



Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

**MAE TUEN HYDROPOWER PROJECT
CHIANGMAI PROVINCE**

**CONTRACT C1
CIVIL WORKS AND TRANSMISSION LINE**

**VOLUME 3
BID FORMS, SCHEDULES OF QUANTITIES**



PANYA CONSULTANTS CO., LTD.

JULY 2013

GOVERNMENT OF THAILAND
MINISTRY OF ENERGY
DEPARTMENT OF ALTERNATIVE ENERGY DEVELOPMENT AND EFFICIENCY

MAE TUEN HYDROPOWER PROJECT
MAE TUEN WEIR

BID DOCUMENTS FOR
CONTRACT C1
CONSTRUCTION OF CIVIL WORKS AND TRANSMISSION LINE

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- SECTION 2 : INSTRUCTION TO BIDDERS**
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MAE TUEN HYDROPOWER PROJECT

CONTRACT C1

CIVIL WORKS AND TRANSMISSION LINE

VOLUME 3 : BID FORMS, SCHEDULE OF QUANTITIES

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SECTION 1 – BID FORMS

SECTION 1 - BID FORMS

1.01 PROPOSAL LETTER

TO:

CONSTRUCTION BID COMMITTEE
MAE TUEN HYDROPOWER PROJECT
CHIANGMAI PROVINCE
CONTRACT C1

CONSTRUCTION OF CIVIL WORKS AND TRANSMISSION LINE

DEPARTMENT OF ALTERNATIVE ENERGY DEVELOPMENT AND EFFICIENCY
Kasatsuk Bridge, Rama 1 Road
Bangkok 10330, Thailand

Gentlemen:

The undersigned having carefully examined in their entirety the Bid Documents for Contract C1 Construction of Mae Tuen Hydropower Project does hereby bid and offer to furnish all labour, materials and equipment, and to perform all works necessary or incidental to the construction of the Work, and to perform all other obligations and assume all liabilities imposed upon the Contractor by the Contract, in strict conformity to the Drawings, Specifications, Conditions of Contract, Addenda and all other Contract Documents, and further agrees to accept in full payment therefor the amount resulting from the actual quantities of contract items performed at the prices shown as set out in the Schedule of Quantities, Rates, and Prices and as determined in accordance with the Conditions of Contract and other Contract Documents.

By this letter the undersigned declares that the Total Bid Price, obtained by applying the bid prices to the estimated quantities as indicated in the Schedule of Quantities, Rates and Prices is:

in words(฿)

in figures(฿)

The undersigned also agrees to abide and to be bound by all the conditions and procedures of processing the Bids, selecting the successful Bidder and awarding the Contract as contained in the Instruction to Bidders and other Bid Documents.

A Bid Security issued by is attached herewith as required in the Instruction to Bidders. The undersigned agrees that in the case he is awarded the Contract, and should he fail to execute the Contract within 30 days after receiving the notification of Acceptance of Bid or such extended time as may be approved by the Department in writing, the said Bid Security and the moneys payable thereon shall be forfeited to the Department as liquidated damages.

Signature
in the capacity of
duly authorized to sign Bid for and on behalf of
.....

Date

Address :
.....
.....

Witness :

Address :

.....

.....

Occupation :

.....

Corporate Seal

1.02 BID SCHEDULE**SUMMARY OF INFORMATION TO BE SUBMITTED WITH BID**

INSTRUCTIONS TO BIDDER'S CLAUSE 2.04 (Volume 1)	SUBMISSION REQUIRED	SCHEDULE SAMPLE
(a)	Construction schedule	
(b)	Water control plan	
(c)	Access and haul roads proposals	
(d)	Method statement for orderly excavation	
(e)	Construction plant and equipment to be used in the Construction	See Sample I
(f)	Construction camp layout	
(g)	Contractor's organization chart and details of technical staff	
(h)	Record of completed works and works currently engaged	See Sample II
(i)	Estimates of monetary requirements for Thai fiscal year (October 1 to March 31/April 1 to September 30) in six monthly periods up to the date of completion	See Sample III
(j)	Proposed subcontracts and qualification	See Sample IV
(k)	Sub-contractor declaration	
(l)	Plan of supply of cement, reinforce steel, materials for dam embankment	

