

DRAINAGE SERVICES DEPARTMENT



CONTRACT NO. DC/2011/06

**REPROVISIONING OF BOUNDARY PATROL ROAD AND
ASSOCIATED SECURITY FACILITIES BETWEEN
PING YUEN RIVER AND PAK FU SHAN AND
DRAINAGE WORKS IN NORTH DISTRICT**

**MONTHLY EM&A REPORT FOR
ADVANCED WORKS UNDER EP-430/2011
(SEPTEMBER 2014)**

**PREPARED FOR
SANG HING CIVIL CONSTRUCTORS CO., LTD.**

Quality Index

Date	Reference No.	Prepared By	Approval By
10 October 2014	TCS00599/12/600/R0302v1	 Ben Tam Environmental Consultant	 T. W. Tam Environmental Team Leader

Version	Date	Description
1	10 October 2014	First submission

This report has been prepared by Action-United Environmental Services & Consulting with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.



Ref.: DSDBPRNDEM00_0_0325aL.14

22 October 2014

By Post and Fax (2959 6079)

Action-United Environmental Services & Consulting
Unit A, 20/F,
Gold King Industrial Building,
New Territories, Hong Kong

Attention: Mr. T.W. Tam

Dear Sir,

**Re: Contract No. DC/2011/06
Reprovisioning of Boundary Patrol Road and Associated Security Facilities
between Ping Yuen River and Pak Fu Shan and Drainage Works in North
District
EM&A report for Advanced Works under EP-430/2011 (Sept 2014)**

Reference is made to the Environmental Team's submission of the captioned report (Version 1) dated 10 October 2014 received through E-mail on 10 October 2014 for our review and comment.

Please be informed that we have no adverse comment on the captioned submission. We write to verify the captioned submission in accordance with Condition 5.4 in the captioned Environmental Permit.

Thank you for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,

Roger Leung
Independent Environmental Checker

c.c. DSD Mr. Eric Y.M. Cheng by fax: 2827 8700
SHCCCL Mr. Raymond W.M. Yau by fax: 2403 1162

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EXECUTIVE SUMMARY

BREACHES OF ACTION AND LIMIT LEVELS

ES01. No environmental monitoring was conducted during the Reporting Period, no breaches of Action and Limit levels were therefore recorded.

REPORTING CHANGES

ES02. No reporting changes were made during the Reporting Period.

ENVIRONMENTAL COMPLAINTS LOG

ES03. No environmental complaint was registered during the Reporting Period. The complaint log is presented as follows:

Reporting Month	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
August 2012 to August 2014	0	0	Not Applicable
September 2014	0	0	Not Applicable

ENVIRONMENTAL NOTIFICATIONS, SUMMONS AND PROSECUTIONS

ES04. No environmental notifications, summons and successful prosecutions were registered during the Reporting Period.

ES05. No non-compliance with the regulatory requirements was identified in the site inspection during the Reporting Period, including the regular joint site inspection by the ER, IEC, ET and Contractor. Defects of minor environmental significance were sometimes identified and normally rectified in-situ or within the specified time prior to the next site inspection.

FORECAST OF IMPACT PREDICTIONS

ES06. Construction dust, noise and water quality continue to be the key environmental issues for the coming construction period.

RECOMMENDATIONS

ES07. The Contractor is reminded to fully comply with all the relevant regulatory environmental requirements, including environmental mitigation measures stipulated in all the environmental ordinances, EM&A Manual, EMP and the associated WMP, effluent discharge license and the chemical waste producer registration, etc.

ES08. Particular attention is drawn to full implementation of air quality mitigation measures, in particular construction dust suppression measures during dusty construction activities under dry and windy conditions.

ES09. In addition, full implementation of the required water quality mitigation measures is reminded to eliminate adverse water quality impacts generated from surfaces of haul roads, stock pile of excavated materials, etc. during wet season.

ES10. Moreover, construction noise mitigation measures shall also be implemented during noisy construction works.

ES11. Furthermore, mosquito control should be ongoing to perform to prevent mosquito breeding on site.

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1 BACKGROUND INFORMATION

1.1 DSD CONTRACT NO. DC/2011/06

1.1.1 Sang Hing Civil Contractors Company Limited (hereinafter “SHCCCL” or “the Contractor”) has been awarded by Drainage Services Department of the HKSAR Government (hereinafter “DSD” or “the Engineer”) since 31 March 2012 DSD Contract No. DC/2011/06 – Re-provisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan and Drainage Works in North District (hereafter “the Contract”).

1.1.2 The Contract comprises:

A. **Re-provisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan**, which is one of the two parts of Regulation of Shenzhen River Stage 4, i.e. the Advanced Works within the HKSAR to be implemented under Environmental Permit No. EP-430/2011 (hereinafter “EP-430/2011”) (hereinafter “the Advanced Works under EP-430/2011” or “the Works”). The Works include:

- 1) Re-provisioning of approximately 4.3 kilometres (km) long and 3.5 metres (m) wide boundary patrol road between Ping Yuen River and Pak Fu Shan;
- 2) Re-provisioning of approximately 4.3 km long primary boundary fence with associated lighting and Fence Protection System between Ping Yuen River and Pak Fu Shan;
- 3) Re-provisioning of the Hong Kong Police Force Lo Fong Bridge Post; and
- 4) Construction of about 3.3 km long secondary boundary fence.

B. **Drainage Works in North District to be implemented under Environmental Permit No. EP-277/2007/A**, which has been commenced in May 2012 and is scheduled to be completed by May 2013, including

- 1) Construction of about 400m of drainage channel at Man Uk Pin under Environmental Permit No. EP-277/2007/A (hereinafter “EP-277/2007/A”);
- 2) The associated ancillary works including drainage and landscaping works.

C. **Drainage Works in North District**, which is a non-designated project of drainage works at Ma Wat Wai in North District for construction of about 110 m of drainage channel at Ma Wat Wai.

1.1.3 Drawing of the area within the Works showing is shown in **Annex A**, whereas project organization, environmental management structure and communication lines, including contacts of key personnel under the Contract as well as the 3-monthly rolling program covering the second month of the construction of the Works are shown in **Annex B**.

1.1.4 Construction of the Advanced Works under EP-430/2011 has been commenced on 21 August 2012 after site clearance and the associated preparation works as well as completion of submission required under EP-430/2011. The Works is anticipated to be completed in August 2014 within 29 months.

1.2 CONCURRENT PROJECTS IN THE VICINITY OF THE WORKS

1.2.1 The following projects are anticipated to be carried out concurrently in the vicinity of the Works:

- 1) The River Modification Works within HKSAR, which is part of the Regulation of Shenzhen River Stage 4 and to be implemented under EP-430/2011, is scheduled for commencement in mid-2013.
- 2) The development of the proposed Liantang/Heung Yuen Wai Boundary Control Point (hereinafter “the LT/HYW BCP”) and the associated works. It is anticipated that the construction of the LT/HYW BCP and connecting roads will commence at the end of 2013 and be completed in end 2018. The planned construction period for the resite of Chuk Yuen Village is from late 2010 to early 2012 for population intake by early 2013.
- 3) Construction of a Secondary Boundary Fence and New Sections of Primary Boundary fence and Patrol Road. Based on the advice from ArchSD, the latest tentative construction

programme shall be from end 2011 to early 2013 (section from Ng Tung River to Ping Yuen River) and from end 2011 to end 2013 (section from Pak Fu Shan to Lin Ma Hang Road).

- 4) Drainage Improvement in Northern New Territories, Package C (Remaining Works). The construction work is scheduled to commence in late 2012 and completed by 2016.

1.3 CUMULATIVE ENVIRONMENTAL IMPACTS

- 1.3.1 As concluded in the EIA report for Regulation of Shenzhen River Stage 4, adverse environmental impacts generated from the River Modification Works within HKSAR are predicted to be minimal provided the required environmental mitigation measures are fully implemented.
- 1.3.2 There is a potential of cumulative environmental impacts during construction phase, including construction dust, noise, water quality, waste, ecology and landscape and visual, to be generated from the concurrent works LT/HYW BCP and the associated works as well as construction of a secondary boundary fence and new sections of primary boundary fence and patrol road.
- 1.3.3 However, as the schedules and programs of those concurrent projects are subject to private initiatives and market-driven factors, it is not possible to assess the cumulative impact at this stage.
- 1.3.4 On the other hand, the Drainage Improvement in Northern New Territories, Package C (Remaining Works) project is subject to another future detailed EIA Study and detailed construction program is not available to date. The cumulative impact cannot be assessed at this stage. However, since the drainage improvement works is located at about 500 m from the Site and given its nature and scale of works, adverse cumulative environmental impacts are not anticipated.

2 SUMMARY OF EM&A REQUIREMENTS

2.1 CONSTRUCTION ACTIVITIES UNDER THE WORKS

2.1.1 Construction activities under the Works comprise:

- 1) Approximately 4,300 m of 3.5 m wide Boundary Patrol Road on filled embankment along the Shenzhen River from Ping Yuen River estuary and Pak Fu Shan, Ta Kwu Ling;
- 2) Approximately 4,300 m of Primary Boundary Fence with XPM mesh;
- 3) Approximately 3,300 m of Secondary Boundary Fence with XPM mesh;
- 4) Approximately 4,300 m of border security lighting system including the associated electrical and mechanical works;
- 5) 4 box culverts and 12 drainage pipes under the proposed Boundary Patrol Road, and the associated inlets and outlets;
- 6) Reconstruction of Lo Fong Bridge Post for Hong Kong Police Force;
- 7) Peripheral drainage system associated with the above items;
- 8) Irrigation systems including associated electrical and mechanical works;
- 9) Landscaping works and environmental mitigation works;
- 10) Other ancillary works associated with the above items;

2.1.2 The construction areas under the Works are divided into the following three portions:

- 1) Portion A – Area between CH_R 0+000 and 2+050 for re-provisioning of Boundary Patrol Road and the associated security facilities
- 2) Portion B – Area between CH_R 2+050 and 2+840 for re-provisioning of Boundary Patrol Road and the associated security facilities
- 3) Portion C – Area between CH_R 2+840 and 4+300 approximately for re-provisioning of Boundary Patrol Road and the associated security facilities

2.2 EM&A REQUIREMENTS FOR THE WORKS

CONSTRUCTION PHASE

- 2.2.1 The EIA report has assessed potential environmental impacts to be generated from the Works. Conclusions and recommendations for EM&A during construction of the Works are presented in the EIA report and the associated Updated EM&A Manual. They are summarized as follows.
- 2.2.2 Environmental monitoring and audit for air quality, construction noise, water quality, ecology, cultural heritage as well as landscape and visual is required during construction phase of the River Modification Works.

OPERATIONAL PHASE

- 2.2.3 No environmental monitoring and audit for air quality, construction noise, water quality, ecology, cultural heritage as well as landscape and visual is required during operational phase of the Works.

BASELINE MONITORING AND ENVIRONMENTAL QUALITY CRITERIA

- 2.2.4 Baseline monitoring is required for establishment of the environmental quality criteria, i.e. Action/limit Levels, for the River Modification Works under EP-430/2010. The baseline monitoring was conducted upon confirmation of the acquirement of all access to the monitoring locations for air quality including 1-Hr and 24-Hr TSP and construction noise.

EVENT & ACTION PLAN

- 2.2.5 Event and Action Plan recommended in the EIA and the associated approved EM&A Manual will be implemented during River Modification Works under EP-430/2010 as a monitoring and response mechanism for handling exceedances of environmental standards during the construction phase in collaboration with relevant parties of other concurrent projects in the vicinity.
- 2.2.6 In addition, day-to-day site inspection and environmental audit by related parties of the environmental management under the Works is crucial to regularly review on compliance with legal and contractual requirements of the Works.
- 2.2.7 Equally important is proper handling of environmental complaint, enquiries and requests for information as appropriate.

SITE INSPECTION AND ENVIRONMENTAL AUDIT

- 2.2.8 The ET will undertake site inspection of on-site practices and procedures each month. Joint site inspection and environmental audit is also required to be conducted by related parties of the environmental management to verify the implementation status and evaluate the effectiveness and stability of the environmental mitigation measures, in collaboration with relevant parties of other concurrent projects in the vicinity.
- 2.2.9 Details of the scope and range of issues to be designed and addressed in the site inspection and environmental audit protocols are presented in Section 6.

ENVIRONMENTAL REPORTING OF THE WORKS

- 2.2.10 In order to ease environmental reporting of the Contract, it has been agreed among the Engineer, IEC, Contractor and ET that the environmental reporting for the Contract is split into three stand-alone reports, namely Environmental Report for Advanced Works under EP-430/2011, EM&A Report for Drainage Works under EP-277/2007/A and EM&A Report for Drainage Works at Ma Wat Wai. They will be prepared and submitted separately.
- 2.2.11 This is the 26th month of EM&A Monthly Report for the Works (herein after “this Report”), covering construction period from 1 to 30 September 2014 (hereinafter “the Reporting Period”).

3 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.1 The impact monitoring data is handled by the ET’s systematic data recording and management, which complies with an in-house certified (ISO 9001:2000) Quality Management System. Standard Field Data Sheet (FDS) are used in the EM&A program.
- 3.2 Where appropriate, the monitoring data recorded in the equipment e.g. 1-Hour TSP meters and noise meters are downloaded directly at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data.
- 3.3 For monitoring activities which require laboratory analysis, the responsible laboratory, ALS, follows the QA/QC requirements as set out under their HOKLAS scheme for all laboratory testing.

4 ENVIRONMENTAL LICENSES AND PERMITS

4.1 STATUS OF ENVIRONMENTAL LICENSES AND PERMIT

- 4.1.1 Status of environmental licenses and permit is summarized in the following *Table 4-1*.

