

**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  
(OCTOBER 2012)**

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

**Quality Index**

<b>Date</b>	<b>Reference No.</b>	<b>Prepared By</b>	<b>Approval By</b>
15 November 2012	TCS00599/12/600/R0053v1	 F. N. Wong Senior Environmental Consultant	 T. W. Tam Environmental Team Leader

<b>Version</b>	<b>Date</b>	<b>Description</b>
0	7 November 2012	First submission.
1	15 November 2012	Amended against IEC's comments

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\_0081L.12

16 November 2012

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. TW Tam

Dear Sir,

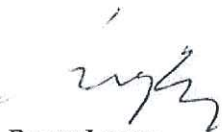
**Re: Contract No. DC/2011/06  
Reprovisioning of Boundary Patrol Road and Associated Security Facilities  
between Ping Yuen River and Pak Fu Shan and Drainage Works in North  
District  
EM&A report for Advanced Works under EP-430/2011 (October 2012)**

Reference is made to the Environmental Team's submission of the captioned report (Version 1) dated 15 November 2012 received through E-mail on 16 November 2012 for our review and comment.

Please be informed that we have no further 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. W.H. Poon                    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 is required for construction of the Works, no breaches of Action and Limit levels are therefore applicable for the Works.

**REPORTING CHANGES**

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

**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 to September 2012	0	0	Not Applicable
October 2012	0	0	Not Applicable

**NOTIFICATIONS OF ANY SUMMONS AND SUCCESSFUL PROSECUTIONS**

ES04. No notifications of any 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.



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**1 BACKGROUND INFORMATION**

**DSD CONTRACT NO. DC/2011/06**

1.01 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 – Reprovisioning 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”).

1.02 The Contract comprises:

A. Reprovisioning 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) Reprovisioning 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) Reprovisioning 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) Reprovisioning 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.

1.03 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*.

1.04 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 to be completed in August 2014 within 29 months.

**CONCURRENT PROJECTS IN THE VICINITY OF THE WORKS**

1.05 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.



### **CUMULATIVE ENVIRONMENTAL IMPACTS**

- 1.06 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.
- 1.07 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.
- 1.08 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.
- 1.09 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 FOR THE WORKS**

### **CONSTRUCTION ACTIVITIES UNDER THE WORKS**

- 2.01 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;
- 2.02 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 reprovisioning of Boundary Patrol Road and the associated security facilities;
  - 2) Portion B – Area between CH R 2+050 and 2+840 for reprovisioning of Boundary Patrol Road and the associated security facilities;
  - 3) Portion C – Area between CH R 2+840 and 4+300 approximately for reprovisioning of Boundary Patrol Road and the associated security facilities;

### **EM&A REQUIREMENTS FOR THE WORKS**

#### **CONSTRUCTION PHASE**

- 2.03 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:
- 2.04 No environmental monitoring and audit is required during construction phase of the Works for air quality, construction noise, water quality, ecology, cultural heritage as well as landscape and visual.



OPERATIONAL PHASE

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

BASELINE MONITORING AND ENVIRONMENTAL QUALITY CRITERIA

- 2.06 As no environmental monitoring is recommended for both construction and operational phases of the Works, baseline monitoring and the associated environmental quality criteria, i.e. Action/ limit Levels, are not required.

EVENT & ACTION PLAN

- 2.07 No Event and Action Plan is recommended for both construction and operational phases. No 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 is therefore applicable during construction of the Works.

ENVIRONMENTAL PROTECTION OF THE WORKS

- 2.08 EIA report has concluded that neither environmental monitoring nor the associated Event and Action Plan is required for the Works, provided environmental mitigation measures stipulated in the EIA report and summarized in the Updated EM&A Manual are fully implemented.
- 2.09 The environmental protection of the Works relies therefore on insurance against non-compliance or defects identified during day-to-day site inspection and environmental audit by related parties of the environmental management under the Works.
- 2.10 It is also crucial to regularly review on compliance with legal and contractual requirements of the Works.
- 2.11 Equally important is proper handling of environmental complaint, enquiries and requests for information as appropriate.

SITE INSPECTION AND ENVIRONMENTAL AUDIT

- 2.12 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.
- 2.13 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

- 2.14 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.
- 2.15 This is the EM&A report for the Works (herein after “this Report”), covering construction period from 1 to 31 October 2012 (hereinafter “the Reporting Period”).

### **3 DATA MANAGEMENT AND DATA QA/QC CONTROL**

- 3.01 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 Sheets (FDS) are used in the EM&A program.
- 3.02 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.
- 3.03 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**

4.01 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 of Issuance by EPD	Expiry Date	Concerned Location	Status
Environmental Permit	EP-430/2011	09 July 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	Notification was made on 28 May 2012
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	3 October 2012	31 October 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	Pending EPD's Approval			Contract Area: Man Uk Pin, Ma Wat Wai & Ping Yuen River	Application form was submitted to EPD on 5 Sep 2012

**SUBMISSION OF LAYOUT PLANS**

4.02 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.

**SUBMISSION OF LANDSCAPE PLAN**

4.03 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.

**SUBMISSION OF UPDATED ENVIRONMENTAL MONITORING AND AUDIT MANUAL**

4.04 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.

**CONSTRUCTION ACTIVITIES**

*THE REPORTING PERIOD*

4.05 Major construction activities of the Works undertaken during the Reporting Period are listed in *Table 4-2* below:

**Table 4-2 Major Construction Activities of the Works during the Reporting Period**

Portion of the Works	Major Construction Activities
Portion A Chainage R0+00 to 2+050	a. Setting out the site boundary line and initial survey; b. Setting out of structure /fence/gate; c. Initial tree survey; and d. Underground utility detection.
Portion B Chainage R2+050 to 2+ 838	e. Setting out the site boundary line and initial survey; f. Setting out of structure /fence/gate; and g. Underground utility detection.
Portion C Chainage R2+838 to 4+ 300	h. Setting out the site boundary line and initial survey; and i. Underground utility detection.

*FORTHCOMING TWO MONTHS*

4.06 Major construction activities of the Works for the forthcoming two months are listed in *Table 4-3* below:

**Table 4-3 Major Construction Activities of the Works for the Forthcoming Two Months**

Portion of the Works	Major Construction Activities
Portion A Chainage R0+00 to 2+050	a. Setting out the site boundary line and initial survey; b. Setting out of structure /fence/gate; c. Initial tree survey; d. Underground utility detection; e. Temporary road diversion #2 (Filling works and road formation) f. Construction of drain pipe; g. Construction of primary and secondary fence foundation; and h. Pruning, felling and transplanting of existing trees.
Portion B Chainage R2+050 to 2+ 838	a. Underground utility detection; b. Pruning, felling and transplanting of existing trees; c. Temporary road diversion #4, #5, #6 (Filling works and road formation) d. Construction of drain pipe; and e. Construction of primary fence foundation.
Portion C Chainage R2+838 to 4+ 300	a. Setting out the site boundary line and initial survey; b. Setting out of structure /fence/gate; c. Initial tree survey; d. Pruning, felling and transplanting of existing trees; e. Underground utility detection; f. Construction of drain pipe; and g. Construction of primary and secondary fence foundation;

**EM&A ACTIVITIES**

*BASELINE MONITORING AND ESTABLISHMENT OF ENVIRONMENTAL QUALITY CRITERIA*

4.07 No baseline monitoring and the associated establishment of the environmental quality criteria was conducted during the Reporting Period.

*IMPACT MONITORING*

4.08 No environmental monitoring was conducted during the Reporting Period.



**5 WASTE MANAGEMENT**

- 5.01 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.
- 5.02 The quantity of waste for disposal or reuse during the Reporting Period was summarized in Monthly Summary of Waste Flow Table and Disposal Records of Construction Waste in Annex K.
- 5.03 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.
- 5.04 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.

**6 SITE INSPECTION AND ENVIRONMENTAL AUDIT**

- 6.01 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.
- 6.02 During the Reporting Period, the site inspection and environmental audit was conducted on 11 October 2012.

**FINDINGS/DEFICIENCIES OF THE SITE INSPECTION AND ENVIRONMENTAL AUDIT**

- 6.03 Findings or deficiencies identified during the site inspection and environmental audit are summarized in *Table 6-1*.

**Table 6-1 Observations of Site Inspection during the Reporting Period**

Date	Findings / Deficiencies	Follow-Up Status
11 October 2012	Excavation activities were observed. Exposed excavated area and stock piles of excavated materials were observed within the site. Although adverse environmental impacts were not observed during the site inspection, full implementation of the required environmental mitigation measures is reminded, in particular construction dust suppression measures during dusty activities under dry and windy conditions.	Not required for general reminders

- 6.04 Site inspection checklists completed and endorsed by all related parties are kept by the ET and are available for inspection upon request.

**DISCUSSION AND CONCLUSION**

- 6.05 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.

**RECOMMENDATION**

- 6.06 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, full implementation of the recommended environmental mitigation measures, particularly construction dust suppression measures e.g. watering during dusty activities under dry and windy conditions, as well as sedimentation of the site run off during rainy conditions, are reminded.



**7 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION**

7.01 No environmental complaint was received during the Reporting Period. Summary of environmental complaint is presented in *Table 7-1* below.

**Table 7-1 Summary of Environmental Complaints**

Reporting Month	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
August to September 2102	0	0	Not Applicable
October 2012	0	0	Not Applicable

7.02 No summons and prosecution was received during the Reporting Period. Summary of summon and prosecution is presented in *Table 7-2* and *Table 7-3* below.