1.03 BID SECURITY FORM

Date

..... (name of Bank)
situated at

....., hereinafter called the Bank,
hereby agrees to make a Bid Guarantee to the Department of Energy Development and
Promotion, hereinafter called the Department, on the following terms:

- 1. That the Bid of (Bidder), Bidder, is made in agreement with the invitation from the Department to bid for the construction of Contract C1 Construction of Civil Works and Transmisstion Line for Mae Tuen Hydropower Project in accordance with the conditions set forth by the Conditions of Contract, Specifications, Drawings and other Bid Documents for this work.

In submitting the Bid, the Bidder agrees to furnish a Bid Guarantee through the Bank amounting to Baht (written in words)
.....(฿)

- 2. The Bank hereby agrees to be a Guarantor for the Bid Guarantee for the sum of the above amount in the name of the Department.
- 3. When the Bidder has submitted the Bid as stated under 1 above, but does not abide by the conditions of the Bid or any stipulation of the Invitation to Bid, the Bank agrees to pay the sum of Baht..... (written in words)
..... (฿) to the Department..
- 4. This Bid Security becomes effective from(date)
to (date) The period of guarantee shall in no case be less than one hundred and fifty (150) days and shall commence from the date of opening the Bid as set forth in the Invitation to Bid.

In witness whereof, the authorized representative of the Bank has hereunto signed and sealed this Guarantee.

GUARANTOR

WITNESS

.....
()

.....
()

Title
.....

Title
.....

Office
.....

.....
()

Title
.....

Office
.....

1.04 SCHEDULE OF QUANTITIES, RATES AND PRICES

**MAE TUEN HYDROPOWER PROJECT
MAE TUEN WEIR
CHANGWAT CHIANGMAI**

CONTRACT C1

CONSTRUCTION OF CIVIL WORKS AND TRANSMISSION LINE

NOTES

- (1) The Schedule shall be read in conjunction with the Instruction to Bidders, Conditions of Contract, Specifications and Drawings.
- (2) The quantities given in the Schedule are estimated and provisional and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and value at the rates and lump sum quoted in the Schedule where applicable and otherwise at such rates and lump sum as the Department may fix within the terms of the Contract.
- (3) The rates and lump sum in the Schedule shall, except insofar as it is otherwise provided under the Contract, include all plant, labour, materials, erection, maintenance, supervision, office work, insurance, profit, together with all general risks, liabilities and obligations set out or implied in the Contract.
- (4) A rate or lump sum shall be entered against each Item in the Schedule, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or lump sum shall be deemed to be covered by the Contract Price.
- (5) The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the Schedule, and where no Items are provided shall be deemed to be distributed amongst the rates and lump sum for the related Items of work.
- (6) General directions and descriptions of work and materials are not necessarily repeated in the Schedule. Reference to the relevant Clauses of the Conditions of Contract, Specifications and Drawings shall be made when entering prices against each Item in the Schedule.
- (7) The Sections of the Schedule are numbered in accordance with the corresponding Sections of the Specification. The Items in each Section of the Schedule shall be read in conjunction with the measurement and payment Clauses in the relevant Section of the Specification.
- (8) If there is a discrepancy between the rate and the Total Price entered for any Item in the Schedule, the rate will be taken as correct.

SECTION 2 – SAMPLES OF SUBMITTED INFORMATION

**2.01 BID SCHEDULE - CONSTRUCTION PLANT AND EQUIPMENT
TO BE USED IN THE CONSTRUCTION**

DESCRIPTION	MAKER	MODEL	NO.	PURCHASE PRICE (OR DEPRECIATED VALUE)	NO. OF HOURS PREVIOUSLY WORKED	EFFICIENCY

We certify that notwithstanding the list of the Construction Plant detailed above we will provide suitable and adequate Construction Plant in good working order for the successful completion of the Works.

