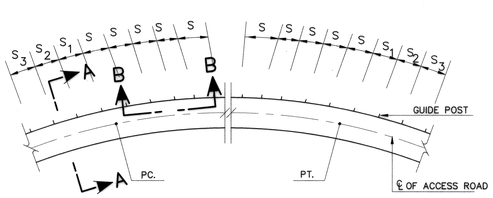


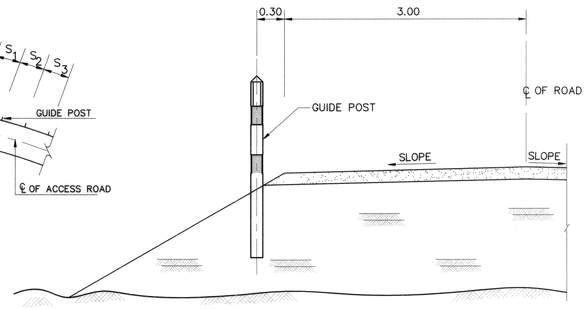
PLAN SHOWING DETAIL OF STOPPING AND PASSING PLACES IN GENERAL

NOT TO SCALE



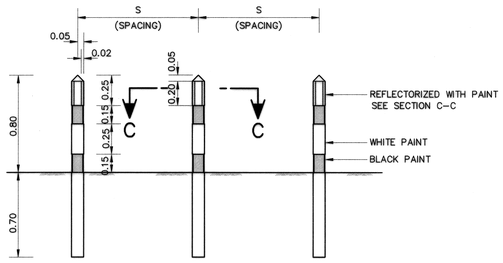
PLAN

NOT TO SCALE



SECTION A–A

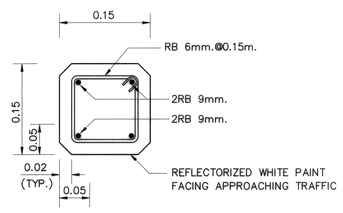
NOT TO SCALE



SECTION B–B

NOT TO SCALE

GUIDE POSTS



SECTION C–C

NOT TO SCALE

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS, UNLESS OTHERWISE SHOWN.
2. CLEARING AND GRUBBING METHOD SHALL CONFORM TO THE REQUIREMENTS AS SPECIFILED IN THE TECHNICAL SPECIFICATIONS
3. SIDE DITCH SHALL BE PROVIDES FOR ROAD IN CUT SECTION AND IN FILL SECTION WHERE HEIGHT OF FILL FROM CARRIAGE WAY EDGE TO EXISTING GROUND LINE IS LESS THAN 0.50 METERS
4. ACCESS ROAD ALIGNMENT MAY BE RE–ADJUSTED TO SUIT THE FIELD CONDITIONS, BUT UNDER THE APPROVAL OF FIELD ENGINEERS
5. THE FIELD ENGINEER MAY ORDER SIDE SLOPE IN DIFFERENCE FROM TYPICALLY SHOWN IN THIS DRAWING
6. RC. PIPES ARE GROOVE AND TONGUE TYPE WHICH SPECIFIED IN THE TECHNICAL SPECIFICATIONS LOCATION AND SIZE OF RC. PIPE CULVERTS AS SHOWN IN PLAN AND PROFILE, MAY BE RE–ADJUSTED BY FIELD ENGINEER TO FIT WITH THE TERRAIN.
7. ALL RC. PIPE CULVERTS SHALL BE INSTALLED IN MANUFACTURED LENGTH WITHOUT FIELD CUTTINGS.
8. INVERT ELEVATIONS OF RC. PIPE CULVERTS WILL BE SET ON SITE, THE LENGTH SHOWN IN PLAN AND PROFILE SHEETS MAY BE VARIED TO SUIT FIELD CONDITIONS
9. EMBANKMENT SHALL BE CONSTRUCTED OF MATERIAL WITH AC. OR VALUE NOT LESS THAN 4%
10. THE MATERIAL FOR LATERITE CRUSHE STONE SHALL HAVE AC. OR VALUE NOT LESS THAN 15% AND ITS PHYSICAL PROPERTIES AS FOLLOWS
    - LIQUID LIMIT (LL) NOT GREATER THAN 34%
    - PLASTIC INDEX (P1) IN RANGE OF 5 TO 11
    - PERCENTAGE OF WEAR NOT GREATER THAN 50%

    AND OTHER PROPERTIES AS SPECIFIED IN THE TECHNICAL SPECIFICATIONS
11. LOCATION OF STOPPING AND PASSING PLACES SHALL BE INDICATED ON PLAN AND PROFILE DRAWING OR AS DIRECTED BY FIELD ENGINEER
12. THE PAVEMENT OF ACCESS ROAD IS DOUBLE SURFACE THEATMENT. PLAN AND PROFILE DRAWING OR AS DIRECTED BY THE CONTRACTOR AND APPROVAL BY FIELD ENGINEER

TABLE

SPACING OF GUIDE POSTS				
RADIUS M.	S M.	S1 M.	S2 M.	S3 M.
15 – 74	4	8	12	24
75 – 99	6	12	18	36
LARGER THAN 100	NO GUIDE POSTS INSTALLED			

REFERENCE DRAWING :

1. ACCESS ROAD, PLAN AND PROFILE STA.0+000 TO STA.0+630.673 MH–AR–01 TO AR–02

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
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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
TYPICAL SECTIONS, STOPPING AND PASSING PLACES

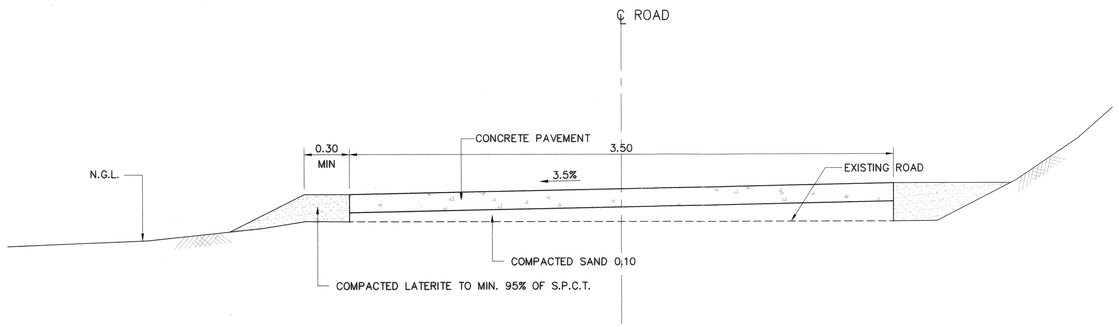
P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

DESIGNED วิศ.64624 25.6226
DRAWN
CHECKED 25.6226
PROJECT MANAGER 08/03/2559 DATE

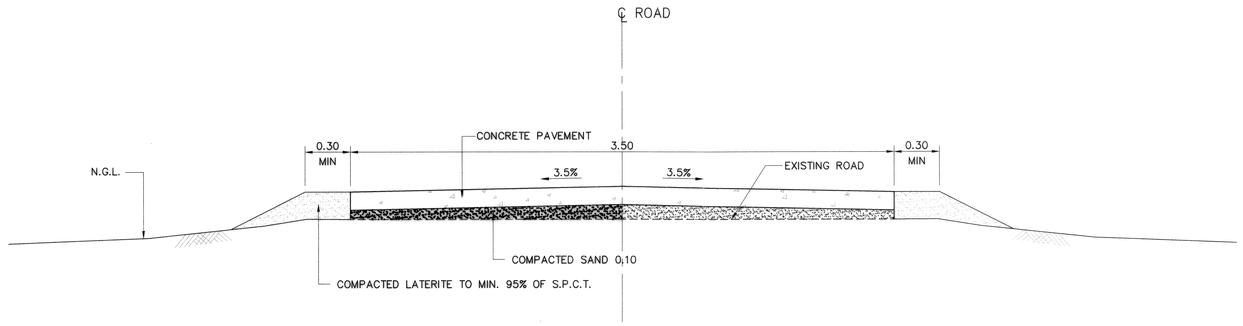
REVIEWED
SUBMITTED
RECOMMENDED
APPROVED P. Hanwell

DRAWING NO. MH–AR–04
SHEET NO. 9 OF 51



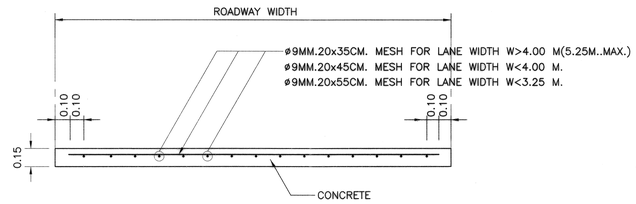
TYPICAL SECTION FOR HILLSIDE

NOT TO SCALE



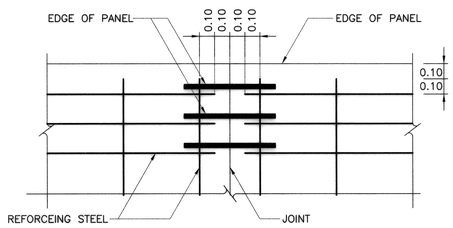
TYPICAL SECTION FOR FLAT AREA

NOT TO SCALE



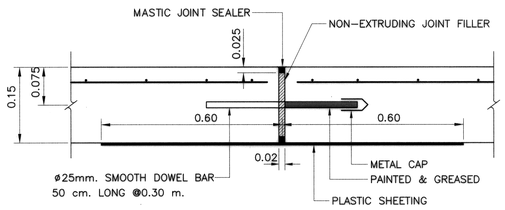
REINFORCEMENT DETAIL OF CONCRETE PAVEMENT CROSS-SECTION

NOT TO SCALE



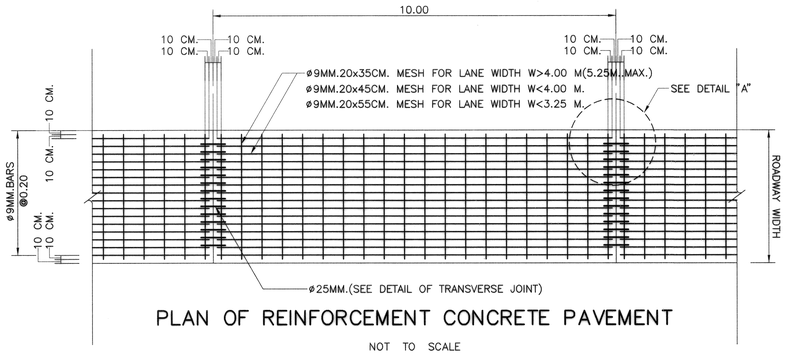
DETAIL "A"

NOT TO SCALE



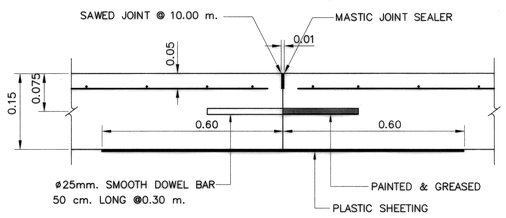
DETAIL OF EXPANSION JOINT

NOT TO SCALE



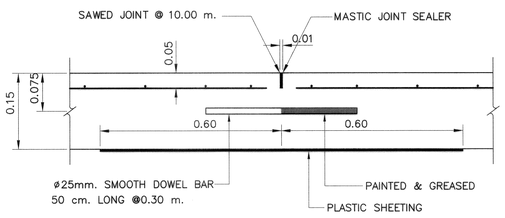
PLAN OF REINFORCEMENT CONCRETE PAVEMENT

NOT TO SCALE



DETAIL OF CONSTRUCTION JOINT

NOT TO SCALE



DETAIL OF CONTRACTION JOINT

NOT TO SCALE

NOTES 1 :

1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE INDICATED.
2. EXPANSION JOINT SHALL BE CONSTRUCTED AT THE INTERVAL OF 90 METERS.
3. MASTIC JOINT SEALER SHALL BE OF THE HOT POURED ELASTIC TYPE CONFORMING TO TIS.479.
4. JOINT FILLER SHALL CONFORM TO THE AASHTO M.213-74 OR ASTM.D1751-73 SPECIFICATION.
5. CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 300 KSC. FOR 15x15x15 CM. CUBE AT 28 DAYS.
6. REINFORCING STEEL SHALL CONFORM TIS.20 GRADE SR 24 FOR ROUND BARS AND TIS.24 GRADE SD 30 FOR DEFORMED BAR.
7. PLASTIC SHEET USED IN CONSTRUCTION SHALL HAVE THE FOLLOWING REQUIREMENTS :
   - 7.1 THICKNESS OF 0.07 MM. WITH A TOLERANCE OF NOT MORE THAN 7 % SHALL BE REQUIRED.
   - 7.2 WIDTH SHALL NOT BE LESS THAN 1.20 M.
   - 7.3 IT SHALL BE COLOURLESS,TRANSPARENT AND WATERPROOF, FREE FROM POROUS AREA, TURN AREA AND BLISTERING AREA WHICH ARE VISIBLE BY NAKED EYE. EDGE SHALL BE STRAIGHT.
   - 7.4 CONTINUOUS LENGTH SHALL BE REQUIREMENT TO THE WIDTH OF TRAFFIC LANES. CONNECTION ALLOWED AT LONGITUDINAL JOINTS WITH NOT LESS. THAN 20 CM. OVERLAPPING SHALL BE REQUIRED.

