

**BASIC DESIGN STUDY REPORT ON THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND
IN
THE REPUBLIC OF INDONESIA**

**VOL. II
BASIC DESIGN DRAWING**

NOVEMBER 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

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**BASIC DESIGN STUDY REPORT ON THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND
IN
THE REPUBLIC OF INDONESIA**

**VOL. II
BASIC DESIGN DRAWING**

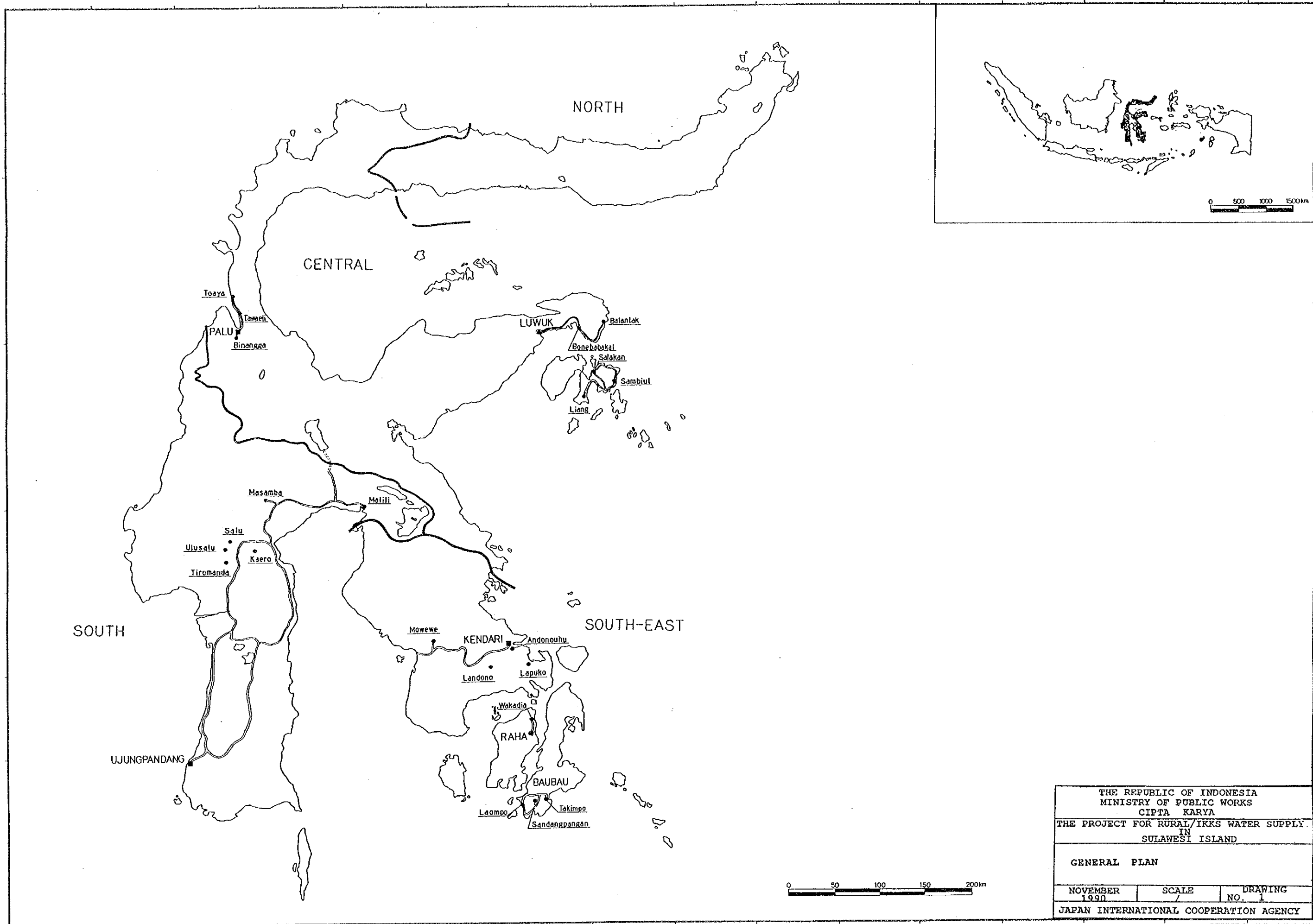
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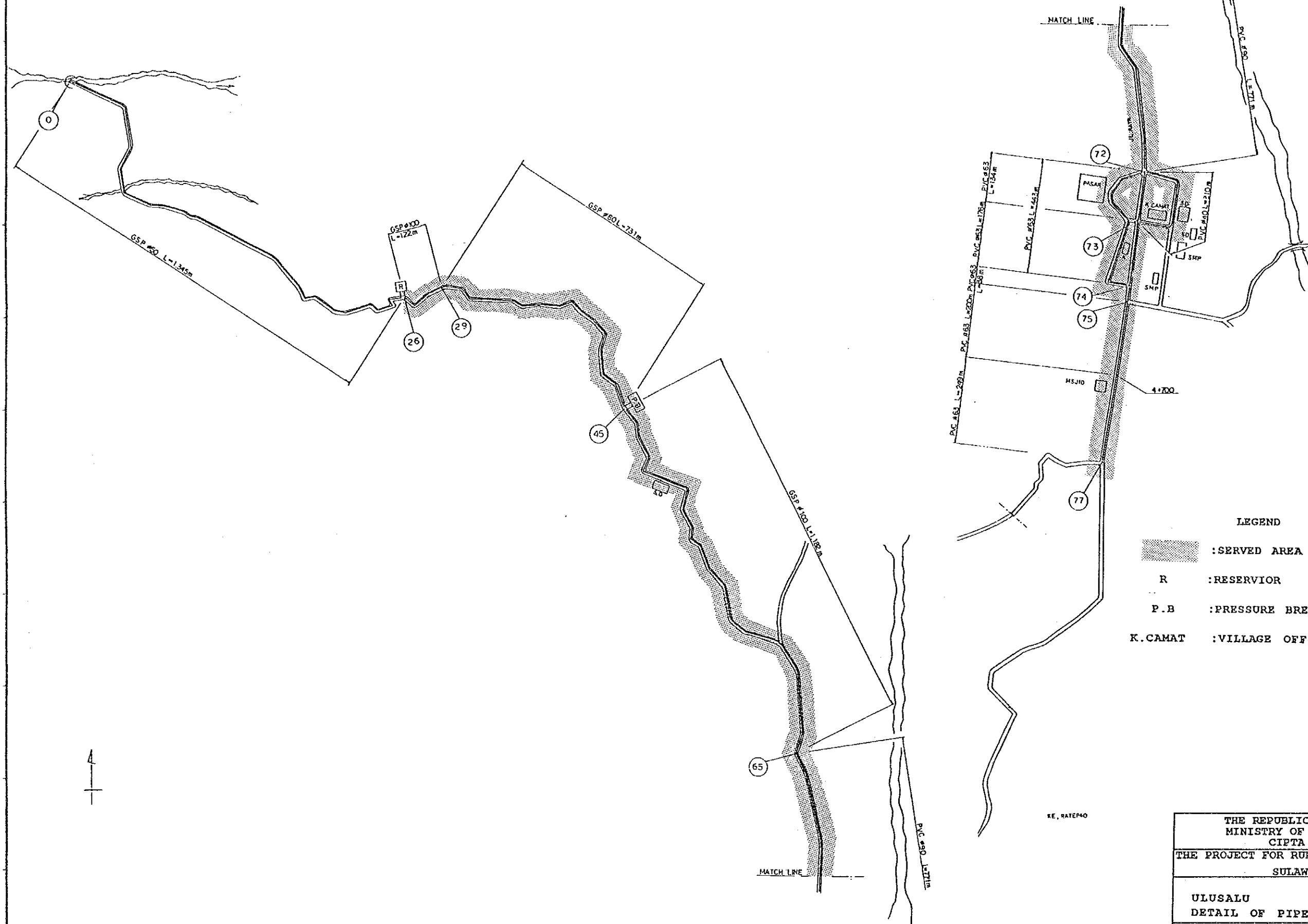