Signed Date

Name
(Bidder or his Representative)

2.02 BID SCHEDULE - RECORD OF COMPLETED WORKS AND WORKS CURRENTLY ENGAGED

DESCRIPTION OF PROJECT	PRINCIPAL QUANTITY	PERIOD OF WORKS	CONTRACT AMOUNT (INCLUDING VARIATIONS AND EXTRA WORKS AND ANY CLAIMS PENDING) BAHT	CERTIFICATION BY OWNER/ CONSULTING ENGINEER

**2.03 BID SCHEDULE - ESTIMATED MONETARY REQUIREMENTS
FOR THAI FISCAL YEAR**

Fiscal Year (1)	Currency Portion in Baht (2)	Remarks (3)

- (1) The total amounts of column (2) must correspond to and agree with the total amounts in Baht bid in the Schedule of Quantities and Rates.
- (2) The Fiscal Year in Thailand is from 1 October to 30 September of the following year. This is the Statement of Estimated Monetary Requirements in Fiscal Years in size monthly period up to the date of completion.

**2.04 BID SCHEDULE - PROPOSED SUBCONTRACTED WORKS AND
SUBCONTRACTOR'S RECORD**

SUBCONTRACT	NAME AND ADDRESS OF PROPOSED SUBCONTRACTOR

NOTE : TO BE PROPOSED WITH THE ACCEPTANCED LETTER FROM EACH SUB-CONTRACTOR

SCHEDULE OF QUANTITIES, RATES AND PRICES

FOR

CONTRACT C1

CONSTRUCTION OF CIVIL WORKS AND TRANSMISSION LINE

**MAE TUEN WEIR HYDROPOWER PROJECT
CONTRACT C1
CONSTRUCTION OF CIVIL WORKS**

GROUP SCHEDULE OF BID AMOUNT

GROUP No.	GROUP TITLE	TOTAL AMOUNT (BAHT)
1	GENERAL	
2	WEIR AND ASSOCIATED WORKS	
3	ACCESS ROAD 2 LINES AND ASSOCIATED WORKS	
4	HEADRACE AND FOREBAY	
5	PENSTOCK	
6	POWER HOUSE AND TAILRACE	
	Total of Bid Amount Group 1 To 6	
	VAT 7 %	
GRAND TOTAL		

TOTAL BID AMOUNT Written in words:-

BAHT.....

SIGNATURE

IN THE CAPACITY OF.....

DULY AUTHORIZED TO SIGN BID FOR AND ON BEHALF OF

DATE.....

CORPORATE SEAL.....

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 1 : GENERAL**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
1	GENERAL	
TOTAL OF BID AMOUNT GROUP 1		

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 2 : WEIR AND ASSOCIATED WORKS**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
2 3 4 7 9 12	WATER CONTROL AND DEWATERING SURFACE EXCAVATION FILL AND BACKFILL PROTECTION AND SUPPORT EXCAVATION CONCRTEE WORKS PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
TOTAL OF BID AMOUNT GROUP 2		

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
 GROUP 3 : ACCESS ROAD 2 LINES AND ASSOCIATED WORKS**

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SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3 4 5 6 7 9	SURFACE EXCAVATION FILL AND BACKFILL DRAINAGE ROAD CONSTRUCTION PROTECTION AND SUPPORT EXCAVATION CONCRETE WORKS	
TOTAL OF BID AMOUNT GROUP 3		

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 4 : HEADRACE AND FOREBAY**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3	SURFACE EXCAVATION	
4	FILL AND BACKFILL	
5	DRAINAGE	
9	CONCRTEE WORKS	
12	PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS	
13	STEEL LINERS AND STEEL CONDUIT PIPES	
14	MISCELLANEOUS WORKS	
TOTAL OF BID AMOUNT GROUP 4		