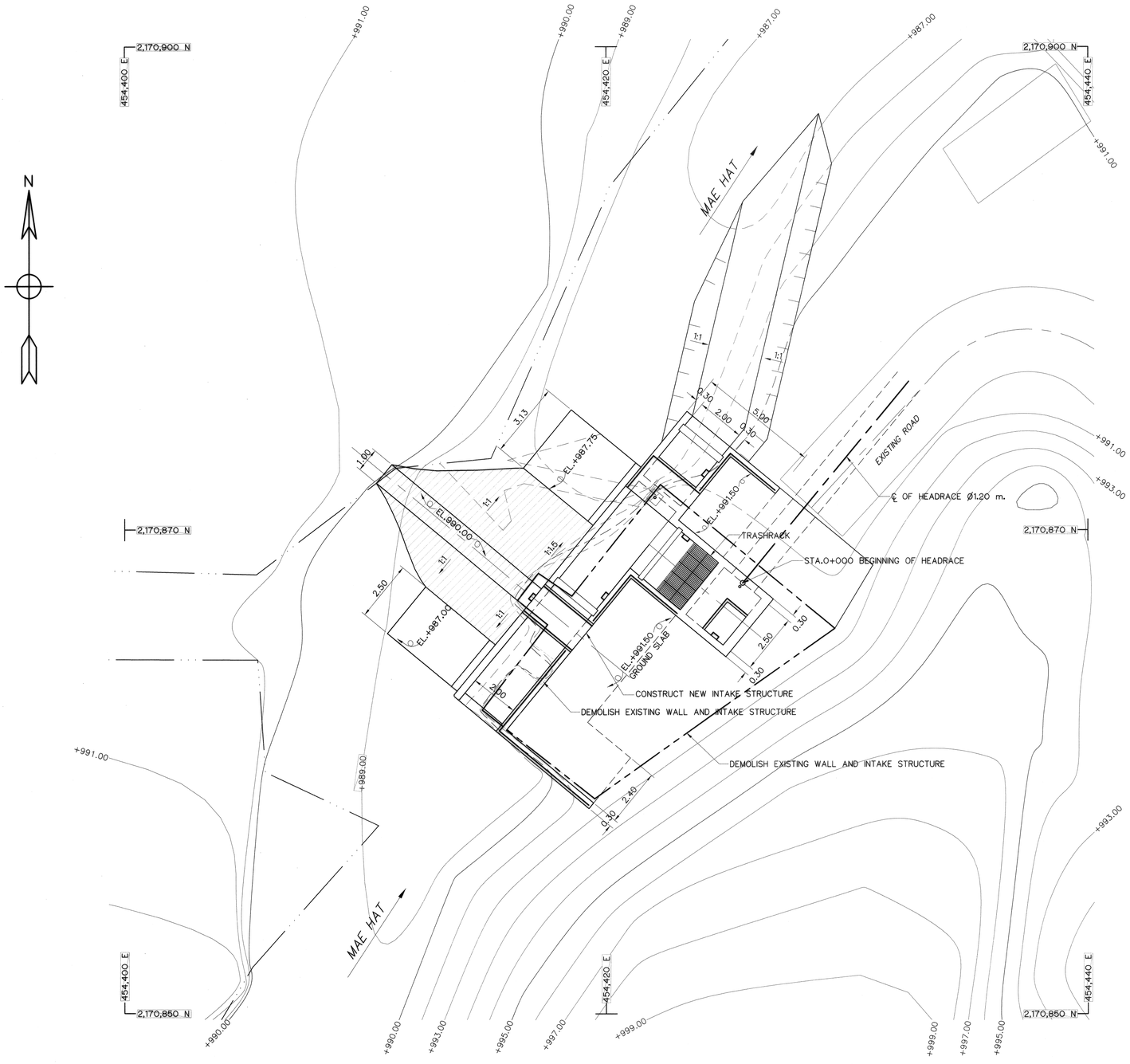
NO.	DATE	REVISIONS	CHECKED	APPROVED
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	CONSULTANTS		DEDE	

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

MAE HAT HYDROPOWER PROJECT

ELECTRO-MECHANICAL EQUIPMENT
ACCESS ROAD
TYPICAL SECTION AND DETAILS

P&C MANAGEMENT CO.,LTD.	Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY
DESIGNED	REVIEWED
DRAWN	SUBMITTED
CHECKED	RECOMMENDED
PROJECT MANAGER	APPROVED
DATE	DRAWING NO. MH-AR-05
	SHEET NO. 10 OF 51



GENERAL LAY-OUT

SCALE 1:100

LEGEND :

WEIR REHABILITATION

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
3. CONCRETE OF WEIR STRUCTURE TO BE MIN. 28 DAYS STANDARD CYLINDER COMPRESSIVE STRENGTH OF 210 KSC.
4. SPACING OF HANDRAIL CAN BE ADJUSTED IN THE FIELD TO FIT WITH THE STRUCTURE BY CONTRACTOR AND APPROVED BY ENGINEER.
5. WEIR SHALL BE PLACED ON BED ROCK FOUNDATION, OTHER MATERIALS SHALL BE REMOVED AND BACKFILLED WITH LEAN CONCRETE AND THE LEAN CONCRETE SHALL HAVE THE COMPRESSIVE STRENGTH OF 140 KSC. FOR STANDARD CYLINDER AT 28 DAYS.
6. ALLOWABLE BEARING CAPACITY NOT LESS THAN 10 TON/M.^{2}
7. VERTICLE GATES WITH OUTSIDE-SCREW RISING STEM SHALL BE MOTOR AND HAND OPERATED, SEE DETAIL TABLE

REFERENCE DRAWINGS :

1. WEIR, PLAN AND SECTIONS MH-WE-02

0 1 2 3 4 5 6 7 8

SCALE 1:100 METERS

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

MAE HAT HYDROPOWER PROJECT

ELECTRO-MECHANICAL EQUIPMENT
WEIR
GENERAL LAYOUT PLAN

NO.	DATE	REVISIONS	CHECKED	APPROVED
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	CONSULTANTS		DEDE	

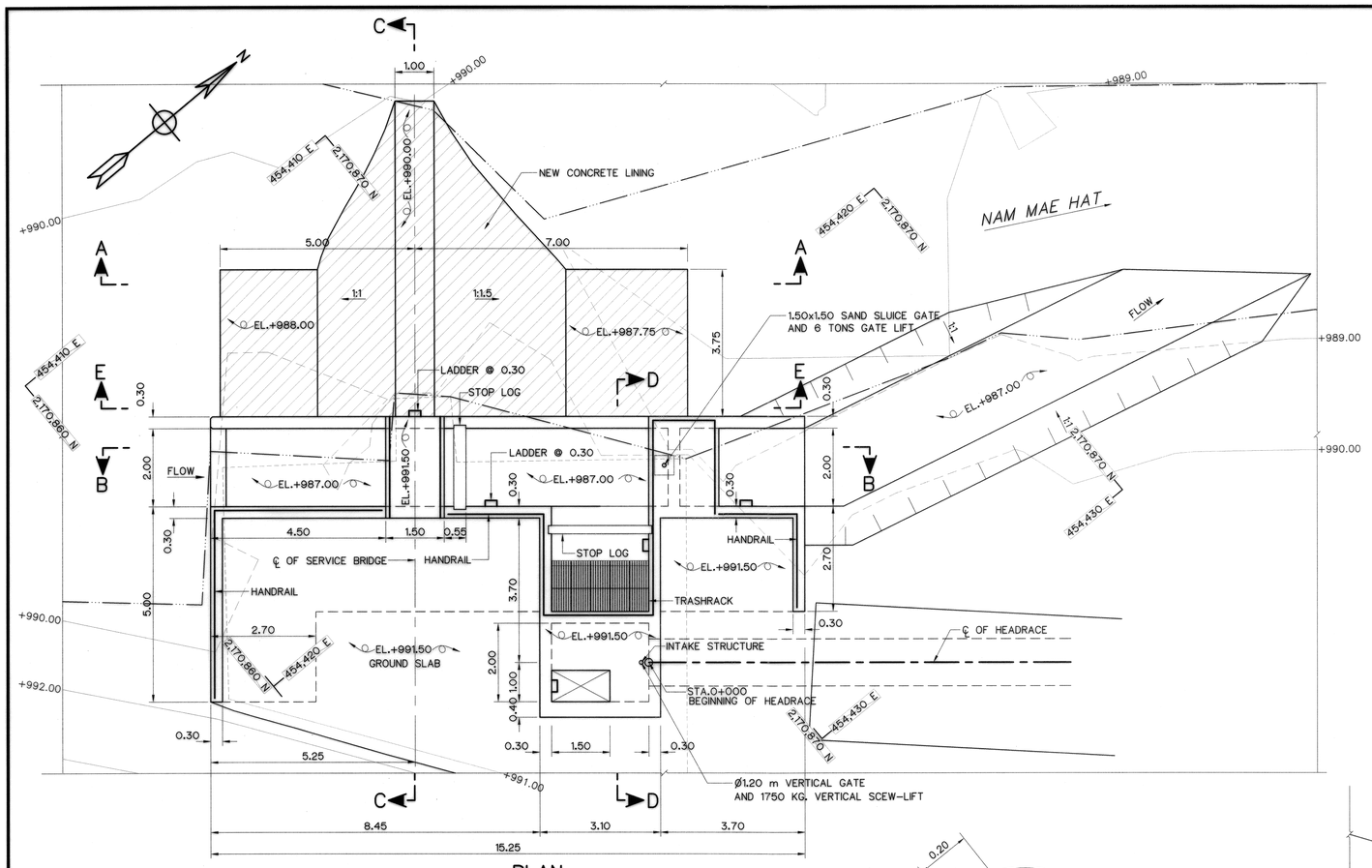
P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

DESIGNED	วิศ.64624	วิศ.6226	REVIEWED
DRAWN			SUBMITTED
CHECKED		วิศ.6226	RECOMMENDED
PROJECT MANAGER	08/03/2559 DATE		APPROVED