Table 4-1 Status of Environmental Licenses and Permit

Permit Type	Licenses / Permit No.	Date Issued by EPD	Expiry Date	Concerned Location	Status
Environmental Permit	EP-430/2011	09 Jul 2007	N.A.	Ping Yuen River	Valid
Notification pursuant to Section 3(1) of the Air Pollution Control Ordinance (APCO) Construction Dust) Regulation	N.A.	N.A.	N.A.	Contract Area: Man Uk Pin, Ma Wat Wai & Ping Yuen River	Valid
Account for Disposal of Construction Waste	7015003	07 May 2012	N.A.	Contract Area: Man Uk Pin, Ma Wat Wai & Ping Yuen River	Valid
Application for Wastewater Discharge License under Water Pollution Control Ordinance (WPCO)	W5/1G41/1	03 Oct 2012	31 Oct 2017	Portions A, B and C near Lin Ma Hang Road, Ta Kwu Ling, N.T.	Valid
Register as a Chemical Waste Producer under Waste Disposal Ordinance	5123-642-S3565-03	03 Oct 2012	N.A.	Portions A, B and C near Lin Ma Hang Road, Ta Kwu Ling, N.T.	Valid

4.2 SUBMISSION OF LAYOUT PLANS

- 4.2.1 Pursuant to *Clause 2.7* of EP-430/2011, 3 sets of the Layout Plans of scale 1:1000 with an explanatory statement detailing the works schedule, works boundary and the works areas have been submitted since 21 July 2012 to the Director of Environmental Protection of the HKSAR Government (hereinafter “DEP”) upon certification by the ET Leader and verification by the Independent Environmental Checker (hereinafter “the IEC”) as confirming to the information and recommendations contained in the EIA report.

4.3 SUBMISSION OF LANDSCAPE PLAN

- 4.3.1 Pursuant to *Clause 2.8* of EP-430/2011, 3 sets of the Landscape Plan have been submitted to the Director of Environmental Protection of the HKSAR Government (hereinafter “DEP”) since 21

July 2012 upon certification by the ET Leader and verification by the IEC as confirming to the information and recommendations contained in the approved EIA report.

4.4 SUBMISSION OF UPDATED ENVIRONMENTAL MONITORING AND AUDIT MANUAL

4.4.1 Pursuant to *Clause 2.10* of EP-430/2011, an updated environmental monitoring and audit manual for the Project, namely Updated EM&A Manual for Advanced Works under EP-430/2011 (hereinafter “the Updated EM&A Manual”), has been submitted since 21 May 2012 to the DEP upon certification by the ET Leader and verification by the Independent Environmental Checker (hereinafter “the IEC”) as confirming to the information and recommendations contained in the approved EIA report.

5 CONSTRUCTION AND EM&A ACTIVITIES

5.1 CONSTRUCTION ACTIVITIES

5.1.1 Detailed construction program is presented in *Three-Month Rolling Program* enclosed in *Annex D*, including construction activities listed below:

Portion A, chainage R0+00 to 2+050

- Setting out of structure / fence / gate
- Pruning, felling and transplanting of existing tree
- Underground Utilities Detection
- Liaise with various utility undertakers and villagers
- Erection of permanent security fence
- Backfilling along constructed boundary patrol road
- Construction of road kerb, traffic bollard
- Laying of sub-base material and bituminous material
- Construction of Pillar Box and Switch Room
- E&M works for the Lo Fong Bridge Post Guard House
- Construction of Staircase for Irrigation system
- Construction of U-channel and Catch pit
- Laying of CLP (11kV) Cable [By CLP]

Portion B, chainage R2+050 to 2+838

- Rectifying defect

Portion C, chainage R2+838 to 4+300

- Setting out of structure / fence / gate
- Pruning, felling and transplanting of existing tree
- Underground Utilities Detection
- Construction of blinding layer for 2 Bay
- Construction of base slab for 6 Bay
- Construction of wall stem for 5 Bay
- Erection of permanent security fence
- Backfilling along constructed boundary patrol road
- Site formation at retaining wall bay 1-22
- Installation of Lamp Pole
- Installation of underground utility ducting and drawpit

5.2 EM&A ACTIVITIES

BASELINE MONITORING AND ESTABLISHMENT OF ENVIRONMENTAL QUALITY CRITERIA

5.2.1 Baseline environmental monitoring of the air quality, construction noise and water quality for the River Modification Works within the HKSAR was completed and the associated environmental quality criteria, i.e. A/L Levels of the monitored parameters, were proposed in the baseline monitoring report, which was submitted to EPD upon verification by the IEC.

CONSTRUCTION IMPACT MONITORING

5.2.2 No environmental monitoring was conducted during the Reporting Period.

6 WASTE MANAGEMENT

6.1 Pursuant to the Updated EM&A Manual, the waste management during the Reporting Period was carried out in close accordance with the Waste Management Plan, which has been submitted since 20 August 2012 to the Engineer for approval prior to commencement of the Works upon certification by the ET Leader and verification by the IEC.

6.2 The quantity of waste for disposal or reuse during the Reporting Period is summarized in *Monthly Summary of Waste Flow Table* in **Annex K**.

6.3 *Work Processes or Activities Requiring Timber for Temporary Works* is also enclosed in **Annex K**.

6.4 To ensure satisfactory performance of the waste management, the Contractor is reminded to comply with all relevant regulatory waste management requirements, including as appropriate those stipulated in the effluent discharge licenses and chemical waste producer registration, etc. The Contractor is also required to fully implement all the waste management mitigation measures recommended in the Updated EM&A Manual.

6.5 Where possible, construction materials should be reused on-site as far as practicable to reduce the construction waste, which should then be sorted or classified on site for proper recycling and disposal as recommended in the Environmental Management Plan and the associated Waste Management Plan.

7 SITE INSPECTION AND ENVIRONMENTAL AUDIT

7.1 FINDINGS/DEFICIENCIES OF THE SITE INSPECTION AND ENVIRONMENTAL AUDIT

7.1.1 Monthly site inspection and environmental audit was jointly conducted by representatives of the Engineer, IEC, ET and Contractor in close accordance with the Updated EM&A Manual.

7.1.2 During the Reporting Period, the ET’s site inspection and environmental audit was conducted on **10 September 2014**. Findings or deficiencies identified during the site inspection and environmental audit are summarized in **Table 6-1**.

Table 7-1 Observations of Site Inspection during the Reporting Period

Date	Findings / Deficiencies	Follow-Up Status
10 September 2014	<ul style="list-style-type: none"> No adverse environmental impacts were observed during the site inspection. As reminder, water spraying on dry haul road is reminded and any stockpile and construction materials should be covered with imperious sheet. Moreover, full implementation of the required environmental mitigation measures is reminded. 	Not required for general reminders.

7.1.3 Site inspection checklists completed and endorsed by all related parties are kept by the ET and are

available for inspection upon request.

7.2 DISCUSSION AND CONCLUSION

7.2.1 No deficiencies and non-compliance with the relevant regulatory requirements were identified during the regular site inspection and environmental audit, indicating no adverse environmental impacts were generated from the construction of the Works.

7.3 RECOMMENDATION

7.3.1 Although no adverse environmental impacts were identified during the regular site inspection and environmental audit conducted by representatives of the Engineer, IEC, ET and Contractor, but full implementation of the recommended environmental mitigation measures, in particular wheel washing of the construction vehicles prior to exit the site. Addition, water spraying of the site temporary roads and public roads should be kept to prevent construction dust emission.

8 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

8.1 ENVIRONMENTAL COMPLAINTS

8.1.1 No environmental complaint was received during the Reporting Period. Summary of environmental complaint is presented in *Table 8-1* below.

Table 8-1 Summary of Environmental Complaints

Reporting Month	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
August 2012 to August 2014	0	0	Not Applicable
September 2014	0	0	Not Applicable

8.2 ENVIRONMENTAL SUMMONS

8.2.1 No environmental summons was received during the Reporting Period. Summary of environmental summons is presented in *Table 8-2* below.

Table 8-2 Summary of Environmental Summons

Reporting Month	Environmental Summons Statistics		
	Frequency	Cumulative	Nature
August 2012 to August 2014	0	0	Not Applicable
September 2014	0	0	Not Applicable

8.3 ENVIRONMENTAL PROSECUTION

8.3.1 No environmental prosecution was received during the Reporting Period. Summary of environmental prosecution is presented in *Table 8-3* below.

Table 8-3 Summary of Environmental Prosecution

Reporting Month	Environmental Prosecution Statistics		
	Frequency	Cumulative	Nature
August 2012 to August 2014	0	0	Not Applicable
September 2014	0	0	Not Applicable

9 IMPACT FORECAST

9.1 KEY ENVIRONMENTAL ISSUES

9.1.1 Potential environmental issues to be considered in the coming month include:-

- 1) **Air quality** Dusty construction activities may generate potential construction dust impacts and dry/loose/exposure soil surface/stock piles of dusty material within the site may pose fugitive dust under dry and windy weather conditions;

- 2) **Water quality** Surface runoff during /rain may pollute the surrounding water bodies with high suspended solids or turbidity, and concrete washing may increase alkalinity or pH value of the water bodies;
- 3) **Chemical waste** Oil & grease spillage or leakage from construction equipment and the associated oil containers within site areas may contaminate lands or other environment;
- 4) **Construction Noise** Construction noise impacts may be caused by noisy construction activities;

9.2 ENVIRONMENTAL MITIGATION MEASURES FOR THE COMING MONTH

9.2.1 Environmental Mitigation Measures to be considered in the coming month includes:-

- 1) Dust suppression measures, in particular proper watering during dusty construction activities under dry and windy conditions, should be fully implemented;
- 2) Sedimentation or silt removal facilities of adequate capacity should be used for proper treatment of any site effluent generated from stockpiles of construction materials/waste or dusty haul roads or excavated surfaces within the site during storm rain, prior to discharge to nearby water bodies in order to remove suspended solids or turbidity;
- 3) Good management of chemical wastes should be maintained;
- 4) Follow-up actions for any defects identified during regular site inspection should be promptly taken to rectify the situation; and
- 5) Special attention is drawn to implementation of the construction noise mitigation measures during noisy construction works.

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 CONCLUSIONS

- 10.1.1 No environmental monitoring was conducted during the Reporting Period.
- 10.1.2 No non-compliance with the regulatory requirements was recorded in the regular site inspection and environmental audit jointly conducted by representatives of the Engineer, IEC, ET and Contractor during the Reporting Period, indicating no adverse environmental impacts were generated from construction activities under the Works during the Reporting Period.
- 10.1.3 Defects of minor environmental significance were sometimes observed. They were normally rectified in-situ or within the specified time prior to the next site inspection.
- 10.1.4 No environmental complaint, notification of summons or successful prosecution was registered during the Reporting Period.

10.2 RECOMMENDATION

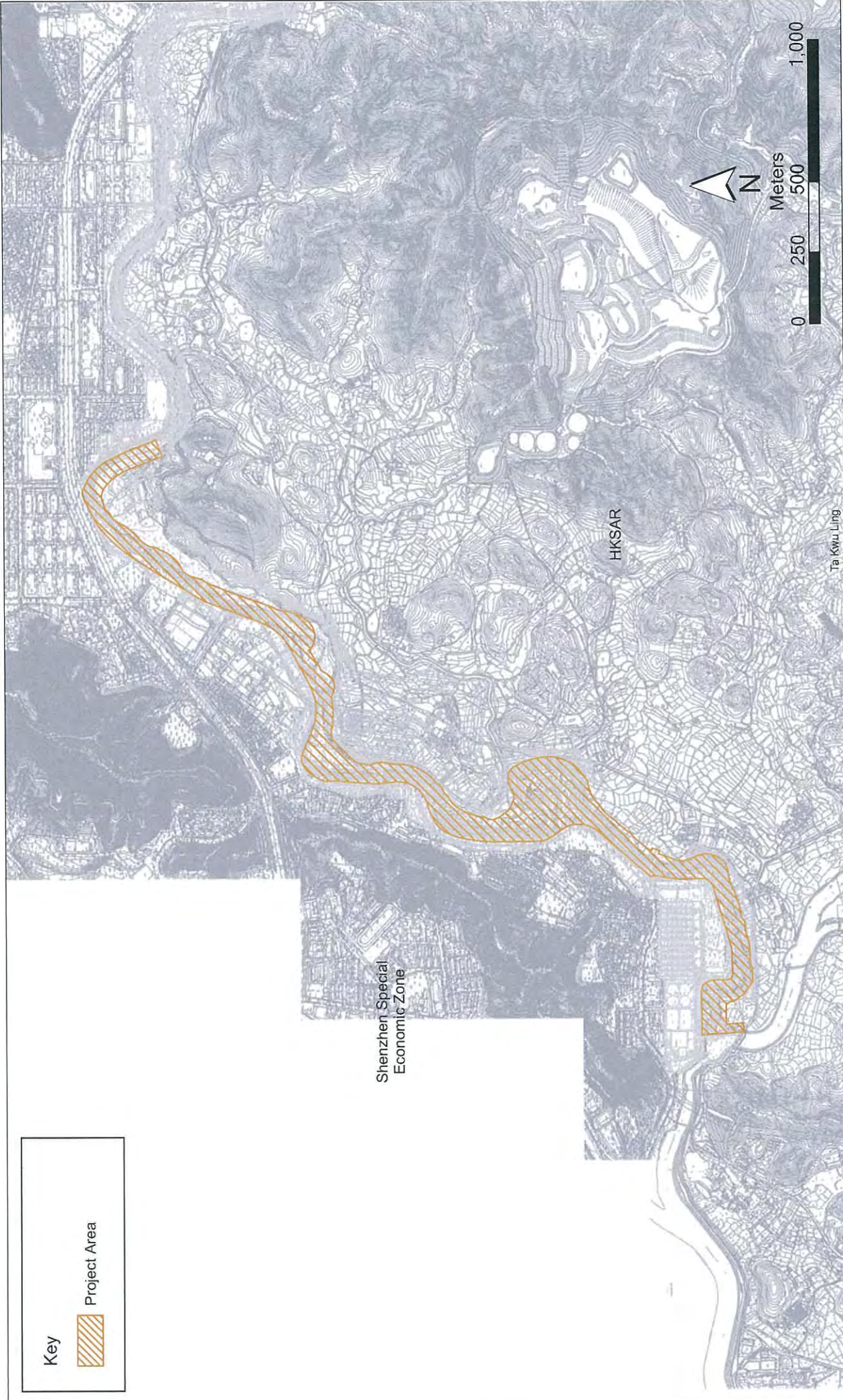
- 10.2.1 The Contractor is reminded to fully comply with all the relevant regulatory environmental requirements, including environmental mitigation measures stipulated in all the environmental ordinances, EM&A Manual, EMP and the associated WMP, effluent discharge license and the chemical waste producer registration, etc.
- 10.2.2 During the wet season, muddy water or other water pollutants from site surface runoff into the public area will be key environment issue. Therefore, water mitigation measures to prevent surface runoff should be paid on special attention. Moreover, mitigation measures should be properly maintained to avoid fugitive dust emissions from loose soil surface or haul road
- 10.2.3 Attention is drawn to implementation of air quality mitigation measures, in particular wheel washing of the construction vehicles prior to exit the site. Addition, water spraying of the site

temporary roads and public roads should be kept to prevent construction dust emission.