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 5 : PENSTOCK**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3 4 9 12 13	SURFACE EXCAVATION FILL AND BACKFILL CONCRTEE WORKS PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS STEEL LINERS AND STEEL CONDUIT PIPES	
TOTAL OF BID AMOUNT GROUP 5		

**SCHEDULE OF QUANTITIES, RATES AND PRICES-SUMMARY OF BID AMOUNT FOR
GROUP 6 : POWERHOUSE AND TAILRACE**

SECTION NO.	SECTION TITLE	SUB-TOTAL AMOUNT BAHT
3 4 5 7 9 11 12 15	SURFACE EXCAVATION FILL AND BACKFILL DRAINAGE PROTECTION AND SUPPORT EXCAVATION CONCRTEE WORKS BUILDING CONSTRUCTION PERMANENT EQUIPMENT AND MISCELLANEOUS METAL WORKS ILLUMINATION EQUIPMENT	
TOTAL OF BID AMOUNT GROUP 6		

SCHEDULE OF QUANTITIES, RATES AND PRICES

GROUP 1 : GENERAL

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
S1.15(3)	<p>Section 1 : General Requirement</p> <p>Field offices and permanent housing</p> <p> i) Field office for Employer size 200 sqm</p> <p> ii) Field office for Engineer size 120 sqm</p> <p style="text-align: center;">Sub - total Section 1</p>	LS	1		
GRAND TOTAL OF GROUP 1					

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 2 : WEIR AND ASSOCIATED WORKS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
S2.06(1) S2.06(4)	Section 2 : Water Control and Dewatering Diversion and control of River during construction Dewatering of surface construction	LS LS	1 1		
	Sub - total Section 2				
S3.09(2) S3.09(5) S3.09(6)	Section 3 : Surface Excavation Clearing and Grubbing Roughed clean weir surface i) Remove existing weir surface Drilling hole on weir surface	sq.m cu.m m	35 35 430		
	Sub - total Section 3				
S4.07(1) S4.07(2)	Section 4 : Fill and Backfill Earthfill Random backfill	cu.m cu.m	1,555 2,400		
	Sub - total Section 4				
S7.04(8)	Section 7 : Protection and Support Excavation Anchor bars dia. 12 mm, L = 0.50 m	m.	457		
	Sub - total Section 7				
S9.10(3) S9.10(6) S9.10(8) S9.10(11)	Section 9 : Concrete Works Reinforcing bars Structure concrete i) Concrete pavement $f_c' = 210$ ksc. Miscellaneous concrete i) Mortar grout Joint fillers and sealer i) Bonding agent	kg. cu.m cu.m sq.m	4,230 104 1 290		
	Sub - total Section 9				
S12.12(8) S12.12(9)	Section 12 : Permanent Equipment and Miscellaneous Works Supply and installation gate and hoist i) Vertical gate size 1.10 x 1.10 m with predestal lift 3.0 tons and gear motor ii) Vertical gate dia. 1.20 m with predestal lift 3.0 tons and gear motor iii) Generator 0.75x2 kW Miscellaneous metal works i) Steel plate ii) Steel structure	set set set kg. kg.	1 1 1 64 595		
	Sub - total Section 12				
GRAND TOTAL OF GROUP 2					

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 3 : ACCESS ROAD 2 LINES AND ASSOCIATED WORKS

