

**PROPOSED INSTALLATION
OF
RADIO REPEATER STATION
AT
TAI LONG AU
SAI KUNG EAST COUNTRY PARK
TAI PO
NT**

PROJECT PROFILE

ARCHITECTURAL SERVICES DEPARTMENT



JULY 2008

Basic Information

Project Title

1. Proposed Installation of Radio Repeater Station at Tai Long Au, Sai Kung East Country Park, Tai Po, NT.

Purpose and Nature of the Project

2. This project is for the installation of a radio repeater station to enhance the overall government communication network.

Name of Project Proponent

3. Architectural Services Department.

Location and Scale of the Project

4. The radio repeater station is proposed at Tai Long Au, Sai Kung East Country Park, Tai Po, as shown at the location plan at **Appendix I**. The station will comprise of an equipment platform (5.2m (l) x 2.6m (w) x 0.5m (d)) with an area of 13.5 square meters. The equipment platform, consisting of 1 radio repeater equipment hut (3m (l) x 1.9m (w) x 2.7m (h)) and 4 antenna poles of each 1.2m high above roof level, will be erected on the hill top at level 214mPD. The equipment platform will be constructed of ready mixed cast in-situ concrete which will be transported to the proposed site by helicopter. All the construction materials, equipment and wastes, etc., will be transported to and away from the site by helicopter and not by hand. No haul road will be constructed.

5. Lands Department has agreed in principle to the establishment of the radio repeater station at the proposed location. The provisional plan from the DLO(Tai Po) regarding the relevant Permanent Government Land Allocation (TP407) is at **Appendix II**.
6. Electricity supply from CLP will be provided for the radio repeater station.
7. The radio coverage and the impact on the environment are the salient factors in the site selection process. The proposed site is considered the most suitable to provide significant coverage to enhance the government communication network. Other alternatives have also been considered, but were found unsuitable.

Number and Types of Designated Projects to be Covered

8. The project involves a radio repeater station to be installed at the proposed location as shown in **Appendix I**. According to EIAO Schedule 2, PART I, Section Q.1, the proposed project is a designated project as it involves building works in an existing country park and it is not under exceptional cases in Section Q1 (a) to (j).

Name and Telephone Number of Contact Person

9. The contact person for this project is Mr James TAM of Architectural Services Department, telephone number 2773 2603 and facsimile number 2765 7153.

Outline of Planning and Implementation Programme

Planning and Implementation

10. The project is planned and managed by the Architectural Services Department and there will be a total of 1 radio repeater equipment hut to be installed at the proposed location.
11. Upon the granting of the Permanent Government Land Grant approval from the DLO(Tai Po), the construction works will be started according to the works schedule. DLO(Tai Po) has circulated the Permanent Government Land Grant documents to all relevant departments for comments and no adverse comment nor objection has been received.

Works Schedule

12. The construction works including the equipment hut and antennas installation are proposed to commence in October 2008 and to be completed by February 2009. It is proposed that the radio repeater station will be put into operation in the first quarter of 2009. The proposed works schedule is at **Appendix III**.
13. It is anticipated the excavated materials will be transported off the site immediately by helicopter. Also the exposed excavated surface will be immediately screeded with cement / sand or binding layer to make the surface impervious. Furthermore, the excavated area will be covered completely prior to concreting to minimise the possibility of surface run off from the site.

Possible Impact on the Environment

Construction Impacts

14. The landscape and visual impact during construction and after completion of works is minimised, the relevant mitigation measures are addressed in paragraphs 21 - 23.
15. Noise emission during the construction is minimised, the relevant mitigation measures are addressed in paragraph 24.
16. Disposal of wastes including some surplus construction material and some general refuse is considered minimal, the relevant mitigation measures are addressed in paragraph 25.
17. Dust impact from construction activities is considered to be minimal and is addressed in paragraph 26.
18. Earthworks operation is minimal as the excavation depth is less than 1000mm. No excavation machine will be involved and there will be no blasting operation.
19. Night-time works is not required for the construction of the project.
20. No ecological impact is anticipated during the construction and on completion of the project.

Operational Impacts

21. Completion of the radio repeater station will not cause any significant change to the environment. The site layout plan, section and typical detail of the proposed radio repeater station are shown in Appendix IV to illustrate the appearance of the repeater station.

Major Elements of the Surrounding Environment

22. The major elements of the surrounding environment are as follows:

Countryside setting –

The proposed site comprises of an equipment platform situated on the hill of the country park. Bush and grass are scattered around the proposed site. To the north of the radio repeater station is an existing slope. An existing Water Services Department Fresh Water Tank is located at about 2.6 m away from the southern edge of the equipment platform. To the east of the equipment platform is an existing slope. To the west of the equipment platform is the CSL and other 6 cell phone operators' Integrated Mobile Phone Base Station (which is also a Designated Project, submitted for Applications for Permission to Apply Directly for an Environmental Permit in April 2007). No stream is found near the site. Furthermore, no radiation monitoring station, air sensitive receiver, noise sensitive receiver and ecological sensitive receiver or heritage sensitive receiver is located in the surrounding environment. Therefore, the installation will not affect the present setting of the Countrypark.

The site is surrounded by bushes and grass, which is commonly found in Hong Kong. No tree is required to be felled to provide the necessary area for the installation of the proposed radio repeater station.

Environmental Protection Measures to be Incorporated in the Design and any Further Environmental Implications

23. The site layout and building design have incorporated the comments of Country and Marine Park Authority. In order to further avoid the visual impact of the station, the antenna poles and the equipment hut will be painted or coated in “Antique” (B.S. 10B25 or Pantone 462U) or similar subdued colour to match the surroundings and to the satisfaction of the Country and Marine Park Authority. As for the landscaping, all temporarily disturbed areas should be reinstated to their original states with hydroseeding of grasses and / or shrub planting as appropriate.
24. Only hand held equipment will be used for construction, heavy equipment will not be used. Also noise sensitive receiver is more than 600m away from the site. Therefore, noise impact is anticipated to be minimal during the construction. Nevertheless, construction activities will be carried out in daytime (9:00 – 19:00). Since there will be hikers enjoying their recreational activities in the Country Park at the weekend and public holidays, no construction works will be scheduled on Saturday, Sunday and public holidays in order to minimise the impact on the hikers.
25. All the construction materials, equipment and wastes, etc., will be transported to and away from the site by helicopter and not by hand.
26. The site will be completely water down to minimise any dust that may be generated during the construction stage.
27. The Standard Pollution Mitigation Measures will be incorporated in relevant works contracts during the construction phase of the works, and in close supervision under the Architectural Services Department. The operation of the proposed sites is unmanned and will not generate noise nor any effect on air quality and water quality.

28. The operation of the proposed radio repeater station will strictly comply with the “Code of Practice for the Protection of Workers and Members of Public Against Non-Ionizing Radiation Hazards from Radio Transmitting Equipment” issued by OFTA.
29. The radio repeater station will be cleaned and painted every year if necessary to maintain the good condition of the site. Except in case of any troubleshooting and emergency repair, the periodic inspection will only be carried out every three months in the first year and once a year afterwards. The low inspection frequency will therefore not give any significant impact on the environment.