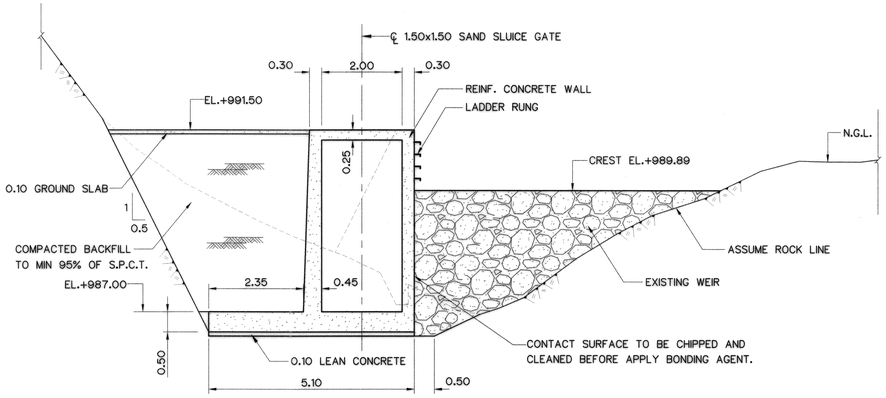
DRAWING NO. MH-WE-01

SHEET NO. 11 OF 51



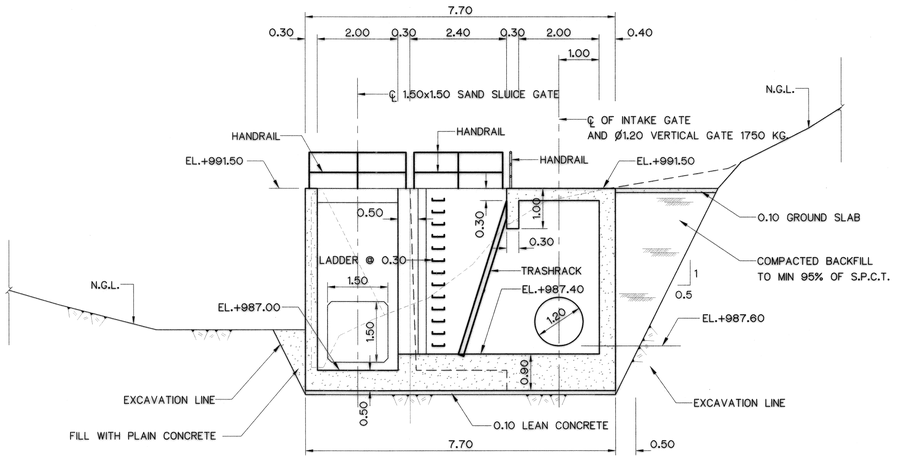
PLAN

SCALE 1:75



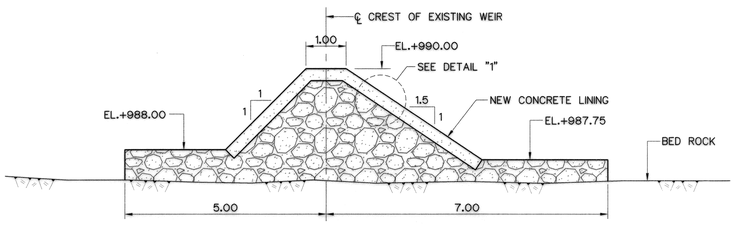
SECTION C–C

SCALE 1:75



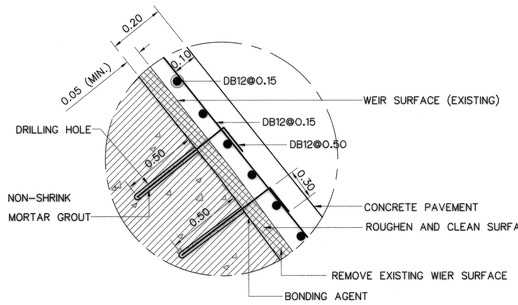
SECTION D–D

SCALE 1:75



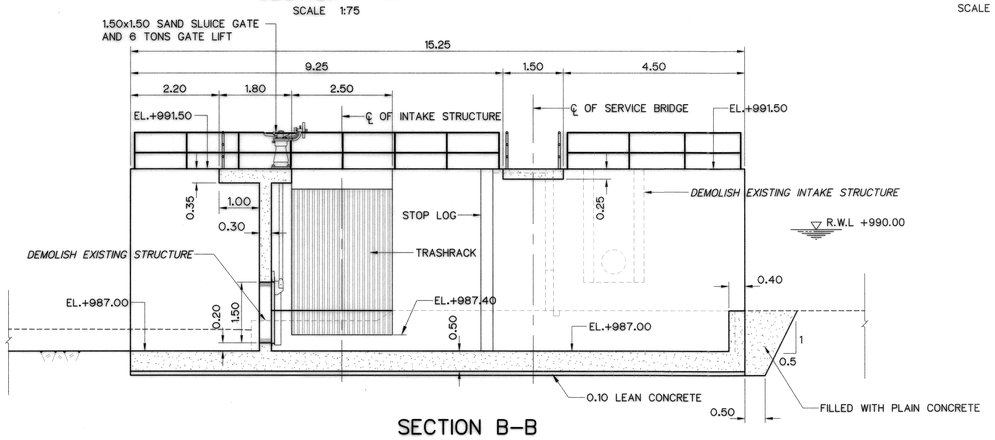
SECTION A–A

SCALE 1:75



DETAIL "1"

SCALE 1:10



SECTION B–B

SCALE 1:75

STEP OF LINING :

1. CONCRETE REMOVAL TECHNIQUES USED SHOULD BE EFFECTIVE, FAST, SAFE, ECONOMICAL AND ENVIRONMENTALLY FRIENDLY. THE EXISTING CONCRETE SURFACE MUST BE DRY, CLEAN, ROUGH AND FREE OF DUST SO THAT THE POURED CONCRETE WILL STICK TO THE OLD CONCRETE
2. THE REPAIRED SURFACE SHOULD BE CLEANED THOROUGHLY BY WET SAND BLASTING OR DRY SAND BLASTING OR SHOT BLASTING OR OTHER EQUIVALENT METHOD. FINALLY, IT SHOULD BE CLEANED BY WIND OR WATER USING PRESSURE.
3. A HOLE IS DRILLED TO INSTALL DOWEL BAR FIXED BY NON–SHRINK CEMENT GROUT AND INSTALL REINFORCED CONCRETE SO THAT THE POURED CONCRETE CAN REMAIN AND STICK TO THE OLD CONCRETE.
4. BEFORE POURING CONCRETE, APPLY MORTAR TO A THIN CONCRETE SURFACE NOT EXCEEDING 3 MM AND USE EPOXY RESIN BONDING AGENT, ASTM C881, TYPE II OR TYPE V.

REFERENCE DRAWINGS :

1.	WEIR DETAIL OF REHABILITATION	MH–WE–03
2.	WEIR REINFORCEMENT DETAILS	MH–WE–04
3.	WEIR MISCELLANEOUS DETAILS	MH–WE–06
4.	WEIR 1.50x1.50 SAND SLUICE GATE	MH–WE–07
5.	WEIR Ø1.20 VERTICAL GATE	MH–WE–09

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
3. CONCRETE OF WEIR STRUCTURE TO BE MIN. 28 DAYS STANDARD CYLINDER COMPRESSIVE STRENGTH OF 210 KSC.
4. SPACING OF HANDRAIL CAN BE ADJUSTED IN THE FIELD TO FIT WITH THE STRUCTURE BY CONTRACTOR AND APPROVED BY ENGINEER.
5. WEIR SHALL BE PLACED ON BED ROCK FOUNDATION, OTHER MATERIALS SHALL BE REMOVED AND BACKFILLED WITH LEAN CONCRETE AND THE LEAN CONCRETE SHALL HAVE THE COMPRESSIVE STRENGTH OF 140 KSC. FOR STANDARD CYLINDER AT 28 DAYS.
6. ALLOWABLE BEARING CAPACITY NOT LESS THAN 10 TON/sq.m.

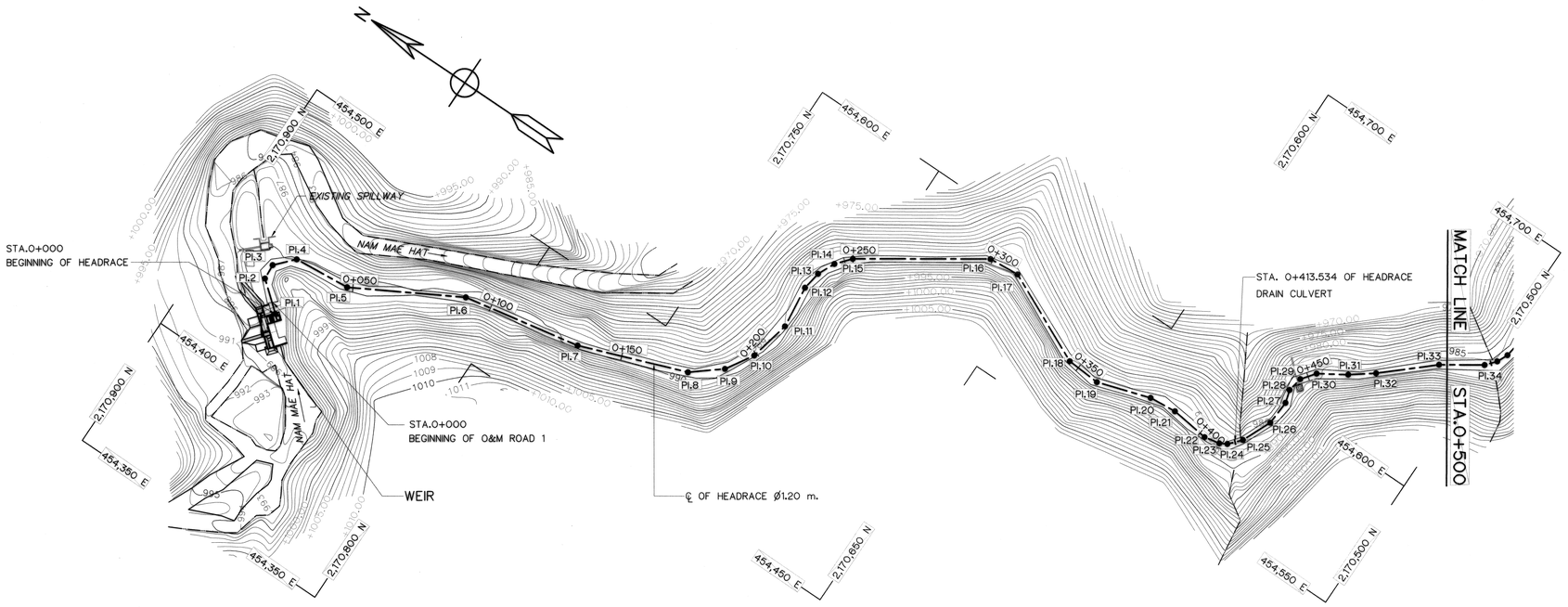
NO.	DATE	REVISIONS	CHECKED	APPROVED
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Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
WEIR
PLAN AND SECTIONS

P&C MANAGEMENT CO.,LTD.		Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY	
		REVIEWED	
DESIGNED	ส.ต.ท.64624 ส.ต.ท.6226	SUBMITTED	Chamit
DRAWN		RECOMMENDED	
CHECKED	ส.ต.ท.6226	APPROVED	P. Hongsit
PROJECT MANAGER	03/03/2564 DATE	DRAWING NO.	MH–WE–02
		SHEET NO.	12 OF 51

