Department of Alternative
Energy Development and Efficiency
MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

WIANG HAENG DISTRICT CHIANG MAI PROVINCE

CONTRACT C2

ELECTRO - MECHANICAL EQUIPMENT

VOLUME 4

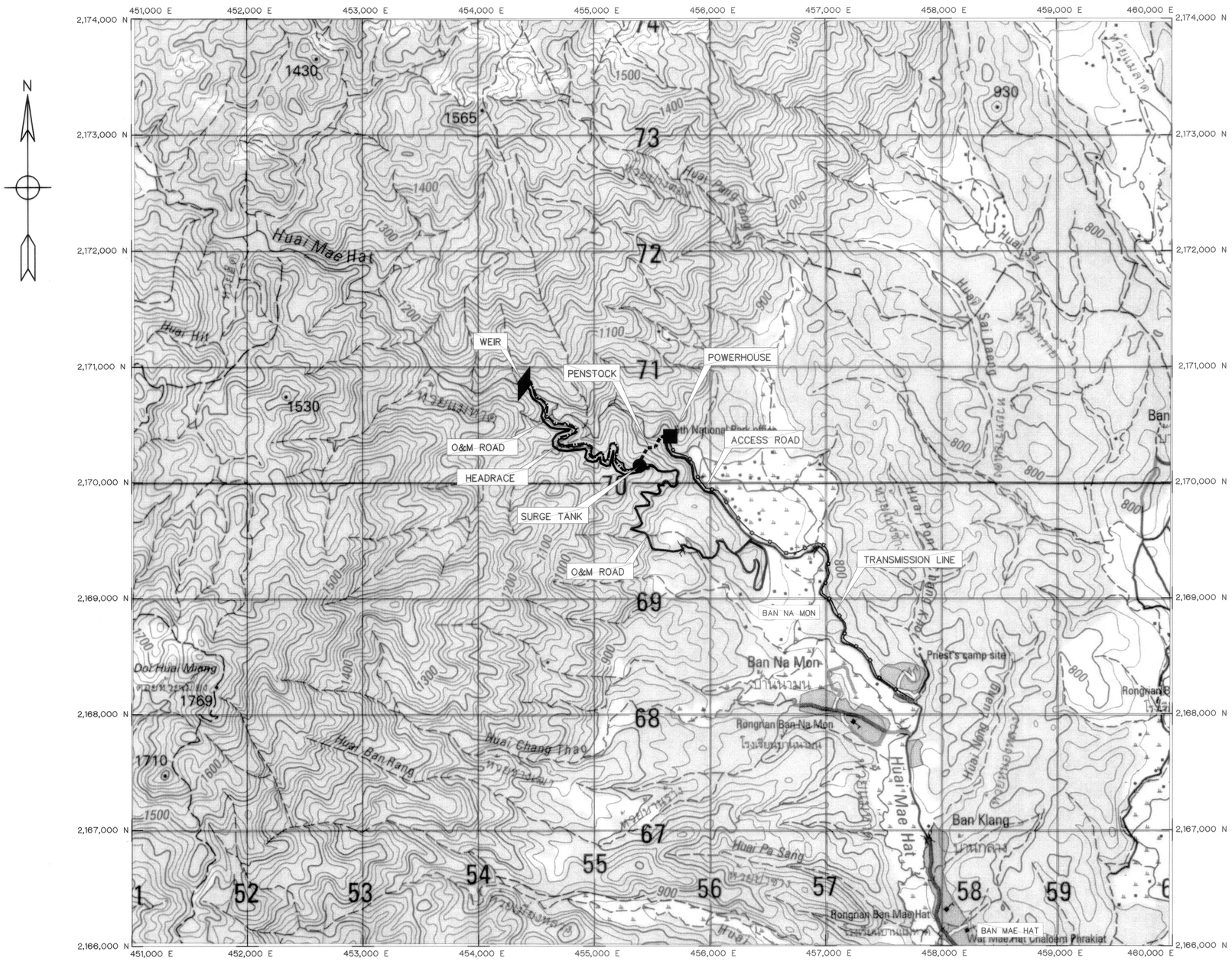
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MAE HAT HYDROPOWER PROJECT

CONTRACT C2 : LIST OF DRAWINGS

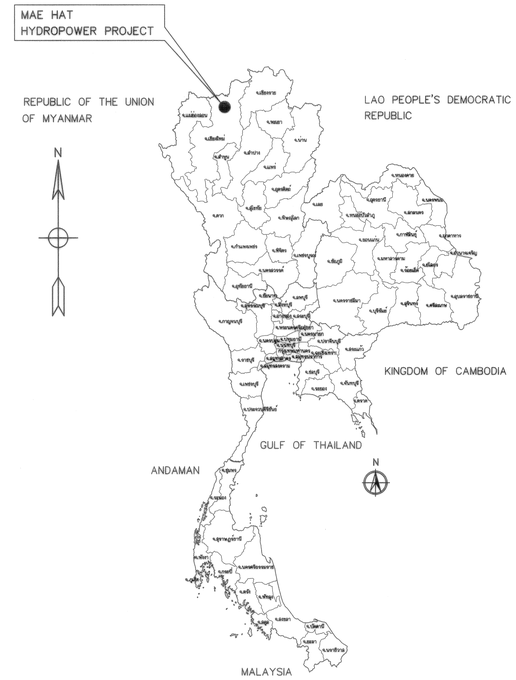
SHEET NO.	DRAWING NO.	DRAWING DETAILS
		GENERAL DRAWING
1	MH-GN-01	PROJECT LOCATION MAP
2	MH-GN-02	PROJECT LAYOUT
3	MH-GN-03	SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES
4	MH-GN-04	PROJECT INFORMATION HYDROLOGY DATA
5	MH-GN-05	POWER WATERWAY HYDRAULIC ARRANGEMENT
		ACCESS ROAD
6	MH-AR-01	PLAN AND PROFILE, STA. 0+000 TO STA. 0+600
7	MH-AR-02	PLAN AND PROFILE, STA. 0+600 TO STA. 1+200
8	MH-AR-03	PLAN AND PROFILE, STA. 1+200 TO STA. 1+489.351
9	MH-AR-04	TYPICAL SECTIONS, STOPPING AND PASSING PLACES
10	MH-AR-05	TYPICAL SECTION AND DETAILS
		WEIR
11	MH-WE-01	GENERAL LAYOUT PLAN
12	MH-WE-02	PLAN AND SECTIONS
		HEADRACE
13	MH-HR-01	PLAN AND PROFILE, STA. 0+000 TO STA. 0+500
14	MH-HR-02	PLAN AND PROFILE, STA. 0+500 TO STA. 1+000
15	MH-HR-03	PLAN AND PROFILE, STA. 1+000 TO STA. 1+500
16	MH-HR-04	PLAN AND PROFILE, STA. 1+500 TO STA. 2+000
17	MH-HR-05	PLAN AND PROFILE, STA. 2+000 TO STA. 2+097.998
18	MH-HR-06	TYPICAL SECTIONS, STOPPING AND PASSING PLACES
19	MH-HR-07	CONCRETE PIER
		O&M ROAD
20	MH-OM-01	O&M ROAD PART 2 PLAN AND PROFILE, STA. 0+000 TO STA. 0+600
21	MH-OM-02	O&M ROAD PART 2 PLAN AND PROFILE, STA. 0+600 TO STA. 1+200
22	MH-OM-03	O&M ROAD PART 2 PLAN AND PROFILE, STA. 1+200 TO STA. 1+800
23	MH-OM-04	O&M ROAD PART 2 PLAN AND PROFILE, STA. 1+800 TO STA. 2+400
24	MH-OM-05	O&M ROAD PART 2 PLAN AND PROFILE, STA. 2+400 TO STA. 3+000
25	MH-OM-06	O&M ROAD PART 2 PLAN AND PROFILE, STA. 3+000 TO STA. 3+600
26	MH-OM-07	O&M ROAD PART 2 PLAN AND PROFILE, STA. 3+600 TO STA. 4+149.212
27	MH-OM-08	O&M ROAD PART 2 HORIZONTAL CURVE
28	MH-OM-09	O&M ROAD PART 3 PLAN AND PROFILE, STA. 0+000 TO STA. 0+182.719
29	MH-OM-10	TYPICAL SECTION AND DETAILS
		SURGE TANK
30	MH-ST-01	GENERAL LAY-OUT
31	MH-ST-02	SECTIONS
		PENSTOCK
32	MH-PS-01	PLAN AND PROFILE, STA. 0+000 TO STA. 0+389.376
33	MH-PS-02	PIPE SUPPORT SECTIONS AND DETAILS