**Table 7-2 Summary of Environmental Summons**

Reporting Month	Environmental Summons Statistics		
	Frequency	Cumulative	Nature
August to September 2102	0	0	Not Applicable
October 2012	0	0	Not Applicable

**Table 7-3 Summary of Environmental Prosecution**

Reporting Month	Environmental Prosecution Statistics		
	Frequency	Cumulative	Nature
August to September 2102	0	0	Not Applicable
October 2012	0	0	Not Applicable

**8 IMPACT FORECAST**

**KEY ENVIRONMENTAL ISSUES**

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

- (a) Air quality In dry season under dry and windy conditions, 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;
- (b) Water quality In wet season, surface runoff during heavy storm/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;
- (c) Chemical waste Oil & grease spillage or leakage from construction equipment and the associated oil containers within site areas may contaminate lands or other environment;
- (d) Construction Noise Construction noise impacts may be caused from noisy construction activities;

#### **ENVIRONMENTAL MITIGATION MEASURES FOR THE COMING MONTH**

- 8.02 Environmental Mitigation Measures to be considered in the coming month includes:-
- (a) Dust suppression measures, in particular proper watering during dusty construction activities under dry and dusty conditions, should be fully implemented;
  - (b) 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;
  - (c) Good management of chemical wastes should be maintained;
  - (d) Follow-up actions for any defects identified during regular site inspection should be promptly taken to rectify the situation; and
  - (e) As high noise levels were sometimes recorded during the Reporting Period, special attention is drawn to implementation of the construction noise mitigation measures during noisy construction works.

### **9 CONCLUSIONS AND RECOMMENDATIONS**

#### **CONCLUSIONS**

- 9.01 No environmental monitoring is conducted during the Reporting Period.
- 9.02 No non-compliance with the regulatory requirements was recorded in the IEC and ET 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.
- 9.03 Defects of minor environmental significance were sometimes observed. The identified defects were normally rectified on site or within the specified time prior to the next site inspection.
- 9.04 No environmental complaint, notification of summons or successful prosecution was registered during the Reporting Period.

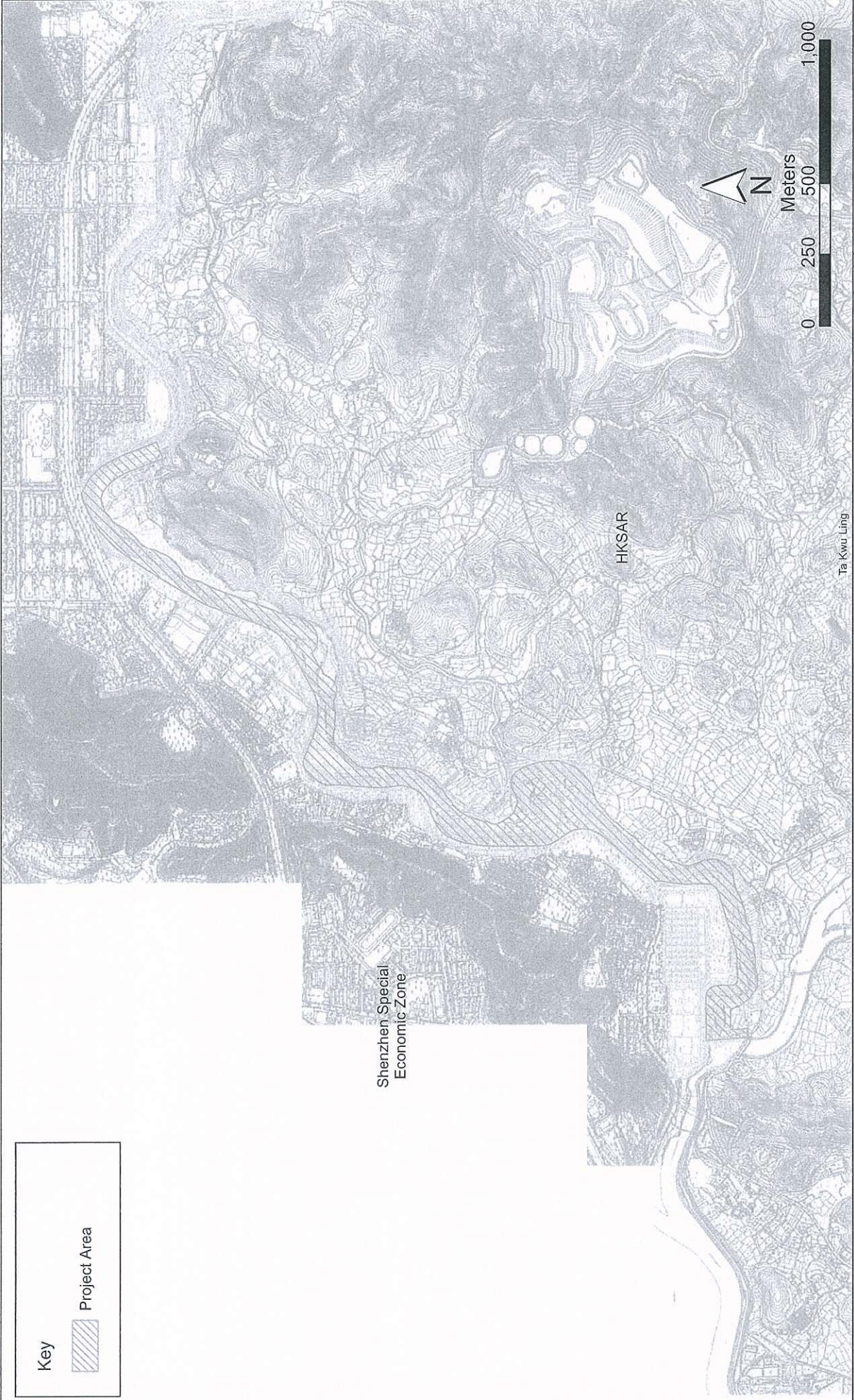
#### **RECOMMENDATION**

- 9.05 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.
- 9.06 Attention is drawn to implementation of air quality mitigation measures, in particular construction dust suppression measures during dusty construction activities under dry and windy conditions.
- 9.07 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.
- 9.08 Attention is also drawn to implementation of the construction noise mitigation measures during noisy construction works.