- 10.2.4 In addition, full implementation of the required water quality mitigation measures is reminded to eliminate adverse water quality impacts generated from site water runoff, surfaces of haul roads, stock pile of excavated materials, etc.
- 10.2.5 Attention is also drawn to implementation of the construction noise mitigation measures during noisy construction works.

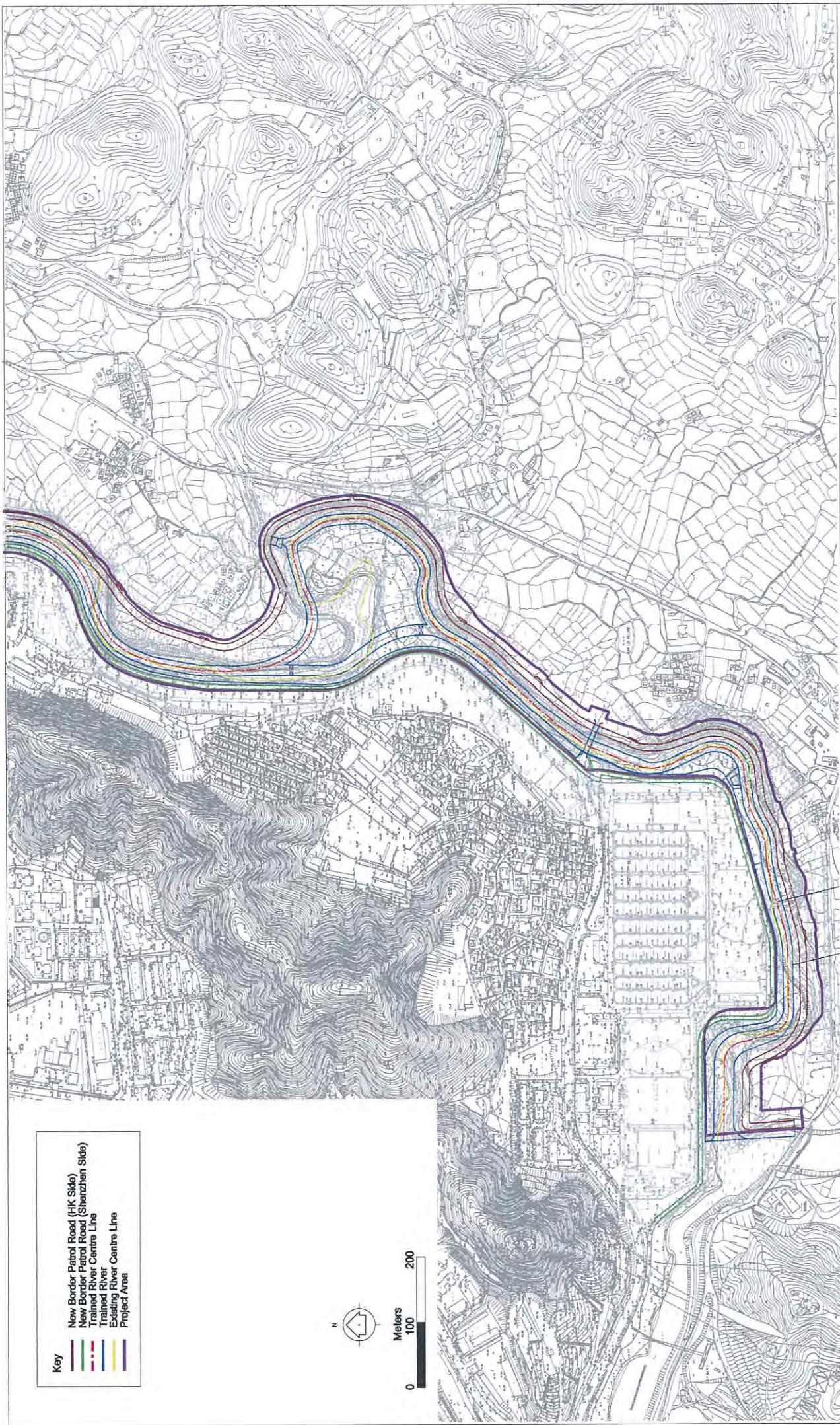
ANNEX A

LOCATION PLAN FOR THE WORKS

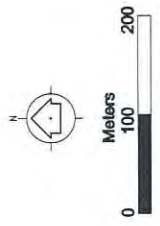


Location of Project Site

Figure A1-1

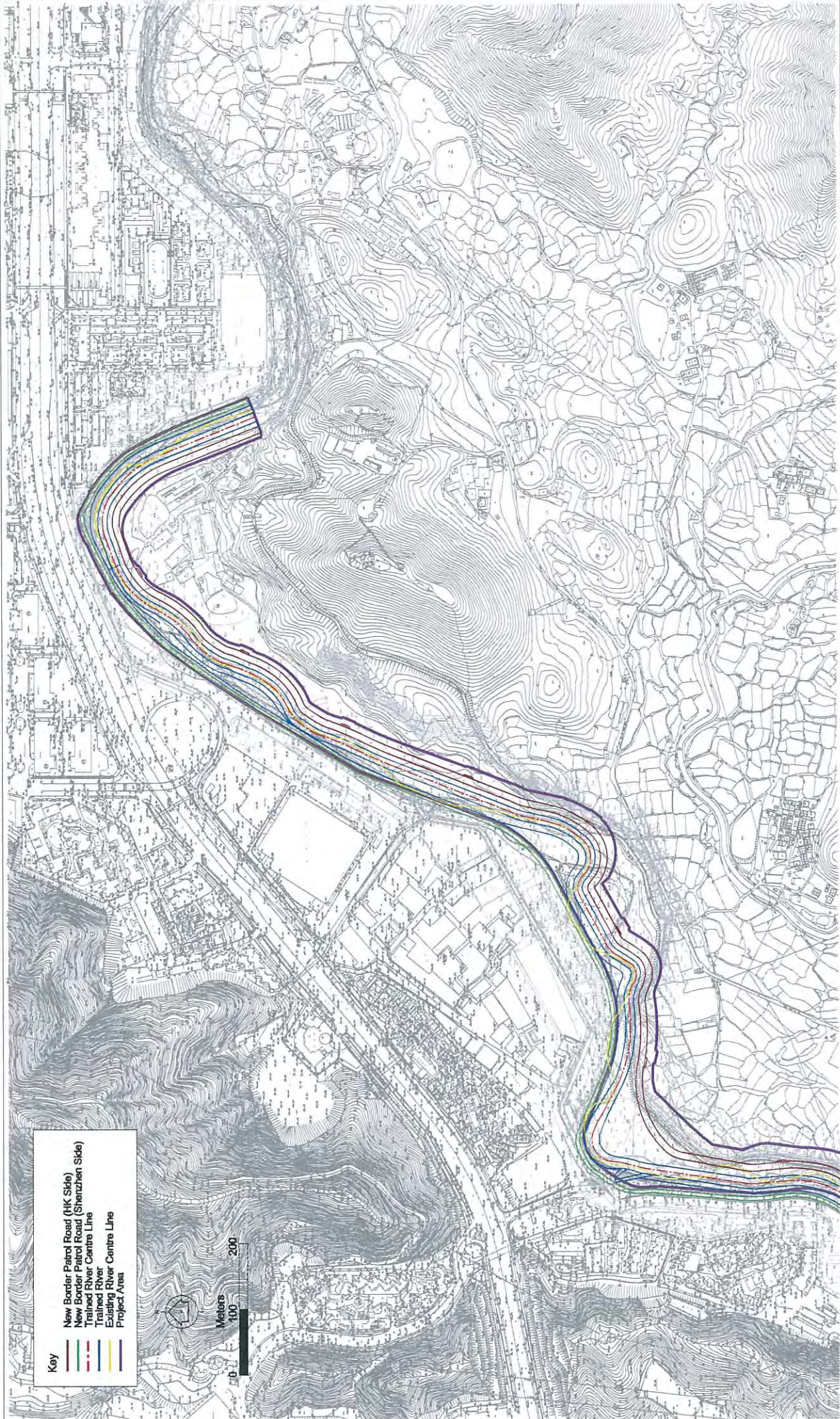


- Key**
-  New Border Patrol Road (HK Side)
 -  New Border Patrol Road (Shenzhen Side)
 -  Trained River Centre Line
 -  Existing River Centre Line
 -  Project Area



General Layout and Extent of the Trained River
(1 of 2)

Figure A1-2



General Layout and Extent of the Trained River
(2 of 2)

Figure A1-2

- NOTES:**
- GRID LINES ARE NORTH-KING GRID 1985.
 - ALL LEVELS ARE IN METRES AND REFERRED TO MEAN SEA LEVEL.
 - FOR SETTING OUT DETAILS OF SITE LIMITS, REFER TO DRAWING NO. DDP/DC1106/11011 TO DDP/DC1106/11022.
 - FOR DETAILS OF AREAS B1, B2, B3 & B4 REFER TO DRAWING NO. DDP/DC1106/11023.

LEGEND:

	LIMIT OF THE SITE
	PROTION A
	PROTION B
	AREA B1
	AREA B2
	AREA B3
	AREA B4
	PROTION C

OR A PROVISION CHANGING FOR BORDER ROAD

NO.	DATE	DESCRIPTION	INITIALS
1		ISSUED FOR TENDERS	
2		REVISED TO SHOW REVISIONS	
3		REVISED TO SHOW REVISIONS	
4		REVISED TO SHOW REVISIONS	
5		REVISED TO SHOW REVISIONS	
6		REVISED TO SHOW REVISIONS	
7		REVISED TO SHOW REVISIONS	
8		REVISED TO SHOW REVISIONS	
9		REVISED TO SHOW REVISIONS	
10		REVISED TO SHOW REVISIONS	

contract no. DC/2011/06
 file no. DP/8/5018GB
 project no. 5018GB

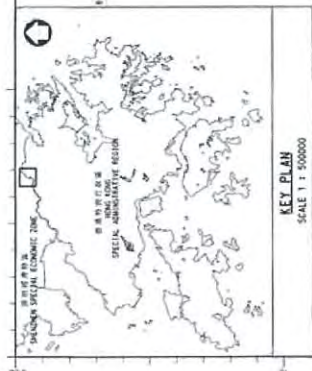
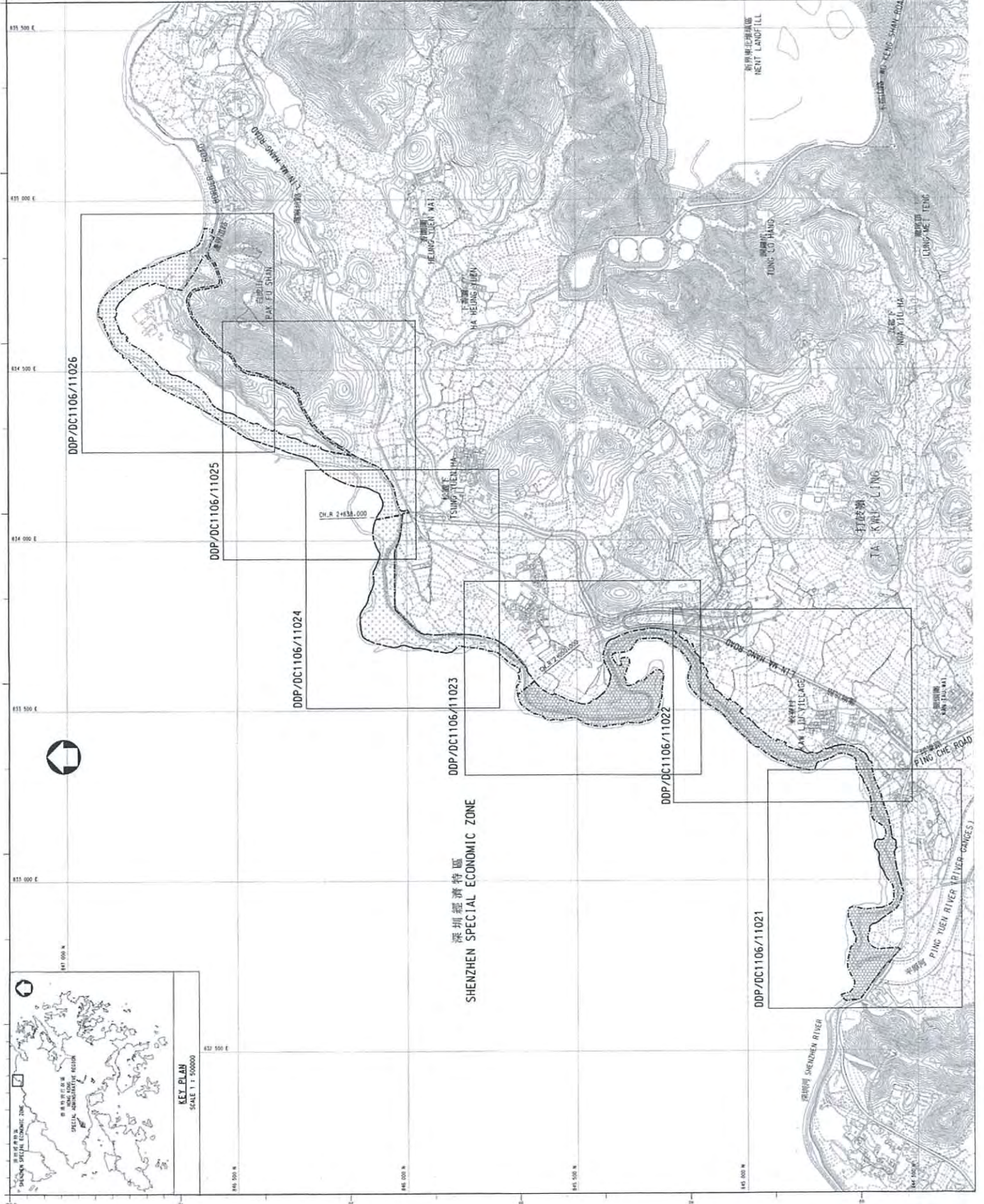
APPROVED:
 Ag. Chief Engineer
 DATE: 28 NOV 2011

SCOPE OF WORKS AT PORTION A, B AND C OF THE SITE

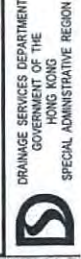
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NOTES:

- GRID LINES ARE USING KING GRID 1980.
- ALL LEVELS ARE IN METRES AND REFERRED TO M.S.P.O.
- FOR GETTING OUT DETAILS OF SITE LIMIT, REFER TO DRAWING NO. DDP/DC1106/11011 TO DDP/DC1106/11012.
- FOR DETAILS OF AREAS A1, B1, B3 & B4 REFER TO DRAWING NO. DDP/DC106/11012.