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
S3.09(2) S3.09(3) S3.09(4) S3.09(5)	Section 3 : Surface Excavation Clearing and Grubbing Stripping Common Excavation Rock Excavation i) Weathered rock ii) Sound rock	sq.m cu.m cu.m cu.m cu.m cu.m	12,514 1,700 15,580 1 5,260		
	Sub - total Section 3				
S4.07(1) S4.07(2) S4.07(3)	Section 4 : Fill and Backfill Earthfill Random backfill Free Draining Backfill i) Compacted coarse sand ii) Soil aggregate iii) Selected material iv) Laterite compaction	cu.m cu.m cu.m cu.m cu.m cu.m	4,330 6,140 720 2,310 2,530 930		
	Sub - total Section 4				
S5.10(2) S5.10(6) S5.10(7)	Section 5 : Drainage Side ditch Drain pipes i) Furnishing and installing RC. Ø 1.20 m. Headwall, wingwall, and apron for culverts i) Structure Concrete fc' = 140 ksc. ii) Reinforcing bars iii) Lean concrete	m. m. cu.m kg. cu.m.	3,441 295 369 28,450 58		
	Sub - total Section 5				
S6.13(8) S6.13(10) S6.13(11)	Section 6 : Road Construction Guide posts Guardrails Road signs i) Traffic regulating signs ii) Traffic warning signs iii) Destination signs iv) Distance signs	No. m. No. No. No. No.	170 120 2 44 2 2		
	Sub - total Section 6				
S7.04(1) S7.04(5) S7.04(6)	Section 7 : Protection and Support Excavation Placed riprap Geotextile Sodding	cu.m sq.m sq.m	190 614 3,708		
	Sub - total Section 7				
S9.10(3) S9.10(6) S9.10(11)	Section 9 : Concrete Works Reinforcing bars Structure concrete i) Concrete fc' = 210 ksc. Joint fillers and sealer i) Plastic sheet ii) Contraction Joint: Dowel bar to be painted and greasee iii) Expansion Joint: Dowel bar to be painted and greasee, with metal cap iv) Longitudinal Joint: Deformed tie bar	kg. cu.m cu.m sq.m No No No	45,100 1,290 870 2,900 276 3,043		
	Sub - total Section 9				
GRAND TOTAL OF GROUP 3					-

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 4 : HEADRACE AND FOREBAY

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
S3.09(2)	Clearing and Grubbing	sq.m	8,760		
S3.09(3)	Stripping	cu.m	9,021		
S3.09(4)	Common Excavation	cu.m	16,780		
S3.09(5)	Rock Excavation				
	i) Weathered rock	cu.m	1		
	ii) Sound rock	cu.m	13,300		
S3.09(9)	Demolish Existing Structure				
	i) Concrete of diversion pipe	cu.m	1,910		
	ii) Concrete of Intake	cu.m	10		
	iii) Steel	kg.	174,470		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
S4.07(2)	Earthfill	cu.m	18,380		
S4.07(3)	Free Draining Backfill				
	i) Compacted coarse sand	cu.m	1,390		
	ii) Soil aggregate	cu.m	3,850		
	iii) Selected material	cu.m	4,010		
	iv) Laterite compaction	cu.m	1,392		
	Sub - total Section 4				
	Section 5 : Drainage				
S5.10(2)	Lined surface drains				
	i) Side ditch	m.	3,465		
	ii) Riprap thk. 0.30 m	cu.m	5		
	Sub - total Section 5				
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	985,470		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 210 ksc.	cu.m	6,750		
S9.10(8)	Miscellaneous concrete				
	i) Concrete connection at headrace to surge tank	cu.m			
	ii) Lean concrete	cu.m	585		
S9.10(9)	Waterstops				
	i) PVC waterstop type A	m.	1,485		
	Sub - total Section 9				
	Section 12 : Permanent Equipment and Miscellaneous Works				
S12.12(1)	Permanent equipment				
	i) Supply and installation gate valve dia. 1.00 m	set	2		
	ii) Installation and grouting steel pipe dia. 1.00 m in Intake	set	1		
S12.12(8)	Miscellaneous metal works				
	i) Steel plate	kg.	7,140		
	ii) Steel structure	kg.	1,490		
	iii) Handrail	m.	234		
	iv) Ladder rung	kg.	40		
	v) Embedded steel	kg.	379		
	Sub - total Section 12				
	Section 13 : Steel Liners and Steel Conduit Pipes				
S13.14(2)	Steel Liners and steel conduit pipes				
	i) Steel liners dia.1.00 m.	m.	3,460		
	Sub - total Section 13				
	Section 14 : Miscellaneous Works				
S14.06(4)	PVC pipe and component				
	i) PVC pipe dia. 100 mm	m	3,000		
	Sub - total Section 14				
GRAND TOTAL OF GROUP 4					-