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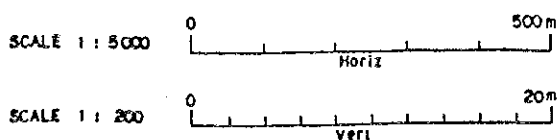
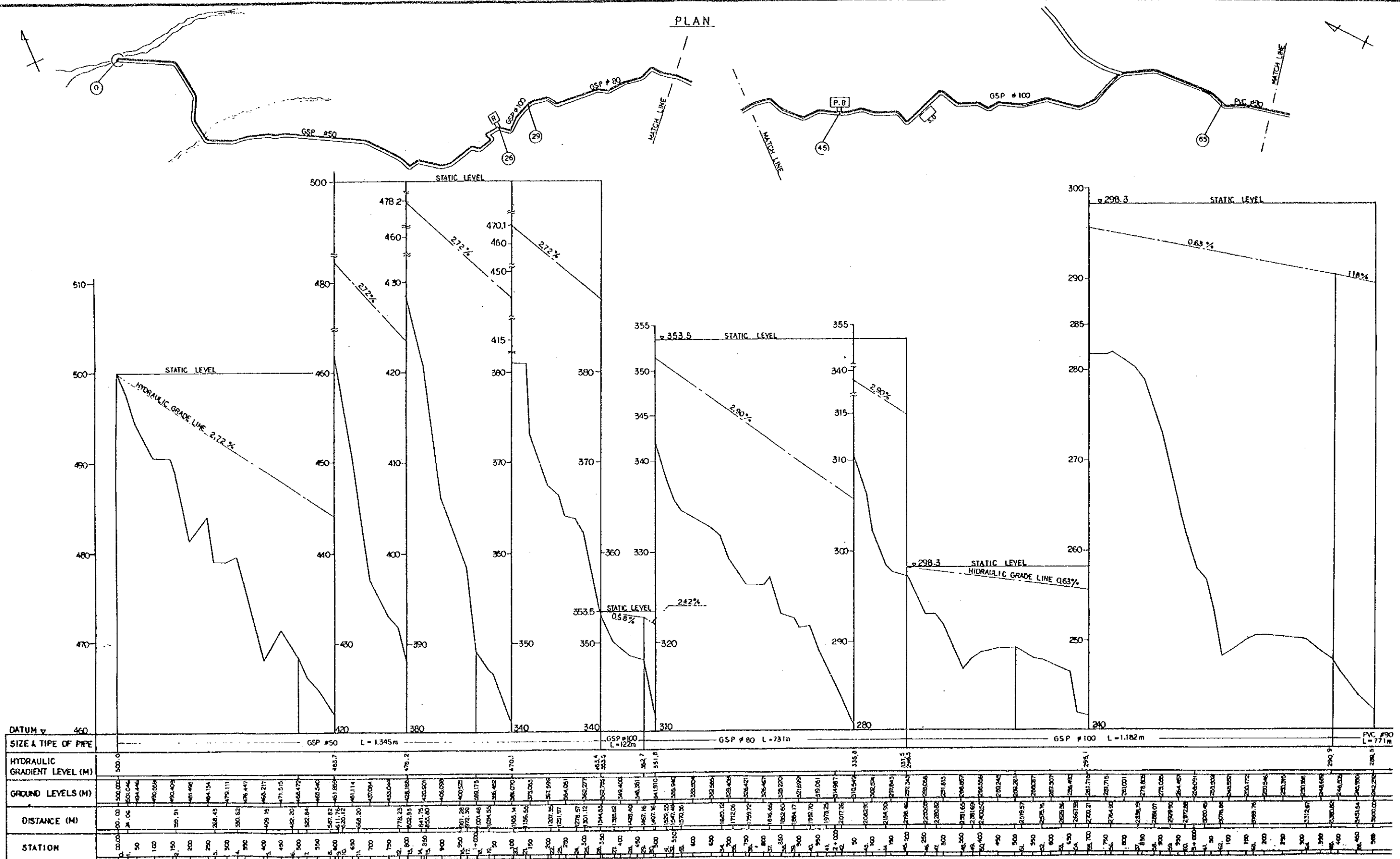
THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
GENERAL PLAN		
NOVEMBER 1990	SCALE /	DRAWING NO. 1
JAPAN INTERNATIONAL COOPERATION AGENCY		