LEGEND:

- LIMIT OF THE SITE
- PROTION A
- PROTION B
- AREA B1
- AREA B2
- AREA B3
- AREA B4
- PROTION C

DATE 14/05/2008 CHAIRMAN FOR BORDER ROAD

NO.	DATE	DESCRIPTION	INITIAL
DESIGNED	18 NOV 2011	K. K. LI	
DRAWN	18 NOV 2011	K. K. LI	
CHECKED	18 NOV 2011	K. H. POH	
VERIFIED	18 NOV 2011	T. C. LAU	
APPROVED			

Ag. Chief Engineer
K. L. YUEN
Date: 18 NOV 2011

contract no. DC/2011/06
file no. DP/8/501808
project no. 501808

REPROVISIONING OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING YUEN RIVER AND PAK FU SHAN AND DRAINAGE WORKS IN NORTH DISTRICT

drawing title

SCOPE OF WORKS AT PORTION A, B AND C OF THE SITE

scale 1 : 5,000

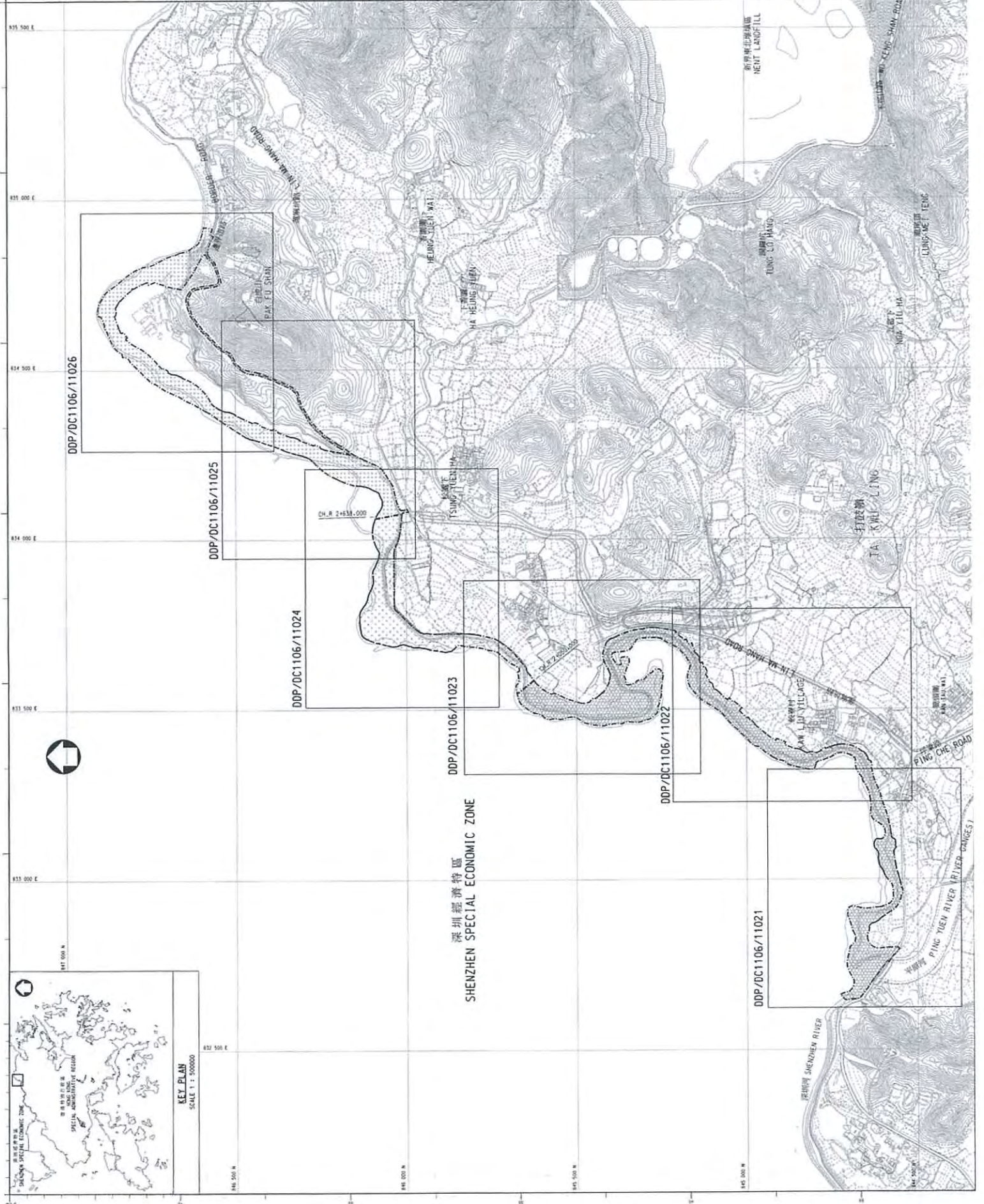
sheet no. DDP/DC1106/11011

sheet 1 OF 2

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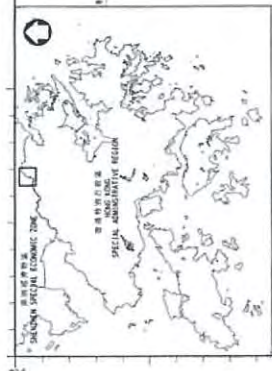
DRAINAGE PROJECTS DIVISION

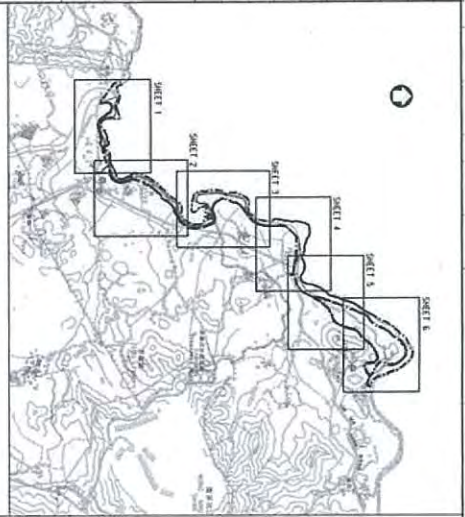
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GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION



深圳經濟特區
SHENZHEN SPECIAL ECONOMIC ZONE

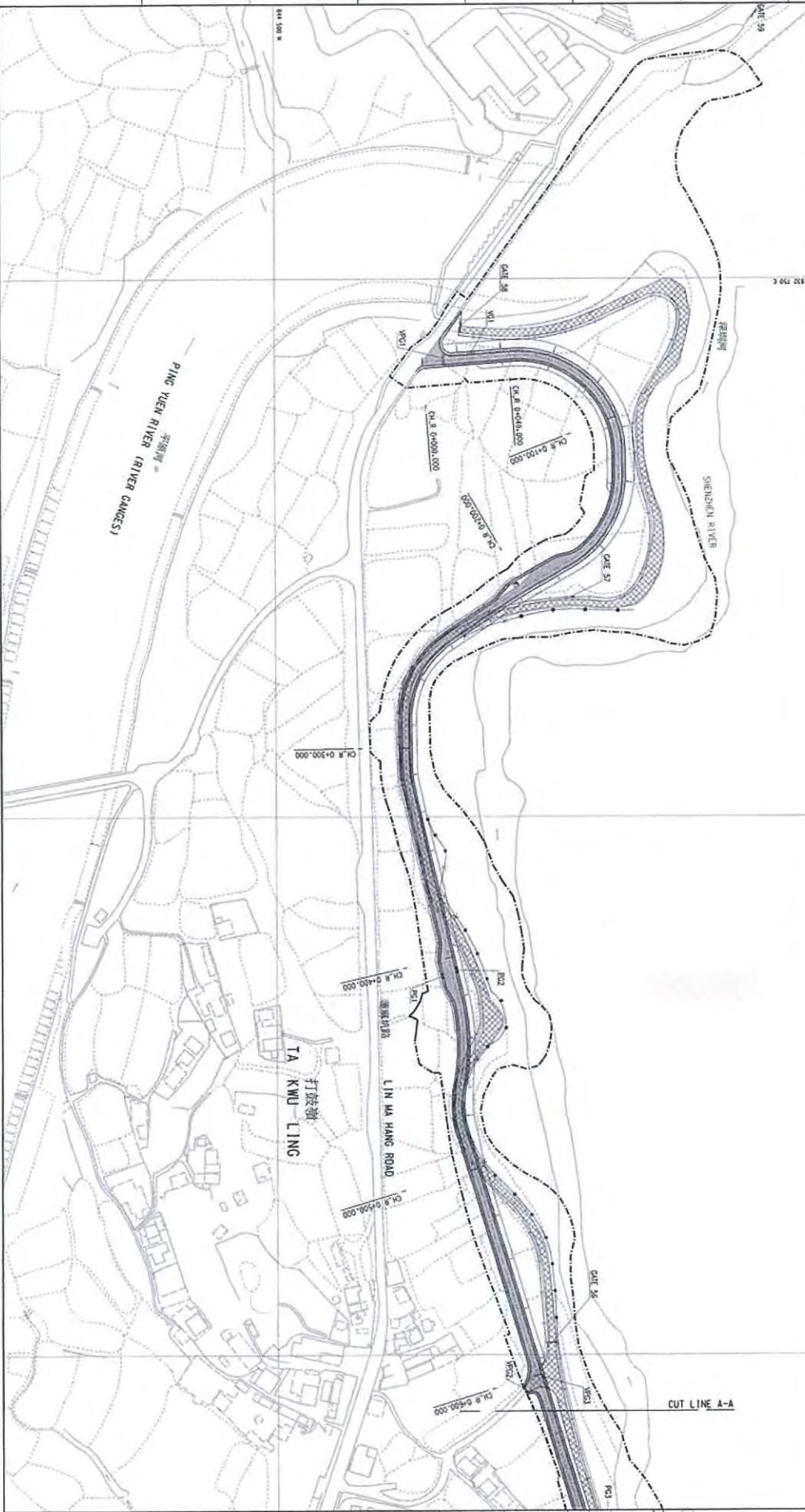
KEY PLAN
SCALE 1 : 50000





LOCATION PLAN
SCALE 1 : 20000

深圳市
SHENZHEN SHI



NOTES:
1. CHAIN LINES ARE HONG KONG GRID 1980.
2. ALL LENGTHS ARE IN METRES AND REFERRED TO N.E.P.D.

LEGEND :

- (---) LIMB'S OF THE SITE
- [---] EXISTING BOUNDARY PATROL ROAD
- [---] EXISTING BOUNDARY PATROL ROAD TO BE RECONSTRUCTED
- [---] PROPOSED BOUNDARY PATROL ROAD
- [---] PROPOSED PRIMARY BOUNDARY PATROL ROAD
- [---] PROPOSED CHAIN LINK FENCE
- [---] EXISTING BOUNDARY FENCE AND ASSOCIATED LAMP POSTS AND PILLAR BOX
- [---] EXISTING BOUNDARY FENCE AND ASSOCIATED LAMP POSTS AND PILLAR BOX TO BE RECONSTRUCTED
- [---] EXISTING BOUNDARY FENCE TO BE DEMOLISHED
- [---] EXISTING CHAIN LINK FENCE TO BE DEMOLISHED
- [---] EXISTING FILL SLOPE
- [---] PROPOSED FILL SLOPE
- [---] CH. 8+000.000 CHAINAGE FOR BOUNDARY ROAD
- [---] PROPOSED SECTION AS AND PROVISIONAL GATE (PG)
- [---] PROPOSED RESTRICTION GATE (PG)
- [---] EXISTING GATE
- [---] EXISTING GATE TO BE DEMOLISHED
- [---] PILLAR BOX
- [---] SWITCH ROOM

NO.	DATE	REVISION	DESCRIPTION	INITIAL
1	28.09.2011	DESIGNED	C. L. CHAN	
2	28.09.2011	CHECKED	T. C. LAM	
3	28.09.2011	APPROVED	T. C. LAM	