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 5 : PENSTOCK

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
S3.09(2)	Clearing and Grubbing	sq.m	1,070		
S3.09(3)	Stripping	cu.m	190		
S3.09(4)	Common Excavation	cu.m	115		
	i) Common excavation by machine	cu.m	115		
	ii) Common excavation by labor	cu.m	54		
	Rock Excavation				
S3.09(5)	i) Weathered rock	cu.m	1		
	ii) Sound rock	cu.m	241		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
S4.07(2)	Earthfill	cu.m	65		
	Sub - total Section 4				
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	7,160		
S9.10(6)	Structure concrete				
	i) Concrete fc' = 210 ksc.	cu.m	786		
S9.10(8)	Miscellaneous concrete				
	i) Lean concrete	cu.m	16		
	ii) Concrete lining	cu.m	31		
	iii) Asbestos sheet thk. 12 mm	sq.m	2		
	Sub - total Section 9				
	Section 12 : Permanent Equipment and Miscellaneous Works				
S12.12(1)	Permanent equipment				
	i) Supply and installation gate valve dia. 0.90 m	set	1		
	ii) Air release valve dia.200 mm	set	1		
S12.12(8)	Miscellaneous metal works				
	i) Ring girder	kg.	372		
	Sub - total Section 12				
	Section 13 : Steel Liners and Steel Conduit Pipes				
S13.14(2)	Steel Liners and steel conduit pipes				
	i) Steel liners dia.0.90 m.	m.	140		
	ii) Steel liners dia.0.60 m.	m.	18		
	iii) Wye branch dia.0.90 m to dia.2-0.60 m	set	1		
	iv) Pipe bend dia. 0.60 m	set	1		
	v) Expansion joint dia.0.90 m	set	2		
	Sub - total Section 13				
GRAND TOTAL OF GROUP 5					-

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 6 : POWERHOUSE AND TAILRACE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
	Section 3 : Surface Excavation				
S3.09(2)	Clearing and Grubbing	sq.m	440		
S3.09(4)	Common Excavation	cu.m	580		
S3.09(5)	Rock Excavation				
	i) Weathered rock	cu.m	1		
	ii) Sound rock	cu.m	545		
S3.09(9)	Demolish Existing Structure				
	i) Concrete	cu.m	66		
	Sub - total Section 3				
	Section 4 : Fill and Backfill				
S4.07(1)	Earth fill	cu.m	450		
	Sub - total Section 4				
	Section 5 : Drainage				
S5.10(2)	Lined surface drains				
	i) Gutter drain	m.	65		
	Sub - total Section 5				
	Section 7 : Protection and Support Excavation				
S7.04(1)	Placed riprap	cu.m	150		
S7.04(2)	Bedding	cu.m	75		
S7.04(6)	Sodding	sq.m	40		
	Sub - total Section 7				
	Section 9 : Concrete Works				
S9.10(3)	Reinforcing bars	kg.	75,780		
S9.10(6)	Structure concrete				
	i) Concrete $f_c' = 210$ ksc.	cu.m	606		
S9.10(8)	Miscellaneous concrete				
	i) Secondary concrete $f_c' = 210$ ksc.	cu.m	5		
	ii) Lean concrete	cu.m	4		
S9.10(9)	Waterstops				
	i) PVC waterstop type A	m.	21		
S9.10(11)	Joint fillers and sealer				
	i) Elastic filler	sq.m	1		
	ii) Joint sealant	sq.m	2		
	Sub - total Section 9				
Amount Carried Forward					