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35	MH-PH-02	PLAN 1st FLOOR AND PLAN 2nd FLOOR
36	MH-PH-03	ROOF PLAN
37	MH-PH-04	ELEVATIONS
38	MH-PH-05	SECTIONS (SHEET 1/2)
39	MH-PH-06	SECTIONS (SHEET 2/2)
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41	MH-PH-08	SWITCHYARD, PLAN LAYOUT SECTIONS AND GROUND SYSTEM
42	MH-PH-09	SWITCHYARD, FENCE AND CABLE TRENCH
		TAILRACE
43	MH-TR-01	PLAN
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		TRANSMISSION LINE
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47	MH-EM-02	OIL PUMPING UNIT DIAGRAM, (UNIT 1 AND 2) DETAIL
48	MH-EM-03	PIPE LINE OF LUBRICATION OIL SYSTEM, (UNIT 1 AND 2) DETAIL
49	MH-EM-04	COOLING WATER DIAGRAM, (UNIT 1 AND 2) DETAIL
50	MH-EM-05	COOLING WATER SYSTEM SECTION, (UNIT 1 AND 2) DETAIL
51	MH-EM-06	PLAN PIPE LINE OF COOLING WATER SYSTEM, (UNIT 1 AND 2) DETAIL



PROJECT AREA MAP

SCALE 1:20,000



LOCATION MAP

NOT TO SCALE

LEGENDS :

- STREAM
- WEIR
- HEADRACE
- SURGE TANK
- PENSTOCK
- POWERHOUSE
- ACCESS ROAD / O&M ROAD
- TRANSMISSION LINE

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS, UNLESS OTHERWISE SHOWN
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH-GN-03

0 500 1,000 1,500

SCALE 1:20,000 METERS

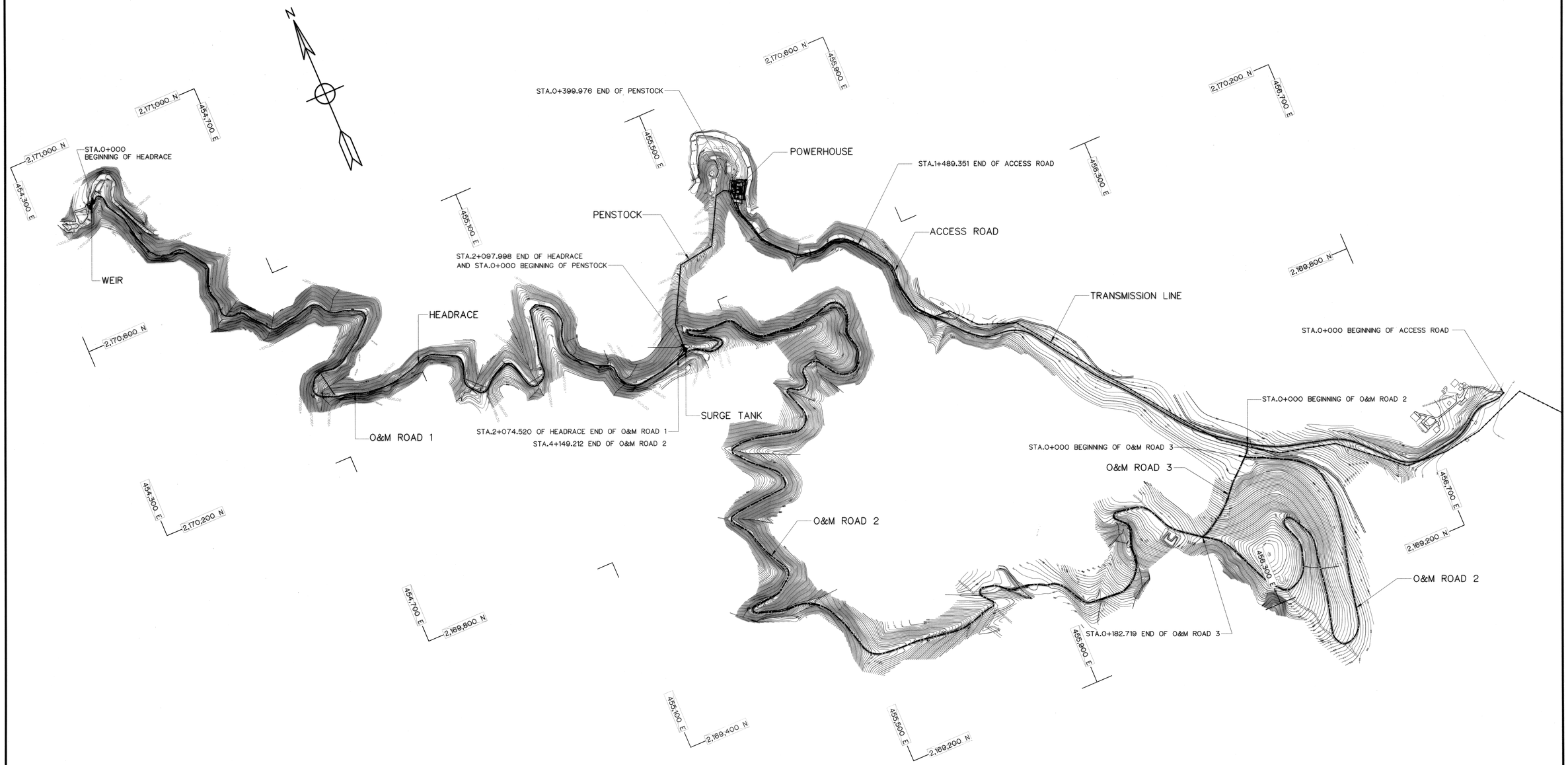
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KINGDOM OF THAILAND
Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

ELECTRO-MECHANICAL EQUIPMENT
GENERAL DRAWING
PROJECT LOCATION MAP

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DRAWN	SUBMITTED
CHECKED ส.ค.6226	RECOMMENDED
PROJECT MANAGER	APPROVED
DATE 02/03/2565	DRAWING NO. MH-GN-01
	SHEET NO. 1 OF 51



PROJECT LAYOUT

SCALE 1:4,000

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS. UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH-GN-03

0 50 100 150 200 250 300

SCALE 1:4,000 METERS

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Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

ELECTRO-MECHANICAL EQUIPMENT
GENERAL DRAWING
PROJECT LAYOUT

P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

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APPROVED

DRAWING NO. MH-GN-02

SHEET NO. 2 OF 51

ABBREVIATIONS :