APPENDICES

Appendix I	Site Location Plan
Appendix II	Provisional PGLA Plan from DLO(Tai Po)
Appendix III	Proposed Works Schedule
Appendix IV	Site Layout Plan, Section, Typical Details and Site Photo

Appendix I

Site Location Plan

Appendix 1: Site Overview



Fig. 1: Aerial Photo View of Proposed Site Location

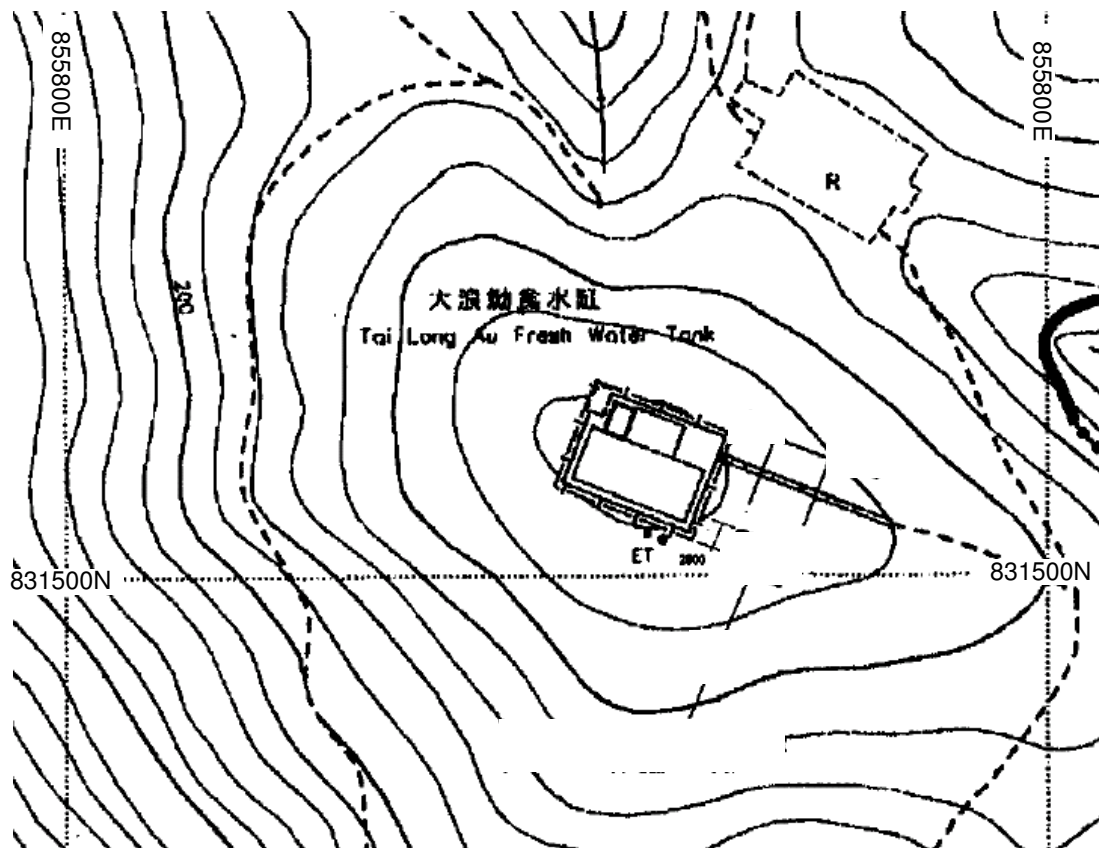
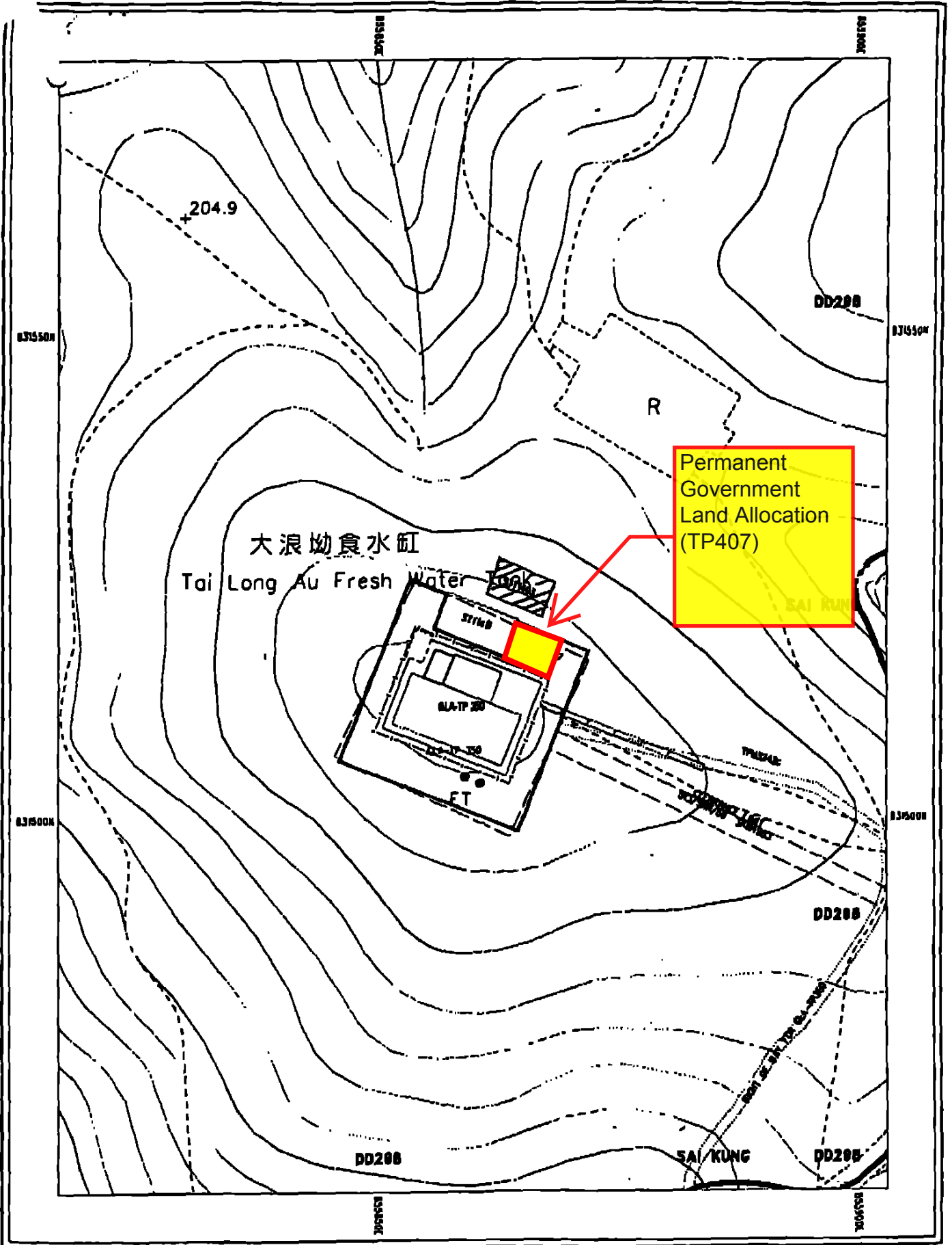


Fig. 2: Lot Index Plan of Existing Site Structures

Appendix II

Provisional PGLA Plan from DLO(Tai Po)