Contract no. DC/2011/06
 File no. DP/8/5018/CB
 Project no. 5018/CB

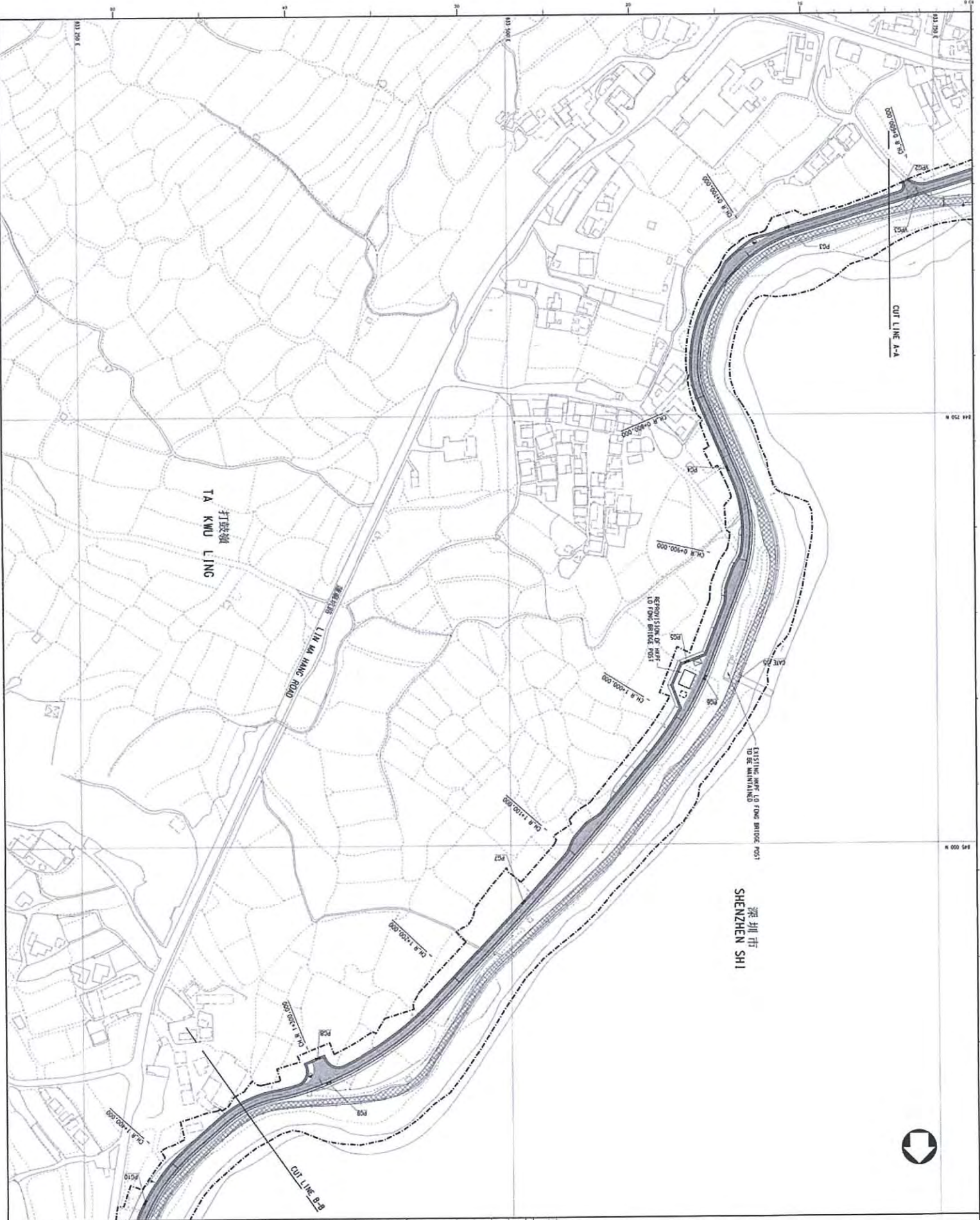
REPRODUCTION OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING YUEN RIVER AND PAK FU SHAN AND DRAINAGE WORKS IN NORTH DISTRICT

GENERAL LAYOUT
 SHEET 1 OF 51
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DRAINAGE PROJECTS DIVISION

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NO.	DATE	DESCRIPTION	INITIALS
1	28 NOV 2011	DESIGN	
2	28 NOV 2011	DESIGN	
3	28 NOV 2011	DESIGN	
4	28 NOV 2011	DESIGN	
5	28 NOV 2011	DESIGN	

Ag. Chief Engineer
 S. L. LING
 28 NOV 2011
 DR20

contract no. DC/2011/05
 file no. DP/8/5018C8
 project no. 5018C8

REPROVISIONING OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING TIEN RIVER AND PAK HOI AND DRAINAGE WORKS IN NORTH DISTRICT

drawing title
 GENERAL LAYOUT

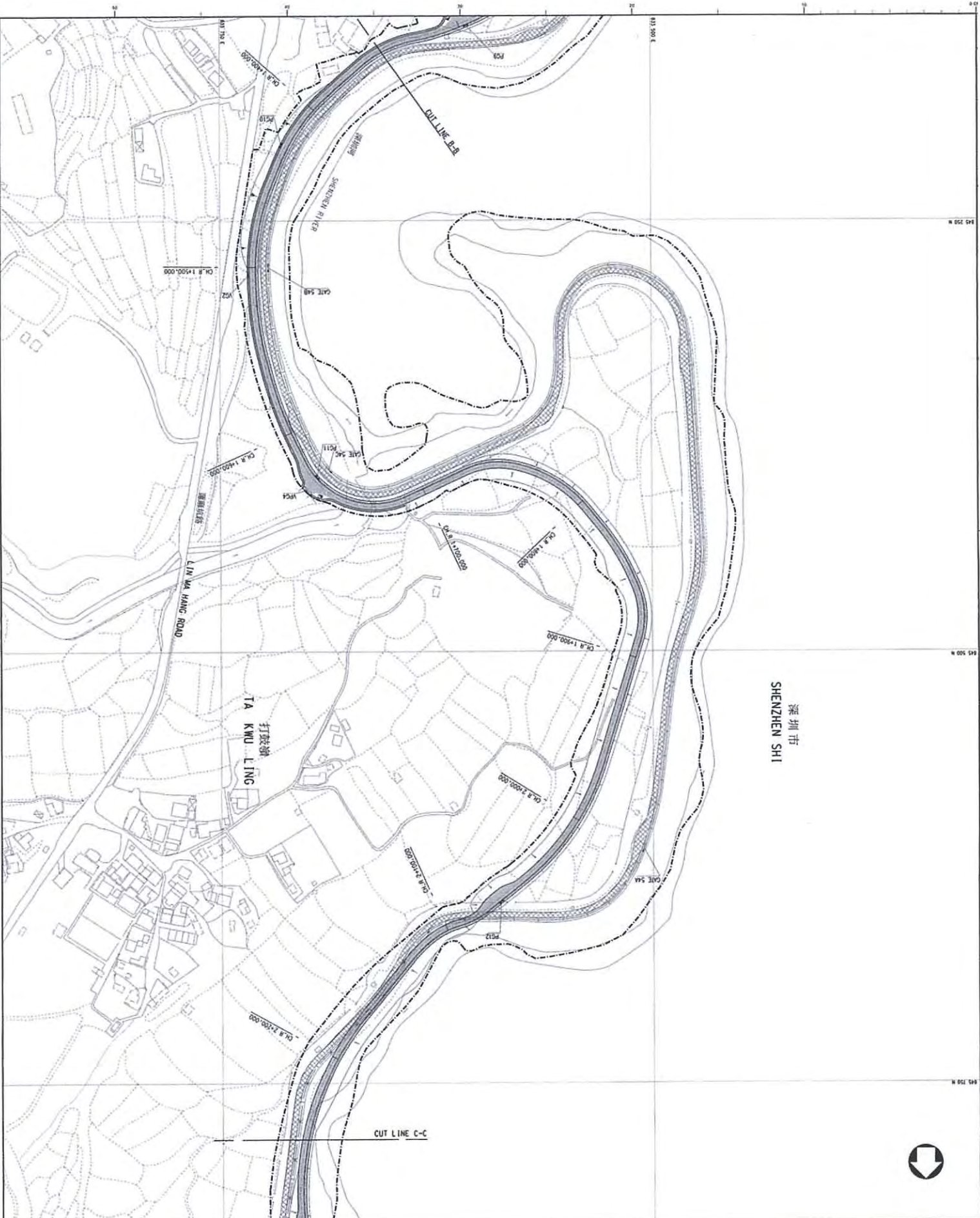
(SHEET 2 OF 5)

drawing no. DDP/DC1106/11022
 scale 1:1,000

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NO.	DATE	DESCRIPTION	INITIAL
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED: *[Signature]* S. Y. CHAN 28 NOV 2011
 DRAWN: *[Signature]* T. M. LIU 28 NOV 2011
 CHECKED: *[Signature]* K. M. NGAN 28 NOV 2011
 VERIFIED: *[Signature]* S. C. LAM 28 NOV 2011
 APPROVED: *[Signature]* S. Y. CHAN 28 NOV 2011
 AG CHIEF ENGINEER
 DATE

CONTRACT NO. DC/2011/05
 FILE NO. DP/8/501808
 PROJECT NO. 501808
 CONTRACT

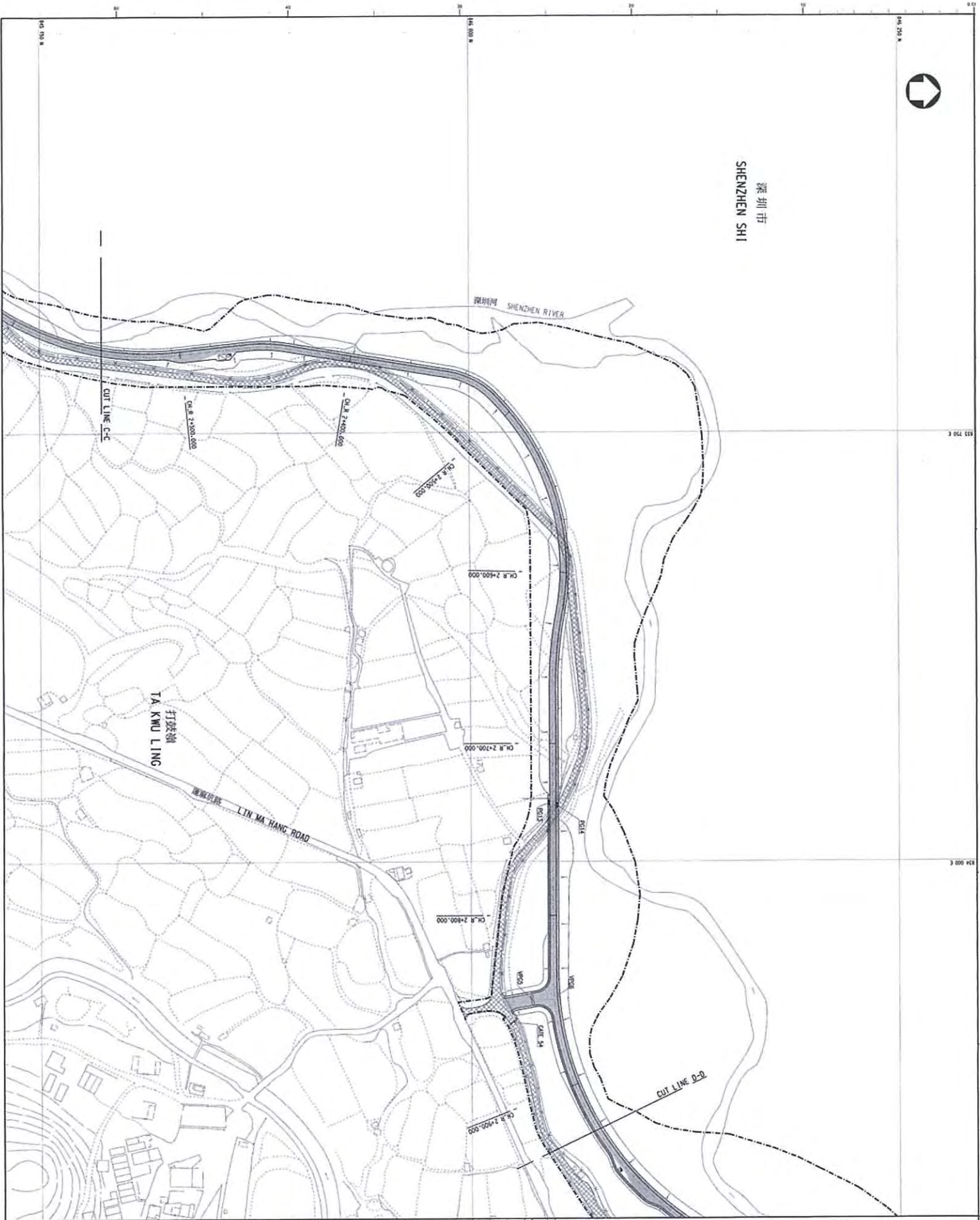
REPRODUCTION OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING TIEN RIVER AND PAK FU SHAN AND DRAINAGE WORKS IN NORTH DISTRICT

GENERAL LAYOUT
 SHEET 3 OF 61
 DRAWING NO. DDP/DC1106/11023
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NO.	DATE	DESCRIPTION	INITIALS
1			

REVISION	DATE	DESCRIPTION
1	29 NOV 2011	DESIGN
2	29 NOV 2011	DESIGN
3	29 NOV 2011	DESIGN
4	29 NOV 2011	DESIGN

Ag. Chief Engineer
Date: 29 NOV 2011

contract no. DP/8/501808
contract no. 501808

REPROVISIONING OF BOUNDARY PATROL ROAD
AND ASSOCIATED SECURITY FACILITIES
BETWEEN PING YUEN RIVER
AND PAK FU SHAN AND DRAINAGE WORKS
IN NORTH DISTRICT

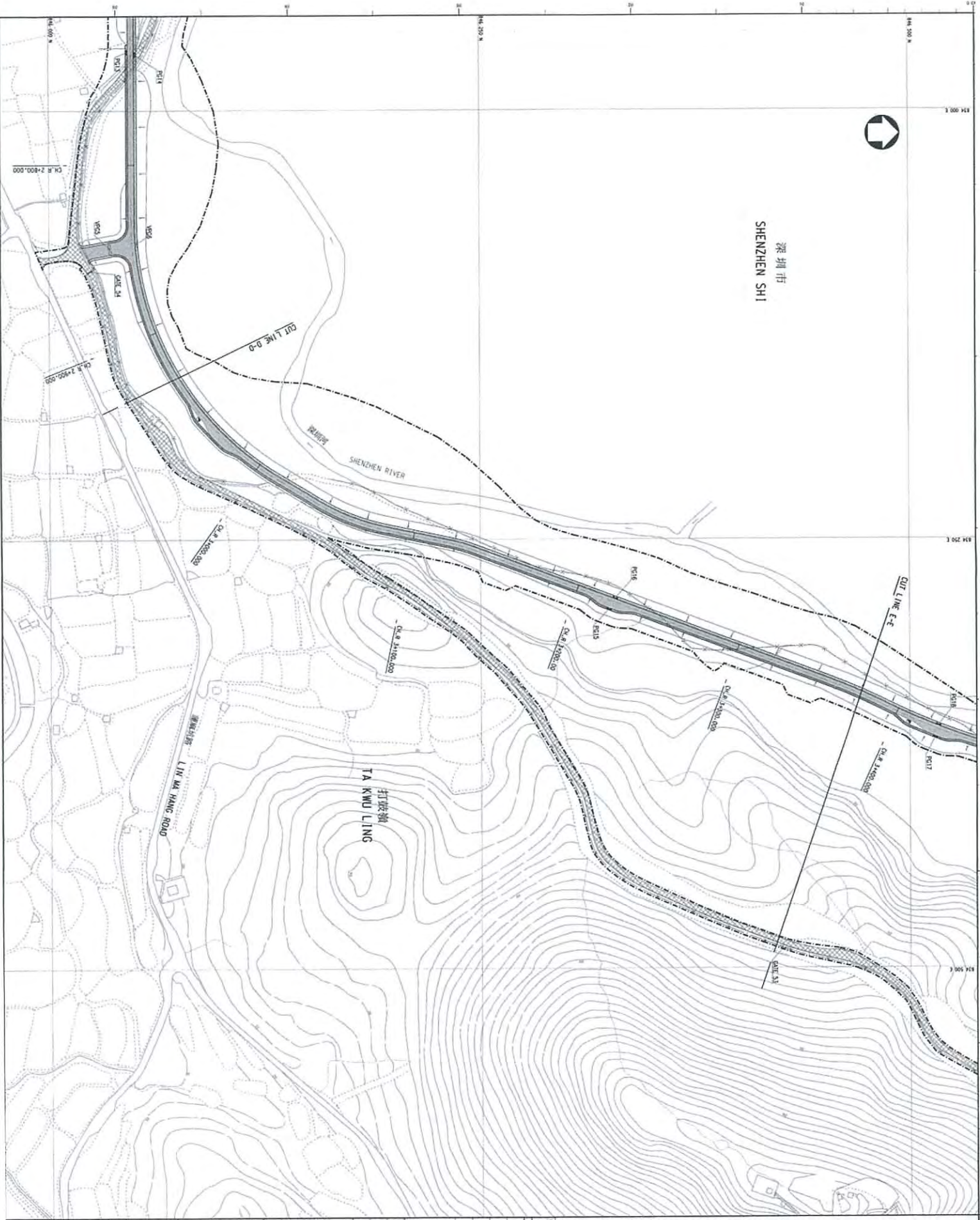
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sheet 4 of 5
drawing no. DDP/DC1106/11024
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DPP, NO. DP/DC/106/11025.