A	CROSS-SECTION AREA OF FLOW	MAX.	MAXIMUM
AC.	ASBESTOS CEMENT PIPE	M.S.L.	MEAN SEA LEVEL
AGG.	AGGREGATE	MISC.	MISCELLANEOUS
ALT.	ALTERNATIVE	N.	NORTH
APPROX.	APPROXIMATE	n.	MANNING'S ROUGHINESS COEFFICIENT
AZ.	AZIMUTH	N.F.	NEAR FACE
B.	BEGINNING OF SURVEY	NGL.	NATURAL GROUND LEVEL
BC.	BEGINNING OF CURVE	NO. OR #	NUMBER
BEG.	BEGINNING	N.W.L.	NORMAL WATER LEVEL
BF.	BOTTOM FACE	OD.	OUTSIDE DIAMETER
B	BEAM	O.F.	OUTSIDE FACE
B.M.	BENCH MARK	O&M	OPERATION & MAINTENANCE
BOTT.	BOTTOM	PC.	POINT OF HONRIZONTAL CURVATURE
BRG.	BEARING	PI.	POINT OF HORIZONTAL INTERSECTION
C.B.R.	CALIFORNIA BEARING RATIO	PL.	PLATE
C/C	CENTER TO CENTER	P.O.C.	POINT ON CURVE
℄	CENTER LINE	P.O.T.	POINT ON TANGENT
CL.	CLEARANCE	P.O.S.T.	POINT ON SUB-TANGENT
CM. OR cm.	CENTIMETER	PRC.	POINT OF HORIZONTAL REVERSE CURVE
CM./S OR cm./s	CENTIMETER PER SECOND	PT.	POINT OF TANGENT
COL.	COLUMN	PVC.	POLYVINYL CHLORIDE
CONC.	CONCRETE	PVC.	POINT OF VERTICAL CURVATURE
D	DEGREE OF CURVE	PVI.	POINT OF VERTICAL INTERSECTION
DB.	DEFORM BAR	PVRC.	POINT OF VERTICAL REVERSE CURVE
d.	DEPTH OF WATER	PVT.	POINT OF VERTICAL TANGENT
DIA. OR Ø	DIAMETER	Q.	DISCHARGE
DOH.	DEPARTMENT OF HIGHWAY	QTY. QUAN.	QUANTITY
DWG.	DRAWING	R	RADIUS OF CURVATURE
DEDE.	DEPARTMENT OF ALTERNATIVE ENERGY	r	HYDRAULIC RADIUS
	DEVELOPMENT AND EFFICIENCY	RØ , Ø	ROUND BAR
E	EAST	RC.	REINFORCED CONCRETE
E	END OF SURVEY	RD.	ROAD
EA.	EACH	REF.	REFERENCE
E.C.	END OF CURVE	REINF.	REINFORCEMENT
E.F.	END OF FACE	REQ'D	REQUIRED
EL. OR ELEV.	ELEVATION	RID.	ROYAL IRRIGATION DEPARTMENT
EXIST.	EXISTING	SCH.	SCHEDULE
EXP.	EXPANSION	SE.	SUPERELEVATION
EXT.	EXTERIOR	SETC.	SECTION
EX.	EXTERNAL DISTANCE OF CURVE	S.P.C.T.	STANDARD PROCTOR COMPACTION TEST
f	FREE BOARD , FINISH	S.S.	SIDE SLOPE
F.F.	FAR FACE	STIR.	STIRRUP
F.S.L.	FULL SUPPLY LEVEL	STA.	STATION
FTG.	FOOTING	STD.	STANDARD
HD.	HEAD	STR.	STRUCTURE
HEX.	HEXAGONAL	SYMM.	SYMMETRICAL
HOR.	HORIZONTAL	T.	TANGENT LENGTH , THICKNESS
I.D.	INSIDE DIAMETER	T	TON
I.F.	INSIDE FACE	THK.	THICKNESS
IN. OR "	INCH	T.F.	TOP FACE
INT.	INTERIOR	T.I.S.	THAI INDUSTRIAL STANDARD
INV.	INVERT	Ts.	SUPERELEVATION TRANSITION LENGTH
Kg.	KILOGRAM	TYP.	TYPICAL
Km.	KILOMETER	V.	VELOCITY OF FLOW
KPH.	KILOMETER PER HOUR	V.C.	VERTICAL CURVE
KSC.	KILOGRAM PER SQUARE CENTIMETER	Vc.	LENGTH OF VERTICAL CURVE
L	LENGTH OF CURVE	VER.	VERTICAL
LC.	LENGTH OF HORIZONTAL CURVE	VOL.	VOLUME
LONG.	LONGITUDINAL	W/	WITH
LT.	LEFT	W.C.	WATER CLOSET
L.W.L.	LOW WATER LEVEL	◎	ANGLE
M. OR m.	METER	△	DEFLECTION ANGLE
$M.^2$ OR $m.^2$	SQUARE METER		
$M.^3$ OR $m.^3$	CUBIC METER		
MM. OR mm.	MILLIMETER		
M./S OR m./s	METER PER SECOND		
MIN.	MINIMUM		

SYMBOLS :



TYPICAL NORTH ARROW
CENTER LINE
PAVED ROAD
DIRT ROAD, LATEITE ROAD OR TRACK
VILLAGE
CITY OR DISTRICT
POND OR SWAMP
CULVERT UNDER ROAD
BRIDGE
POLE
TEST PIT
HAND AUGER
EXISTING DRILL HOLES
DRILL HOLES
DEGREE, MINUTE, SECOND
AT EQUAL DISTANCE BETWEEN CENTER TO CENTER
B.M.
STATION
BC., EC., PC., PI., PT., PCV., PVT.
WATER LEVEL
PLAN OF RIPRAP
PLAN OF SLOPE RIPRAP
SECTION OF DUMPED RIPRAP
SECTION OF HAND PLACED RIPRAP
SECTION OF SAND
SECTION OF GRAVEL OR COARSE AGGREGATE
SECTION OF ROCK
SECTION OF EARTH
SECTION OF BACKFILL
SECTION OF CONCRETE
STEEL SECTION
ELEVATION OR PLAN OF EARTH CUT OR FILL
ELEVATION OR PLAN OF ROCK CUT
ELEVATION OR PLAN OF SLOPE
NATURAL GROUND LEVEL
CONTOUR LINE
RIVER, STREAM OR NATURAL DRAIN
FLOW DIRECTION
SLOPE DIRECTION
SLOPE RATIO

GENERAL NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS UNLESS OTHERWISE SHOWN.
2. DURING THE CONTRUCTION PERIOD, IT IS THE CONTRACTOR'S DUTY TO CHECK THE CORRECTION OF ALL RELEVANT LOCATIONS, DIMENSIONS, ELEVATIONS AND OTHER DATA AS PROVIDED BY THE DRAWING AND TECHNICAL SPECIFICATIONS BEFORE THE IMPLEMENTATION OF THE WORKS.
3. IN CASE OF ANY DETAILS BEING NOT MENTIONED OR NOT SHOWN IN THE DRAWING OR TECHNICAL SPECIFICATIONS, OR IN CASE OF ANY DISCREPANCY, DEFECTIVE DESCRIPTION, ERROR, DIMENSION OR AMBIGUTY BETWEEN OR IN ANY OF THE DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CORRECT AND/OR ADJUST THE RELEVENT DRAWINGS TO OBTAIN FIELD ENGINEER APPROVAL
4. ADDITIONAL SYMBOLS, IF REQUIRED, ARE DEFINED IN THE RESPECTIVE DRAWINGS.
5. THE SPECIFICATIONS AND THE QUANTITIES OF MATERIALS ARE SPECIFIED IN THE TECHNICAL SPECIFICATIONS.
6. ALL PLAIN CONCRETE CORNERS ARE TO BE CHEMFERED 2 cm. UNLESS OTHERWISE SHOWN.