Appendix III

Proposed Works Schedule

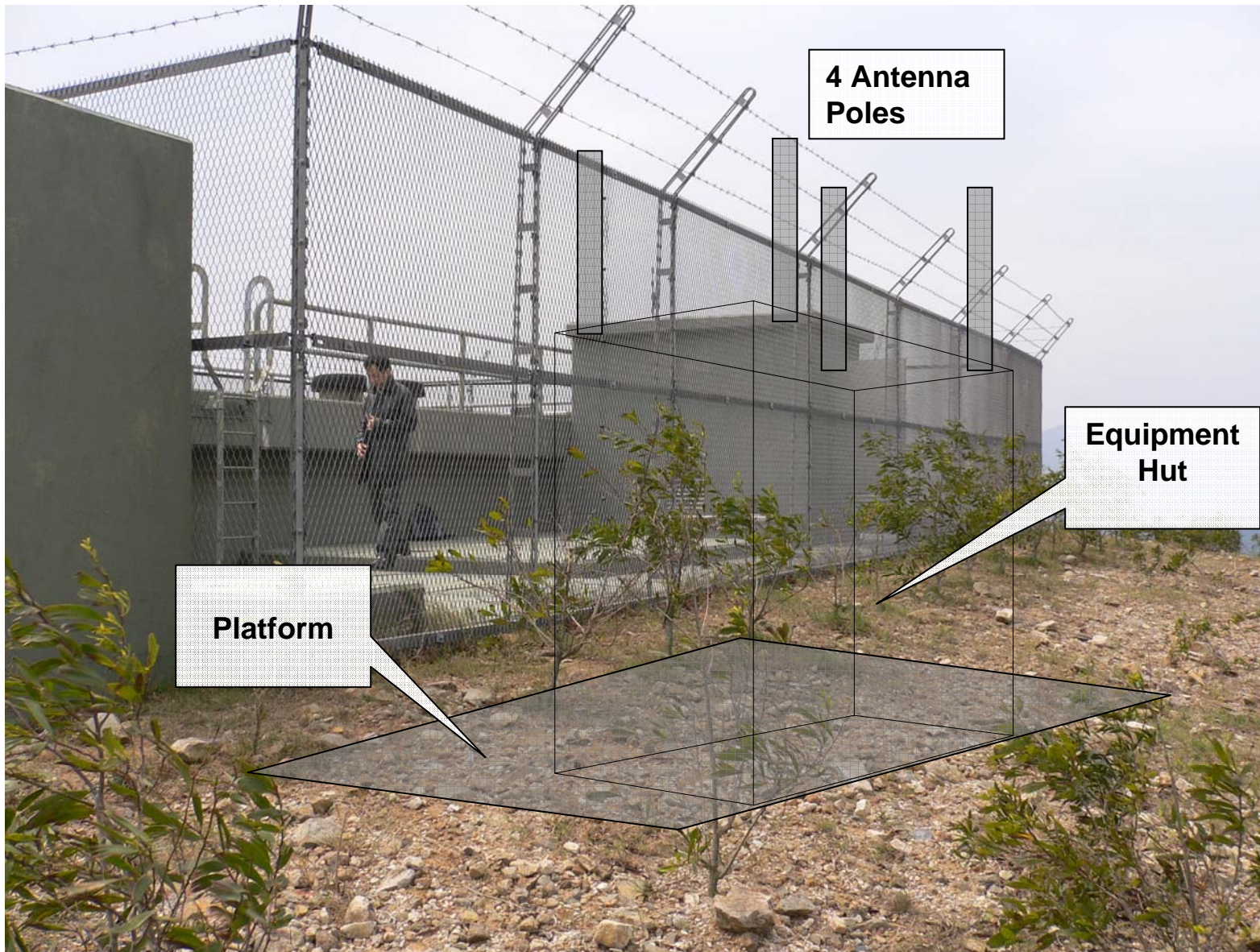
Tentative Programme of Construction Works of Repeater Station at Tai Long Au

項目	Task Name	工期	開始時間	完成時間	2008年8月 2008年9月 2008年10月 2008年11月 2008年12月 2009年1月 2009年2月 2009年3月											
					第四季			第一季								
1	Construction Works for Repeater Station	127 days	2008/8/25	2009/2/17												
2	Mobilization of the building material and equipment by Helicopter	30 days	2008/8/25	2008/10/3												
3	Setting out the foundation	2 days	2008/10/6	2008/10/7												
4	Excavation of the soil to required depth	30 days	2008/10/8	2008/11/18												
5	Construction of formwork and reinforcement bar	14 days	2008/11/19	2008/12/8												
6	Inspection to the foundation before concreting	1 day	2008/12/9	2008/12/9												
7	Concreting in the foundation and ground floor slab and allow curing	14 days	2008/12/10	2009/1/2/9												
8	Striking to the formwork and erection of metal frame of the repeater station	14 days	2008/12/30	2009/1/16												
9	Fixing of sandwich panel, metal door, vertical posts for antenna and boundary fencing	22 days	2009/1/19	2009/2/17												

Project: Repeater Station at Tai Long A Date: 2008/7/21	Task		Milestone		External Task	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	

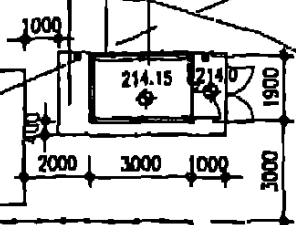
Appendix IV

Site Layout Plan, Section, Typical Details and Site Photo

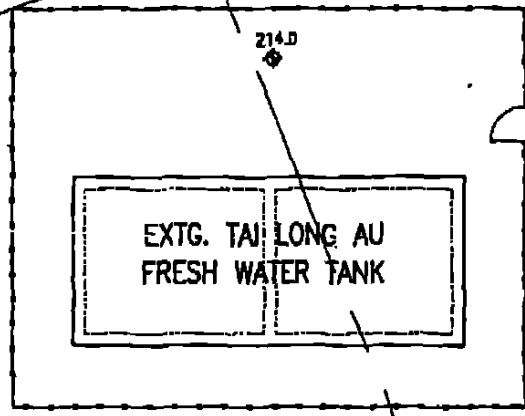


Site Photo with Proposed Equipment Hut and Platform

PROPOSED S.S. FENCE
W/ BARKED WIRE
PROPOSED EQUIPMENT SHELTER
(3000x1900x2700 FT)



ADJOURNING
PROPERTY
(Work in Process)



855 880 E

CAD Ref: rds011800r001.dwg--1:100



office
**STRUCTURAL ENGINEERING
 BRANCH**

drawing no.
 PB(S)/97904/08116/FP001

scale
 1 : 100

drawing title
**LAYOUT PLAN OF SHELTER
 FOR RADIO REPEATER**
 (SHEET 1 OF 3)

contract
**RADIO REPEATER SITE FOR
 ICAC AT TAI LONG AU,
 SAI KUNG**

project no.

file no.

contract no.

approved
 Date: 5/16/08
 (F. S. LOH) (Sig)
 (H. T. CHOI)

checked
 K. Y. HO

drawn
 F. K. HONG

no.	date	description
REVISION		

- NOTES
- ALL WORKS SHALL COMPLY WITH GENERAL SPECIFICATION FOR BUILDING 2007. ALL RC WORKS SHALL BE TO SECTION 6 OF THE SPECIFICATION. ALL STRUCTURAL STEELWORK SHALL BE TO SECTION 15 OF THE SPECIFICATION.
 - ALL STRUCTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE RELEVANT PSM'S DRAWINGS. INFORM THE S.O. OF ANY DISCREPANCIES WHICH MAY BE FOUND AMONGST THESE DRAWINGS.
 - ALL LEVELS SHOWN ARE IN METRES AND OTHER DIMENSIONS SHOWN ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 - SUBSOIL UNDERNEATH ALL FOUNDATIONS SHALL BE INSPECTED BY THE PROJECT STRUCTURAL ENGINEER BEFORE CASTING OF BLINDING LAYERS.