NO.	DATE	DESCRIPTION	INITIALS
1			

DESIGNED: C. F. CHAN
DRAWN: T. M. LEE
CHECKED: W. H. NG
DATE: 28 NOV 2011

PROJECT NO: 501808
FILE NO: DP/8/501808
CONTRACT NO: DC/2011/05

REPROVISIONING OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING YEH RIVER AND PAK FU SHAN AND DRAINAGE WORKS IN NORTH DISTRICT

GENERAL LAYOUT

1 SHEET 5 OF 5

DPP/DC/106/11025

1:1,000

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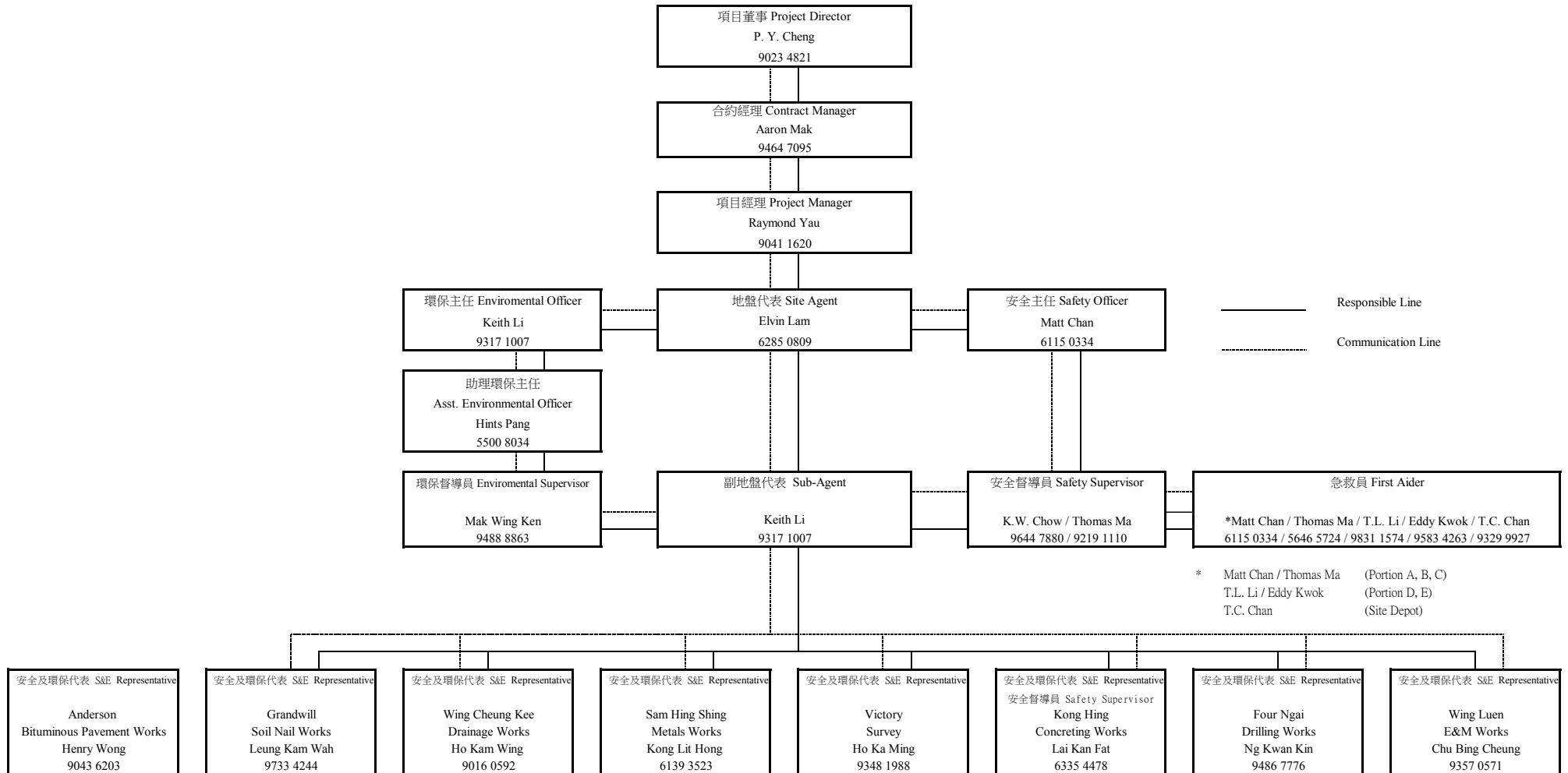
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE
SPECIAL ADMINISTRATIVE REGION



ANNEX B

***ENVIRONMENTAL MANAGEMENT ORGANIZATION
AND
COMMUNICATION LINES***

SAFETY & ENVIRONMENTAL ORGANIZATION CHART



KEY CONTACT INFORMATION UNDER THE CONTRACT

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Project Proponent / Employer	Mr. Eric Y. M. Cheng	2594 7341	2827 8700
Environ	Independent Environmental Checker	Mr. Roger W. K. Leung	3465 2888	3548 6988
SHCC	Project Manager	Mr. Raymond Yau	2403 1165	2403 1165
SHCC	Site Agent	Mr. Elvin Lam	2640 9286	2640 9286
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Miss Nicola Hon	2959 6059	2959 6079
AUES	Environmental Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079

24-Hour Hotline Telephone Number for the Public to Make Enquiries

24-Hour Hotline: 6770 3827
Contact Person: Mr. Mocha Mok

Legends:

- DSD* (Project Proponent / Engineer) – Drainage Services Department
SHCC (Main Contractor) – Sang Hing Civil Constructors Co., Ltd
Environ (IEC) – Environ Hong Kong Limited
AUES (ET) – Action-United Environmental Services & Consulting

ANNEX C

**IMPLEMENTATION SCHEDULE
FOR ENVIRONMENTAL MITIGATION MEASURES**

Annex D Implementation Schedule for Environmental Protection Measures

EIA Ref.	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementati on Agent	Implementation Stage			Relevant Legislation & Guidelines
				Des C	Post-C	O	
1. Air Quality							
S4.8	<p>Dust control measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> will be implemented during the construction phase to control the potential fugitive dust emissions. In particular:</p> <ol style="list-style-type: none"> i. Water spraying on haul roads and dusty areas for every hour during construction; ii. Covering the stockpile areas of at least 70% area with tarpaulin sheet or impervious sheet; iii. Covering of dusty materials/spoils on trucks by impervious sheets; iv. Controlling the dropping height of fill materials; v. Covering or storing all debris and materials in a sheltered debris collection area; vi. Storing dredged sediment in a separate enclosed tank; and vii. Providing wheel washing facility at each exit of the works site. 	Whole Site / During Construction	Contractor				Air Pollution Control (Construction Dust) Regulation
S4.8	Site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	Whole Site / During Construction	Contractor				
2. Construction Noise							
S5.8	<p>The following site practices should be followed during the construction of the Project:</p> <ol style="list-style-type: none"> i. Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction phase; ii. Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction phase; iii. Mobile plant, if any, should be sited as far from NSRs as possible; iv. Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; v. Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and vi. Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities. 	Whole Site / During Construction	Contractor				
S5.8	Use quiet PME as far as practicable to mitigate the construction noise impacts.	Whole Site / During Construction	Contractor				
S5.8	Use temporary noise barriers to mitigate the noise impact arising from the construction works, particularly for low-rise NSRs. Movable noise barriers of 3 m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater than its height. With reference to A Practical Guide for the Reduction of Noise from Construction Works, the noise barrier material should have a superficial surface density of at least 7 kg m ⁻² and have no openings or gaps.	Works Area III and IV/ During Construction	Contractor				A Practical Guide for the Reduction of Noise from Construction Works

S5.8	Scheduling of construction activities with identified grouping of PMEs.	Works Area III / During Construction	Contractor	✓			
S5.10	Monthly site inspection and audit of construction activities.	Whole Site / During Construction	ET & IEC	✓			EIAO
3. Water Quality							
S6.8	Maximum loss rate during the wet excavation should be kept at or below the limits specified in the EIA Report.	Excavation area / During Construction	Contractor	✓			
S6.8	<i>Construction Site Runoff and Drainage</i> Channels, earth bunds or sand bag barriers will be provided on site to direct stormwater to silt removal facilities. The design of silt removal facilities will make reference to the guidelines in Appendix A1 of ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Land Site / During Construction	Contractor	✓			ProPECC PN 1/94 TM standard under the WPCO
S6.8	Non-active area along the river bank will be covered by impermeable sheets or hydroseeding completed sections immediately whenever possible to minimise erosion of soil by runoff particularly during heavy rainstorms	River bank / During Construction	Contractor	✓			
S6.8	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land Site / During Construction	Contractor	✓			
S6.8	Appropriate surface drainage will be designed and provided where necessary. In particular, surface runoff will be collected along the river bank and be diverted to sedimentation tank/pond before being discharged into the river.	Land Site / During Construction	Contractor	✓			
S6.8	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.	Land Site / During Construction	Contractor	✓			ProPECC PN 1/94 TM
S6.8	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land Site / During Construction	Contractor	✓			
S6.8	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge will be adequately designed for the controlled release of storm flows	Land Site / During Construction	Contractor	✓			
S6.8	The temporary diverted drainage will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land Site / During Construction	Contractor	✓			
S6.8	An adequate number of portable toilets will be provided for the on-site construction workforce. Wastewater/sewage will be handled by registered collector in Hong Kong.	Whole Site / During Construction	Contractor	✓			
S6.8	Debris and refuse generated on-site will be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials will be covered when not being used.	Whole Site / During Construction	Contractor	✓			
S6.8	Oil leakage or spillage will be contained and clean up immediately. Waste oil will be collected and stored for recycling or disposal, in accordance with the Waste Disposal Ordinance.	Whole Site / During Construction	Contractor	✓			Waste Disposal Ordinance

4. Terrestrial Ecology									
S7.11	Avoid potential impacts on the trees whenever possible during the detailed design stage. The retained trees will be fenced off as protection from the construction works. If the trees cannot be avoided due to the engineering constraint, the affected individual(s) will be transplanted to compensatory woodland planting site near Pak Fu Shan or a similar habitat in the vicinity of the Project Site if considered suitable (subject to the detailed assessment of the feasibility of transplantation).	Whole Site / During Construction	Contractor	✓	✓				
S7.11	A detailed vegetation survey on the trees within the impacted area would be conducted by a suitably qualified botanist/ ecologist to identify and record the affected individuals prior to the commencement of site clearance works. Feasibility and suitability of transplanting the affected plant species of conservation interest would be carefully studied and suitable receptor sites would be identified during Tree Felling Application.	Whole Site / During Construction	Contractor	✓	✓				
S7.11	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.	Whole Site / During Construction	Contractor	✓	✓				
S7.11	Regularly check the Site boundaries to ensure that they are not breached and that no damage occurs to surrounding areas Whole Site / During	Whole Site / During Construction	Contractor	✓	✓				
S7.11	Prohibit and prevent open burning within the site boundary during construction and provide temporary fire fighting equipment in the work areas.	Whole Site / During Construction	Contractor	✓	✓				
S7.11	Reinstate temporary work sites/disturbed areas immediately after completion of the construction works	Whole Site / During Construction	Contractor	✓	✓				
S7.11	Provide additional stream/river habitat with natural bottom (~2.1 ha) after the advanced works	Whole Site / During Construction	Contractor	✓	✓				
S7.14	Adopt proper ecological design for the landscape works along the river banks, including the floodplain (the 1.9ha marshy low-lying grassland will be reinstated in the floodplains at Hong Kong side.	Along river bank and water retardation pond / During Design Stage	Designer(s)	✓					
S7.14	The implementation of landscape works (including compensatory planting) adopting ecological design at Hong Kong side shall be monitored.	Whole Site / During Construction	Designer(s)		✓				
S7.14	One-year bird monitoring programme shall be conducted to monitor the effectiveness of the re-provisioned/reinstated habitats	Operation	Project Proponent/ Contractor					✓	
5. Waste Management									
S9.6	<u>General</u> The Contractor shall apply for and obtain the appropriate licenses for the disposal of public fill, chemical waste and effluent discharges	Contract mobilisation / During construction	Contractor	✓					Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes; WBTC No 5/99, Trip ticket System for Disposal of Construction and Demolition Material; Water Pollution Control Ordinance