STRUCTURAL DESIGN NOTES :

1. THE ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE OF STANDARD CYLINDER (Ø0.15x0.30 m.) TEST AT AGE 28 DAYS SHALL BE AS THE FOLLOWING, UNLESS OTHERWISE SHOWN.

fc' (ksc)	DESCRIPTION
350	PRESTRESS CONCRETE
210	1. WEIR
	2. SURGE TANK
	3. POWERHOUSE
	4. TAILRACE
	5. MANHOLE
	6. ANCHOR BLOCK, PIPE SUPPORT
	7. HEADRACE
	8. BOX CULVERT
140	LEAN CONCRETE

2. UNLESS OTHERWISE SHOWN, THE FOLLOWING CLEAR COVER OF CONCRETE OVER OF THE REINFORCEMENT SHALL BE USED :
   - FACE EXPOSED TO SCOUR 5.0 cm.
   - FACE EXPOSED TO EARTH OR WEATHER 5.0 cm.
   - FACE UNEXPOSED TO EARTH OR WEATHER 3.0 cm.
3. THE REINFORCEMENT LAP SPLICES SHALL NOT BE LESS THAN 50 DIAMETERS OF BIGGER THAN BAR WITH HOOKS, UNLESS OTHERWISE SHOWN.
4. EMBEDDED METALWORK SHALL BE SECURELY FASTENED IN POSITION BEFORE PLACING CONCRETE.
5. ALL CONSTRUCTION JOINT SHOULD BE TREATED AS DIRECTED IN ORDER TO ASSURE THE BEST BOND.
6. A 5 cm. (MIN.) LAYER OF LEAN CONCRETE (1:3:5 BY VOLUME) SHOULD BE PLACED BELOW CONCRETE STRUCTURES.
7. THE STRUCTURES SHOULD BE PLACED ON UNDISTURBED SOILS OR COMPACTED FILL AND BACKFILL AROUND THE STRUCTURES SHOULD BE COMPACTED.
8. THE FOUNDATION ELEVATIONS ARE SUBJECT TO CHANGE AS DIRECTED ACCORDING TO THE SOIL CONDITIONS.
9. ALL SIZES OF REINFORCING BARS AND STRUCTURAL STEELS ARE IN MILLIMETERS.
10. ALL STRUCTURAL STEELS ARE THOSE OF T.I.S. DESIGNATION Fe24.
11. REINFORCED STEEL BARS SHALL BE CONFORM TO T.I.S. AS FOLLOW :
    - DEFORMED BARS (SD30) - T.I.S. 24-2548
    - ROUND BARS (SR24) - T.I.S. 20-2543
12. ALLOWABLE BEARING CAPACITY OF FOUNDATION SHALL NOT BE LESS THAN AS FOLLOW :
    - INTAKE Q_a = 15 $T/M.^2$
    - HEADRACE Q_a = 15 $T/M.^2$
    - SURGE TANK Q_a = 20 $T/M.^2$
    - POWERHOUSE Q_a = 20 $T/M.^2$
    - PENSTOCK Q_a = 20 $T/M.^2$

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MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

ELECTRO-MECHANICAL EQUIPMENT
GENERAL DRAWING
SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES

P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

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DRAWN			SUBMITTED
CHECKED		วิศ.6226	RECOMMENDED
PROJECT MANAGER	09/08/2559 DATE		APPROVED

DRAWING NO. MH-GN-03

SHEET NO. 3 OF 51

FIGURE 1 RELATIONSHIP BETWEEN MEAN ANNUAL RUNOFF AND CATCHMENT AREA

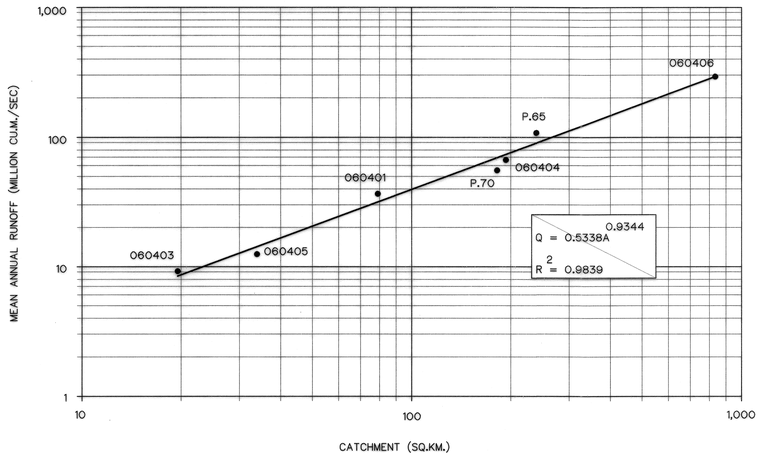


FIGURE 2 RELATIONSHIP BETWEEN ELEVATION AND DISCHARGE AT POWERHOUSE

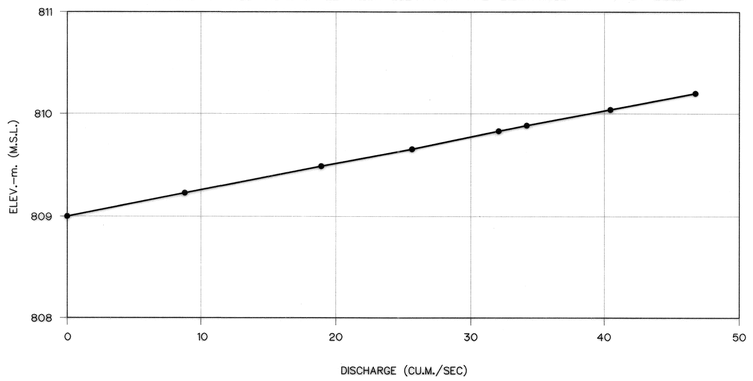


FIGURE 3 RELATIONSHIP BETWEEN ELEVATION AND DISCHARGE AT WEIR

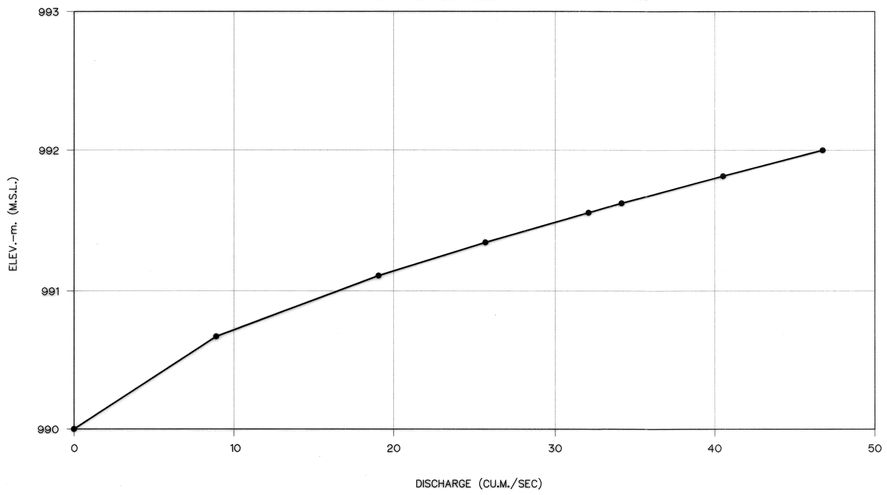
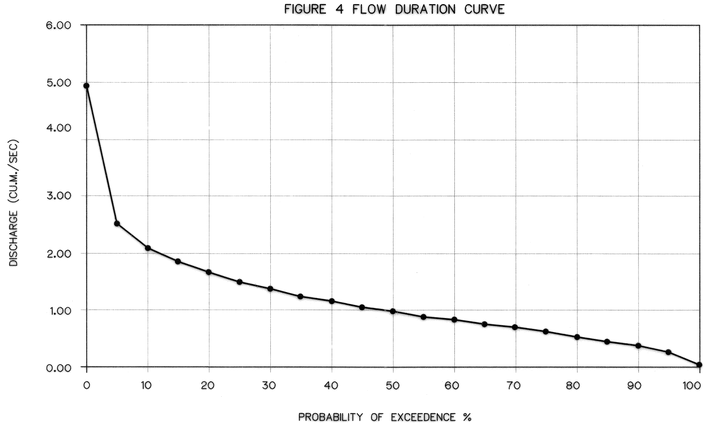