- NO REINFORCEMENT SHALL BE CUT OR BENT FOR FOUNDATION WORKS BEFORE CASTING OF BLINDING LAYERS.
- 50MM THICK BLINDING LAYER OF GRADE 10/20 CONCRETE SHALL BE PROVIDED ON THE UNDERSIDE OF ALL FOUNDATIONS AND GROUND BEAMS IN CONTACT WITH EARTH.
- CONCRETE MIXES FOR STRUCTURAL ELEMENTS SHALL BE AS FOLLOWS:-
 GRADES: 10/20 BUNDLING LAYER OTHER 30/20
- NOTWITHSTANDING GS CLAUSE 6.26, STRUCTURAL CONCRETE SHALL BE SITE MIXED OR SUPPLIED BY A SUPPLIER OPERATING QUALITY PROCEDURES TO THE APPROVAL OF THE S.O.
- NOTWITHSTANDING GS CLAUSE 6.25, NOMINAL CONCRETE COVER TO REINFORCEMENT SHALL BE 50MM.
- STEEL BARS SHALL BE HOT ROLLED PLAIN ROUND BARS (DENOTED BY R) OR DEFORMED HIGH YIELD BARS (DENOTED BY T) TO CONSTRUCTION STANDARD 2:1995. ALL REINFORCEMENT SHALL BE CUT OR BENT TO COMPLY WITH BS 4466:1989.
- ALLOW FOR SUFFICIENT STEEL CHAIRS TO SUPPORT TOP REINFORCEMENT IN SLABS, STAIR FLIGHTS AND RAFTS EXCEEDING 150 THICK AND U-BARS TO KEEP VERTICAL WALL REINFORCEMENT IN ITS CORRECT ALIGNMENT.
- HOLES AND POCKETS IN STRUCTURAL ELEMENTS SHALL NOT BE ALLOWED UNLESS AGREED BY THE PSE.
- NO TROPICAL HARDWOOD PROPPING SHALL BE USED TO SUPPORT FORMWORK FOR CONCRETE WORK UNLESS AGREED OTHERWISE BY THE S.O.
- THE DESIGN OF FORMWORK OR FALSEWORK INCLUDING SUPPORTS AND FOUNDATIONS SHALL BE SUBMITTED TO THE S.O. FOR APPROVAL PRIOR TO COMMENCEMENT OF ANY SUCH CONSTRUCTION ACTIVITY.
- THE POSITION AND METHOD OF FORMING CONSTRUCTION JOINTS INCLUDING SAMPLE TREATMENT SHALL BE SUBMITTED AND APPROVED PRIOR TO WORK ON SITE.
- EXCEPT SPECIFIED OTHERWISE, ALL STRUCTURAL STEEL SHALL BE HOT-ROLLED OR HOT-FINISHED STRUCTURAL STEEL COMPLYING WITH BS EN 10025 OR BS EN 10210 RESPECTIVELY. ALL STRUCTURAL STEEL SHALL BE GRADE S275, EXCEPT THAT HOT-FINISHED HOLLOW SECTIONS SHALL BE GRADE S275LH/S275LH COMPLYING WITH BS EN 10210-1.

- SHOULD THE CONTRACTOR BE UNABLE TO OBTAIN THE SPECIFIED STEEL SECTIONS, THEY SHALL SUBMIT ALTERNATIVE SECTIONS OF AT LEAST EQUAL STRENGTH AND PROPERTIES TO THE S.O. FOR APPROVAL. WHERE JOINT DETAILS HAVE TO BE MODIFIED AS A RESULT, JOINT DETAILS AND SHOP DRAWINGS ALSO HAVE TO BE SUBMITTED TO THE S.O. FOR APPROVAL BEFORE WORK IS PUT IN HAND. ALL ADDITIONAL COSTS ARISING THEREFROM SHALL BE BORNE BY THE CONTRACTOR.
- ALL BOLTS SHALL BE GRADE 4.6 TO BS 4190, AND NUTS SHALL BE GRADE 4 TO BS 4190. UNLESS SPECIFIED OTHERWISE, ALL BOLTS SHALL BE 10 MM DIAMETER.
- GROUT AROUND FOUNDATION BOLTS AND UNDER COLLUMI BASE PLATES SHALL BE AN APPROVED PROPRIETARY NON-SHRINK POLYMER MODIFIED CEMENTITIOUS OR RESIN BASED GROUT OF 30MPa COMPRESSIVE STRENGTH.
- ALL WELDING SHALL BE 6MM FILLET WELDS IN ACCORDANCE WITH BS EN 1011-1 TOGETHER WITH OTHER CLAUSES CONTAINED IN THE GS, UNLESS OTHERWISE STATED.
- ALL STRUCTURAL STEELWORK INCLUDING BOLTS, WASHERS, NUTS AND WELDED CONNECTIONS SHALL BE HOT DIP GALVANIZED TO BS EN 1501461.
 SMALL AREAS OF GALVANIZED COATING DAMAGED BY WELDING, CUTTING OR ROUGH TREATMENT OR ERECTION SHALL BE MADE GOOD BY THE USE OF AT LEAST TWO COATS OF ZINC RICH PAINT TO BS 4652 TO CLAUSE 15.63.
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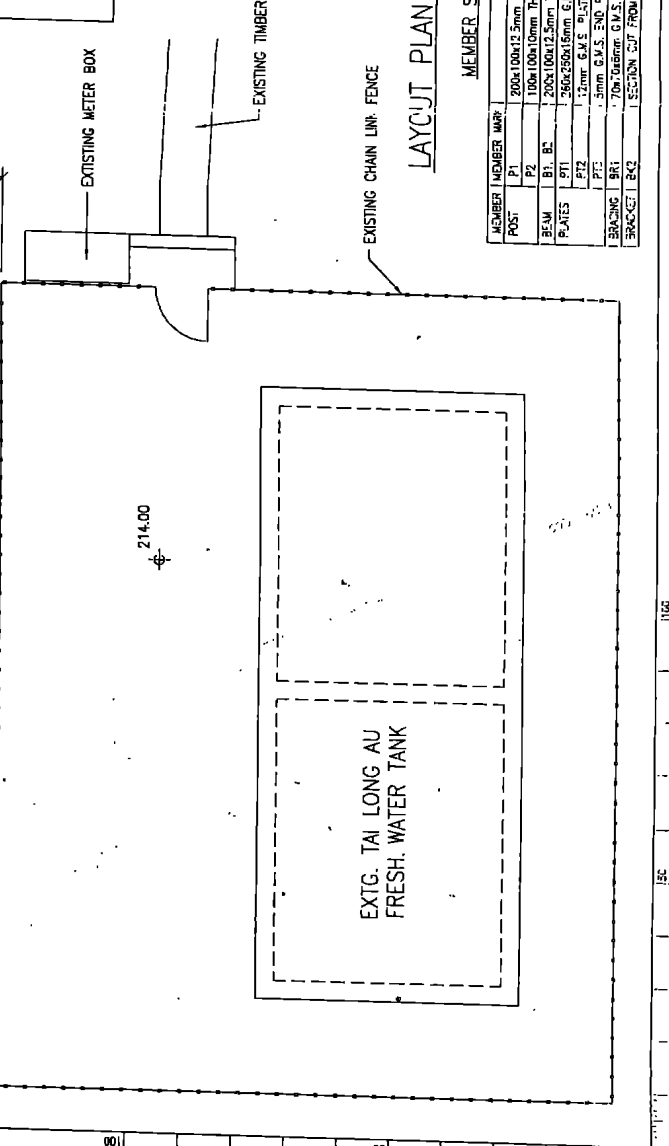
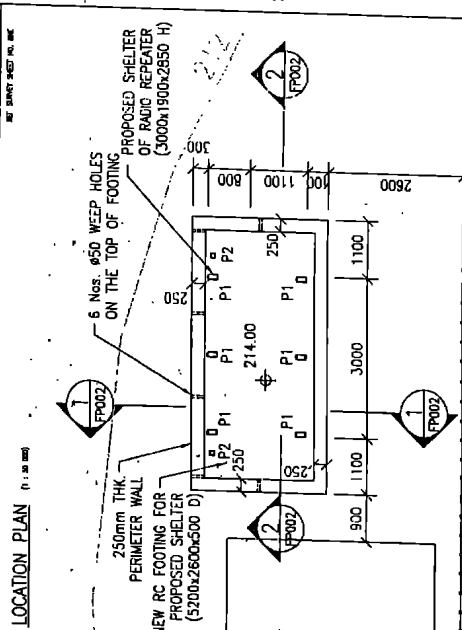
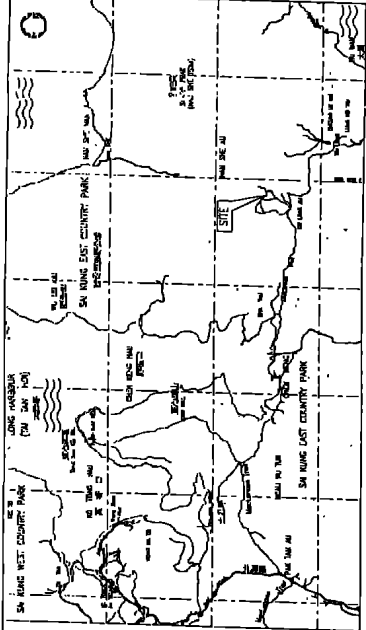
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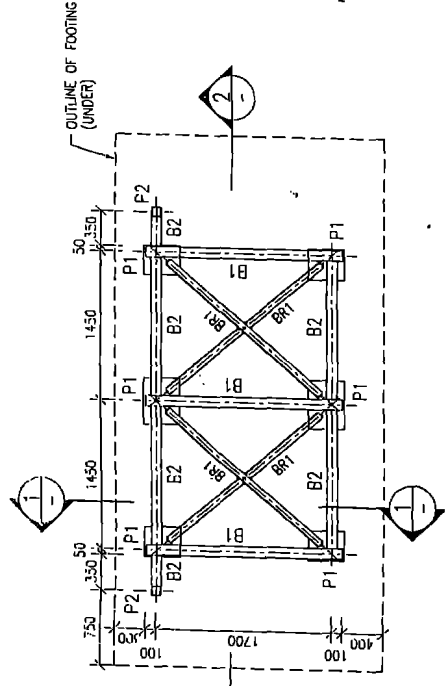
NOTES
1. FOR GENERAL NOTES, SEE DRAWING NO. PS(S)/97904/08116/FP001.