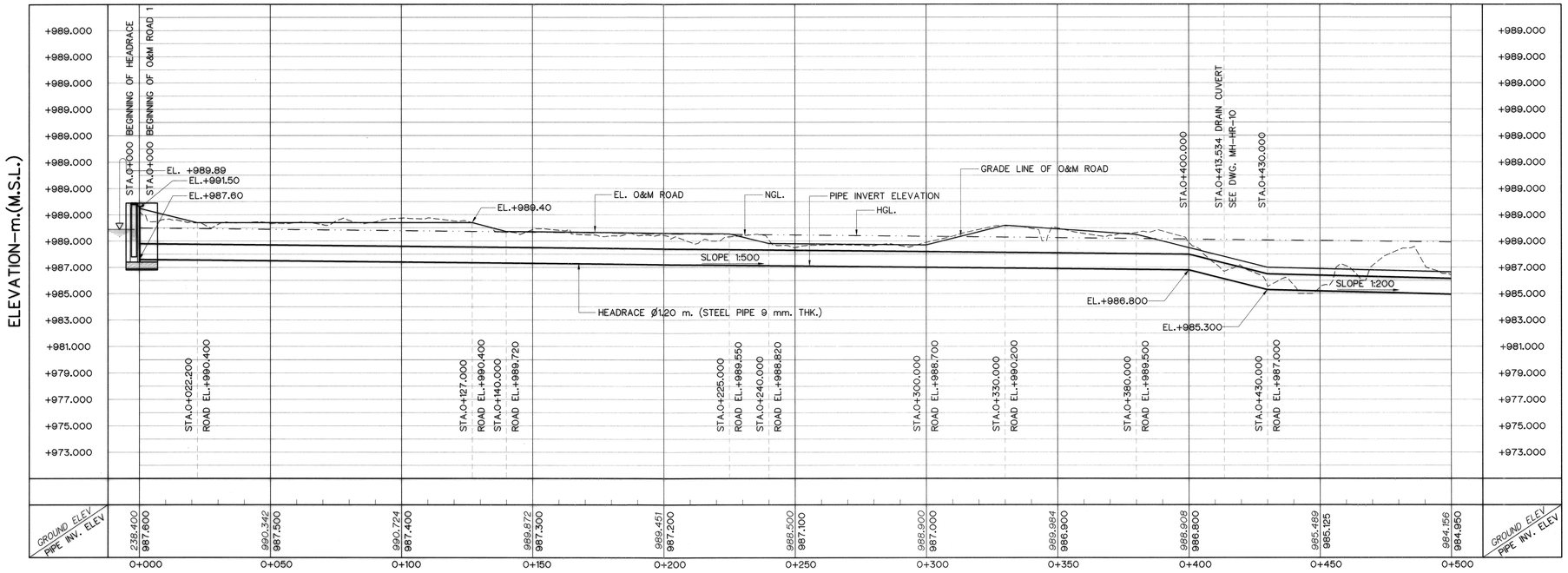


PLAN

SCALE 1:1,000

HORIZONTAL CURVE OF HEADRACE

NO. PI.	COORDINATE OF PI. N	COORDINATE OF PI. E	PI. TO PI. (m)	DEFLECTION ANGLE (△) (° – ' – ")	PI. STA. (km)	BEARING (N/S ° – ' – " E/W)
Pl.1	2,170,867.819	454,425.669	–	–	0+000.000	–
Pl.2	2,170,877.907	454,433.994	13.080	46°– 31'– 52.45"	0+013.080	N39°– 31'– 50.67" E
Pl.3	2,170,878.285	454,439.485	5.504	46°– 31'– 16.39"	0+018.584	N86°–03'– 43.11" E
Pl.4	2,170,872.294	454,446.004	8.854	42°–23'–59.62"	0+027.438	S47°–25'–00.50"E
Pl.5	2,170,851.801	454,447.803	20.572	24°–07'–25.33"	0+048.010	S05°– 01'–00.88"E
Pl.6	2,170,814.728	454,468.472	42.445	18°– 20'–24.28"	0+090.455	S29°–08'– 26.21" E
Pl.7	2,170,772.085	454,476.607	43.412	09°–40'–44.25"	0+133.867	S 10°– 48'– 01.93" E
Pl.8	2,170,734.171	454,490.767	40.472	18°– 58'– 23.23"	0+174.339	S20°– 28'– 46.18" E
Pl.9	2,170,723.948	454,499.18	13.240	18°– 58'–40.45"	0+187.579	S39°–27'– 09.41" E
Pl.10	2,170,717.952	454,508.938	11.453	18°– 58'– 31.33"	0+199.032	S58°– 25'–49.86"E
Pl.11	2,170,714.653	454,523.704	15.130	18°– 58'– 17.92"	0+214.162	S77°–24'– 21.18" E
Pl.12	2,170,716.366	454,539.03	15.421	15°– 37'–28.60"	0+229.583	N83°–37'–20.90"E
Pl.13	2,170,715.276	454,545.725	6.783	15°– 37'– 31.44"	0+236.366	S80°– 45'– 10.50" E
Pl.14	2,170,712.423	454,551.879	6.783	15°– 37'– 31.01"	0+243.149	S65°–07'–39.06"E
Pl.15	2,170,708.018	454,557.037	6.783	15°– 37'–46.92"	0+249.932	S49°–30'–08.05"E
Pl.16	2,170,667.236	454,584.413	49.118	29°–25'–38.79"	0+299.050	S33°–52'– 21.13" E
Pl.17	2,170,656.186	454,585.272	11.083	29°–25'–21.49"	0+310.133	S04°–26'–42.34"E
Pl.18	2,170,623.496	454,570.044	36.063	21°– 20'–46.15"	0+346.196	S24°–58'– 39.15" W
Pl.19	2,170,611.316	454,569.271	12.205	21°– 20'–19.48"	0+358.401	S03°–37'–53.00"W
Pl.20	2,170,592.314	454,575.338	19.947	12°– 18'–50.46"	0+378.348	S 17°– 42'–26.48"E
Pl.21	2,170,582.474	454,576.267	9.884	12°– 18'–36.45"	0+388.232	S05°–23'–36.03"E
Pl.22	2,170,568.617	454,574.586	13.959	18°– 19'– 10.00"	0+402.191	S06°–55'–00.42"W
Pl.23	2,170,563.034	454,575.712	5.695	18°– 17'–44.64"	0+407.886	S 11°– 24'–09.58" E
Pl.24	2,170,560.511	454,577.151	2.905	18°– 19'– 32.19"	0+410.791	S29°– 41'– 54.21" E
Pl.25	2,170,556.701	454,581.386	5.697	18°– 18'–34.69"	0+416.488	S48°– 01'– 26.41" E
Pl.26	2,170,552.072	454,591.948	11.532	19°– 53'– 35.36"	0+428.020	S66°–20'– 01.10" E
Pl.27	2,170,551.489	454,600.788	8.859	19°– 53'–48.43"	0+436.879	S86°– 13'– 36.46"E
Pl.28	2,170,552.826	454,605.413	4.814	26°–44'–14.37"	0+441.693	N73°–52'– 35.11" E
Pl.29	2,170,551.839	454,610.68	5.359	26°–43'–29.80"	0+447.052	S79°–23'– 10.52" E
Pl.30	2,170,548.088	454,615.597	6.184	20°–35'–47.83"	0+453.236	S52°–39'–40.72"E
Pl.31	2,170,538.542	454,621.577	11.264	04°–50'–22.73"	0+464.500	S32°–03'–52.89" E
Pl.32	2,170,530.56	454,627.571	9.982	04°–50'– 16.61"	0+474.482	S36°–54'– 15.61" E
Pl.33	2,170,513.681	454,642.632	22.622	08°– 01'– 33.31"	0+497.104	S 41°– 44'–32.22" E



PROFILE

VERTICAL SCALE 1:200

HORIZONTAL SCALE 1:1,000

SCALE 1:200 METERS (0 5 10 15)

SCALE 1:1,000 METERS (0 10 20 40 60 80)

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
3. THE ALIGNMENT OF THE HEADRACE AND RELATED STRUCTURES SHALL BE CHECK AND CORRECTED BY THE CONTRACTOR TO SUIT THE FIELD CONDITIONS AND SHALL BE SUBMITTED TO DEDE'S FIELD ENGINEER FOR APPROVAL
4. REMOVE ALL EXISTING HEADRACE
5. DEMOLISH ALL EXISTING CONCRETE PAVEMENT
6. ALIGNMENT OF NEW O&M ROAD CONFORM TO EXISTING O&M ROAD

REFERENCE DRAWINGS :

1. HEADRACE PLAN AND PROFILE, STA. 0+500 TO STA. 1+000	MH–HR–02
2. HEADRACE TYPICAL SECTIONS	MH–HR–06
3. HEADRACE CONCRETE PIER	MH–HR–07

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

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
HEADRACE
PLAN AND PROFILE, STA. 0+000 TO STA. 0+500

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				

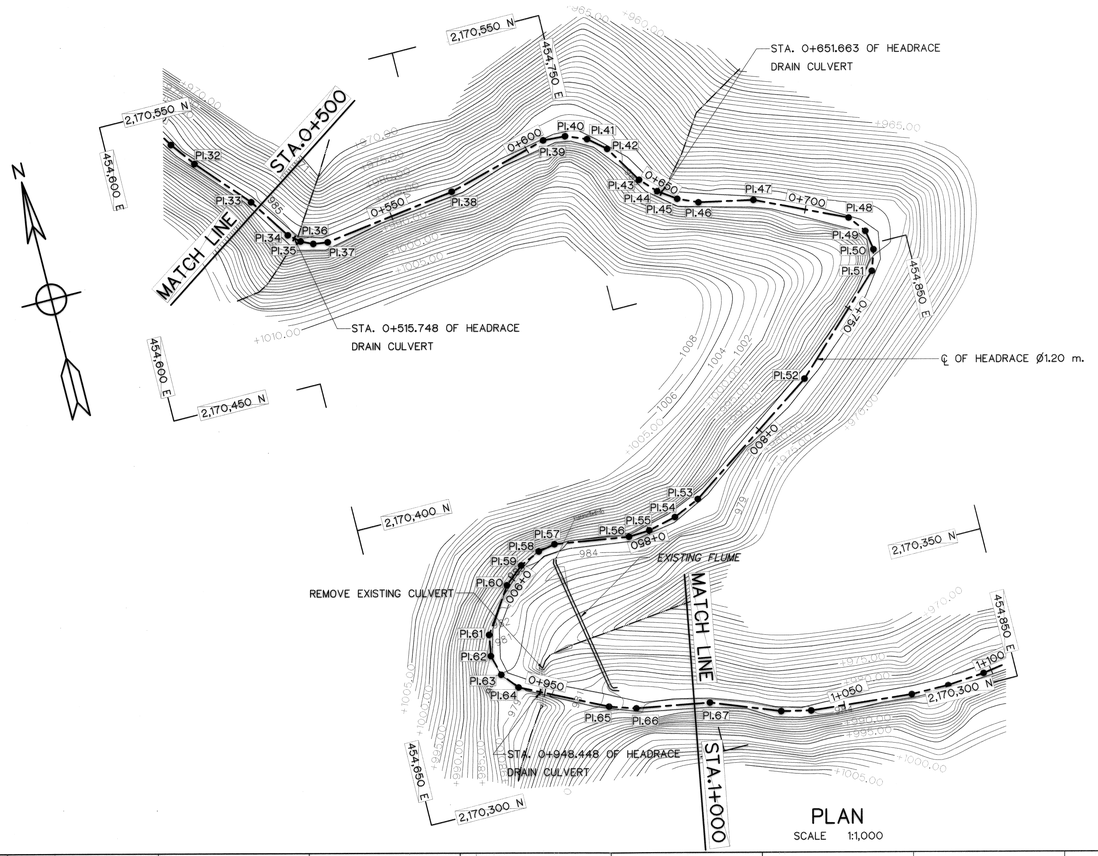
CONSULTANTS: P&C MANAGEMENT CO.,LTD.

DEDE: Department of Alternative Energy Development and Efficiency, MINISTRY OF ENERGY