*ANNEX A*

*LOCATION PLAN FOR THE WORKS*







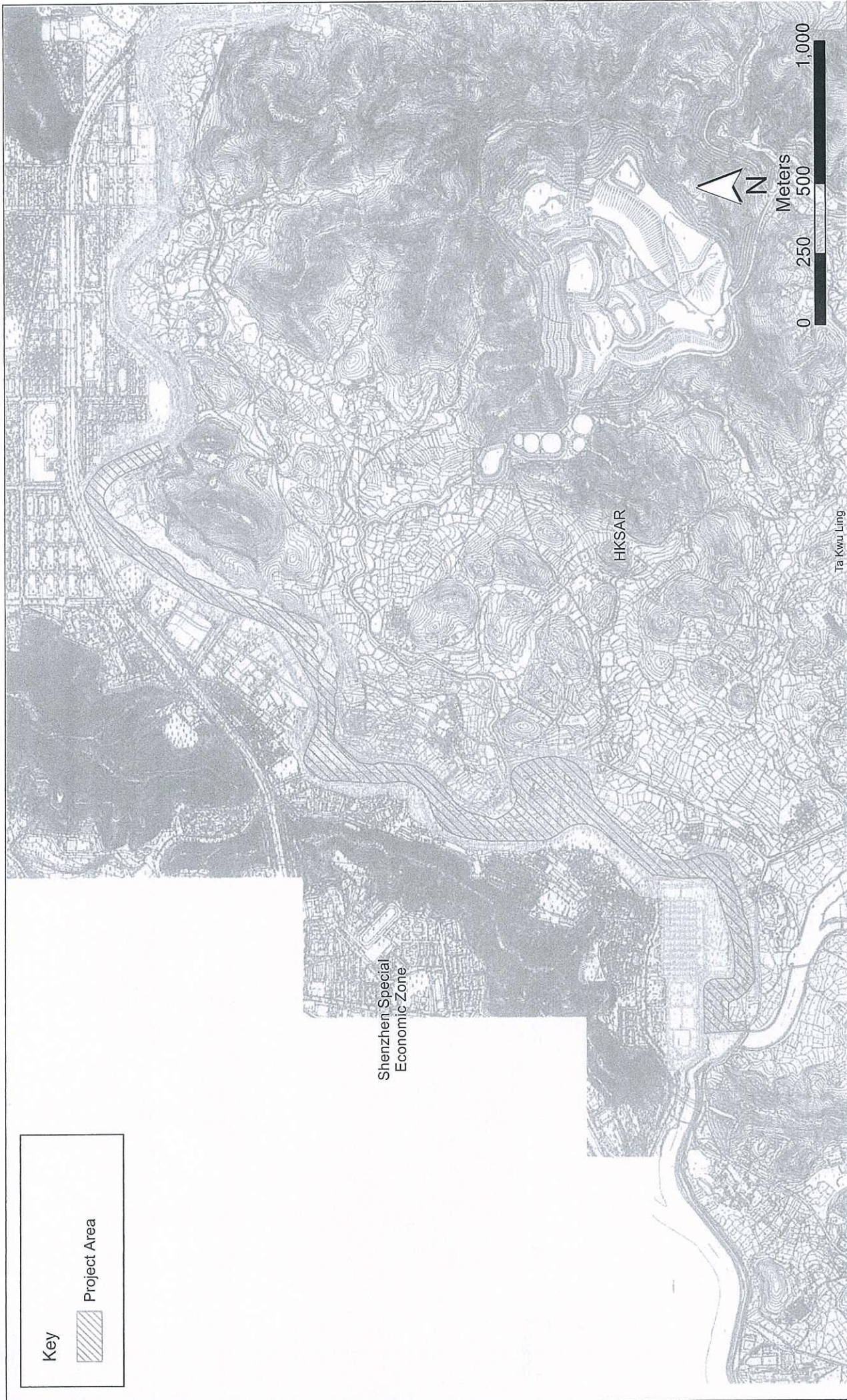
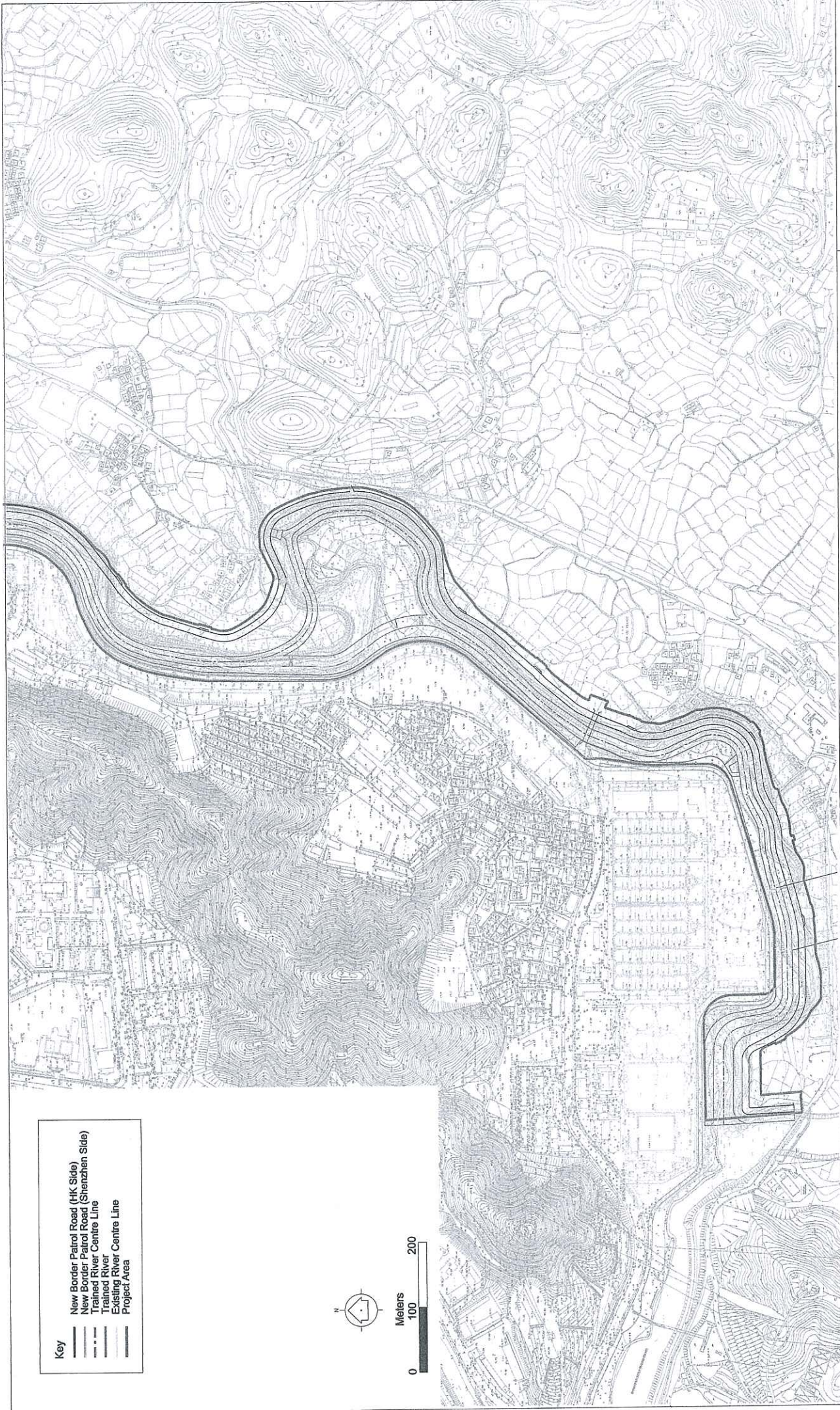


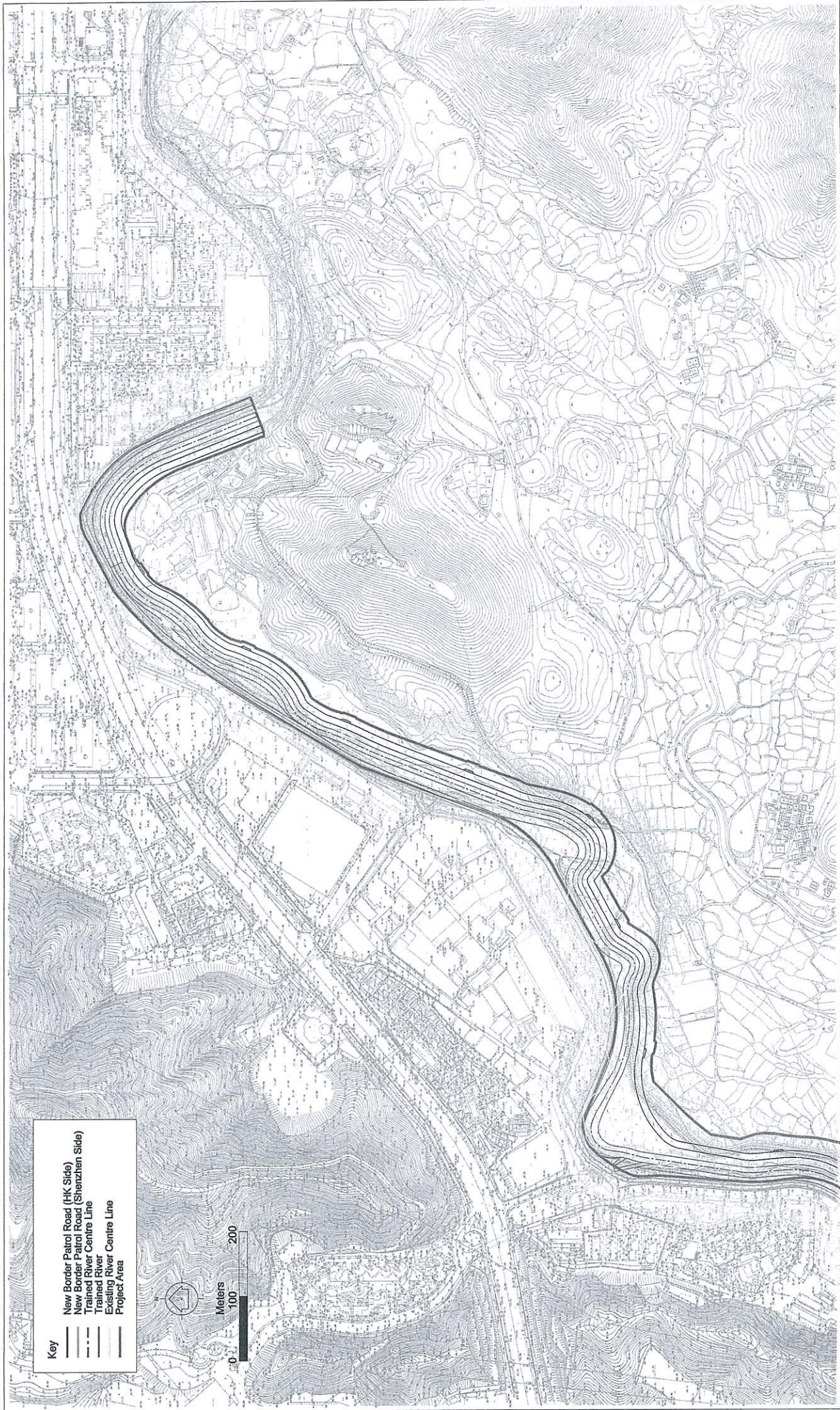
Figure A1-1  
Location of Project Site





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





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

Figure A1-2



- NOTES:
- GRID LINES ARE WORKING GRID 1984.
  - NO LEVELS ARE IN METRES AND REFERRED TO A.M.S.L.
  - FOR SETTING OUT DETAILS OF SITE LIMITS, REFER TO DRAWING NO. DDP/DC1106/11011 TO DDP/DC1106/11015.
  - FOR DETAILS OF AREAS A1, B1, B2, B3 & B4, REFER TO DRAWING NO. DDP/DC1106/11012.