DETAIL OF PIPELINE



- LEGEND
- :SERVED AREA BY PUBLIC TAPS
 - R :RESERVIOR
 - P.B :PRESSURE BREAKING PIT
 - K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN SULAWESI ISLAND		
ULUSALU		
DETAIL OF PIPELINE		
NOVEMBER 1990	SCALE	DRAWING NO. 2
JAPAN INTERNATIONAL COOPERATION AGENCY		



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

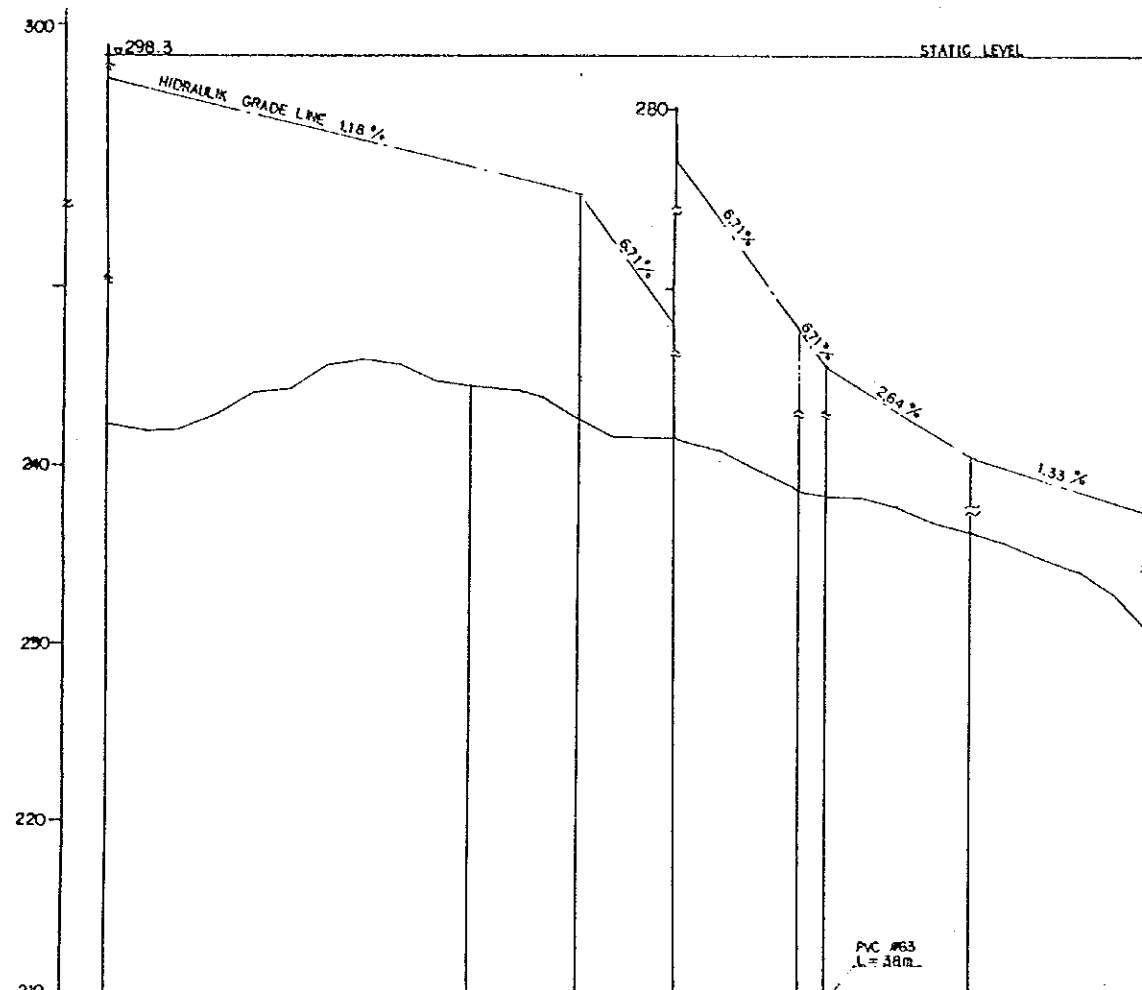
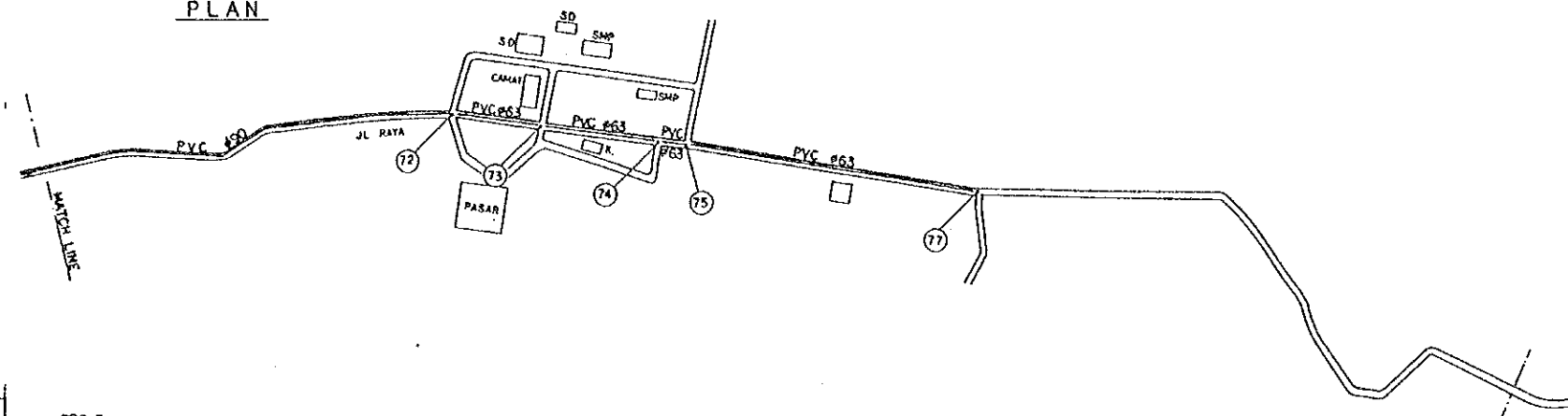
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

ULUSALU
PLAN & LONGITUDINAL SECTION (1/3)