FIGURE 4 FLOW DURATION CURVE



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MAE HAT HYDROPOWER PROJECT

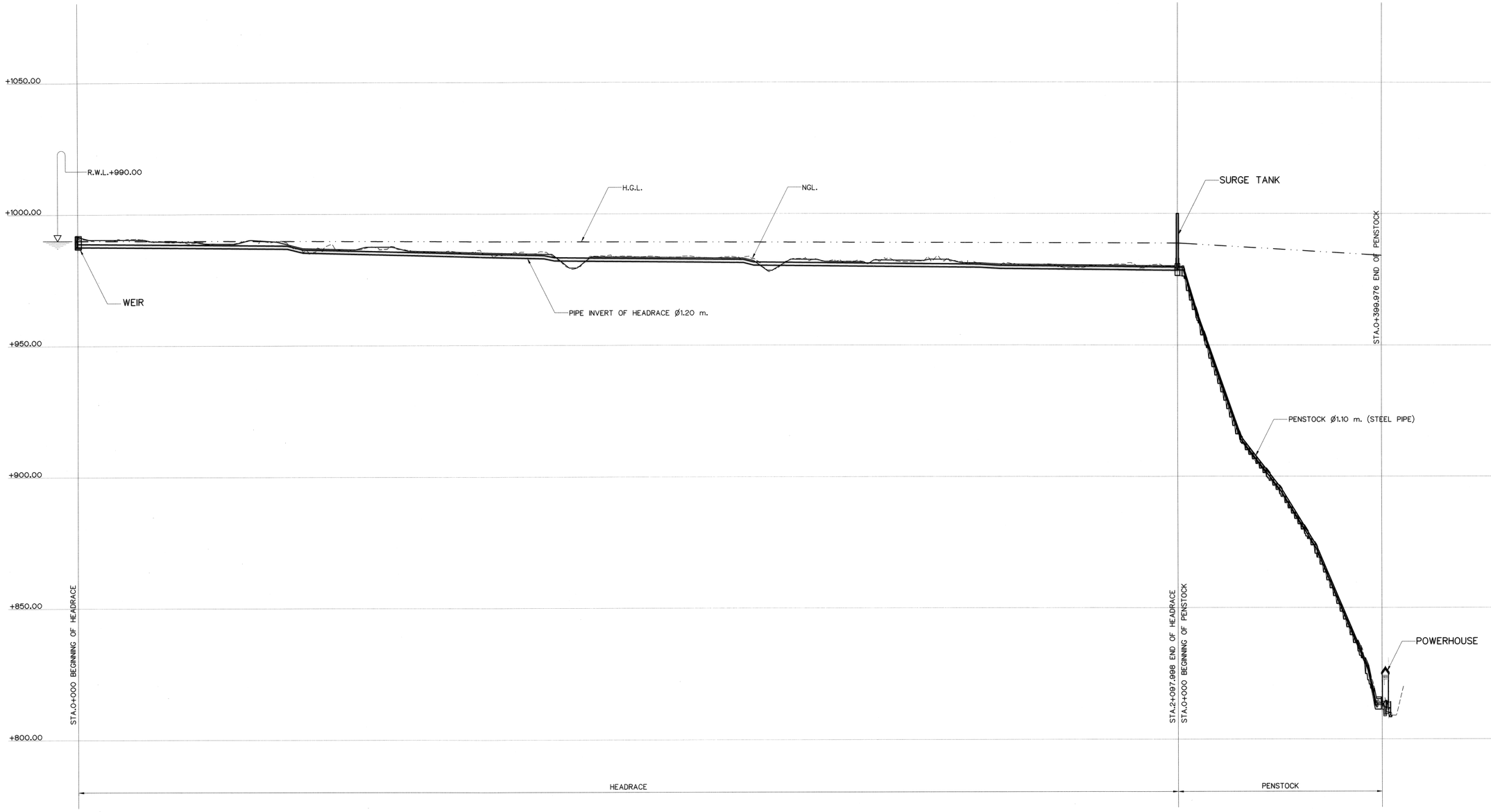
ELECTRO-MECHANICAL EQUIPMENT
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PROJECT MANAGER	07/01/2563 DATE
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APPROVED	
DRAWING NO.	MH-GN-04
SHEET NO.	4 OF 51



PROFILE ALONG HEADRACE ℄

VERTICAL SCALE 1:800
HORIZONTAL SCALE 1:4,000

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS. UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH-GN-03

0 10 20 30 40 50 60
SCALE 1:800 METERS

0 50 100 200 300
SCALE 1:4,000 METERS

NO.	DATE	REVISIONS	CHECKED	APPROVED
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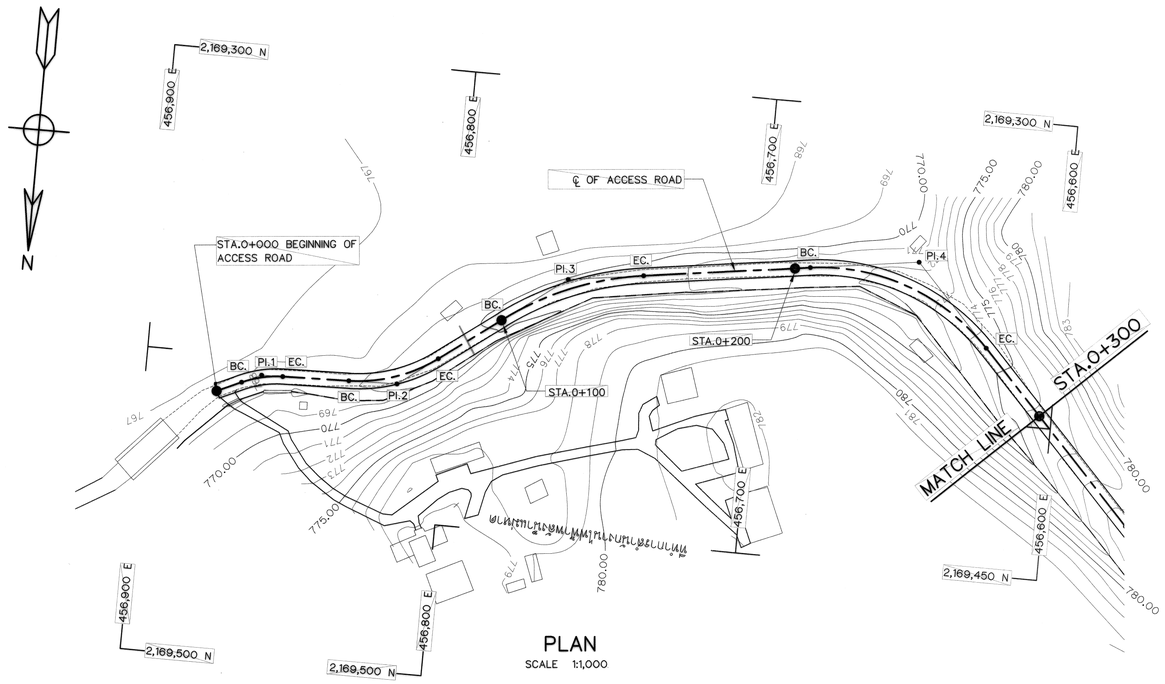
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POWER WATERWAY HYDRAULIC ARRANGEMENT