DESIGNED	REG.64624	REVIEWED	
DRAWN		SUBMITTED	
CHECKED	REG.6226	RECOMMENDED	
PROJECT MANAGER	08/03/2559 DATE	APPROVED	

DRAWING NO. MH–HR–01

SHEET NO. 13 OF 51



PLAN

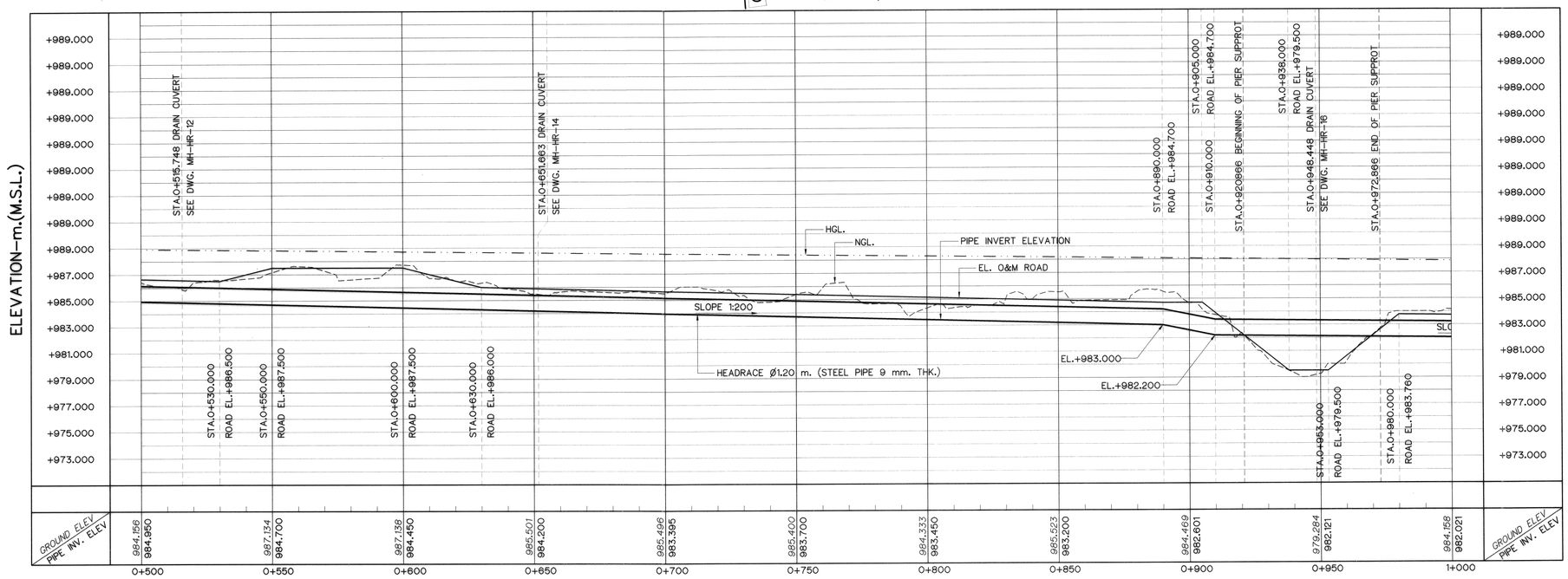
SCALE 1:1,000

HORIZONTAL CURVE OF HEADRACE

NO. PI.	COORDINATE OF PI. N	COORDINATE OF PI. E	PI. TO PI. (m)	DEFLECTION ANGLE (△) (° – ' – ")	PI. STA. (km)	BEARING (N/S ° – ' – " E/W)
PI.34	2,170,500.109	454,651.689	16.317	16°– 02'– 40.12"	0+513.421	S 33°– 42'– 58.91" E
PI.35	2,170,497.005	454,655.357	4.805	16°– 04'– 33.25"	0+518.226	S 49°– 45'–39.03"E
PI.36	2,170,495.297	454,659.164	4.173	16°– 01'– 35.07"	0+522.399	S 65°– 50'– 12.28" E
PI.37	2,170,494.617	454,663.92	4.804	16°– 03'– 49.30"	0+527.203	S 81°– 51'– 47.35"E
PI.38	2,170,500.736	454,707.866	44.370	07°– 11'– 54.12"	0+571.573	N 82°– 04'–23.36"E
PI.39	2,170,509.8	454,741.4	34.737	18°– 22'– 45.40"	0+606.310	N 74°– 52'–29.24"E
PI.40	2,170,509.382	454,748.752	7.364	18°– 22'– 52.27"	0+613.674	S 86°– 44'–45.37"E
PI.41	2,170,506.667	454,755.597	7.364	18°– 23'– 04.28"	0+621.038	S 68°– 21'– 53.09"E
PI.42	2,170,501.932	454,761.236	7.363	18°– 22'– 46.67"	0+628.401	S 49°– 58'– 48.82"E
PI.43	2,170,489.434	454,768.925	14.674	11°– 38'– 35.97"	0+643.075	S 31°– 36'– 02.14" E
PI.44	2,170,484.257	454,773.794	7.107	11°– 38'– 21.21"	0+650.182	S 43°– 14'– 38.11" E
PI.45	2,170,480.169	454,779.607	7.107	11°– 38'–34.94"	0+657.289	S 54°– 52'–59.32"E
PI.46	2,170,477.338	454,786.126	7.107	11°– 38'–30.64"	0+664.396	S 66°– 31'–34.27"E
PI.47	2,170,473.613	454,803.907	18.167	12°– 52'– 11.55"	0+682.563	S 78°– 10'– 04.91"E
PI.48	2,170,60.22	454,833.023	32.049	27°– 54 08.10"	0+714.612	S 65°– 17'– 53.36"E
PI.49	2,170,454.595	454,837.323	7.080	27°–53'– 48.38"	0+721.692	S 37°– 23'– 45.25"E
PI.50	2,170,448.033	454,838.421	6.653	27°–54'– 02.92"	0+728.345	S 09°– 29'–56.88"E
PI.51	2,170,441.315	454,836.186	7.080	27°–53'– 58.13"	0+735.425	S 18°– 24'–06.05"W
PI.52	2,170,412.358	454,805.883	41.914	09°–30'– 38.88"	0+777.339	S 46°– 18'– 04.18"W
PI.53	2,170,382.448	454,761.852	53.229	10°– 29'– 43.01"	0+830.568	S 55°– 48'–43.06"W
PI.54	2,170,378.6	454,753.083	9.576	10°– 30'–04.45"	0+840.144	S 66°– 18'–26.07"W
PI.55	2,170,376.415	454,743.761	9.575	10°– 29'– 26.93"	0+849.719	S 76°– 48'–30.52"W
PI.56	2,170,376.084	454,736.744	7.025	11°– 02'– 19.47"	0+856.744	S 87°– 17'–57.46"W
PI.57	2,170,379.678	454,712.222	24.784	19°– 09'– 59.05"	0+881.528	N 81°– 39'–43.07"W
PI.58	2,170,378.604	454,706.607	5.717	13°– 12'– 52.75"	0+887.245	S 79°– 10'– 17.88"W
PI.59	2,170,375.602	454,699.878	7.368	15°– 54'– 52.30"	0+894.613	S 65°– 57'– 25.12" W
PI.60	2,170,370.425	454,693.699	8.061	15°– 55'– 19.41"	0+902.674	S 50°– 02'–32.82"W
PI.61	2,170,356.087	454,683.984	17.319	24°– 33 03.60"	0+919.993	S 34°– 07'– 13.41" W
PI.62	2,170,349.147	454,682.814	7.038	24°–32'– 43.36"	0+927.031	S 09°– 34'– 09.81"W
PI.63	2,170,342.347	454,684.633	7.039	24°–33'– 53.48"	0+934.070	S 14°– 58'–33.54"E
PI.64	2,170,336.919	454,689.114	7.039	24°–32'– 46.68"	0+941.109	S 39°– 32'–27.03"E
PI.65	2,170,323.544	454,716.643	30.606	08°–04'– 02.82"	0+971.715	S 64°– 05'– 13.71" E
PI.66	2,170,320.775	454,725.244	9.036	08°–03'– 34.47"	0+980.751	S 72°– 09'– 16.53" E

TABLE OF PIER DIMENSIONS

PIER NO.	STA.	N.G.L.	FOOTING ELEV.	PIPE INVERT ELEV.	NOTE
1	0+920.866	+982.176	+980.176	+982.176	
2	0+927.866	+980.848	+978.848	+982.165	
3	0+934.866	+979.762	+977.762	+982.151	
4	0+942.366	+979.000	+977.000	+982.136	
5	0+946.366	+979.078	+977.078	+982.128	
6	0+953.366	+978.000	+976.000	+982.114	
7	0+960.366	+978.326	+976.326	+982.100	
8	0+967.366	+982.000	+980.000	+982.086	
9	0+972.866	+982.718	+980.718	+982.075	



PROFILE

VERTICAL SCALE 1:200

HORIZONTAL SCALE 1:1,000

SCALE 1:200 METERS (0 5 10 15)

SCALE 1:1,000 METERS (0 10 20 40 60 80)

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
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4. REMOVE ALL EXISTING HEADRACE
5. DEMOLISH ALL EXISTING CONCRETE PAVEMENT
6. ALIGNMENT OF NEW O&M ROAD CONFORM TO EXISTING O&M ROAD

REFERENCE DRAWINGS :

1. HEADRACE PLAN AND PROFILE, STA. 0+000 TO STA. 0+500	MH–HR–01
2. HEADRACE PLAN AND PROFILE, STA. 1+000 TO STA. 1+500	MH–HR–03
3. HEADRACE TYPICAL SECTIONS	MH–HR–06
4. HEADRACE CONCRETE PIER	MH–HR–07

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

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
HEADRACE
PLAN AND PROFILE, STA. 0+500 TO STA. 1+000

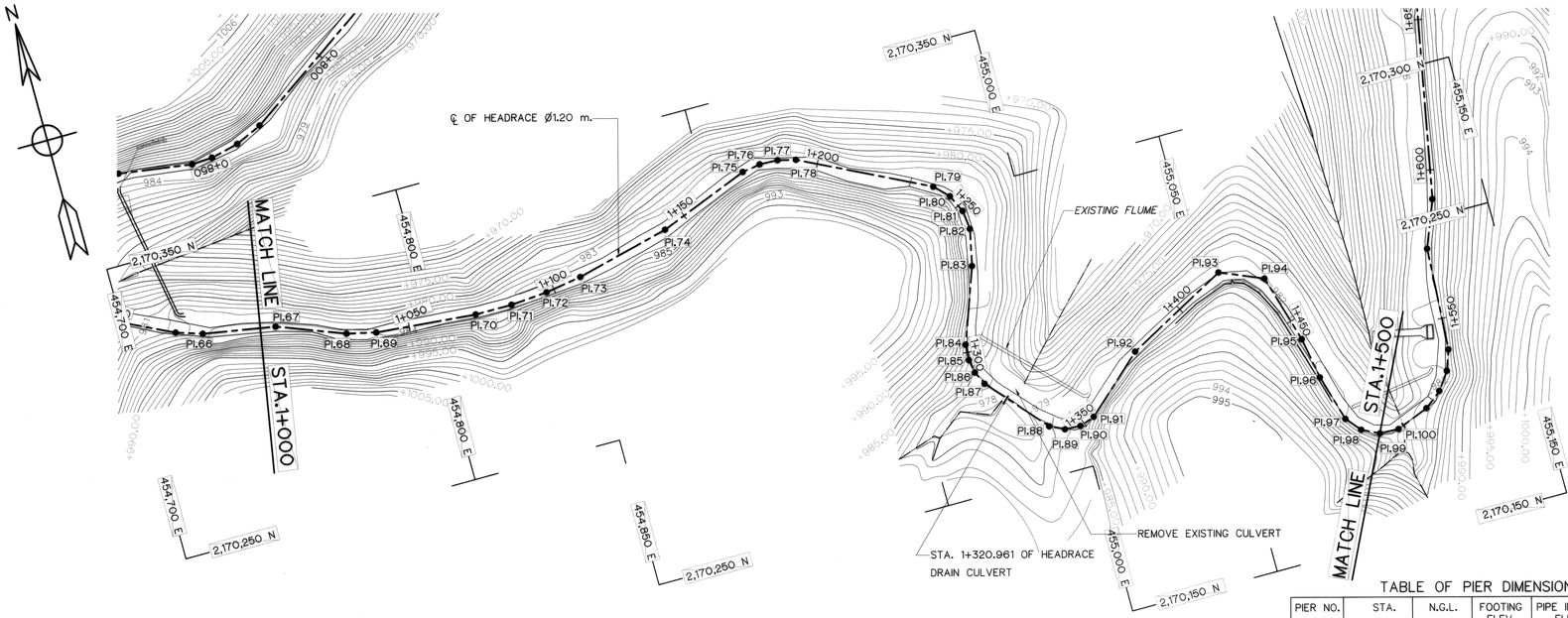
NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
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CONSULTANTS: P&C MANAGEMENT CO.,LTD. | DEDE: Department of Alternative Energy Development and Efficiency, MINISTRY OF ENERGY

DESIGNED	วิชิต	28.6226	SUBMITTED
DRAWN			RECOMMENDED
CHECKED		28.6226	APPROVED
PROJECT MANAGER		08/03/2559 DATE	DRAWING NO. MH–HR–02