no.	date	description
REVISION		
drawn		F. K. KONG
checked		K. Y. HO
approved		<i>[Signature]</i> 5/6/2008
contract no.		
file no. F		
project no.		
contract		
RADIO REPEATER SITE FOR ICAC AT TAI LONG AU, SAI KUNG		
drawing title		
LAYOUT PLAN OF SHELTER FOR RADIO REPEATER (SHEET 2 OF 3)		
drawing no.		scale
PB(S)/97904/08116/FP002		1 : 50

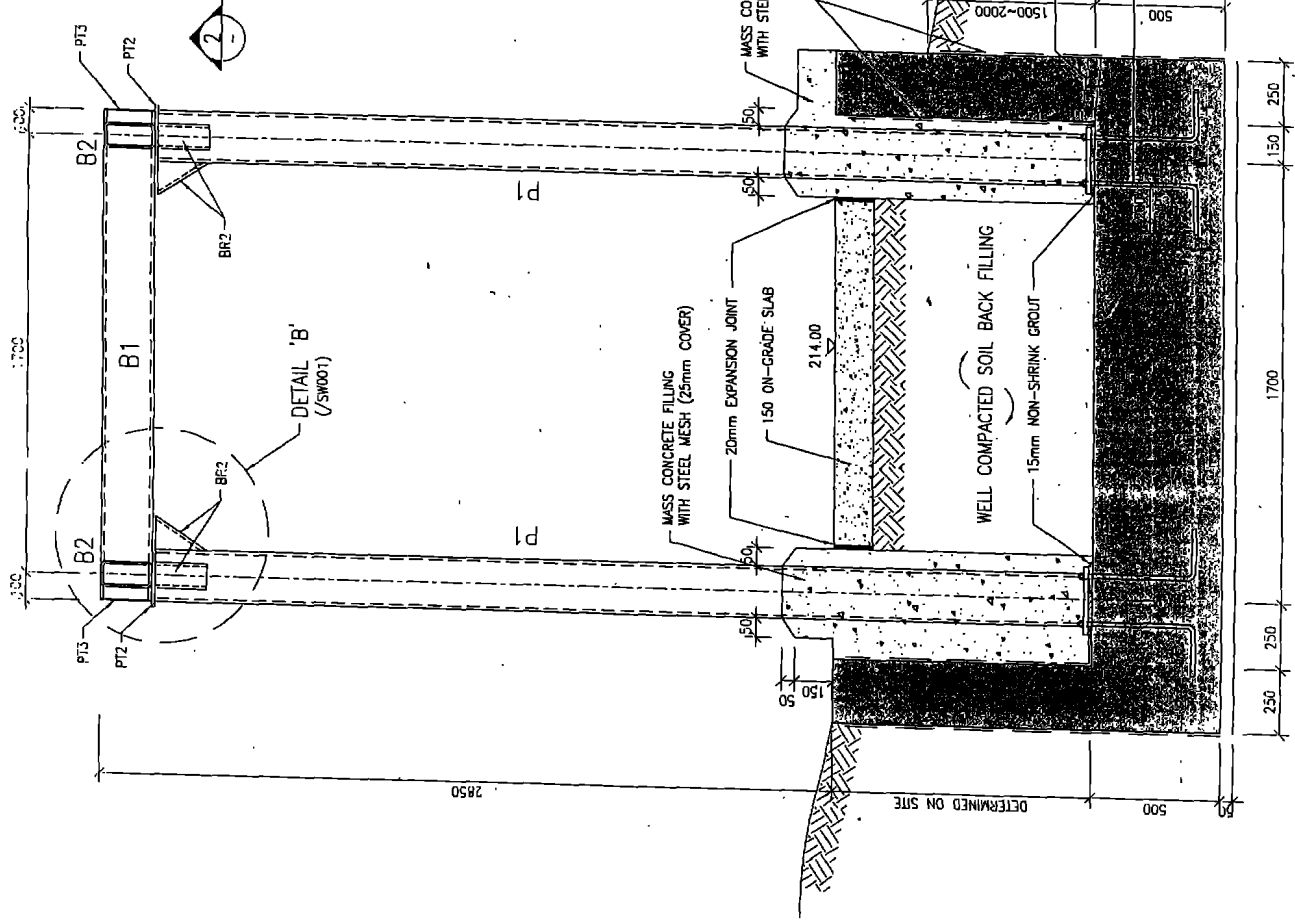
office
STRUCTURAL ENGINEERING BRANCH



ARCHITECTURAL SERVICES DEPARTMENT



ROOF PLAN OF SHELTER



SECTION 1-1

(50-MING NOT SHOWN FOR CLARITY)