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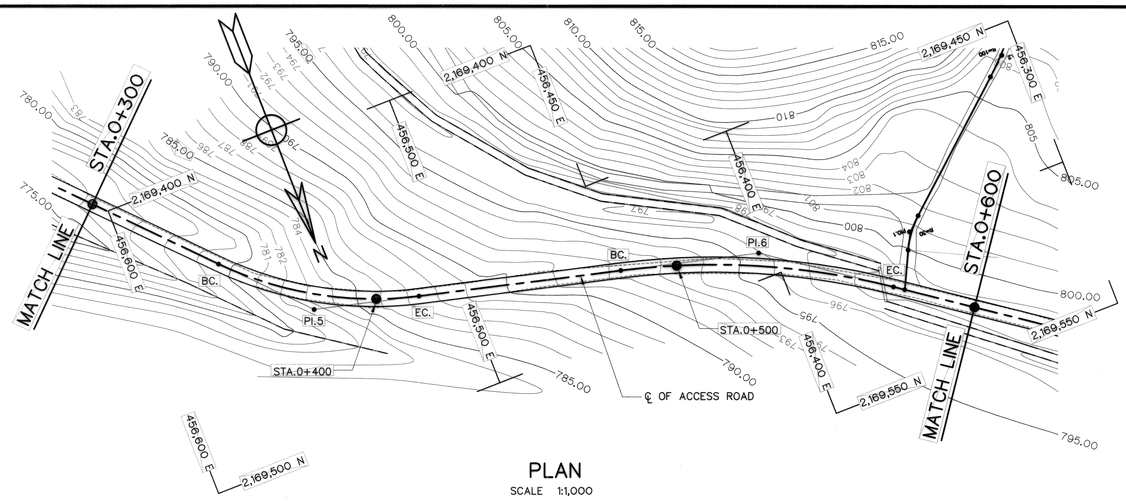
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PROJECT MANAGER 07/08/2567 DATE

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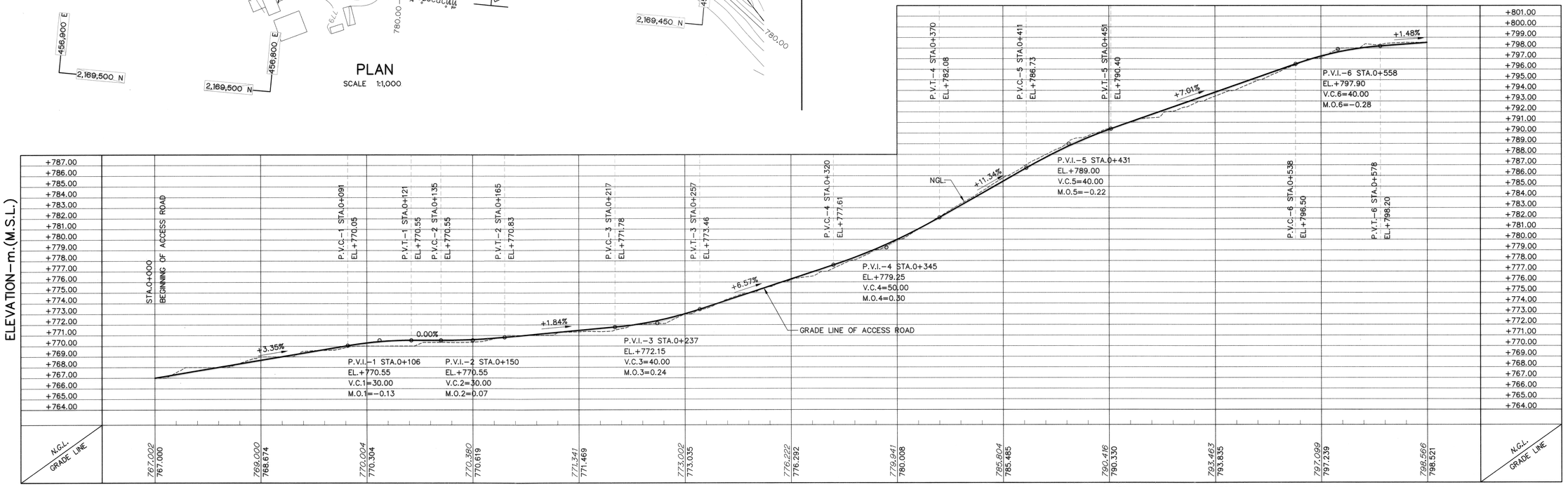
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SHEET NO. 5 OF 51



PLAN
SCALE 1:1,000



PLAN
SCALE 1:1,000



PROFILE
VERTICAL SCALE 1:200
HORIZONTAL SCALE 1:1,000

HORIZONTAL CURVE OF O&M ROAD PART 1

NO. PI.	COORDINATE N	COORDINATE E	PI. – PI. (m)	DEFLECTION ANGLE (△) (° – ' – ")	TL. (m)	R (m)	LC. (m)	BC. STA. (km)	PI. STA. (km)	EC. STA. (km)	BEARING (N/S ° – ' – " E/W)
BEG.	2,169,412.613	456,875.924	–	–	–	–	–	–		–	–
1	2,169,406.079	456,861.589	15.754	22°–58'–49.03"	7.000	34.436	13.812	0+008.754	0+015.754	0+022.566	S65°–29'–46.13"W
2	2,169,404.884	456,816.660	44.945	35°–00'–27.36"	16.000	50.734	30.998	0+044.511	0+060.511	0+075.509	S88°–28'–35.16"W
3	2,169,365.374	456,763.326	66.374	28°–31'–20.24"	25.000	98.358	48.963	0+100.883	0+125.883	0+149.846	S53°–28'–07.80"W
4	2,169,349.179	456,648.222	116.238	54°–41'–02.03"	36.000	69.624	66.450	0+205.084	0+241.084	0+271.534	S81°–59'–28.04"W
5	2,169,455.067	456,548.351	145.556	32°–29'–19.88"	35.000	120.123	68.114	0+346.090	0+381.090	0+414.204	N43°–19'–29.93"W
6	2,169,491.390	456,404.658	148.213	21°–11'–18.44"	46.000	245.936	90.949	0+481.417	0+527.417	0+572.366	N75°–48'–49.81"W

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS UNLESS OTHERWISE SHOWN.
2. SYMBOL, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH–GN–03
3. THE CONTRACTOR HAS TO SUBMITED SURVEYING AND ROAD ALIGNMENT FOR APPROVAL.