LEGEND:

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

CH. R. 2+638.000 OUTSIDE FOR BORNEO ROAD

no.	date	description	initial
1		DESIGNED	
2		DRAWN	
3		CHECKED	
4		VALIDATED	
5		APPROVED	

Contract no. DC/2011/06  
 Project no. DP/8/501808  
 Contract 501808

REPROVISIONING OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES FOR THE NEW FILL STAKE AND DRAINAGE WORKS IN NORTH DISTRICT

Drawing title

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

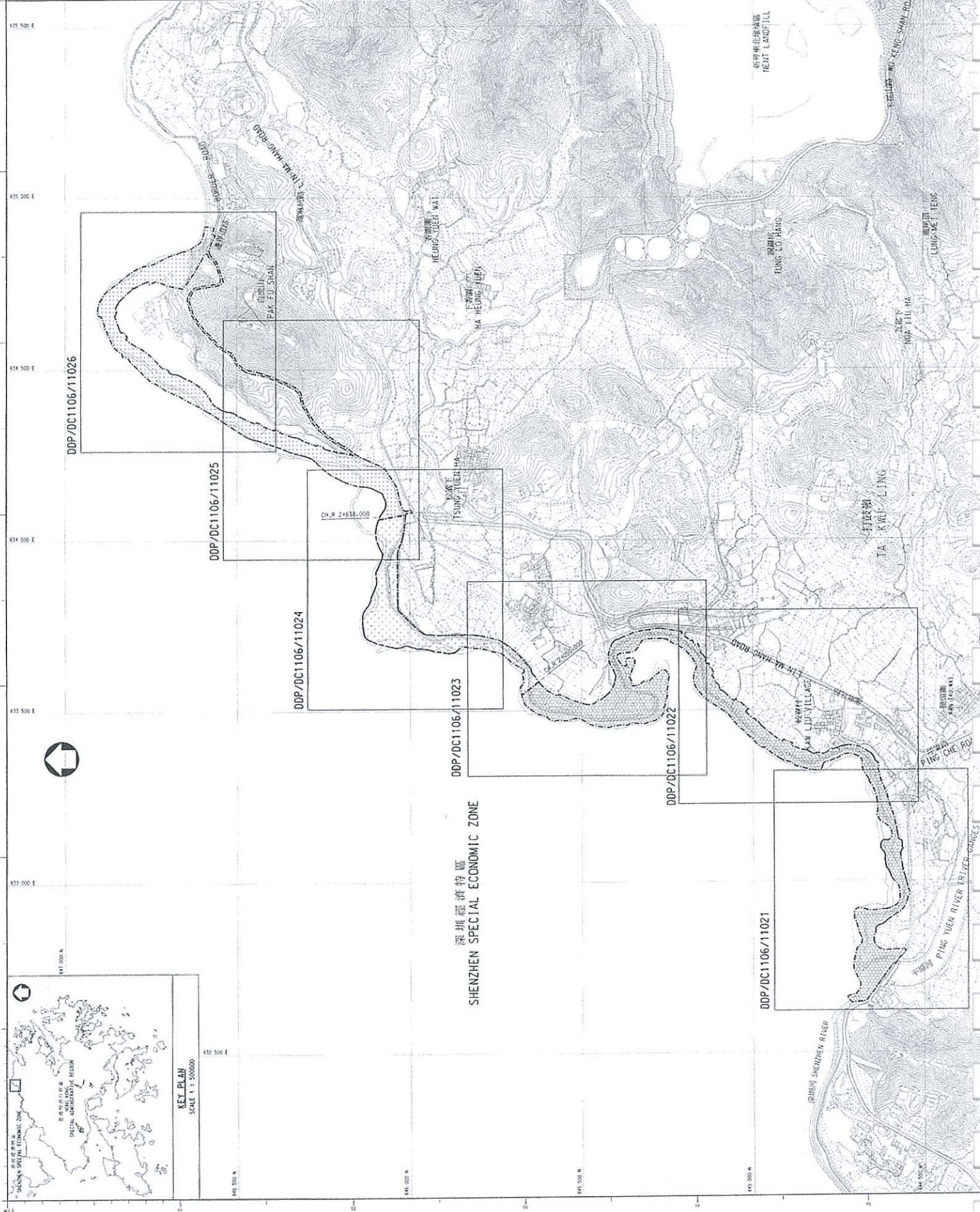
SHEET 1 OF 2  
 Drawing no. DDP/DC1106/11011  
 Scale 1 : 5,000

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**DRAINAGE PROJECTS DIVISION**

DRAINAGE SERVICES DEPARTMENT  
 GOVERNMENT OF THE HONG KONG  
 SPECIAL ADMINISTRATIVE REGION



深圳經濟特區  
 SHENZHEN SPECIAL ECONOMIC ZONE

KEY PLAN  
 SCALE 1 : 50000



- NOTES:**
- GRID LINES ARE HONG KONG GRID 1980.
  - ALL LEVELS ARE IN METRES AND REFERRED TO H.K.P.D.
  - FOR SETTING OUT DETAILS OF SITE LIMIT, REFER TO DRAWING NO. DDP/DC1106/11047 TO DDP/DC1106/11051.
  - FOR DETAILS OF AREAS B1, B2, B3 & B4 REFER TO DRAWING NO. DDP/DC1106/11052.

**LEGEND :**

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

CH# 1400.000 CHANNEL FOR BORDER ROAD

NO.	DATE	DESCRIPTION	INITIAL
DESIGNED	28 NOV 2011	A. K. LI	[Signature]
DRAWN	28 NOV 2011	P. A. LAI	[Signature]
CHECKED	28 NOV 2011	P. H. HO	[Signature]
VALIDATED	28 NOV 2011	L. C. LAU	[Signature]
APPROVED	28 NOV 2011	[Signature]	[Signature]

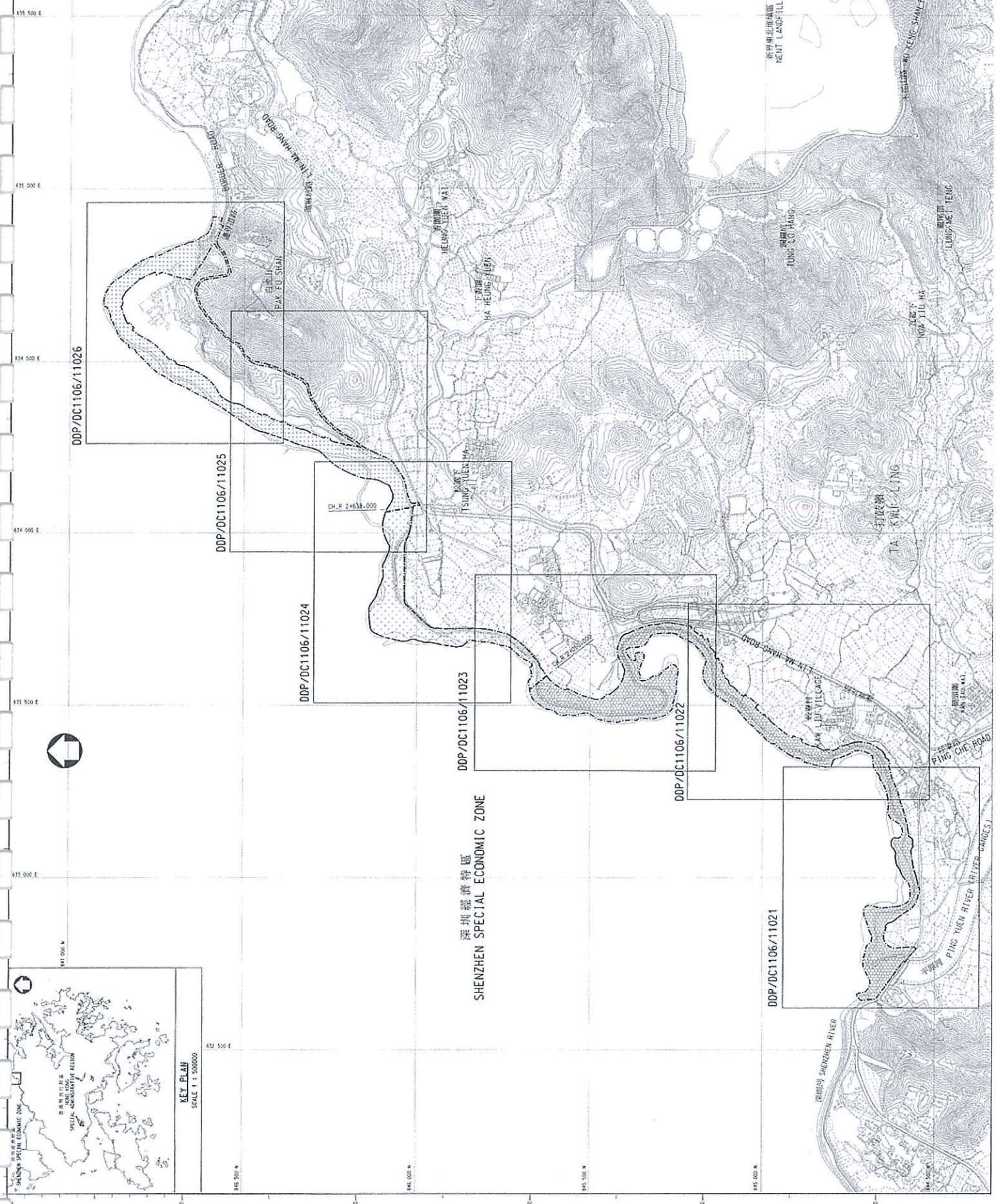
As Chief Engineer  
L. C. LAU, 19 Nov 2011  
Date

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

REPROVISIONING OF BOUNDARY PADE ROAD  
SECTION OF FACILITIES  
BETWEEN TUNG SHAN 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  
sheet 1 of 2  
drawing no. DDP/DC1106/11011  
scale 1:5,000