REVIEWED

SHEET NO. 14 OF 51



PLAN

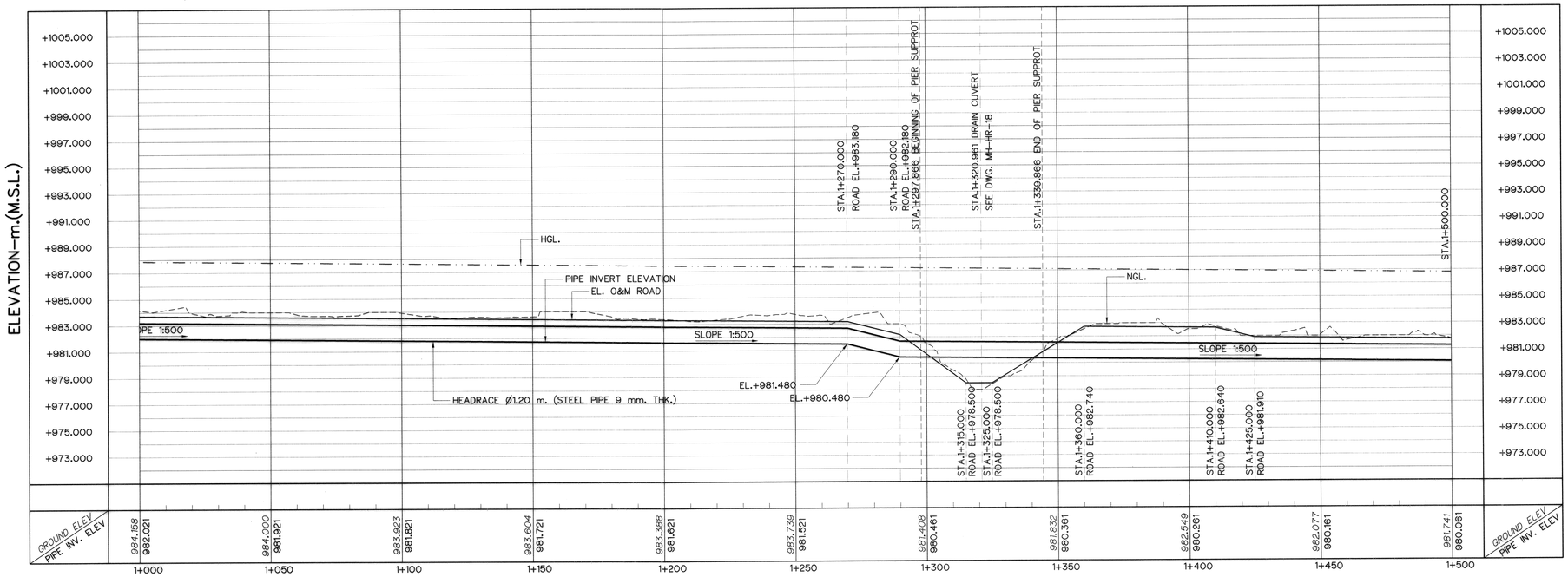
SCALE 1:1,000

HORIZONTAL CURVE OF HEADRACE

NO. PI.	COORDINATE OF PI. N	COORDINATE OF PI. E	PI. TO PI. (m)	DEFLECTION ANGLE (△) (° – ' – ")	PI. STA. (km)	BEARING (N/S ° – ' – " E/W)
PI.67	2,170,316.623	454,749.317	24.428	11°– 14'– 32.42"	1+005.179	S 80°– 12'– 51.00" E
PI.68	2,170,308.086	454,771.524	23.791	07°– 59'– 45.65"	1+028.970	S 68°– 58'– 18.57" E
PI.69	2,170,305.842	454,781.219	9.951	07°– 59'– 28.88"	1+038.921	S 76°– 58'– 04.22"E
PI.70	2,170,302.884	454,814.754	33.665	04°– 43'– 35.23"	1+072.586	S 84°– 57'– 33.10" E
PI.71	2,170,302.816	454,827.148	12.394	04°– 43'– 45.73"	1+084.980	S 89°– 41'– 08.33"E
PI.72	2,170,303.77	454,839.504	12.393	04°– 43'– 35.66"	1+097.373	N 85°– 35'– 05.94"E
PI.73	2,170,305.739	454,851.74	12.393	04°– 43'– 37.41"	1+109.766	N 80°– 51'– 30.28"E
PI.74	2,170,313.49	454,883.134	32.337	07°– 25'– 28.92"	1+142.103	N 76°– 07'–52.88"E
PI.75	2,170,325.209	454,913.202	32.271	11°– 54'– 27.63"	1+174.374	N 68°– 42'–23.96"E
PI.76	2,170,326.211	454,919.264	6.144	11°– 54'– 50.82"	1+180.518	N 80°– 36'– 51.59" E
PI.77	2,170,325.94	454,925.401	6.143	11°– 54'– 04.89"	1+186.661	S 87°– 28'– 17.59" E
PI.78	2,170,324.409	454,931.351	6.144	11°– 54'– 21.35"	1+192.805	S 75°– 34'– 12.70" E
PI.79	2,170,303.738	454,973.11	46.595	18°– 56'– 28.89"	1+239.400	S 63°– 39'– 51.35" E
PI.80	2,170,299.167	454,977.637	6.433	18°– 56'– 19.11"	1+245.833	S 44°– 43'–22.46"E
PI.81	2,170,293.375	454,980.435	6.432	18°– 55'– 39.70"	1+252.265	S 25°– 47'–03.35"E
PI.82	2,170,286.988	454,981.203	6.433	18°– 56'– 23.13"	1+258.698	S 06°– 51'– 23.65"E
PI.83	2,170,274.81	454,978.596	12.454	07°– 47'– 01.82"	1+271.152	S 12°– 04'–59.48"W
PI.84	2,170,250.141	454,969.682	26.230	15°– 19'– 10.24"	1+297.382	S 19°– 52'– 01.30"W
PI.85	2,170,245.225	454,969.291	4.932	15°– 17'– 57.14"	1+302.314	S 04°– 32'– 51.06"W
PI.86	2,170,240.38	454,970.211	4.932	15°– 18'– 52.43"	1+307.246	S 10°– 45'–06.08"E
PI.87	2,170,235.95	454,972.378	4.932	15°– 18'– 40.28"	1+312.178	S 26°– 03'– 58.51" E
PI.88	2,170,216.627	454,989.4	25.751	22°– 41'– 47.22"	1+337.929	S 41°– 22'–38.79"E
PI.89	2,170,214.295	454,994.197	5.334	22°– 41'– 27.10"	1+343.263	S 64°– 04'– 26.01" E
PI.90	2,170,213.994	454,999.522	5.334	22°– 41'– 09.63"	1+348.597	S 86°– 45'– 53.11" E
PI.91	2,170,215.77	455,004.551	5.333	22°– 42'– 04.18"	1+353.930	N 70°– 32'–57.26"E
PI.92	2,170,233.018	455,023.605	25.701	13°– 53'– 54.04"	1+379.631	N 47°– 50'–53.08"E
PI.93	2,170,251.123	455,057.295	38.247	50°– 58'– 33.96"	1+417.878	N 61°– 44'– 47.13"E
PI.94	2,170,245.153	455,071.551	15.456	50°– 58'– 09.21"	1+433.334	S 67°– 16'– 38.91"E
PI.95	2,170,222.4	455,078.208	23.707	05°– 56'– 49.32"	1+457.041	S 16°– 18'– 29.71"E
PI.96	2,170,208.628	455,080.726	14.000	05°– 56'– 54.90"	1+471.041	S 10°– 21'– 40.38"E
PI.97	2,170,193.061	455,085.281	16.220	23°– 48'– 09.62"	1+487.261	S 16°– 18'– 35.28"E
PI.98	2,170,188.18	455,089.393	6.382	23°– 48'– 58.64"	1+493.643	S 40°– 06'–44.90"E
PI.99	2,170,185.375	455,095.126	6.382	23°– 48'– 31.00"	1+500.025	S 63°– 55'–43.54"E

TABLE OF PIER DIMENSIONS

PIER NO.	STA.	N.G.L.	FOOTING ELEV.	PIPE INVERT ELEV.	NOTE
10	1+297.866	+981.496	+979.496	+980.456	
11	1+303.866	+981.000	+980.000	+980.454	
12	1+305.866	+979.677	+977.677	+980.454	
13	1+310.866	+979.115	+977.115	+980.434	
14	1+314.866	+978.000	+976.000	+980.426	
15	1+321.866	+978.332	+976.332	+980.412	
16	1+328.866	+979.000	+977.000	+980.398	
17	1+334.366	+980.000	+978.000	+980.383	
18	1+339.866	+980.908	+978.908	+980.372	



PROFILE

VERTICAL SCALE 1:200

HORIZONTAL SCALE 1:1,000

0 5 10 15

SCALE 1:200 METERS

0 10 20 40 60 80

SCALE 1:1,000 METERS

NOTES :

1. ALL DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS. UNLESS OTHERWISE SHOWN.
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4. REMOVE ALL EXISTING HEADRACE
5. DEMOLISH ALL EXISTING CONCRETE PAVEMENT
6. ALIGNMENT OF NEW O&M ROAD CONFORM TO EXISTING O&M ROAD

REFERENCE DRAWINGS :

1. HEADRACE PLAN AND PROFILE, STA. 0+500 TO STA. 1+000	MH-HR-02
2. HEADRACE PLAN AND PROFILE, STA. 1+500 TO STA. 2+000	MH-HR-04
3. HEADRACE TYPICAL SECTIONS	MH-HR-06
4. HEADRACE CONCRETE PIER	MH-HR-07

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

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
HEADRACE
PLAN AND PROFILE, STA. 1+000 TO STA. 1+500

NO.	DATE	REVISIONS	CHECKED	APPROVED
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CONSULTANTS | DEDE

P&C MANAGEMENT CO.,LTD.

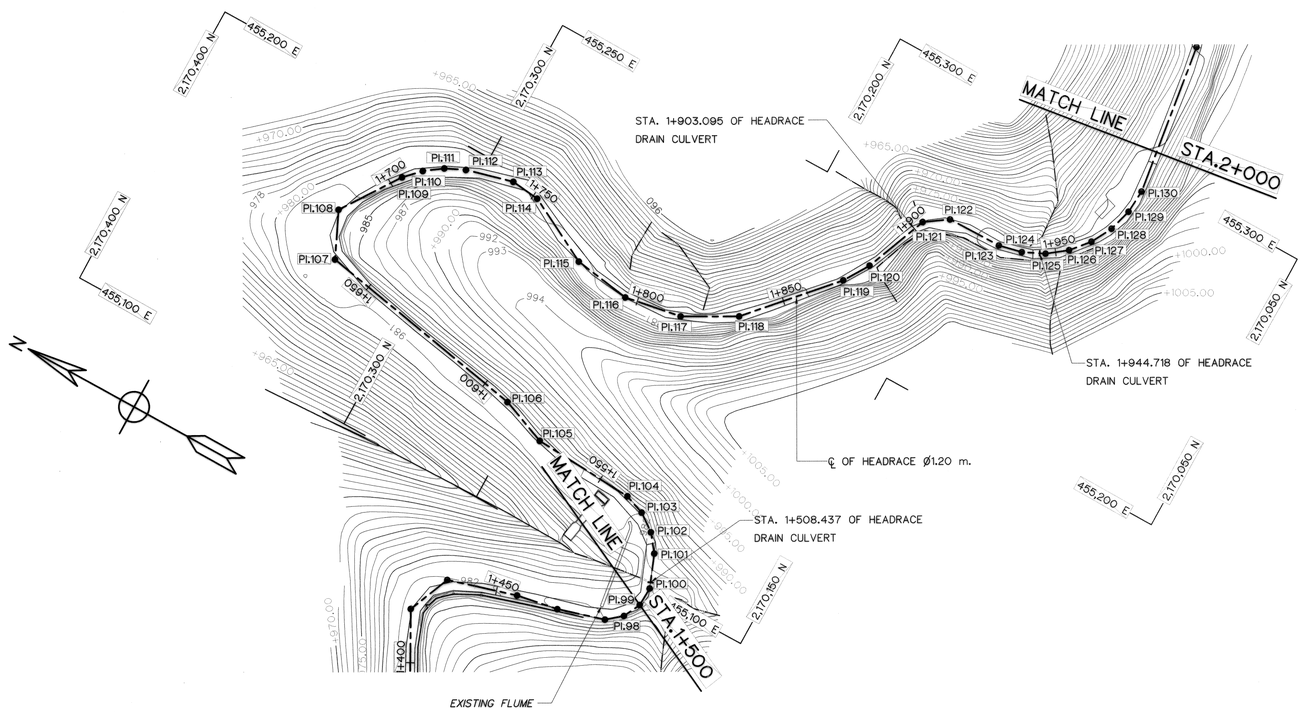
Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

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REVIEWED
SUBMITTED
RECOMMENDED
APPROVED P. Hanwit