REFERENCE DRAWINGS :

1. ACCESS ROAD PLAN AND PROFILE, STA. 0+000 TO STA. 1+200	MH–AR–02
2. ACCESS ROAD TYPICAL SECTIONS, STOPPING AND PASSING PLACES	MH–AR–04
3. ACCESS ROAD TYPICAL SECTION AND DETAILS	MH–AR–05

0 5 10 15
SCALE 1:200 METERS

0 10 20 40 50 80
SCALE 1:1,000 METERS

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				
	CONSULTANTS		DEDE	

KINGDOM OF THAILAND
Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
ACCESS ROAD
PLAN AND PROFILE, STA. 0+000 TO STA. 0+600

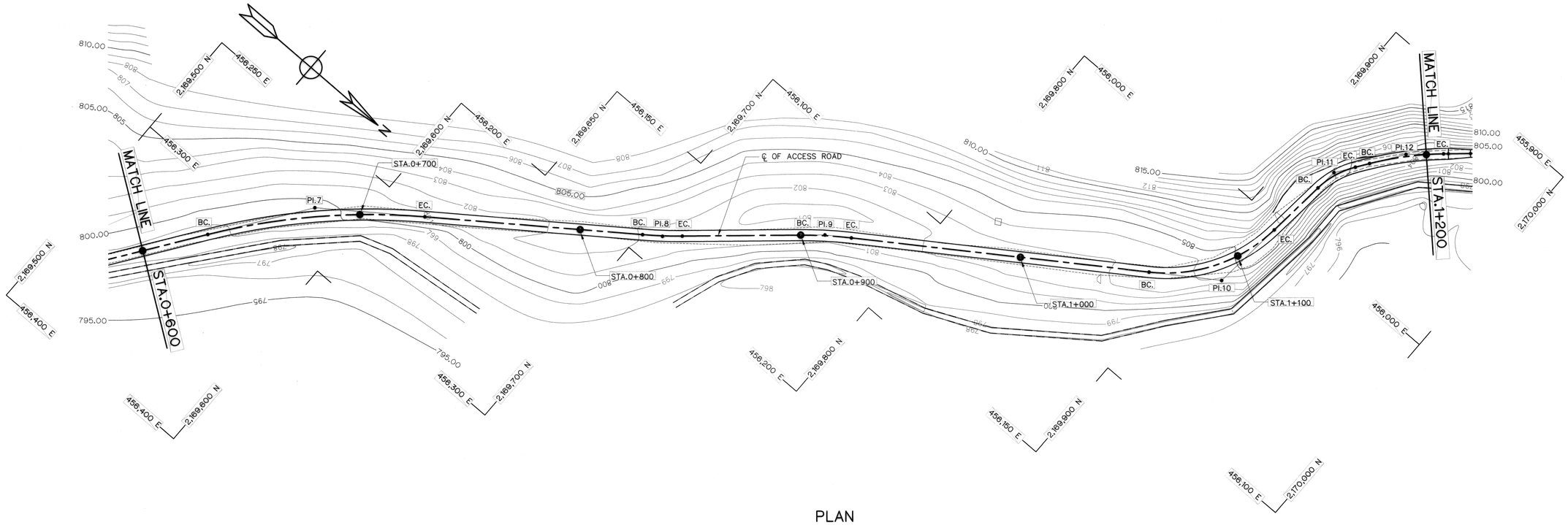
P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

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DRAWN
CHECKED ณัฐ.6226
PROJECT MANAGER 08/01/2564 DATE

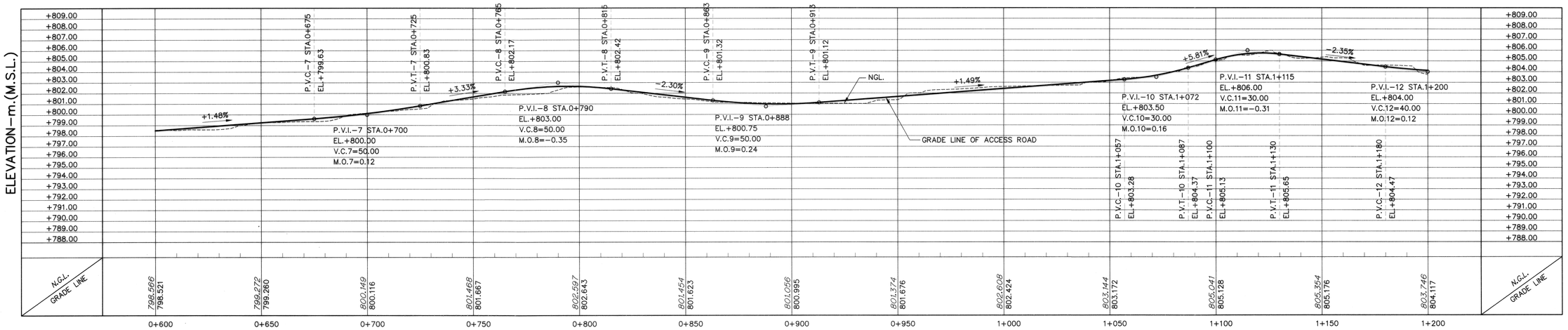
REVIEWED
SUBMITTED
RECOMMENDED
APPROVED P. Hongsuwan

DRAWING NO. MH–AR–01
SHEET NO. 6 OF 51



PLAN

SCALE 1:1,000



PROFILE

VERTICAL SCALE 1:200

HORIZONTAL SCALE 1:1,000

HORIZONTAL CURVE OF O&M ROAD PART 1

NO. PI.	COORDINATE		PI. – PI.	DEFLECTION ANGLE (Δ)	TL.	R	LC.	BC. STA.	PI. STA.	EC. STA.	BEARING
	N	E	(m)	(° – ' – ")	(m)	(m)	(m)	(km)	(km)	(km)	(N/S ° – ' – " E/W)
7	2,169,580.540	456,279.094	153.994	18°–37'–54.99"	50.000	304.799	99.117	0+630.359	0+680.359	0+729.477	N54°–37'–31.37"W
8	2,169,708.299	456,186.294	157.906	05°–08'–18.84"	9.000	200.568	17.988	0+828.382	0+837.382	0+846.370	N35°–59'–36.38"W
9	2,169,763.715	456,137.897	73.574	06°–56'–51.31"	12.000	197.682	23.971	0+898.945	0+910.945	0+922.915	N41°–07'–55.23"W
10	2,169,913.214	456,036.357	180.722	50°–16'–22.20"	33.000	70.331	61.710	1+058.637	1+091.637	1+120.347	N34°–11'–03.91"W
11	2,169,920.015	455,966.274	70.412	29°–32'–13.19"	10.000	37.933	19.555	1+147.760	1+157.760	1+167.315	N84°–27'–26.11"W
12	2,169,939.358	455,938.731	33.657	13°–22'–53.30"	17.000	144.916	33.845	1+173.971	1+190.971	1+207.817	N54°–55'–12.93"W

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS UNLESS OTHERWISE SHOWN.
2. SYMBOL, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH–GN–03
3. THE CONTRACTOR HAS TO SUBMITED SURVEYING AND ROAD ALIGNMENT FOR APPROVAL.