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**NOTES:**

1. GRID LINES ARE HONG KONG GRID 1980.
2. ALL LEVELS ARE IN METRES AND REFERRED TO H.K.P.D.

**LEGEND:**

- LIMIT OF THE SITE
- EXISTING BOUNDARY PATROL ROAD TO BE DEMOLISHED
- EXISTING BOUNDARY PATROL ROAD
- PROPOSED BOUNDARY PATROL ROAD
- PROPOSED 750 MM MESH PRIMARY BOUNDARY FENCE
- PROPOSED 1500 MM MESH SECONDARY BOUNDARY FENCE
- EXISTING BOUNDARY FENCE AND ASSOCIATED LAMP POST AND PILLAR BOX
- EXISTING BOUNDARY FENCE AND ASSOCIATED LAMP POST AND PILLAR BOX TO BE DEMOLISHED
- SATISFACTORY COMPLETION OF PROPOSED BOUNDARY FENCE AND/OR WITH INSTRUCTIONS FROM THE ENGINEER
- EXISTING 750 MM MESH PRIMARY BOUNDARY FENCE TO BE MODIFIED
- EXISTING CHAIN LINK FENCE
- EXISTING CHAIN LINK FENCE TO BE DEMOLISHED
- PROPOSED CUT SLOPE
- PROPOSED FILL SLOPE
- G.A. 0+400.000 DRAINAGE FOR BOUNDARY ROAD
- PROPOSED VEHICLE ROAD
- PROPOSED VEHICLE ROAD (10.0M)
- PROPOSED VEHICULAR GATE (V.G.)
- PROPOSED RECESSED GATE (R.G.)
- EXISTING GATE
- EXISTING GATE TO BE DEMOLISHED
- FILLER BOX
- SWITCH ROOM

NO.	DATE	DESCRIPTION	INITIAL
1	28 NOV 2011	DESIGNED	C. T. CHAN
2	28 NOV 2011	DRAWN	T. W. LEE
3	28 NOV 2011	CHECKED	K. H. POON
4	28 NOV 2011	VERIFIED	T. C. LAU
5	28 NOV 2011	APPROVED	[Signature]

Ag. Chief Engineer  
 Date: 4 Nov 2011

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

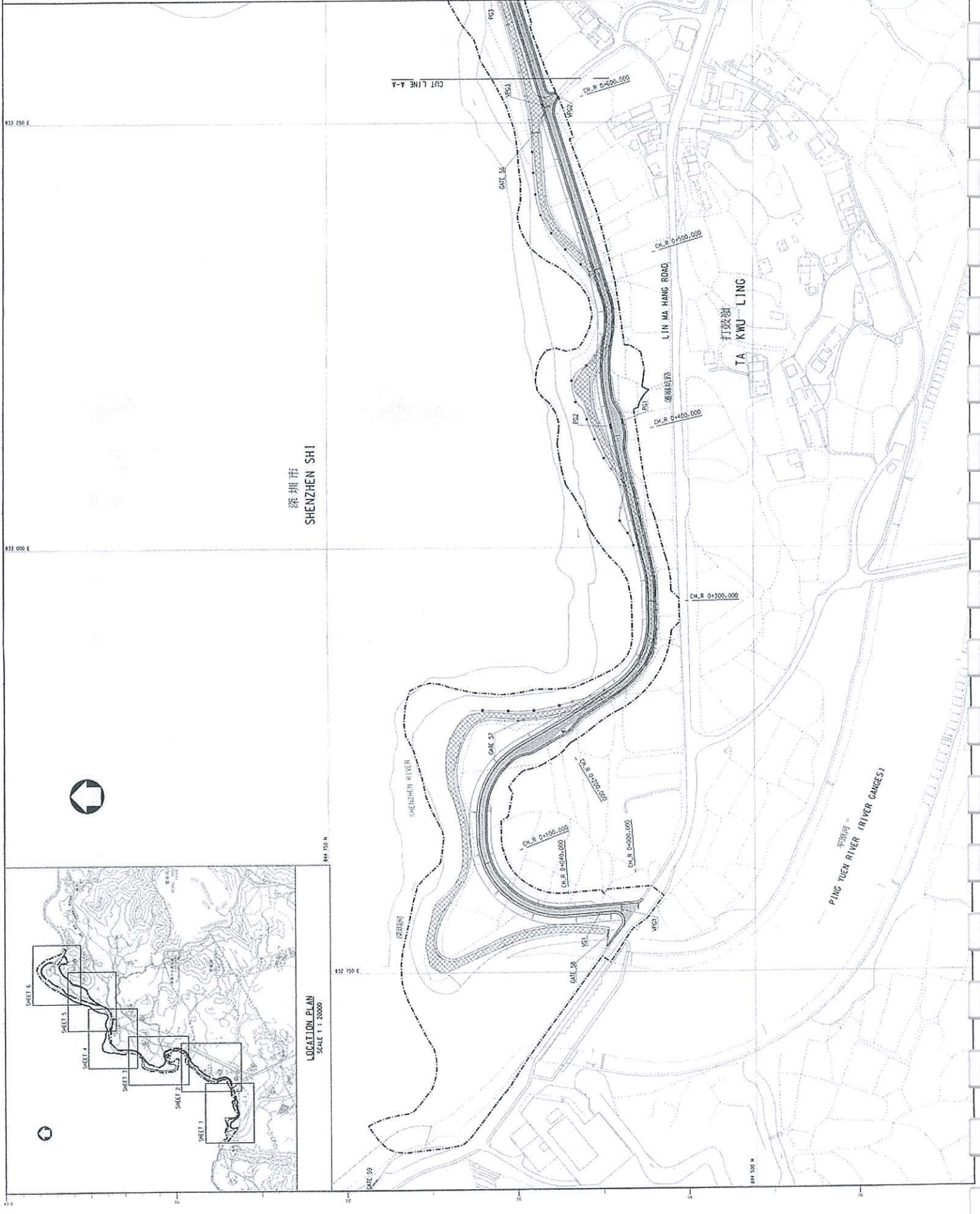
REPRODUCTION OF BOUNDARY PATROL ROAD AND ASSOCIATED SECURITY FACILITIES BETWEEN PING YUEN RIVER AND PAK FU SHAN AND DRAINAGE WORKS IN NORTH DISTRICT

drawing title  
**GENERAL LAYOUT**

scale  
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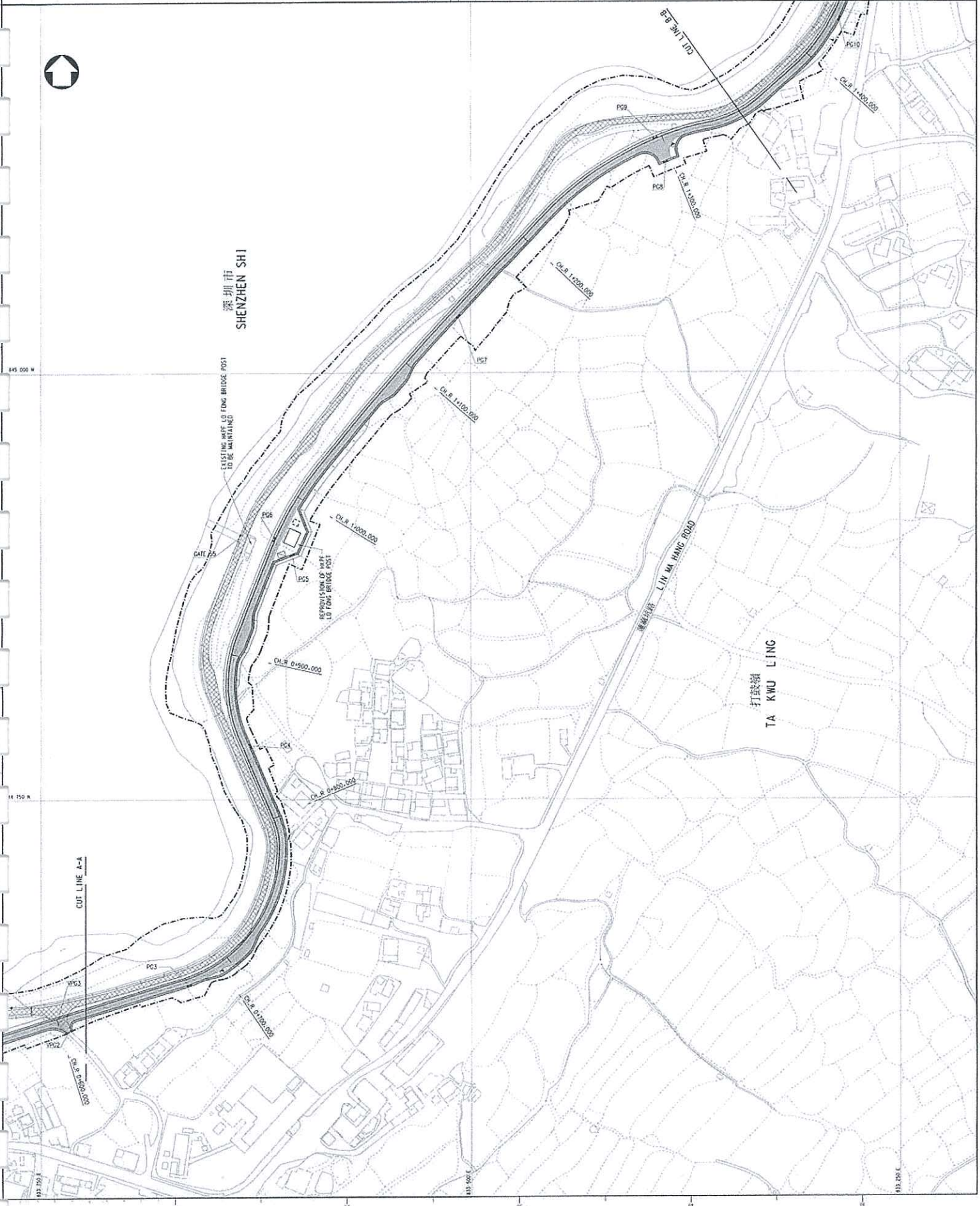
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Dwg. No. DDP/DC/1106/11022.