MEMBER SCHEDULE

MEMBER	MEMBER MARK	SIZE OF MEMBER
POST	P1	200x100x12.5mm THK. C.M.S. GRADE 43C
	P2	100x100x10mm THK. C.M.S. GRADE 43C
BEAM	B1, B2	200x100x12.5mm THK. C.M.S. GRADE 43C
PLATE	BR1	250x250x10mm C.M.S. PLATE
	BR2	125mm C.M.S. PLATE
BRACING	PT1	3mm C.M.S. END PLATE
	PT2	70x70x8mm C.M.S. ANGLE
	PT3	SECTION 307 FROM 200x100x12.5mm THK. C.M.S. GRADE 43C


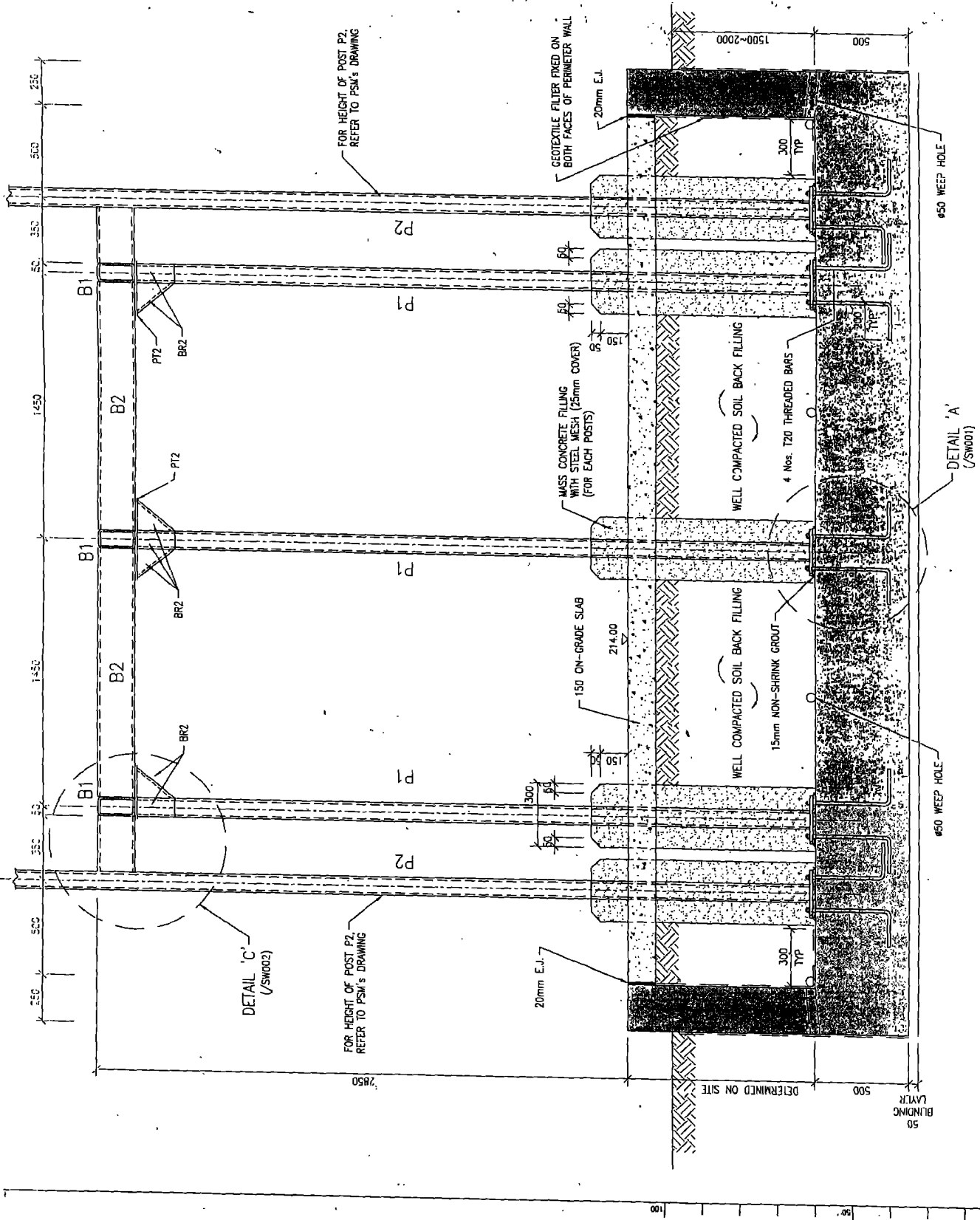
NOTES
1. FOR GENERAL NOTES, SEE DRAWING NO. PB(S)/97904/08116/F201.

REVISION		description
no.	date	
		F. K. KONG
		K. Y. HO
		<i>[Signature]</i> 4/14/08
		<i>[Signature]</i> 5/11/08

approved	<i>[Signature]</i> 4/14/08	<i>[Signature]</i> 5/11/08
F. K. KONG (P. S. LIM) (Sig.) Project Engineer (N. Y. HO) contract no. _____ file no. _____ project no. _____ contract: RADIO REPEATER SITE FOR ICAC AT TAI LONG AU, SAI KUNG drawing title SECTION (SHEET 3 OF 3) drawing no. PB(S)/97904/08116/F003 scale 1 : 20		

office: STRUCTURAL ENGINEERING BRANCH

ARCHITECTURAL SERVICES DEPARTMENT

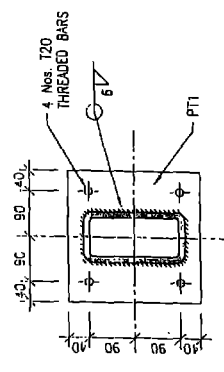

SECTION 2-2
(BRACING NOT SHOWN NOT CLARITY)

01 dwd0811165005w001.dwg -- 6 -- 1:10

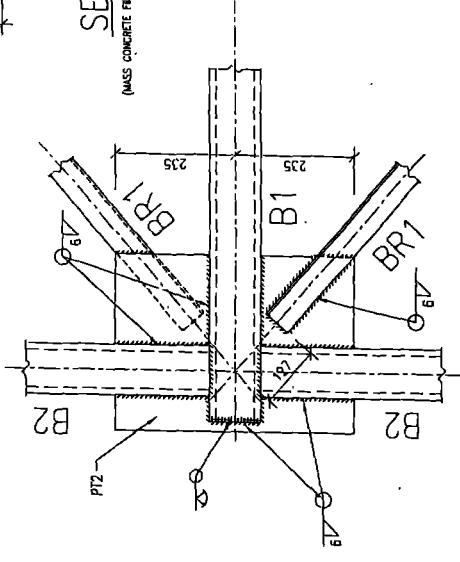
NOTES
1. FOR GENERAL NOTES, SEE DRAWING NO. PB(S)/97904/08116/FF3001.

no.	date	description
REVISION		
drawn	F. K. KONG	AK
checked	K. Y. HO	YH
approved	<i>[Signature]</i> 4/16/08 T. S. LAM (Mg) Project Engineer (N. Y. CHOI)	
contract no.		
file no.		
project no.		
contract	RADIO REPEATER SITE FOR ICAC AT TAI LONG AU, SAI KUNG	
drawing title	CONNECTION DETAILS	
(SHEET 1 OF 2)		
drawing no.	PB(S)/97904/08116/SW001	
scale	1 : 10	