SCHEDULE OF QUANTITIES, RATES AND PRICES
GROUP 6 : POWERHOUSE AND TAILRACE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	UNIT PRICE BAHT	AMOUNT BAHT
Amount Brought Forward					
Section 11 : Building Construction					
S11.14(2)	Brick walls				
	i) Wall 1-Plastering w/plant	sq.m	1,416		
	ii) Wall 2-8"x8" Non slip ceramic tiles	sq.m	31		
S11.14(3)	Cement plastering brick walls	sq.m	2,832		
S11.14(4)	Doors and windows				
	i) D2-Glass door 1.80 x 2.00 m	set	2		
	ii) D3-Steel door 1.80 x 2.00 m	set	1		
	iii) D4-Glass door 0.90 x 2.00 m	set	1		
	iv) D5-Steel door 0.90 x 2.00 m	set	2		
	v) D6-PVC door 0.80 x 2.00 m	set	1		
	vi) W1-Opening window 3.40 x 1.10 m	set	10		
	vii) W2-Sliding window 1.70 x 1.10 m	set	1		
	viii) W3 Fixed glass window 3.40 x 1.50 m	set	8		
	ix) W4 Louver window 1.70 x 1.65 m	set	2		
	x) W5-Opening window 1.20 x 0.50 m	set	3		
S11.14(5)	Furnishing and Installing Steel Rolling Shutter Doors				
	i) D1-Steel roller shutter door size 4.35x6.00 m.	LS	1		
S11.14(7)	Floor finishes				
	i) Floor 1-Coarse finished	sq.m	14		
	ii) Floor 2-Coarse finished w/waterproof	sq.m	300		
	iii) Floor 3-8"x8" Non slip ceramic floor tiles	sq.m	8		
	iv) Floor 4-8"x8" Ceramic floor tiles	sq.m	97		
	v) Floor 5-Acid proof epoxy	sq.m	177		
S11.14(8)	Wall finished				
	i) Wall 1-Plastering w/plant	sq.m	1,416		
	ii) Wall 2-8"x8" Non slip ceramic tiles	sq.m	31		
	iii) Wall 3-Glass w/aluminium frame	sq.m	25		
S11.14(8)	Ceiling works				
	i) Plastering w/plant	sq.m	107		
	ii) Gypsum board with T-bar stud 0.60 x 0.60 m, 9.0 mm thk.	sq.m	8		
S11.14(11)	Signboard	L.S.	1		
S11.14(12)	Flag pole	L.S.	1		
S11.14(13)	Guard shed	L.S.	1		
S11.14(14)	Water supply and sanitary services	L.S.	1		
S11.14(15)	Seepage tank	L.S.	1		
S11.14(16)	Chain link fence	m.	110		
S11.14(17)	Lightning protection system	L.S.	1		
S11.14(19)	Roof drain	m.	135		
Sub - total Section 11					
Section 12 : Permanent Equipment and Miscellaneous Works					
S12.10(8)	Miscellaneous metal works				
	i) Galvanize steel Handrail	m.	14		
	ii) Steel grating	kg.	1,420		
	iii) Cable trench type A	m.	40		
	iv) Embedded steel	kg.	5,600		
Sub - total Section 12					
Section 15 : Illumination Equipment					
S15.05(1)	Indoor illumination equipment	L.S.	1		
S15.05(2)	Outdoor illumination equipment and main low power cable				
	i) Outdoor illumination equipment	L.S.	1		
	ii) Main low power cable in powerhouse	L.S.	1		
S15.05(3)	Air condition 36,000 BTU	set	1		
S15.05(4)	Ventilator 12"	set	1		
S15.05(5)	Miscellaneous equipments	L.S.	1		
Sub - total Section 15					
GRAND TOTAL OF GROUP 6					-