PROJECT MANAGER 08/03/2559 DATE

DRAWING NO. MH-HR-03

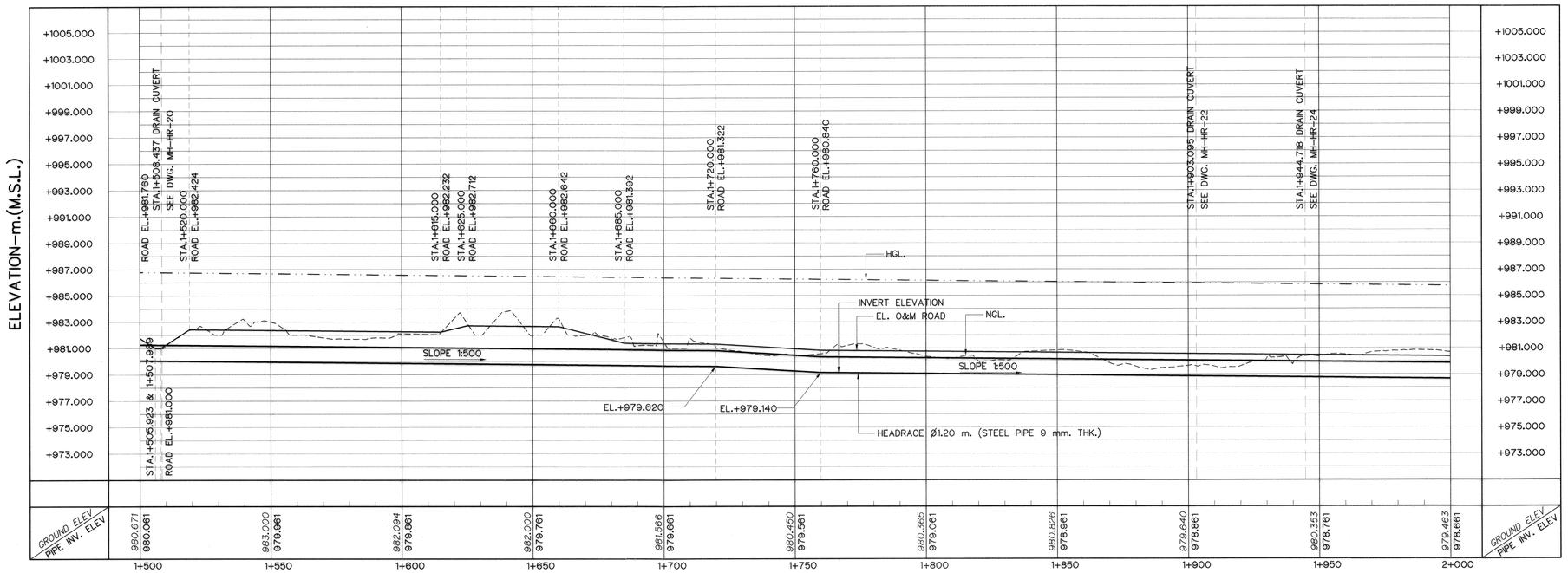
SHEET NO. 15 OF 51



PLAN
SCALE 1:1,000

HORIZONTAL CURVE OF HEADRACE

NO. PI.	COORDINATE OF PI.		PI. TO PI.	DEFLECTION ANGLE (△)	PI. STA.	BEARING
	N	E	(m)	(° – ' – ")	(km)	(N/S ° – ' – " E/W)
PI.99	2,170,185.375	455,095.126	6.382	23°– 48'– 31.00"	1+500.025	S 63°– 55'– 43.54"E
PI.100	2,170,185.123	455,101.504	6.383	23°– 49'– 08.09"	1+506.408	S 87°– 44'– 14.55" E
PI.101	2,170,188.397	455,112.323	11.633	16°– 18'– 11.51"	1+518.041	N 68°– 26'–37.36"E
PI.102	2,170,193.775	455,117.955	7.133	16°– 18'– 48.07"	1+525.174	N 52°– 08'–25.85" E
PI.103	2,170,199.558	455,122.13	7.133	16°– 17'– 59.23"	1+532.307	N 35°– 49'–37.78"E
PI.104	2,170,206.28	455,124.514	7.132	16°– 18'– 52.54"	1+539.439	N 19°– 31'– 38.55" E
PI.105	2,170,240.467	455,126.433	34.241	18°– 00'– 29.41"	1+573.680	N 03°– 12'– 46.01" E
PI.106	2,170,255.999	455,132.464	16.662	10°– 36'– 15.96"	1+590.342	N 21°– 13'– 15.42" E
PI.107	2,170,328.709	455,146.093	73.976	54°– 38'– 09.48"	1+664.318	N 10°– 36'–59.45" E
PI.108	2,170,335.562	455,160.96	16.370	58°– 51'– 33.34"	1+680.688	N 65°– 15'– 08.94"E
PI.109	2,170,322.353	455,180.461	23.553	10°– 15'– 27.60"	1+704.241	S 55°– 53'– 17.72" E
PI.110	2,170,317.321	455,185.605	7.196	10°– 15'– 34.34"	1+711.437	S 45°– 37'– 50.12" E
PI.111	2,170,311.454	455,189.77	7.195	10°– 15'– 32.11"	1+718.632	S 35°– 22'– 15.78" E
PI.112	2,170,304.938	455,192.824	7.196	10°– 15'– 29.55"	1+725.828	S 25°– 06'–43.67" E
PI.113	2,170,289.332	455,196.963	16.146	21°– 08'– 06.42"	1+741.974	S 14°– 51'– 14.13" E
PI.114	2,170,279.738	455,195.907	9.652	21°– 08'– 00.36"	1+751.626	S 06°– 16'– 52.29"W
PI.115	2,170,257.676	455,184.464	24.853	18°– 48'– 38.80"	1+776.479	S 27°– 24'–52.65"W
PI.116	2,170,238.549	455,181.57	19.345	18°– 48'– 17.45"	1+795.824	S 08°– 36'– 13.84" W
PI.117	2,170,219.51	455,184.996	19.345	18°– 48'– 26.24"	1+815.169	S 10°– 12'– 03.60"E
PI.118	2,170,202.592	455,194.377	19.345	18°– 48'– 34.04"	1+834.514	S 29°– 00'–29.84" E
PI.119	2,170,178.136	455,221.365	36.420	10°– 03'– 24.90"	1+870.934	S 47°– 49'–03.87" E
PI.120	2,170,172.859	455,229.769	9.923	10°– 03'– 38.63"	1+880.857	S 57°– 52'– 28.78" E
PI.121	2,170,164.34	455,250.786	22.678	33°– 30'– 53.33"	1+903.535	S 67°– 56'– 07.41" E
PI.122	2,170,156.839	455,255.926	9.093	33°– 31'– 01.46"	1+912.628	S 34°– 25'– 14.08" E
PI.123	2,170,138.577	455,256.214	18.264	12°– 08'– 14.59"	1+930.892	S 00°– 54'– 12.62" E
PI.124	2,170,130.892	455,257.994	7.888	12°– 08'– 02.21"	1+938.780	S 13°– 02'– 27.21" E
PI.125	2,170,123.752	455,261.35	7.889	12°– 07'– 45.78"	1+946.669	S 25°– 10'– 29.42"E
PI.126	2,170,117.477	455,266.131	7.889	12°– 08'– 16.13"	1+954.558	S 37°– 18'– 15.20" E
PI.127	2,170,112.348	455,272.124	7.888	12°– 08'– 05.01"	1+962.446	S 49°– 26'– 31.33" E
PI.128	2,170,108.593	455,279.062	7.889	12°– 07'– 53.97"	1+970.335	S 61°– 34'–36.34"E
PI.129	2,170,106.38	455,286.634	7.889	12°– 08'– 26.75"	1+978.224	S 73°– 42'– 30.31" E
PI.130	2,170,105.809	455,294.502	7.889	12°– 07'– 46.00"	1+986.113	S 85°– 50'–57.06"E



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

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
3. THE ALIGNMENT OF THE HEADRACE AND RELATED STRUCTURES SHALL BE CHECK AND CORRECTED BY THE CONTRACTOR TO SUIT THE FIELD CONDITIONS AND SHALL BE SUBMITTED TO DEDE'S FIELD ENGINEER FOR APPROVAL
4. REMOVE ALL EXISTING HEADRACE
5. DEMOLISH ALL EXISTING CONCRETE PAVEMENT
6. ALIGNMENT OF NEW O&M ROAD CONFORM TO EXISTING O&M ROAD

REFERENCE DRAWINGS :

1. HEADRACE PLAN AND PROFILE, STA. 1+000 TO STA. 1+500	MH–HR–03
2. HEADRACE PLAN AND PROFILE, STA. 2+500 TO STA.2+097.998	MH–HR–05
3. HEADRACE TYPICAL SECTIONS	MH–HR–06
4. HEADRACE CONCRETE PIER	MH–HR–07

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

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT
HEADRACE
PLAN AND PROFILE, STA. 1+500 TO STA. 2+000

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				

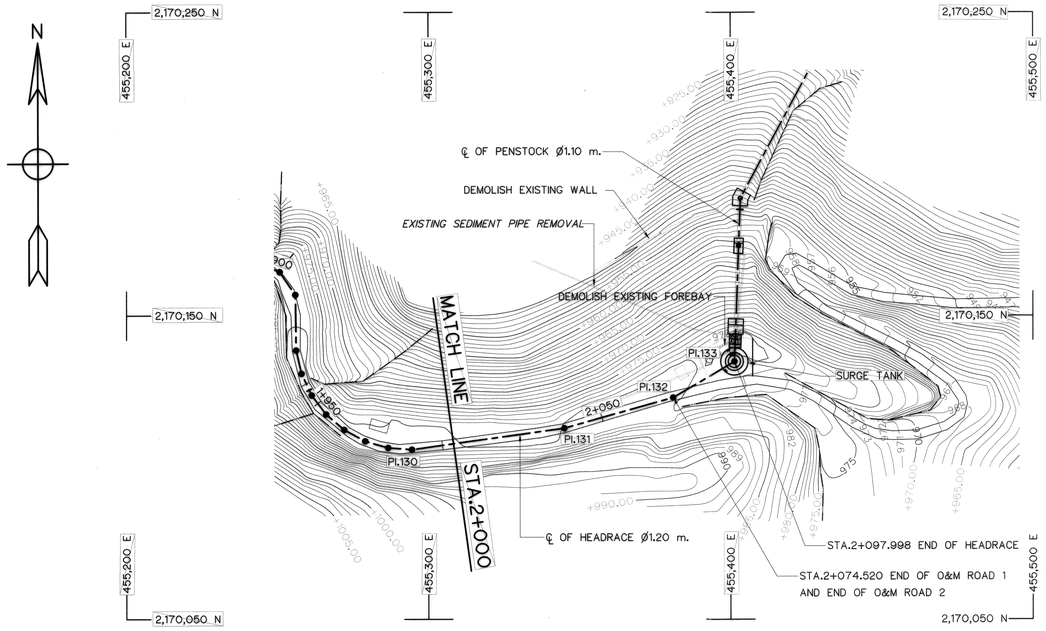
CONSULTANTS | DEDE

P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

DESIGNED	วิศ.64624	REVIEWED	
DRAWN		SUBMITTED	
CHECKED	วิศ.6226	RECOMMENDED	
PROJECT MANAGER	03/03/2559 DATE	APPROVED	P. Hemsuk

DRAWING NO. MH–HR–04
SHEET NO. 16 OF 51

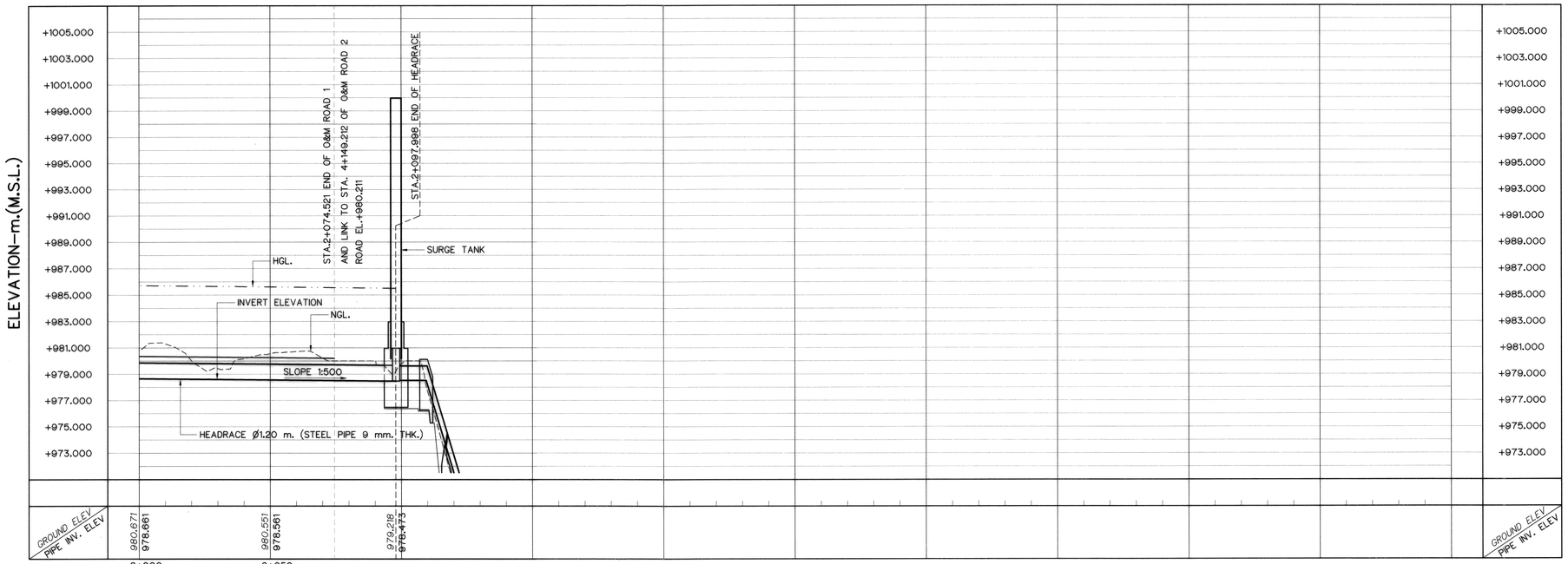


PLAN

SCALE 1:1,000

HORIZONTAL CURVE OF HEADRACE

NO. PI.	COORDINATE OF PI.		PI. TO PI.	DEFLECTION ANGLE (△)	PI. STA.	BEARING
	N	E	(m)	(° – ' – ")	(km)	(N/S ° – ' – " E/W)
PI.131	2,170,112.885	455,344.987	50.978	07°– 44'– 34.96"	2+037.091	N 82°– 01'– 16.95" E
PI.132	2,170,123.027	455,381.016	37.429	14°– 48'– 01.96"	2+074.520	N 74°– 16'– 41.99" E
END	2,170,134.951	455,401.241	23.478		2+097.998	



PROFILE

VERTICAL SCALE 1:200

HORIZONTAL SCALE 1:1,000

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
3. THE ALIGNMENT OF THE HEADRACE AND RELATED STRUCTURES SHALL BE CHECK AND CORRECTED BY THE CONTRACTOR TO SUIT THE FIELD CONDITIONS AND SHALL BE SUBMITTED TO DEDE'S FIELD ENGINEER FOR APPROVAL
4. REMOVE ALL EXISTING HEADRACE
5. DEMOLISH ALL EXISTING CONCRETE PAVEMENT
6. ALIGNMENT OF NEW O&M ROAD CONFORM TO EXISTING O&M ROAD

REFERENCE DRAWINGS :

1. HEADRACE PLAN AND PROFILE, STA. 2+000 TO STA. 2+500	MH–HR–04
2. HEADRACE TYPICAL SECTIONS	MH–HR–06
3. HEADRACE CONCRETE PIER	MH–HR–07

0 5 10 15

SCALE 1:200 METERS

0 10 20 40 60 80

SCALE 1:1,000 METERS

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

MAE HAT HYDROPOWER PROJECT

ELECTRO–MECHANICAL EQUIPMENT

HEADRACE

PLAN AND PROFILE, STA. 2+000 TO STA. 2+097.998

NO.	DATE	REVISIONS	CHECKED	APPROVED
3				
2				
1				

CONSULTANTS | DEDE

P&C MANAGEMENT CO.,LTD.