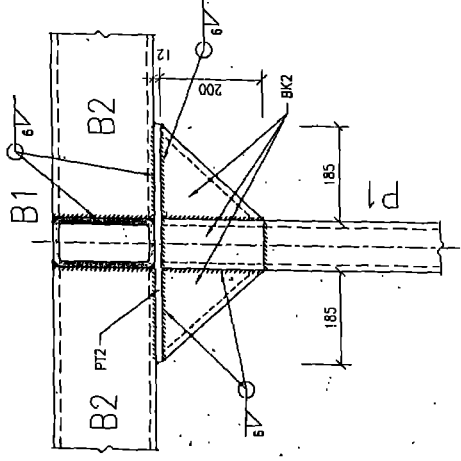
office
STRUCTURAL ENGINEERING BRANCH
ARCHITECTURAL SERVICES DEPARTMENT



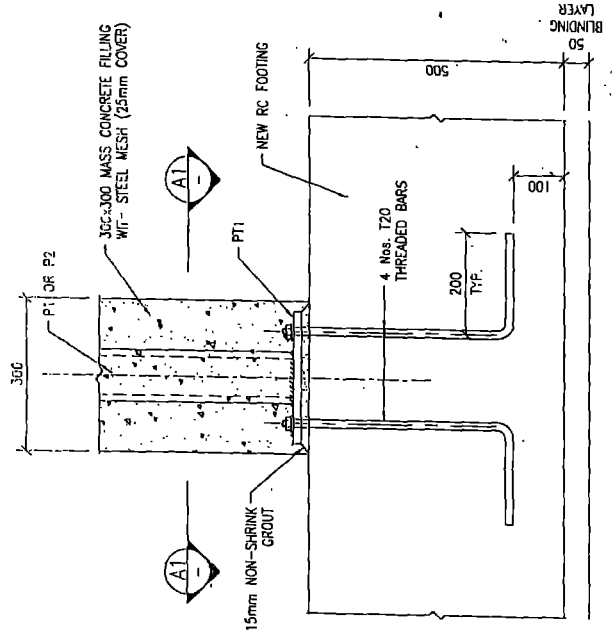
SECTION A1-A1
(MASS CONCRETE FILING & NON-SHRINK GROUT NOT SHOWN FOR CLARITY)



SECTION B1-B1

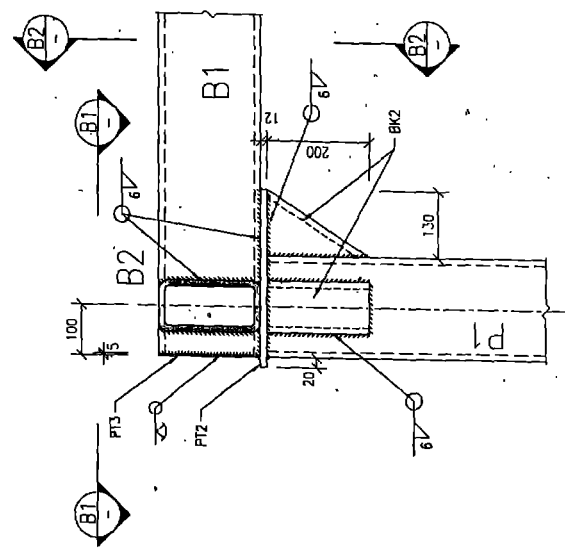


SECTION B2-B2
(BRACING NOT SHOWN FOR CLARITY)



DETAIL 'A'

(TYPICAL DETAIL FOR STEEL POSTS FIXED ON RC FOOTING)



DETAIL 'B'

(TYPICAL CONNECTION DETAIL FOR B2 TO B1)
(BRACING NOT SHOWN FOR CLARITY)


01 dwd0811165005w001.dwg -- 6 -- 1:10

NOTES
 1. FOR GENERAL NOTES, SEE DRAWING NO
 PB(S)/97904/08115/FP001.

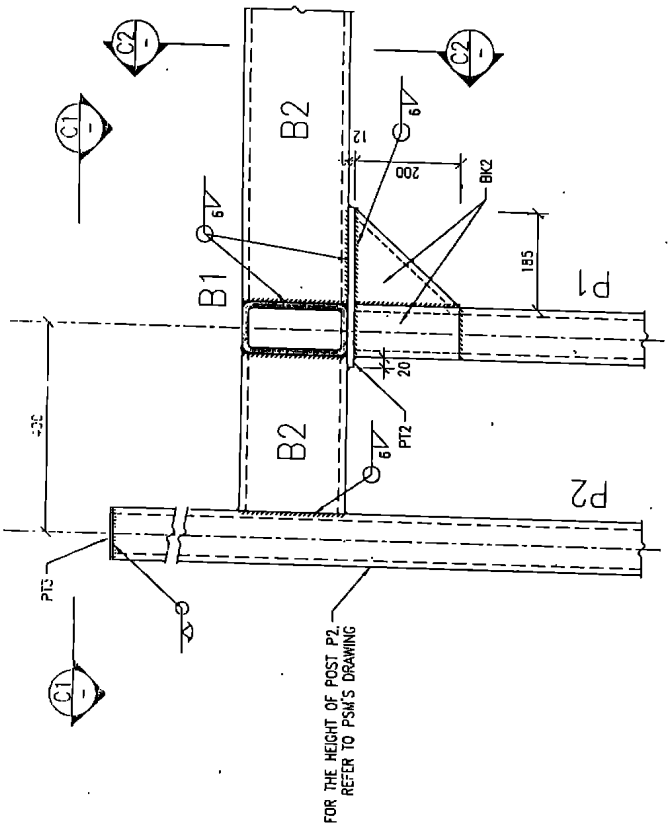
no.	date	description
REVISION		
drawn		F. K. KONG <i>FKK</i>
checked		K. Y. HO <i>KYO</i>
approved		<i>Y. S. LAM</i> (Pkg) (K. Y. CHOW)
contract no.		
file no. 8		
project no.		
contract: RADIO REPEATER SITE FOR ICAC AT TAI LONG AU, SAI KUNG		
drawing title: CONNECTION DETAILS (SHEET 2 OF 2)		
drawing no.	scale	
PB(S)/97904/08115/SW002	1 : 10	

office
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 BRANCH**

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 SERVICES
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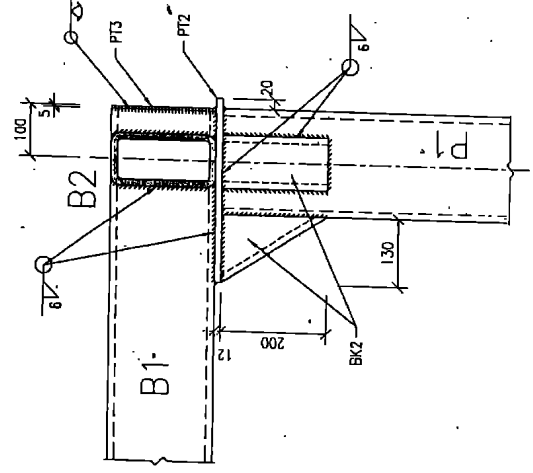