0 5 10 15
SCALE 1:200 METERS

0 10 20 40 50 80
SCALE 1:1,000 METERS

REFERENCE DRAWINGS :

1. ACCESS ROAD PLAN AND PROFILE, STA. 0+000 TO STA. 0+600	MH–AR–01
2. ACCESS ROAD PLAN AND PROFILE, STA. 1+200 TO STA. 1+489.351	MH–AR–03
3. ACCESS ROAD TYPICAL SECTIONS, STOPPING AND PASSING PLACES	MH–AR–04
4. ACCESS ROAD TYPICAL SECTION AND DETAILS	MH–AR–05

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
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	CONSULTANTS		DEDE	

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MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
ACCESS ROAD
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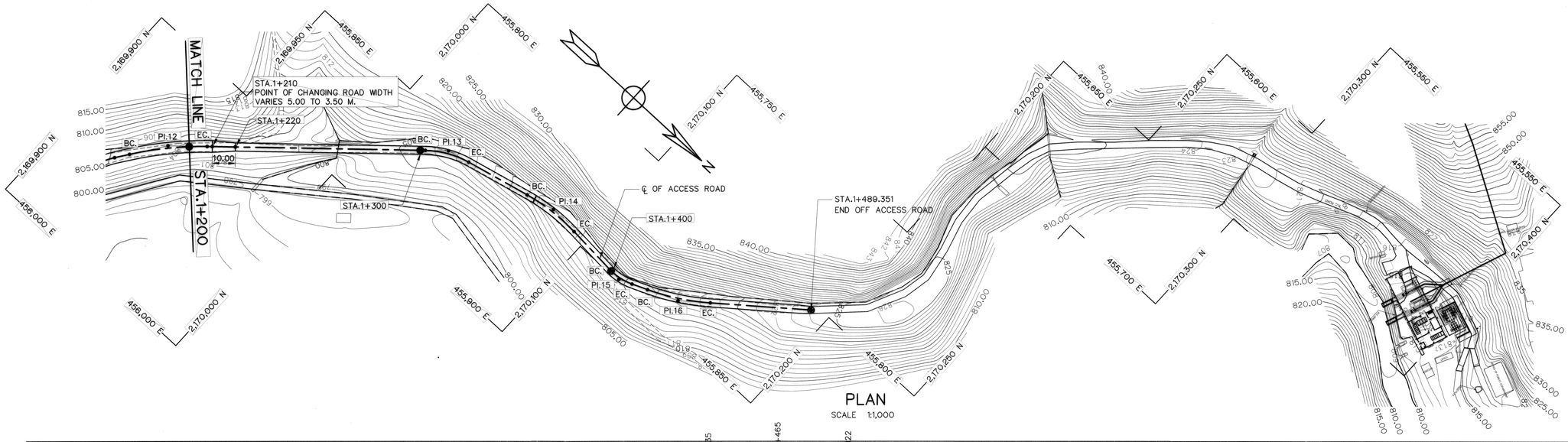
Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

DESIGNED	วิโรจน์	REVIEWED	
DRAWN		SUBMITTED	
CHECKED	วิโรจน์	RECOMMENDED	
		APPROVED	P. Hemavibool

PROJECT MANAGER 01/02/2559 DATE

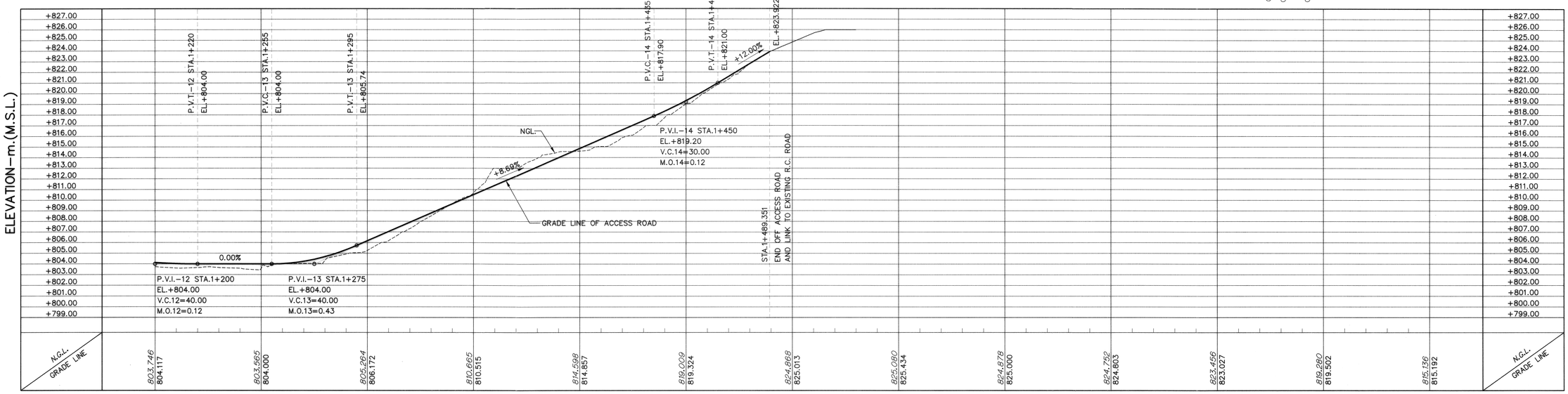
DRAWING NO. MH–AR–02

SHEET NO. 7 OF 51



PLAN

SCALE 1:1,000



PROFILE

VERTICAL SCALE 1:200

HORIZONTAL SCALE 1:1,000

HORIZONTAL CURVE OF O&M ROAD PART 1

NO. PI.	COORDINATE N	COORDINATE E	PI. – PI. (m)	DEFLECTION ANGLE (△) (° – ' – ")	TL. (m)	R (m)	LC. (m)	BC. STA. (km)	PI. STA. (km)	EC. STA. (km)	BEARING (N/S ° – ' – " E/W)
12	2,169,939.358	455,938.731	33.657	13°–22'–53.30"	17.000	144.916	33.845	1+173.971	1+190.971	1+207.817	N54°–55'–12.93"W
13	2,170,030.243	455,858.213	121.422	28°–02'–49.52"	10.000	40.038	19.599	1+302.238	1+312.238	1+321.837	N41°–32'–19.63"W
14	2,170,080.717	455,846.103	51.906	17°–45'–55.66"	13.000	83.180	25.791	1+350.744	1+363.744	1+376.535	N13°–29'–30.11"W
15	2,170,121.999	455,849.188	41.397	27°–04'–27.96"	6.000	24.920	11.776	1+398.932	1+404.932	1+410.708	N04°–16'–25.55"E
16	2,170,147.010	455,838.674	27.131	15°–41'–23.12"	14.000	101.611	27.825	1+417.839	1+431.839	1+445.664	N22°–48'–02.41"W
END	2,170,192.163	455,802.770	57.688						1+489.351		

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS UNLESS OTHERWISE SHOWN.
2. SYMBOL, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH–GN–03
3. THE CONTRACTOR HAS TO SUBMITED SURVEYING AND ROAD ALIGNMENT FOR APPROVAL.

0 5 10 15
SCALE 1:200 METERS

0 10 20 40 50 80
SCALE 1:1,000 METERS

REFERENCE DRAWINGS :

1. ACCESS ROAD PLAN AND PROFILE, STA. 0+600 TO STA. 1+200	MH–AR–02
2. ACCESS ROAD TYPICAL SECTIONS, STOPPING AND PASSING PLACES	MH–AR–04
3. ACCESS ROAD TYPICAL SECTION DETAIL	MH–AR–05

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				

CONSULTANTS DEDE

KINGDOM OF THAILAND
Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
ACCESS ROAD
PLAN AND PROFILE, STA. 1+200 TO STA. 1+489.351

P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

DESIGNED	กิติ.64624	REVIEWED	
DRAWN		SUBMITTED	
CHECKED	กิติ.6226	RECOMMENDED	
PROJECT MANAGER	07/03/2559 DATE	APPROVED	P. Hanwell

DRAWING NO. MH–AR–03

SHEET NO. 8 OF 51