S9.6	Nomination of approved personnel to be responsible for standard site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the Project Site	Contract mobilisation / During construction	Contractor	✓			
S9.6	Training shall be provided to site personnel in proper waste management and chemical handling procedures, the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	Contract mobilisation / During construction	Contractor	✓			
S9.6	Provision of sufficient waste disposal points and regular collection for disposal.	Whole Site / During Construction	Contractor	✓		WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness. Works Bureau, Hong Kong SAR Government	
S9.6	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers	Whole Site / During Construction	Contractor	✓			
S9.6	Separation of chemical wastes for special handling and appropriate Treatment Chemical Waste Treatment Centre at Tsing Yi.	Whole Site / During Construction	Contractor	✓		Waste Disposal (Chemical Waste) (General) Regulation	
S9.6	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	Whole Site / During Construction	Contractor	✓			
S9.6	A recording system for the amount of wastes generated/recycled and disposal sites.	Whole Site / During Construction	Contractor	✓			
S9.6	<i>Waste Reduction Measures</i> i. Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal. ii. Encourage collection of aluminium cans and waste paper by individual collectors during construction with separate labelled bins provided to segregate these wastes from other general refuse by the workforce. iii. Any unused chemicals and those with remaining functional capacity will be recycled as far as possible	Whole Site / During Construction	Contractor	✓		WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness	
S9.6	iv. Use of reusable non-timber formwork to reduce the amount of C&D materials	Whole Site / During Construction	Contractor	✓		Works Branch Technical Circular (WBTC) No.32/92, The Use of Tropical Hard Wood on Construction Site	
S9.6	v. Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill	Whole Site / During Construction	Contractor	✓			
S9.6	vi. Proper storage and site practices shall be adopted to reduce the potential for damage or contamination of construction materials						
S9.6	vii. Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste						

S9.6	<p>Excavated Materials</p> <p>The contractor of the advanced work should open a billing account with EPD for the payment of disposal charges. A trip-ticket system will be established in accordance with ETWB TC(W) No. 31/2004 to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at landfills, and to control fly-tipping</p>	Contract mobilisation / During construction	Contractor	✓	✓	Waste Disposal (Charges for Disposal of Construction Waste) Regulation ETWB TC(W) No.31/2004
S9.6	<p>Ways to minimise generation of C&D materials include:</p> <p>(i) The Contractor is required to submit the Waste Management Plan (WMP) for approval by the Engineer with appropriate mitigation measures to deal with and allow space for waste segregation. Different C&D materials should be sorted into different categories for re-use/recycle. Day-to-day site operations of the Contractor should be closely monitored to ensure compliance with the approved WMP.</p> <p>(ii) The designer shall ensure that the design of levels and dimensions are reasonably accurate to avoid unnecessary demolition, excavation and fill.</p> <p>(iii) The Contractor shall be encouraged to use long lasting materials such as steel and poly-fibre for formwork on site.</p> <p>(iv) The RSS shall control the disposal of public fill and C&D waste to the designated public filling facilities and landfills respectively through the implementation of a trip-ticket system according to ETWB TC(W) No. 31/2004.</p>	Whole Site / During Construction	Contractor	✓		
	<p>Ways to maximize the use of inert C&D material include:</p> <p>i. The Contractor shall review the WMP quarterly to improve the site practice and maximise the use of inert C&D material</p> <p>ii. Different sections of works shall be programmed to ensure the C&D materials generated could be re-used by the other sections of works or works contracts.</p> <p>iii. Temporary storage areas should be identified to resolve programming mismatch between excavation and filling works.</p> <p>iv. The excavated soft inert C&D materials should be reused for backfilling the boundary patrol road, channel embankment, etc. whenever practicable.</p> <p>v. Good quality top soil should be reused for landscaping.</p>	Whole Site / During Construction	Contractor	✓		
	<p>Ways to maximise the re-use/recycle of C&D material and/or rock on site include:</p> <p>i. Recyclable materials such as wood and metal should be salvaged for reuse and inert materials utilized as public fill.</p> <p>ii. Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal. Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste utilized as fill material to minimize the quantity of waste to be disposed of at landfills.</p>	Whole Site / During Construction	Contractor	✓		
S9.6	<p>Ways to maximise the use of recycled C&D materials include:</p> <p>i. Relevant clauses would be incorporated in the Particular Specifications to facilitate the use of recycled aggregates as far as practicable, such as, temporary works, general fills and road sub-base.</p>	Whole Site / During Construction	Contractor	✓		
S9.6	<p>To reduce the potential dust impacts of the excavation works, the C&D materials will be wetted as quickly as possible to the extent practice after filling.</p>	Whole Site / During Construction	Contractor	✓		

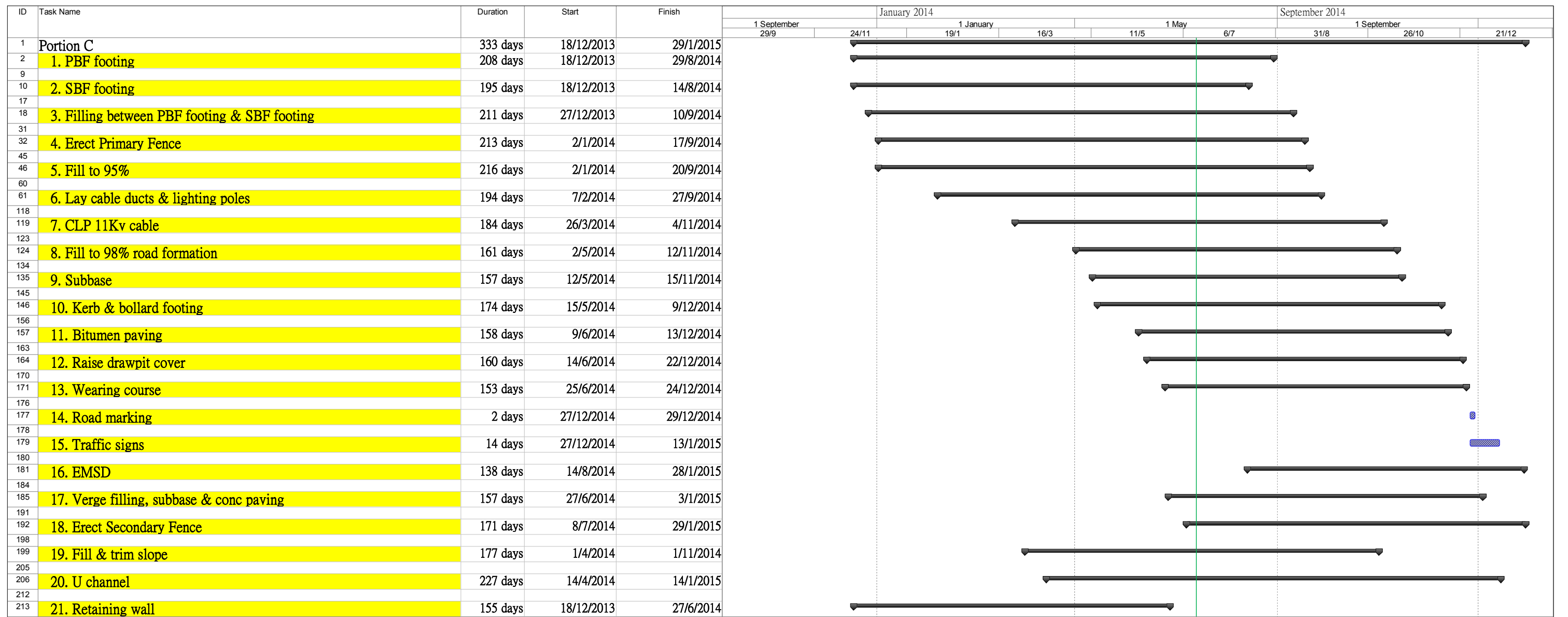
S9.6	<p><i>Chemical Waste</i> Containers used for storage of chemical waste shall be:</p> <ol style="list-style-type: none"> Maintained in good condition and clearly labelled in both English and Chinese; Suitable for the substance they are holding, resistant to corrosion, and securely closed; and Capacity of less than 450 L unless the specifications have been approved by the EPD. 	All facilities / During construction	Contractor	✓		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling, and Storage of Chemical Wastes
S9.6	<p>Storage areas for chemical waste shall:</p> <ol style="list-style-type: none"> Be clearly labelled and used solely for the storage of chemical waste; Be enclosed on at least 3 sides; Have adequate ventilation; Be arranged so that incompatible materials are appropriately separated Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; and Be covered to prevent rainfall from entering 	All facilities / During construction	Contractor	✓		
S9.6	Any unused chemicals and those with remaining functional capacity shall be recycled to the extent practical.	Land Site / During Construction	Contractor	✓		
S9.6	A licensed contractor shall be employed to collect chemical waste for delivery to a licensed treatment facility.	Chemical Waste Treatment Centre at Tsing Yi/ During construction	Contractor	✓		Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling, and Storage of Chemical Wastes
S9.6	<i>General Refuse</i> General refuse shall be timely cleared and shall be disposed of to the nearest licensed facility by reputable waste collector on regular basis to reduce odour, pest and litter impacts.	All areas / During construction	Contractor	✓		WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.
S9.6	No waste shall be burnt on site. Wastes shall be collected by licensed waste haulier and be disposed of at licence sites.	Land Site / During Construction	Contractor	✓		Air Pollution Control Ordinance
S9.6	Training will be provided to workers on the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling at the beginning of the construction works.	All areas / During construction	Contractor	✓		
S9.8	EM&A of waste handling, storage, transportation, disposal procedures and documentation through the site inspection and audit programme shall be undertaken.	All facilities / During construction	ET and IEC	✓		
S9.8	Waste Management Plan (WMP) will be prepared and implemented in accordance with ETWB TC(W) No. 19/2005.	All facilities / During construction	Contractor	✓		ETWB TC(W) No.19/2005

6. Cultural Heritage							
S11.8.1	Pursuant to the Antiquities and Monuments Ordinance, the project proponent should inform the AMO immediately in case of discovery of antiquities or supposed antiquities in the course of soil excavation works in construction stage.			✓	Project Proponent		Antiquities and Monuments Ordinance
S11.8.1	In case the works boundary of the Project changes during the detailed design stage to cover additional area not being assessed, the need for further archaeological survey and subsequent impact assessment should be reviewed and AMO should be consulted.	Additional works boundary not covered in EIA / During design stage	Design Team and the Project Proponent (i.e. DSD)				EIAO TM, Guidelines for CHIA, Antiquities and Monuments Ordinance
7. Landscape & Visual							
S12.6.10	MM1: Tree Protection and Preservation - Trees/ woodland within the Project Site will be protected and preserved as far as possible in accordance with ETWB TCW No. 29/2004 and 3/2006.	Land Site / During Construction	Contractor	✓			
S12.6.10	MM2: Tree Transplantation – Should removal of trees be unavoidable due to construction impacts, trees will be transplanted or felled according to the Detailed Tree Survey and Tree Felling Application. Established trees of value are to be re-located where practically feasible.	Land site / During Construction	Contractor(s)	✓			
S12.6.10	MM3: Minimize Disturbance – temporary structures and construction works should be planned with care to minimize disturbance to existing built structures as well as vegetation including riparian vegetation along the river.	Land Site / During Construction	Contractor	✓			
S12.6.10	MM4: Compensatory Tree Planting - Where loss of existing trees is unavoidable, compensatory planting of trees should be provided in accordance with ETWB TCW No. 03/2006 to compensate for those trees felled. Space is to be allowed within the Project Site (mainly planting in riverbank landscape areas of ~4.1 ha) for such planting. Plants will have 12 months to establish. Approximately 0.5 ha of compensatory woodland planting (in addition to the reinstatement of the woodland (LR4) if unavoidably affected) will be provided within the Project Site near Pak Fu Shan. The proposed compensatory woodland planting site will locate adjoining to the reinstated and existing (undisturbed by the Project) woodland on hillside. The selection of planting species shall be made with reference to the species identified in the Tree Survey and be native to Hong Kong or the South China region. The compensatory woodland planting should also adopt ecological design, ie provision of rare butterfly species larval food plant (Trema sp.), and further details refer to Section 7.1.3 of the EIA Report. The arrangement of the on-site compensatory planting, ie tree/ shrub mix and Trema sp., will be subject to detailed landscape design and planting plan, and recommended to be implemented prior to the construction activities as far as practical	Compensatory planting area / During Construction	Contractor	✓			
S12.6.10	MM5: Screening – Stockpiles of materials should be covered or hoarding erected where possible to reduce undesirable views of the construction site (such as stockpile areas), having consideration of safety and security. It is proposed that screening be compatible with the surrounding environment and where possible, non-reflective, recessive colours be used. Hoarding should be taken down at the end of the construction period.	Land Site / During Construction	Contractor	✓			

S12.6.10	MM6: Light Control – Control of night time lighting glare shall be implemented to minimize glare impact to adjacent VSRs.	Whole Site / During Construction	Contractor	✓			
S12.6.10	MM7: Reinstatement – Terrestrial areas temporarily disturbed by the Project during construction, should be re-vegetated with shrubs, ground cover or grass in order to restore the green ambience or LR as existed before the commencement of the Project to blend with the new environment, eg the earth embankment underneath the boundary patrol road near Pak Fu Shan should be planted to ensure the embankment structure blends in with the new environment.	Whole Site / During Construction	Contractor	✓			
S12.6.10	MM8: Buffer Planting – Tree and Shrub planting shall be provided for screening the natural watercourse, woodland and shrubby grassland on lowland, proposed boundary control road and fencing, where needed and taking into account security and boundary control limitations.	Appropriate location / During Construction	Contractor	✓			
S12.6.10	MM9: River Area Enhancement Landscaping – The river bed should be nonconcreted as far as practical. The River bank and margins of approximately 4.1 ha should be enhanced with vegetation to compensate for the loss of existing vegetation and to enhance the visual and landscape value of the river where slope gradient allows. The typical design of riverbank landscaping areas for the Project is presented in Section 7.11.3 and Figure 7.11 of the EIA Report. The overall objectives for the landscaping works will be mainly concerned with ecological enhancement but also include landscape enhancement. For the sloping banks of the river, in order to guarantee safety of flood prevention, ecologically and environmentally friendly materials will be used as far as possible. The preliminary proposed landscape treatment along the sloping river banks can be classified into three types: natural vegetation, semi-natural and artificial. Further details of the river area enhancement plans can be found in Section 3 of the EIA Report, including protection of river bed with armour rock only where necessary and provision of grassed, cellular, reinforced concrete eco-friendly slope protection. Eco-bags are made of UV-resistant Polyethylene gas filled with fiber soil. Final details of the landscaping will be prepared during the detailed design stage of the Project.	Appropriate location / During Construction	Contractor	✓	✓		
S12.6.10	MM11: Floodplain Areas - The areas bound by sharp turns in the natural meander of the river should be made into floodplain areas to retain some of the riparian landscape at the river margins. The overall objectives for the landscaping works will be mainly concerned with ecological enhancement but also include landscape enhancement (also refer to Section 7.11.3 of the EIA Report). Further details will be developed during Detailed Design Stage.	Floodplain areas / During Construction	Contractor	✓	✓		
S12.6.10	MM12: Colours of Structures - Colours for the structures eg fences should be chosen to complement the surrounding area. Lighter colours such as shades of light grey, off-white and light brown may be utilised where technically feasible to reduce the visibility of the structures.	Whole Site / During Construction	Contractor	✓			
S12.6.10	MM13: Topsoil Reuse - Excavated topsoil should be conserved for re-use by the Project or other projects.	Whole Site / During Construction	Contractor	✓			
S12.9	The completed landscape works adopting ecological design on the Hong Kong side will be monitored during the one year establishment period.	Whole site / During 1 year Establishment period	Landscape Contractor	✓			