NO.	DATE	DESCRIPTION	INITIAL
<b>REVISION</b>			
designed		C. F. CHAN	28 NOV 2011
drawn		T. W. LEE	28 NOV 2011
checked		N. H. KOON	28 NOV 2011
verified		T. C. LAU	28 NOV 2011
approved			

Ag. Chief Engineer  
A. L. YIP  
18 NOV 2011  
Date

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

REPROVISIONING OF BOUNDARY PAIRED ROAD  
AND DRAINAGE FACILITIES  
BETWEEN PING KUN RIVER  
AND PAK FU SHAN AND DRAINAGE WORKS  
IN NORTH DISTRICT

drawing title  
**GENERAL LAYOUT**

SHEET 2 OF 51  
drawing no. **DDP/DC/1106/11022**  
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1. FOR CHECK, NOTES & REVISIONS, REFER TO  
 1. Dwg. No. DDP/DC1106/11023.

NO.	DATE	DESCRIPTION	INITIAL
REVISION			
DESIGNED	T. T. TAN	28 NOV 2011	ST20
DRAWN	T. W. YIC	28 NOV 2011	
CHECKED	M. K. KOH	28 NOV 2011	
WROTE	T. C. LOH	28 NOV 2011	
APPROVED	T. T. TAN	28 NOV 2011	

Ag. Draft Engineer  
 Date  
 28 Nov 2011

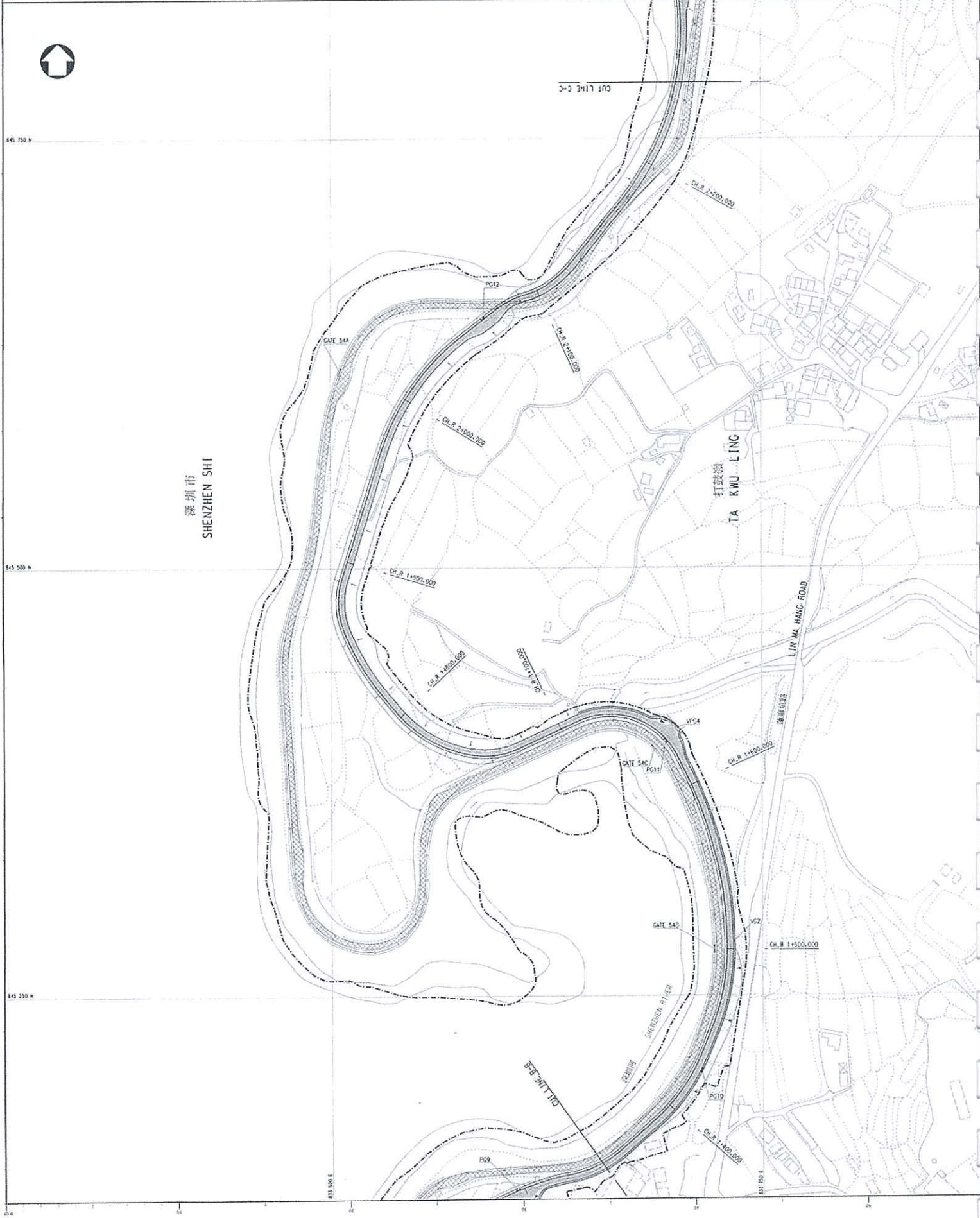
contract no. DC/2011/06  
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 project no. 50186B

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

drawing title  
 GENERAL LAYOUT  
 SHEET 3 OF 61  
 drawing no. DDP/DC1106/11023  
 scale 1 : 1 000

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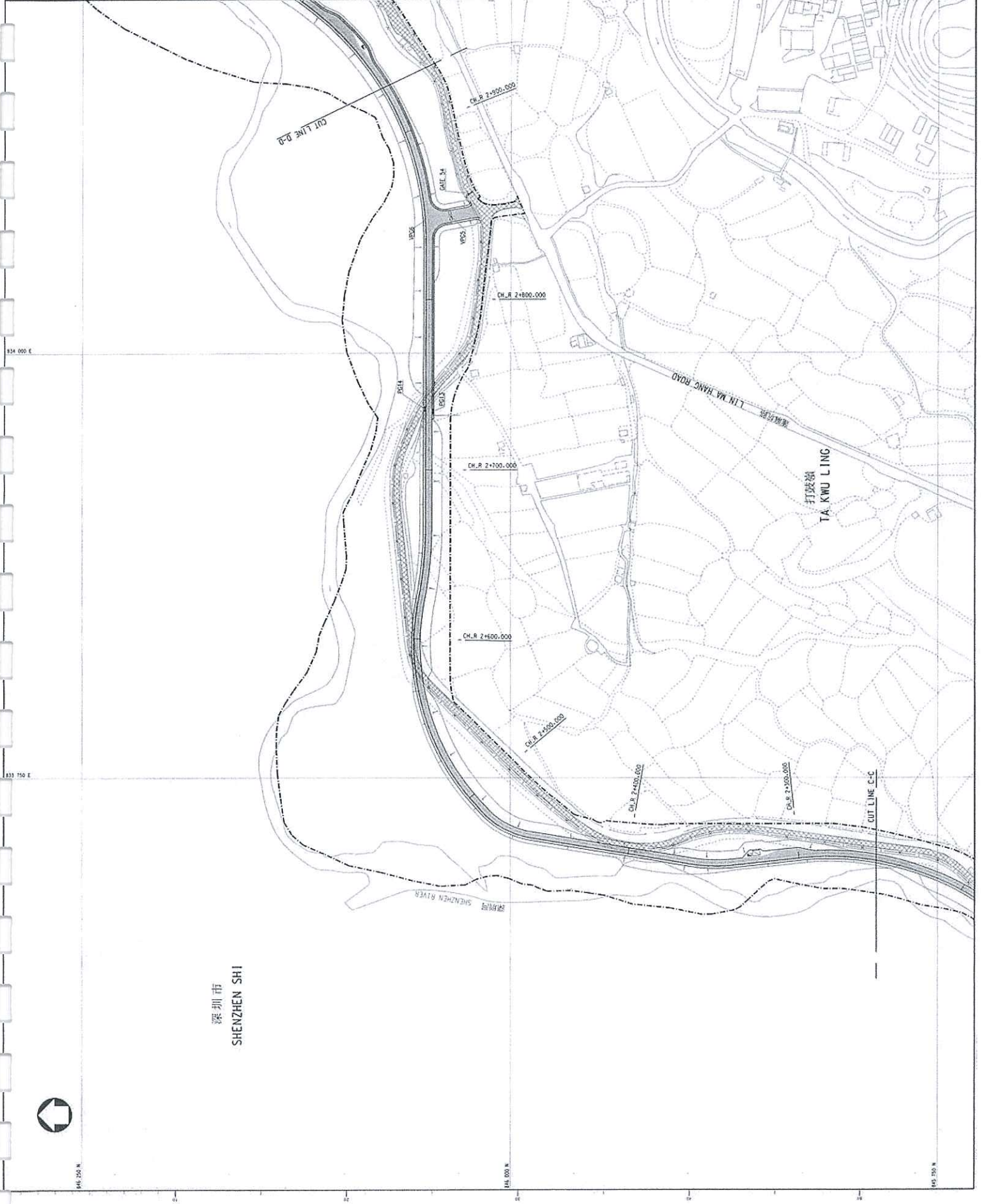
DRAINAGE SERVICES DEPARTMENT  
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NOTES:

1. FOR GENERAL NOTES & LEGEND, REFER TO SHEET NO. DD/DC/1106/1102.



深圳市  
SHENZHEN SHI

NO.	DATE	DESCRIPTION	INITIAL
<b>REVISION</b>			
DESIGNED		C. F. CHAN	28 NOV 2011
DRAWN		T. N. LEE	28 NOV 2011
CHECKED		K. H. HOON	28 NOV 2011
VERIFIED		T. C. LAU	28 NOV 2011
APPROVED		<i>[Signature]</i>	

Ag. Chief Engineer L. TAM 28 NOV 2011  
Date

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

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

drawing title  
**GENERAL LAYOUT**

SHEET 4 OF 51  
drawing no. DDP/DC/1106/11024  
scale 1 : 1 000

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NOTES:

1. FOR GENERAL NOTES, A LEGEND, REFER TO  
 FIG. No. 009/DC1106/11025.

no.	date	description	initial
<b>REVISION</b>			
designed		G. F. CHAN	28 NOV 2011
drawn		T. W. LEE	28 NOV 2011
checked		W. H. HO	28 NOV 2011
visited		T. C. LIA	28 NOV 2011
approved		<i>[Signature]</i>	28 NOV 2011

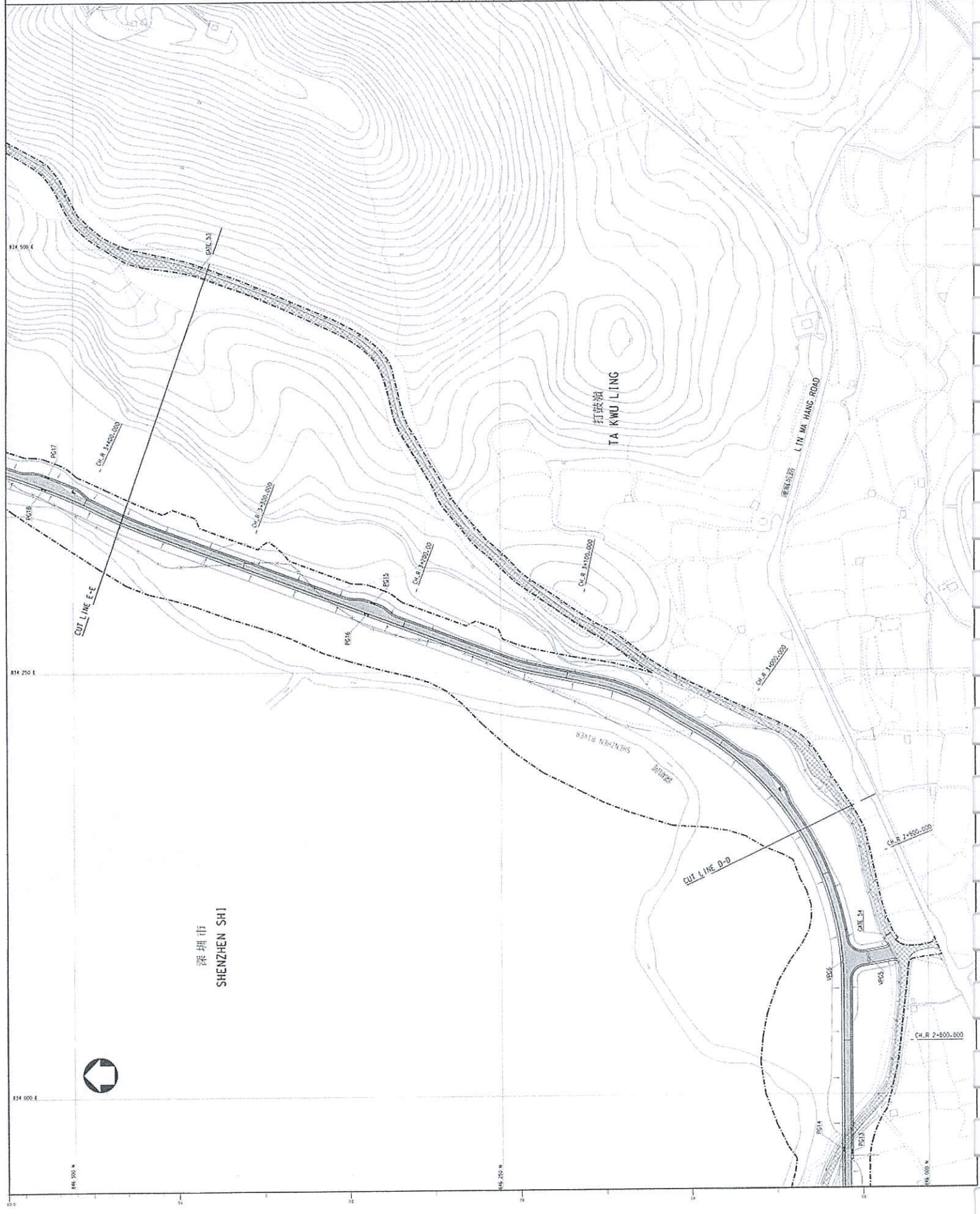
AG Chief Engineer  
 I. YAM, 28 Nov 2011  
 Date

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

REPROVISIONING OF BOUNDARY PATROL ROAD  
 AND ASSOCIATED SECURITY FACILITIES  
 BETWEEN PING-TUEN RIVER  
 AND SHI FU SHAN AND DRAINAGE WORKS  
 IN NORTH DISTRICT

drawing title  
 GENERAL LAYOUT  
 SHEET 5 OF 61  
 drawing no. DDP/DC1106/11025  
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深圳市  
 SHENZHEN SHI

打鼓嶺  
 TA KWU LING

林馬香路  
 LIN MA HANG ROAD

深圳河  
 SHENZHEN RIVER





NOTES:

1. FOR GENERAL NOTES & LEGEND, REFER TO  
 D.D.P. No. DDP/DC1106/11026.

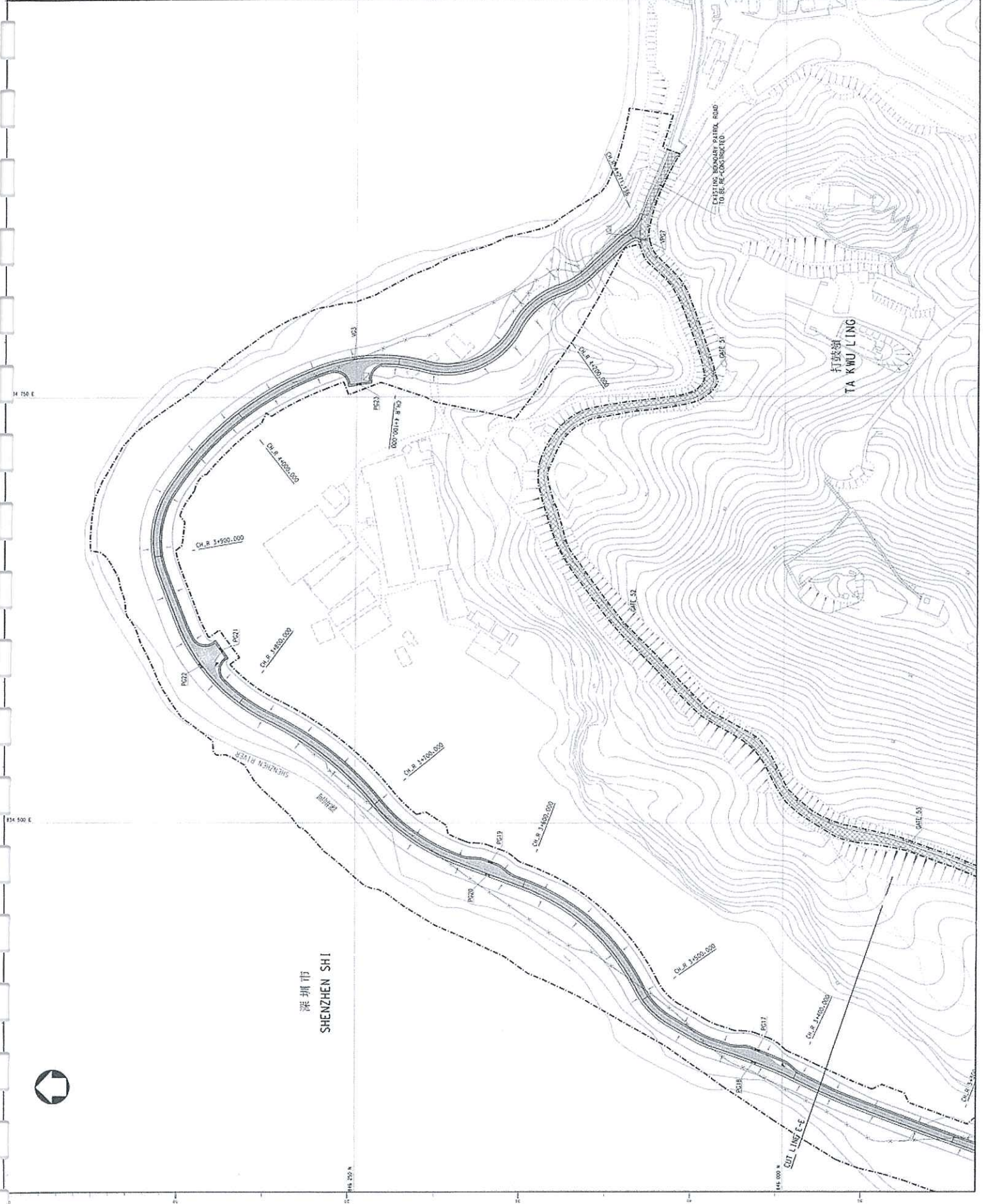
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REVISION			
DESIGNED	C. F. CHAN	28 NOV 2015	JLH
DRAWN	F. W. LEE	28 NOV 2015	
CHECKED	H. H. NGAN	28 NOV 2015	
VALIDATED	L. C. LAO	28 NOV 2015	
APPROVED		28 NOV 2015	

contract no DC/2011/05  
 file no DP/8/5018CB  
 project no 5018CB

REPROVISIONING OF BOUNDARY PATROL ROAD  
 AND ASSOCIATED SECURITY FACILITIES  
 IN THE PAK FAN SHAN AND PAK FAN  
 AND PAK FAN SHAN AND DRAINAGE WORKS  
 IN NORTH DISTRICT

drawing title  
 GENERAL LAYOUT  
 SHEET 6 OF 61  
 drawing no DDP/DC1106/11026  
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深圳市  
 SHENZHEN SHI

