13
Tunnel Works from East Portal (Access from TS4 Area)	214d	30-Mar-12	01-Feb-13
Tunnel OHVD & Cable Trough	384d	02-Dec-13	22-May-15
TPCWAE			
Drainage Diversion works along Hung Hing Road (Portion 19)	176d	15-Oct-10	24-Jun-11
Diaphragm Wall Construction	147d	20-May-11	13-Oct-11
Excavation & Lateral Support, ELS	421d	20-May-11	13-Jul-12
Rock Excavation	206d	12-Mar-12	03-Oct-12
AS Logistics Area for Mined Tunneling works	342d	12-May-12	18-Apr-13
Cut & Cover Tunnel Construction	130d	28-Jan-13	06-Jun-13
OHVD and Cable Trough(Access from TZ5/TPCWAW)	182d	18-Feb-15	18-Aug-15
TPCWAW & PORTION 11			
Diaphragm Wall Construction + Portion 11	222d	25-Oct-13	03-Jun-14
Excavation & Lateral Support, ELS	478d	25-Oct-13	14-Feb-15
Cut & Cover Tunnel Construction	143d	30-Dec-14	21-May-15
OHVD and Cable Trough Installation (Access from Portion 11)	235d	22-May-15	11-Jan-16



◆ Milestone
◆ Milestone
Remaining Work
Critical Remaining Work
Actual Work

China State Construction Engineering (Hong Kong) Ltd.

Contract No. HY/2009/15 - Central Wan Chai By Pass - Tunnel

(CBTS Section)

Prepared by William Caluza

Date	Revision	Checked	Approved
14-Mar-11	Revision C	ST	KL
	File: 0001a		
	(Layout:HY/2009/15: CWB - Summary)		

中國建築工程(香港)有限公司
CHINA STATE CONSTRUCTION ENGRG. (HONG KONG) LTD.

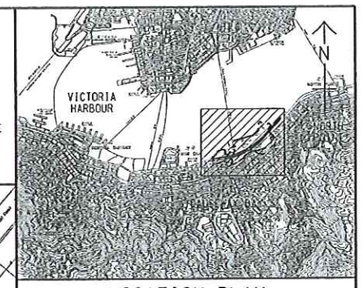
Appendix C – Portions of Site

CONTROLLED COPY
FOR CONSTRUCTION

SETTING OUT TABLE

SETTING OUT POINT	COORDINATES EASTING	COORDINATES NORTHING
510	837513.213	816469.562
532	836906.849	816039.640
533	836804.724	816016.848
535	836613.393	815957.865
559	836785.748	816072.558
560	836866.859	816091.900
561	836901.826	816102.210
562	836923.715	816109.289
579	837356.196	816557.044
580	837394.450	816601.057
581	837473.505	816478.110
589	837496.712	816446.217
590	837467.249	816509.512
591	836814.181	816018.689
592	836877.999	816090.137
593	836901.024	816078.037
594	836915.185	816074.194
595	836801.868	816022.852
596	836793.533	816027.336
597	836787.441	816027.109
607	836921.201	816098.947
614	837486.101	816493.127
615	837507.092	816461.059
616	837448.946	816494.635
617	836781.898	816071.794
618	836778.621	816033.592
619	836738.340	816012.453
620	836898.346	815964.070
621	836906.232	815941.018
622	836918.629	815936.415
623	836955.096	816011.630
625	836912.225	816043.885
631	837479.213	816484.867
632	837488.808	816478.353
633	837490.705	816481.238
634	837494.867	816478.401
635	837492.949	816475.496
636	837507.069	816465.603
637	837504.453	816457.285
638	836787.101	816038.031
639	836787.425	816013.280
640	836726.919	816006.420
641	836785.182	816087.750
642	836689.060	815966.319
643	836622.837	815931.497
644	836619.483	815940.862

NOTES:
1. ALL COORDINATES GIVEN ACCORDING TO HONG KONG (1980) GRID IN METERS.
2. COORDINATES TO BE VERIFIED WITH THE ENGINEER ON SITE.
3. THE COORDINATES OF SITE BOUNDARY SHALL REFER TO DRAWING 60095653/T1/1101.
4. THE COORDINATES OF 3A, 3B, 3C, 3D, 4D, 5C, 6B, 6E SHALL REFER TO DRAWING 60095653/T1/1221.
5. THE COORDINATES OF P3, 4E, 4F, P5, P6 REFER TO DRG. 60095653/T1/6000.



LOCATION PLAN
SCALE A1 1 : 50000
A3 1 : 100000

LEGEND:
- SITE BOUNDARY
- PORTION I
- PORTION II
- PORTION III
- PORTION IV
- PORTION V
- PORTION VI
- PORTION VII
- PORTION VIII
- PORTION IX
- PORTION X
- PORTION XI
- PORTION XII
- PORTION XIII A, PORTION XIII B
- PORTION XIV A, PORTION XIV B
- PORTION XV
- PORTION XVI
- PORTION XVII
- PORTION XVIII
- PORTION XIX
- PORTION XX A, PORTION XX B
- PORTION XXI
- PORTION XXII
- PORTION XXIII
- 501 SETTING OUT POINT

12 OCT 2010

REV. 修訂	DESCRIPTION 內容摘要	CHECKED 核對	DATE 日期
B	WORKING DRAWING	RPCM BCC	OCT 10
B	TENDER DRAWING	JTCL BCC	MAY 10

Highways Department 路政署
Major Works Project Management Office

CENTRAL - WAN CHAI BYPASS AND IEC LINK

PWP ITEM NO. 工務計劃項目編號 579 TH

CENTRAL WAN CHAI BYPASS - TUNNEL (CAUSEWAY BAY TYPHOON SHELTER SECTION)

PORTIONS OF SITE

AECOM

DRG NO. 圖紙編號 60095653/T1/1201C

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. D. I/C APPROVED 負責人
VLMK	HY/2009/15	CW
DRAWN BY 繪圖 NHP	STATUS 狀態	
SCALE 比例 A1 1 : 2000 A3 1 : 4000	WORKING DRAWING	
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有	

Plot File by : NHP2
2010-5-12

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