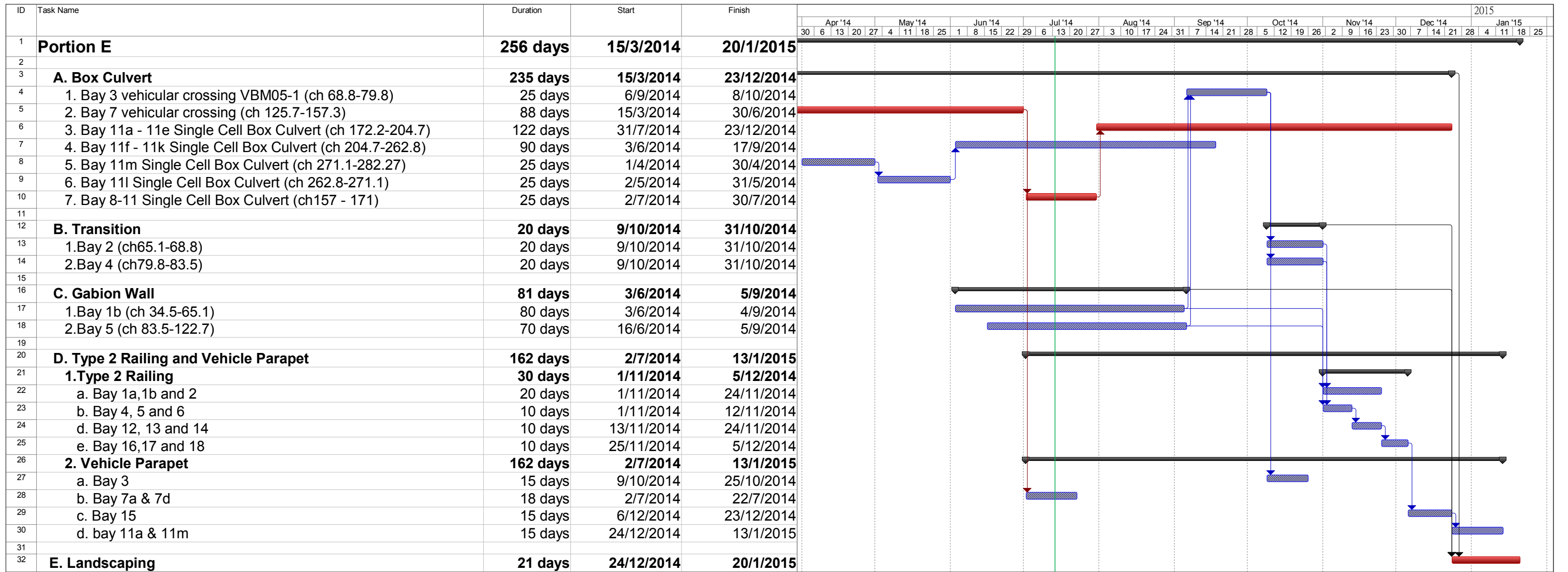
ANNEX D

THREE-MONTH ROLLING PROGRAM



ID	Task Name	Duration	Start	Finish	September		11 November		1 January		21 February		May 2014		1 June		21 July		11 September		1 November		January 2015			
					13/10	3/11	24/11	15/12	5/1	26/1	16/2	9/3	30/3	20/4	11/5	1/6	22/6	13/7	3/8	24/8	14/9	5/10	26/10	16/11	7/12	28/12
1	Portion D	299 days	3/3/2014	2/3/2015																						
2	1. Possession of Site	1 day	3/3/2014	3/3/2014																						
3																										
4	2. Setting out	7 days	3/3/2014	10/3/2014																						
5																										
6	3. Site clearance	14 days	11/3/2014	26/3/2014																						
7																										
8	4. Road diversion	97 days	28/7/2014	20/11/2014																						
9	A. Construction	5 days	28/7/2014	1/8/2014																						
10	B. Diversion	1 day	2/8/2014	2/8/2014																						
11	C. Reinstate existing road	2 days	25/10/2014	27/10/2014																						
12	D Removal of temporary road diversion	1 day	28/10/2014	28/10/2014																						
13	E. Reinstatement of private land	20 days	29/10/2014	20/11/2014																						
14																										
15	5. Existing monumental archway	236 days	4/3/2014	12/12/2014																						
16	A. Survey	25 days	4/3/2014	1/4/2014																						
17	B. Removal	35 days	2/4/2014	15/5/2014																						
18	C. Reinstatement	30 days	8/11/2014	12/12/2014																						
19																										
20	6. Utilities	241 days	27/3/2014	14/1/2015																						
21	A. Public lighting	121 days	27/3/2014	20/8/2014																						
22	1) Locate existing cable alignment at outlet	5 days	27/3/2014	1/4/2014																						
23	2) Lay duct and draw pit between inlet and existing road at downstream	15 days	2/4/2014	19/4/2014																						
24	3) Lay duct under existing road	3 days	2/8/2014	5/8/2014																						
25	4) Extend existing cable duct at outlet	5 days	4/8/2014	8/8/2014																						
26	5) Cable laying and erect new pole by others	30 days	16/7/2014	19/8/2014																						
27	6) Take down existing lighting pole by others	1 day	20/8/2014	20/8/2014																						
28	B. Construct new telephone pit at inlet	3 days	17/12/2014	19/12/2014																						
29	C. WSD	241 days	27/3/2014	14/1/2015																						
30	1) Trial pit to locate existing U/G water pipeline	5 days	27/3/2014	1/4/2014																						
31	2) Confirm alignment of new pipe by WSD	21 days	2/4/2014	26/4/2014																						
32	3) Lay new pipe	28 days	24/11/2014	27/12/2014																						
33	4) Connect by WSD	14 days	29/12/2014	14/1/2015																						
34	7. Outlet apron	213 days	11/3/2014	22/11/2014																						
35	A. Confirm alignment of outlet	2 days	11/3/2014	12/3/2014																						
36	B. Construct outlet	30 days	20/10/2014	22/11/2014																						
37																										
38	8. Box culvert	79 days	16/7/2014	18/10/2014																						
39	A. Bay 11 (CH 48.193-53.443) with ex. Lighting poje	21 days	3/9/2014	27/9/2014																						
40	B. Bay 12 (CH 53.443-58.693)	21 days	9/8/2014	2/9/2014																						
41	C. Bay 13 (58.693-62.868)	21 days	16/7/2014	8/8/2014																						
42	D. Bay 19 (84.083-89.723)	21 days	4/8/2014	27/8/2014																						
43	E. Bay 20 (89.723-95.423)	21 days	28/8/2014	22/9/2014																						
44	F. Bay 21 (95.423-99.441)	21 days	23/9/2014	18/10/2014																						
45																										
46	9. Rectangular channel	227 days	21/4/2014	21/1/2015																						
47	A. Bay 2 (CH 7-12.244) with ex. Lighting pole	14 days	17/12/2014	5/1/2015																						
48	B. Bay 3 (CH 12.244-17.293)	14 days	6/1/2015	21/1/2015																						
49	C. Bay 4 (CH 17.293-22.443)	14 days	22/12/2014	9/1/2015																						
50	D. Bay 5 (CH 22.443.6-27.593)	14 days	5/12/2014	20/12/2014																						
51	E. Bay 7 (CH 27.593-32.743)	14 days	19/11/2014	4/12/2014																						
52	F. Bay 8 (CH 32.743-37.893)	14 days	3/11/2014	18/11/2014																						
53	G. Bay 9 (CH 37.893-43.043)	14 days	17/10/2014	1/11/2014																						
54	H. Bay 10 (CH 43.043-48.193)	14 days	29/9/2014	16/10/2014																						
55	I. Bay 14 (CH 58.693-62.868)	14 days	28/6/2014	15/7/2014																						

ID	Task Name	Duration	Start	Finish	Gantt Chart Timeline																							
					September	11 November	1 January	21 February	May 2014	1 June	21 July	11 September	1 November	21 December	11													
					13/10	3/11	24/11	15/12	5/1	26/1	16/2	9/3	30/3	11 April	11/5	1/6	22/6	13/7	3/8	24/8	14/9	5/10	26/10	16/11	7/12	28/12	18/1	8/2
56	J. Bay 15 (CH 62.868-67.043)	14 days	12/6/2014	27/6/2014																								
57	K. Bay 16 (CH 67.043-72.743)	14 days	26/5/2014	11/6/2014																								
58	L. Bay 17 (CH 72.743-78.443)	14 days	9/5/2014	24/5/2014																								
59	M. Bay 18 (CH 78.443-84.083)	14 days	21/4/2014	8/5/2014																								
60																												
61	10. Intake apron Bay 1 (CH 0-7)	20 days	24/11/2014	16/12/2014																								
62																												
63	11. U-channel	59 days	5/12/2014	14/2/2015																								
64	A. Bay 14 - Bay 18	21 days	22/1/2015	14/2/2015																								
65	B. Bay 2 - Bay 10	21 days	5/12/2014	31/12/2014																								
66																												
67	12. Kerb	48 days	5/12/2014	2/2/2015																								
68	A. Bay 14 - Bay 18	10 days	22/1/2015	2/2/2015																								
69	B. Bay 2 - Bay 10	10 days	5/12/2014	16/12/2014																								
70																												
71	13. Type 2 railing	45 days	17/12/2014	10/2/2015																								
72	A. Bay 14 - Bay 18	7 days	3/2/2015	10/2/2015																								
73	B. Bay 2 - Bay 10	7 days	17/12/2014	24/12/2014																								
74																												
75	14. Landscaping	10 days	16/2/2015	2/3/2015																								



ANNEX E

**MONTHLY SUMMARY WASTE FLOW TABLE
AND
SUMMARY TABLE FOR WORK PROCESSES
OR
ACTIVITIES REQUIRING TIMBER FOR TEMPORARY WORKS**

Monthly Summary Waste Flow Table

Name of Department: DSD

Contract No.: DC/2011/06

Monthly Summary Waste Flow Table for 2014

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan-14	14.248	0.000	0.000	14.248	0.000	0.568	0.244	0.003	0.000	0.000	0.000
Feb-14	12.912	0.000	0.000	12.912	0.000	0.656	0.103	0.002	0.000	0.000	0.005
Mar-14	0.000	0.000	0.000	0.000	0.000	0.744	0.200	0.005	0.000	0.04	0.065
Apr-14	0.000	0.000	0.000	0.000	0.000	0.352	0.000	0.000	0.000	0.000	0.030
May-14	0.000	0.000	0.000	0.000	0.000	0.240	0.000	0.000	0.000	0.000	0.175
Jun-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.050
Jul-14	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.072	0.000	0.000	0.030
Aug-14	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.066	0.000	0.000	0.045
Sep-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025
Oct-14											
Nov-14											
Dec-14											
Total	27.160	0.000	0.000	27.160	0.000	2.560	0.550	0.148	0.000	0.040	0.425

Notes :

- (1) Note Used.
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Sites.
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.
- (4) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring.

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: DC/2011/06

Contract Title: *Reprovisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan and Drainage Works in North District*

Report Period: Sep-14

Item No	Description of Works Process or Activity [see note (a) below]	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber Used (m ³)	Actual Quantities used (m ³)	Remarks
1	Transition formwork & falsework (Portion A,B,E)	Temporary formwork & falsework design	10	9	
2	Transition formwork & falsework (Portion A,B,C)	Temporary formwork & falsework design	25	18	
3	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	52	40	
4	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	77	72	
5	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	102	86	
6	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	115	103	
7	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	121	112	
8	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	145	139	

Notes

(a) The Contractor shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating.

(b) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: DC/2011/06

Contract Title: *Reprovisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan and Drainage Works in North District*

Report Period: Sep-14

Item No	Description of Works Process or Activity [see note (a) below]	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber Used (m ³)	Actual Quantities used (m ³)	Remarks
9	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	154	151	
10	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	156	155	
11	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	157	156	
12	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	160	157	
13	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	160	157	
14	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	171	166	
15	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	178	173	
16	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	191	186	

Notes

(a) The Contractor shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating.

(b) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring

Summary Table for Work Processes or Activities Requiring Timber for Temporary Works

Contract No.: DC/2011/06

Contract Title: *Reprovisioning of Boundary Patrol Road and Associated Security Facilities between Ping Yuen River and Pak Fu Shan and Drainage Works in North District*

Report Period: Sep-14

Item No	Description of Works Process or Activity [see note (a) below]	Justifications for Using Timber in Temporary Construction Works	Est. Quantities of Timber Used (m ³)	Actual Quantities used (m ³)	Remarks
17	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	200	194	
18	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	205	201	
19	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	215	212	
20	Transition formwork & falsework (Portion A,B,C,E)	Temporary formwork & falsework design	225	222	
21	Transition formwork & falsework (Portion A,B,C,D,E)	Temporary formwork & falsework design	226	223	
22	Transition formwork & falsework (Portion A,B,C,D,E)	Temporary formwork & falsework design	230	229	

Notes

(a) The Contractor shall list out all the work items requiring timber for use in temporary construction works. Several minor work items may be grouped into one for ease of updating.

(b) The summary table shall be submitted to the Engineer's Representative monthly together with the Waste Flow Table for review and monitoring