CAD Ref: 0160011600002.dwg-1:10

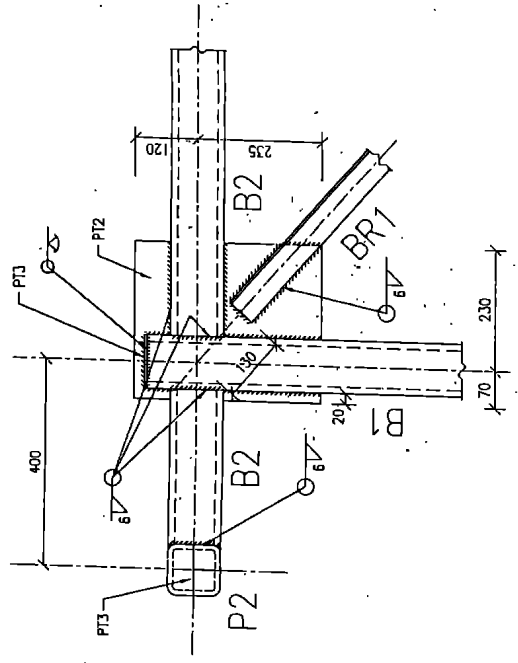


FOR THE HEIGHT OF POST P2,
 REFER TO PSN'S DRAWING

DETAIL 'C'
 (BRACING NOT SHOWN FOR CLARITY)



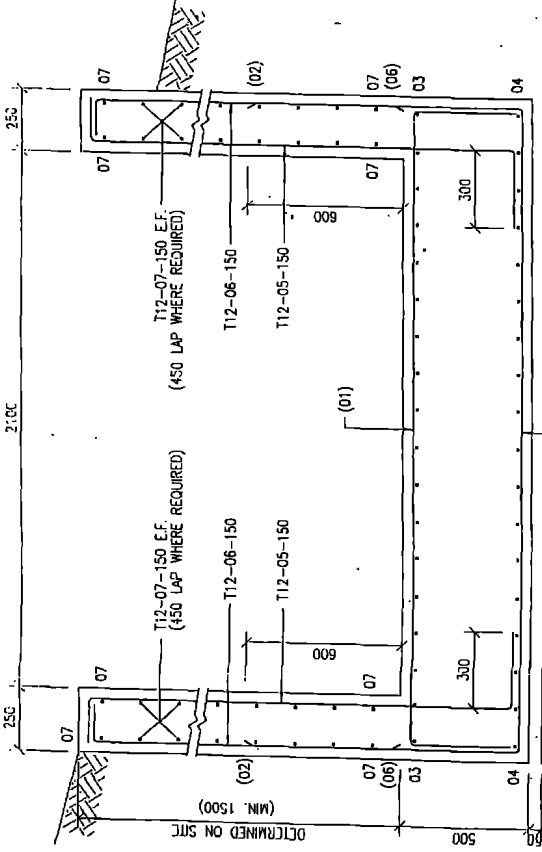
SECTION C2-C2
 (BRACING NOT SHOWN FOR CLARITY)



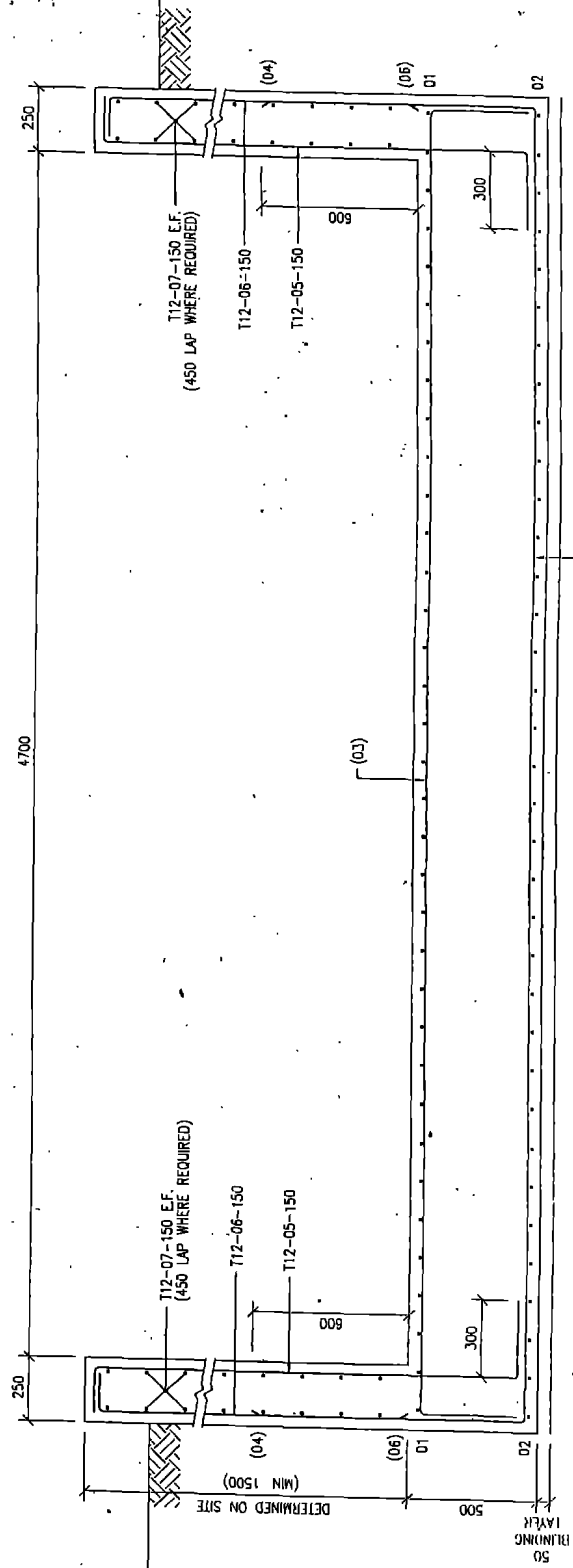
SECTION C1-C1

NOTES

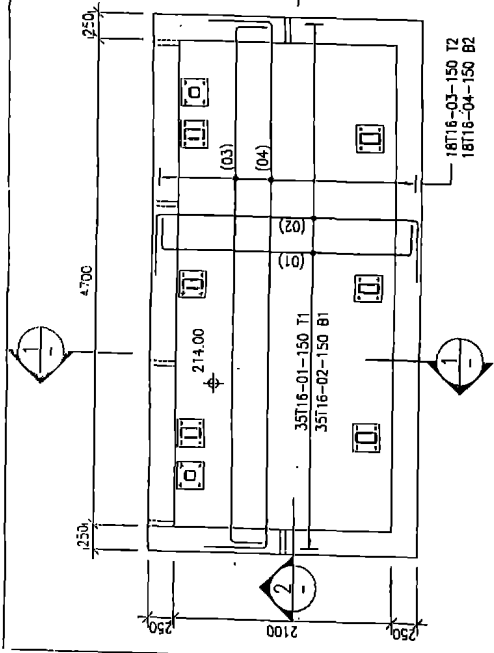
1. FOR GENERAL NOTES, SEE DRAWING NO. PS(S)/97904/08116/F001.



SECTION 1-1



SECTION 2-2



PLAN OF FOOTING (1:50)

no.	date	description
REVISION		
drawn	F. K. KONG	FKY
checked	K. Y. HO	KYO
approved	 F. K. KONG (Ms.) Project Engineer (H. Y. CHOW)	
contract no.		
file no.		
project no.		
contract	RADIO REPEATER SITE FOR ICAC AT TAI LONG AU, SAI KUNG	
drawing title	RC DETAILS OF FOOTING FOR RADIO REPEATER	
drawing no.	PS(S)/97904/08116/FN001	scale
		1 : 50
		1 : 20
office	STRUCTURAL ENGINEERING BRANCH	
ARCHITECTURAL SERVICES DEPARTMENT		