DESIGNED ณัฐ.64624 DATE ส.ค.6226

DRAWN

CHECKED DATE ส.ค.6226

PROJECT MANAGER 01/03/2564 DATE

Department of Alternative Energy Development and Efficiency MINISTRY OF ENERGY

REVIEWED

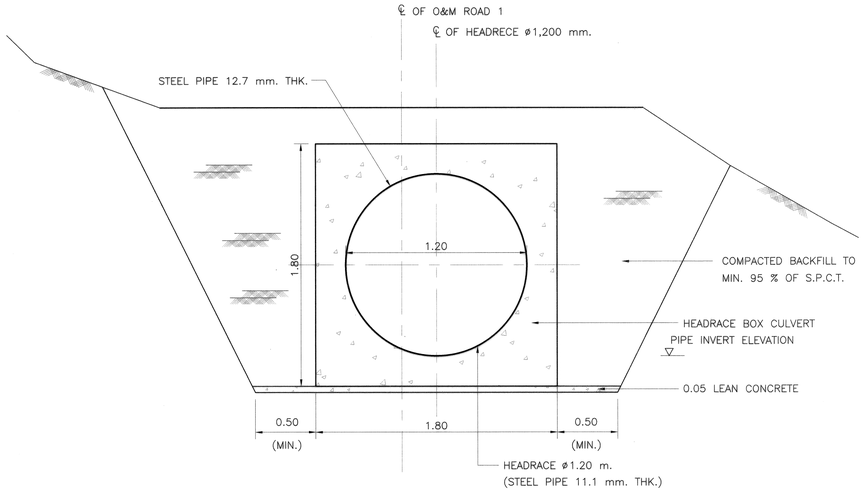
SUBMITTED

RECOMMENDED

APPROVED P. Hongsiri

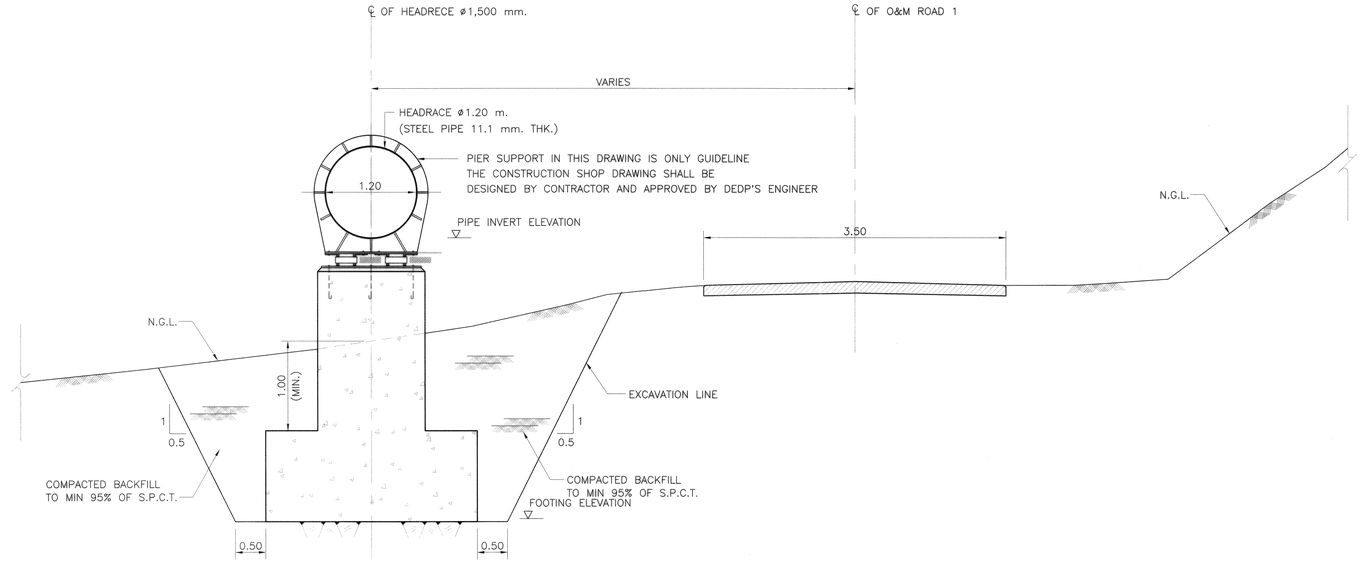
DRAWING NO. MH–HR–05

SHEET NO. 17 OF 51



EARTH EXCAVATION

NOT TO SCALE

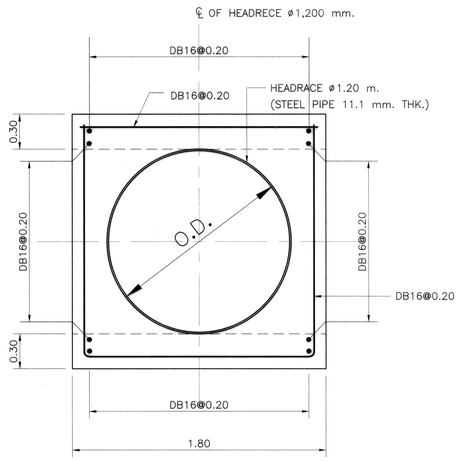


CONCRETE PIER

SCALE 1:50

TYPICAL SECTIONS OF HEADRACE

SCALE 1:50



HEADRACE BOX CULVERT REINFORCEMENT DETAIL

NOT TO SCALE

TABLE OF HEADRACE SUPPORT

STA TO STA	TYPE OF HEADRACE SUPPORT
0+000 – 0+921	EARTH EXCAVATION
0+921 – 0+973	PIER
0+973 – 1+298	EARTH EXCAVATION
1+298 – 1+344.5	PIER
1+344.5 – 2+097.998	EARTH EXCAVATION

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
3. CONCRETE DESIGN BASED ON THE COMPRESSIVE STRENGTH OF 210 KSC, STANDARD CYLINDER ØO.15xO.30 m. TEST AT AGE 28 DAYS. UNLESS OTHERWISE INDICATED IN SPECIFIC DRAWINGS.
4. ULTIMATE TENSILE STRESSES OF REINFORCING STEEL, CONFORM TO THE REQUIREMENT OF THAI INDUSTRIAL STANDARD DESIGNATION SR24 FOR STRUCTURAL GRADE PLAIN ROUND BAR AND SD3O FOR INTERMEDIATE GRADE DEFORMED BAR.

REFERENCE DRAWINGS :

1. HEADRACE CONCRETE PIER MH-HR-07

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
HEADRACE
TYPICAL SECTIONS

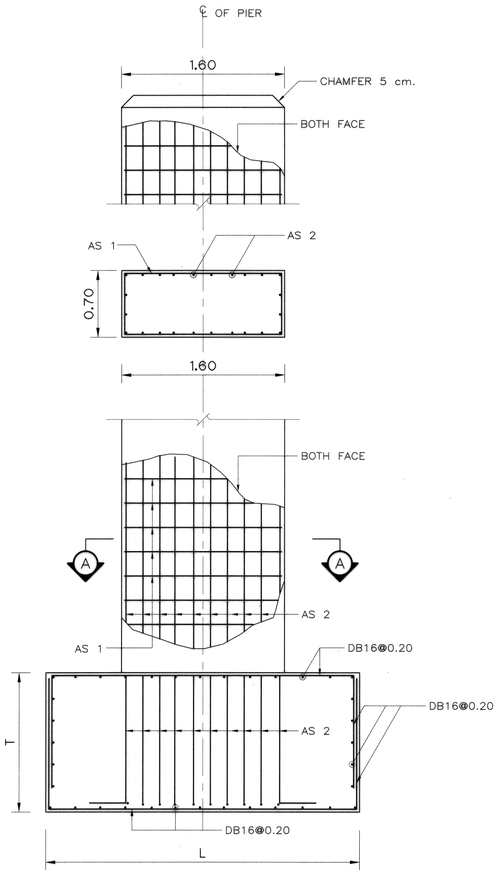
P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

DESIGNED	วิศ.64624	วิศ.6226	REVIEWED
DRAWN			SUBMITTED
CHECKED		วิศ.6226	RECOMMENDED
PROJECT MANAGER	08/03/2559 DATE		APPROVED

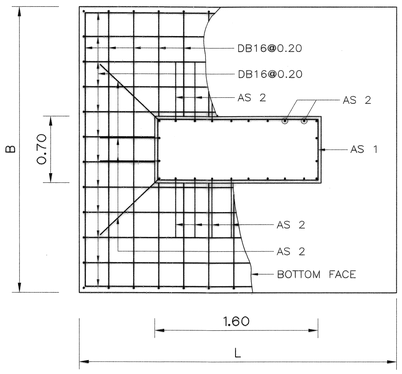
DRAWING NO. MH-HR-06

SHEET NO. 18 OF 51



RC. PIER DETAILS

SCALE 1:30

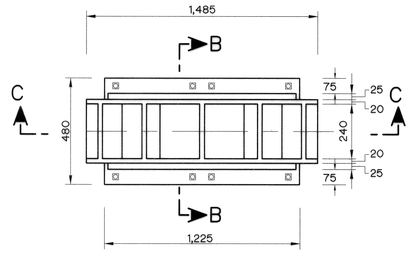


SECTION A–A

SCALE 1:30

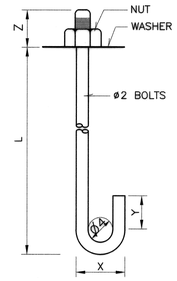
PIER DATA

H	BXL	T	AS 1	AS 2
H < 1	1.80x1.80	0.60	DB16@0.20	DB16@0.20
1 < H ≤ 2	2.00x2.00	0.60	DB16@0.20	DB16@0.20
2 < H ≤ 3	2.40x2.20	0.80	DB16@0.20	DB16@0.15
3 < H ≤ 4	2.60x2.60	0.80	DB16@0.20	DB16@0.15
4 < H ≤ 5	3.00x2.80	1.00	DB16@0.20	DB20@0.20
5 < H ≤ 6	3.00x3.00	1.00	DB16@0.20	DB20@0.15



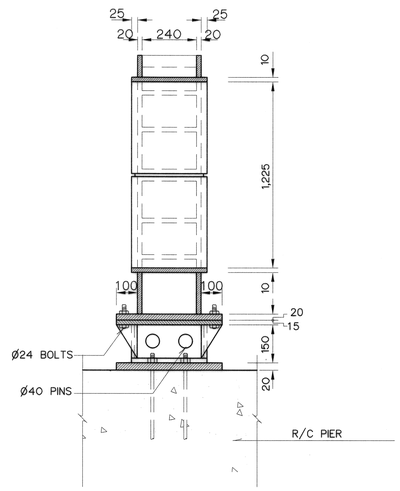
PLAN

NOT TO SCALE



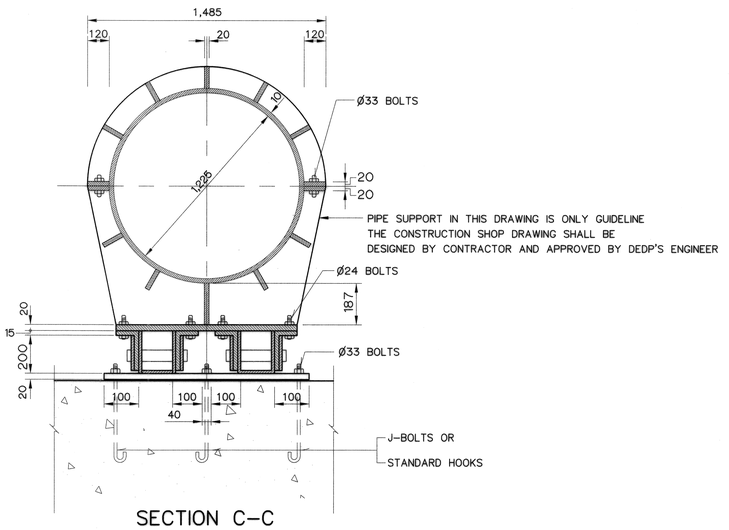
HOOKED BOLT

NOT TO SCALE



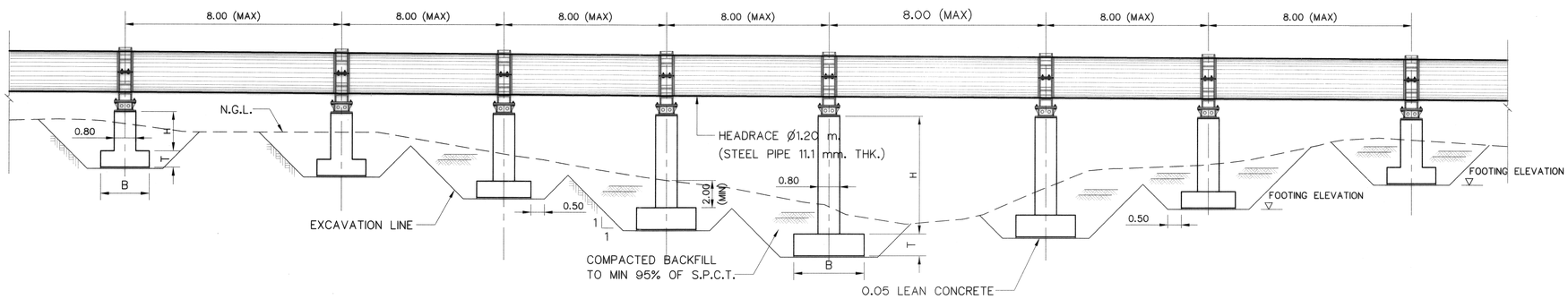
SECTION B–B

NOT TO SCALE



SECTION C–C

NOT TO SCALE



PROFILE OF CONCRETE PIER

NOT TO SCALE

NOTES :

1. DIMENSIONS AND ELEVATIONS (M.S.L.) ARE IN METERS, DIMENSIONS OF PIPE SUPPORT ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.
2. SYMBOLS, ABBREVIATIONS AND GENERAL NOTES SEE DWG. NO. MH-GN-03
3. CONCRETE DESIGN BASED ON THE COMPRESSIVE STRENGTH OF 210 KSC, STANDARD CYLINDER Ø0.15x0.30 m. TEST AT AGE 28 DAYS. UNLESS OTHERWISE INDICATED IN SPECIFIC DRAWINGS.
4. ULTIMATE TENSILE STRESSES OF REINFORCING STEEL, CONFORM TO THE REQUIREMENT OF THAI INDUSTRIAL STANDARD DESIGNATION SR24 FOR STRUCTURAL GRADE PLAIN ROUND BAR AND SD30 FOR INTERMEDIATE GRADE DEFORMED BAR.
4. ALLOWABLE BEARING CAPACITY NOT LESS THAN 15 TON/sq m.

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
HEADRACE
CONCRETE PIER

P&C MANAGEMENT CO.,LTD.

Department of Alternative Energy Development and Efficiency
MINISTRY OF ENERGY

DESIGNED	วิชิต.64624	REVIEWED	
DRAWN		SUBMITTED	
CHECKED	วิชิต.6226	RECOMMENDED	
PROJECT MANAGER	DATE	APPROVED	

DRAWING NO. MH-HR-07

SHEET NO. 19 OF 51