大旗岭  
 TA KIU LING

大旗岭  
 TA KIU LING



*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(October 2012)*

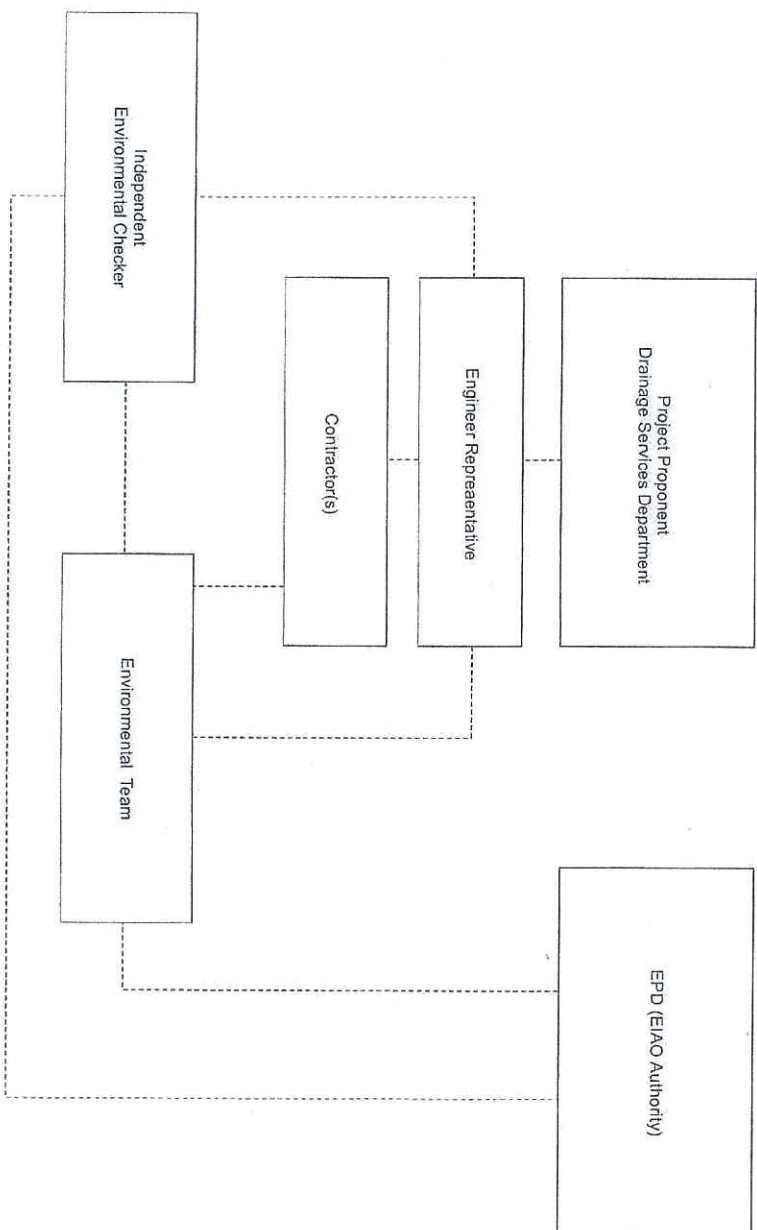
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**AUES**

*ANNEX B*

*ENVIRONMENTAL MANAGEMENT ORGANIZATION  
AND COMMUNICATION LINES*





Key  
----- Line of Communication

EM&A Organisation Chart



**Contact Details of Key Personnel**

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Project Proponent / Engineer	Mr. WH POON	2594 7450	2827 8700
Environ	Independent Environmental Checker	Mr. Roger W.K. Leung	3743 0754	3548 6988
SHCC	Project Manager	Mr. Raymond Yau	2403 1165	2640 9286
SHCC	Site Agent	Mr. Elvin Lam	2640 9230	2640 9286
SHCC	Environmental Officer	Mr. Keith Li	2640 9230	2640 9286
AUES	Environmental Team Leader	Mr. T.W. Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Mr. Wong Fu Nam	2959-6059	2959-6079
AUES	Environmental Team Supervisor	Mr. Ben Tam	2959-6059	2959-6079

**Project Proponents' Contact Numbers**

Project Proponent	The Engineer	Telephone Number	Fax Number	24-Hour Hotline
DSD	Mr. Poon W. H.	2594 7450	2827 8700	6770 3827

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

<b>24-Hour Hotline</b>
<b>6770 3827</b>

**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	Implementation Agent	Implementation Stage			Relevant Legislation & Guidelines
				Des	C	Post-C	
<b>1. Air Quality</b>							
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"> <li>i. Water spraying on haul roads and dusty areas for every hour during construction;</li> <li>ii. Covering the stockpile areas of at least 70% area with tarpaulin sheet or impervious sheet;</li> <li>iii. Covering of dusty materials/spoils on trucks by impervious sheets;</li> <li>iv. Controlling the dropping height of fill materials;</li> <li>v. Covering or storing all debris and materials in a sheltered debris collection area;</li> <li>vi. Storing dredged sediment in a separate enclosed tank; and</li> <li>vii. Providing wheel washing facility at each exit of the works site.</li> </ol>	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		✓		
<b>2. Construction Noise</b>							
S5.8	<p>The following site practices should be followed during the construction of the Project:</p> <ol style="list-style-type: none"> <li>i. Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction phase;</li> <li>ii. Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction phase;</li> <li>iii. Mobile plant, if any, should be sited as far from NSRs as possible;</li> <li>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;</li> <li>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</li> <li>vi. Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.</li> </ol>	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 <sup>-2</sup> 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
<b>3. Water Quality</b>						
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 transplanning 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 reprovistioned/reinstated habitats	Operation	Project Proponent/ Contractor			✓
5. Waste Management						
S9.6	<i>General</i> 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 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	<u>Waste Reduction Measures</u> 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	Whole Site / During Construction	Contractor	✓		
S9.6	vii. Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste	Whole Site / During Construction	Contractor	✓		



S9.6	<p><u>Excavated Materials</u></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&amp;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&amp;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&amp;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&amp;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&amp;D material</p> <p>ii. Different sections of works shall be programmed to ensure the C&amp;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&amp;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&amp;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&amp;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&amp;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&amp;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> <ul style="list-style-type: none"> <li>i. Maintained in good condition and clearly labelled in both English and Chinese;</li> <li>ii. Suitable for the substance they are holding, resistant to corrosion, and securely closed; and</li> <li>iii. Capacity of less than 450 L unless the specifications have been approved by the EPD.</li> </ul>	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> <ul style="list-style-type: none"> <li>i. Be clearly labelled and used solely for the storage of chemical waste;</li> <li>ii. Be enclosed on at least 3 sides;</li> <li>iii. Have adequate ventilation;</li> <li>iv. Be arranged so that incompatible materials are appropriately separated</li> <li>v. 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</li> <li>vi. Be covered to prevent rainfall from entering</li> </ul>	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						
			Whole Site / During Construction	Project Proponent	✓	Antiquities and Monuments Ordinance
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.		Additional works boundary not covered in EIA / During design stage	Design Team and the Project Proponent (i.e. DSD)	✓	EIAO TM, Guidelines for CHA, 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.					
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 (Irema sp.), and further details refer to Section 7.11.3 of the EIA Report. The arrangement of the on-site compensatory planting, ie tree/ shrub mix and Frema 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 7.1.1.3 and Figure 7.1.1 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 7.1.1.3 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	✓		



*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(October 2012)*

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**AUES**

*ANNEX D*

*THREE- MONTH ROLLING PROGRAM*















**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 Oct 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of Non C&D Wastes Generated Monthly					
	Total Quantity Generated (in km <sup>3</sup> )	Hard Rock and Large Broken Concrete (in km <sup>3</sup> )	Reused in the Contract (in km <sup>3</sup> )	Reused in other Projects (in km <sup>3</sup> )	Disposed as Public Fill (in km <sup>3</sup> )	Imported Fill (in km <sup>3</sup> )	Metals (in km <sup>3</sup> )	Paper/ cardboard packaging (in km <sup>3</sup> )	Plastics (see Note 3) (in km <sup>3</sup> )	Chemical Waste (in km <sup>3</sup> )	Others, e.g. general refuse (in km <sup>3</sup> )		
Jan-12	N/A	---	---	---	---	---	---	---	---	---	---		
Feb-12	N/A	---	---	---	---	---	---	---	---	---	---		
Mar-12	N/A	---	---	---	---	---	---	---	---	---	---		
Apr-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
May-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.000		
Jun-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000		
Jul-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Aug-12	0.007	0.000	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Sep-12	0.002	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.155	0.000		
Oct-12	0.003	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.059	0.000		
Total	0.012	0.000	0.012	0.000	0.000	0.000	0.000	0.000	0.000	0.227	0.000		

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.