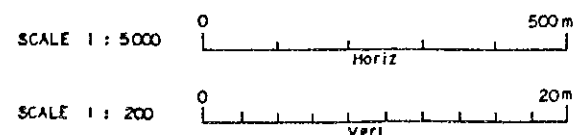
NOVEMBER 1990 SCALE / DRAWING NO. 3

JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN



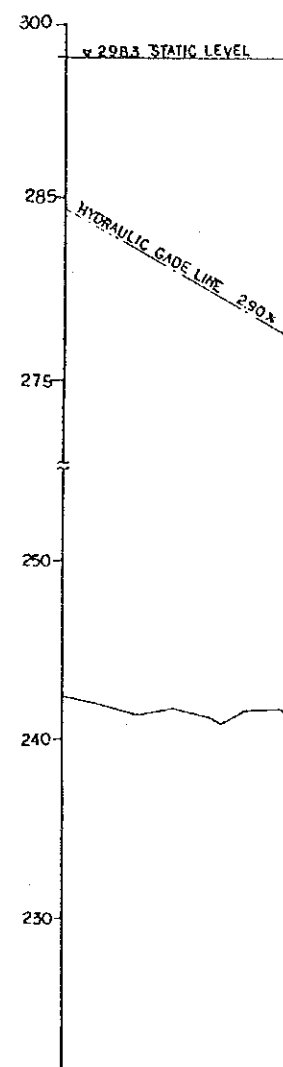
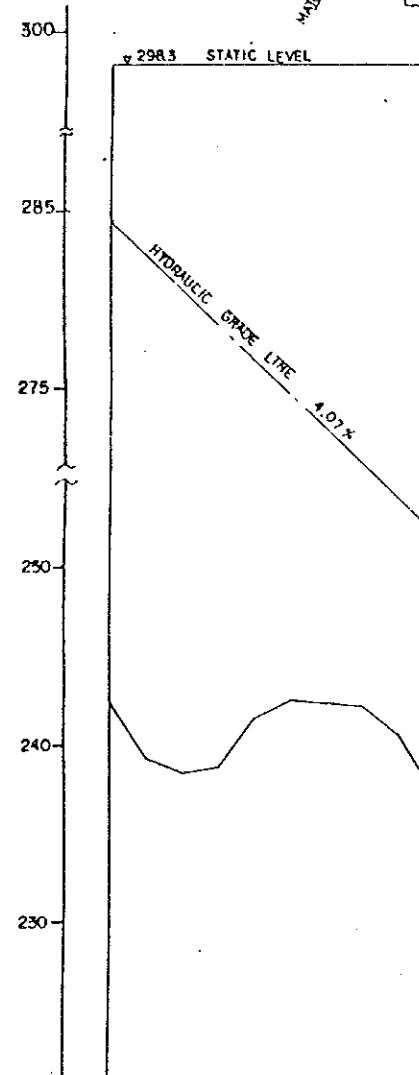
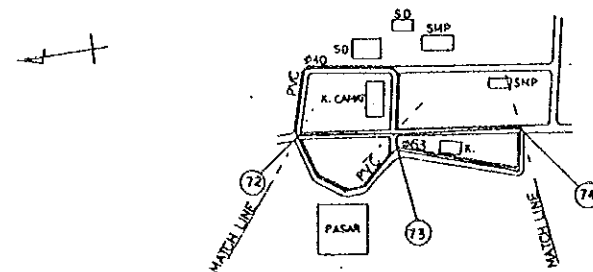
SIZE & TYPE OF PIPE	PVC #90 L=771m										PVC #63 L=176m	PVC #63 L=200m	PVC #63 L=249m
HYDRAULIC GRADIENT LEVEL (M)	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5
GROUND LEVELS (M)	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5	298.5
DISTANCE (M)	0	100	200	300	400	500	600	700	800	900	1000	1100	1200
STATION	0+00	0+100	0+200	0+300	0+400	0+500	0+600	0+700	0+800	0+900	0+1000	0+1100	0+1200



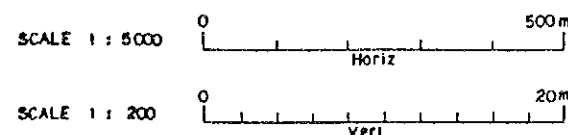
LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
ULUSALU PLAN & LONGITUDINAL SECTION (2/3)		
NOVEMBER 1990	SCALE /	DRAWING NO. 4
JAPAN INTERNATIONAL COOPERATION AGENCY		

PLAN



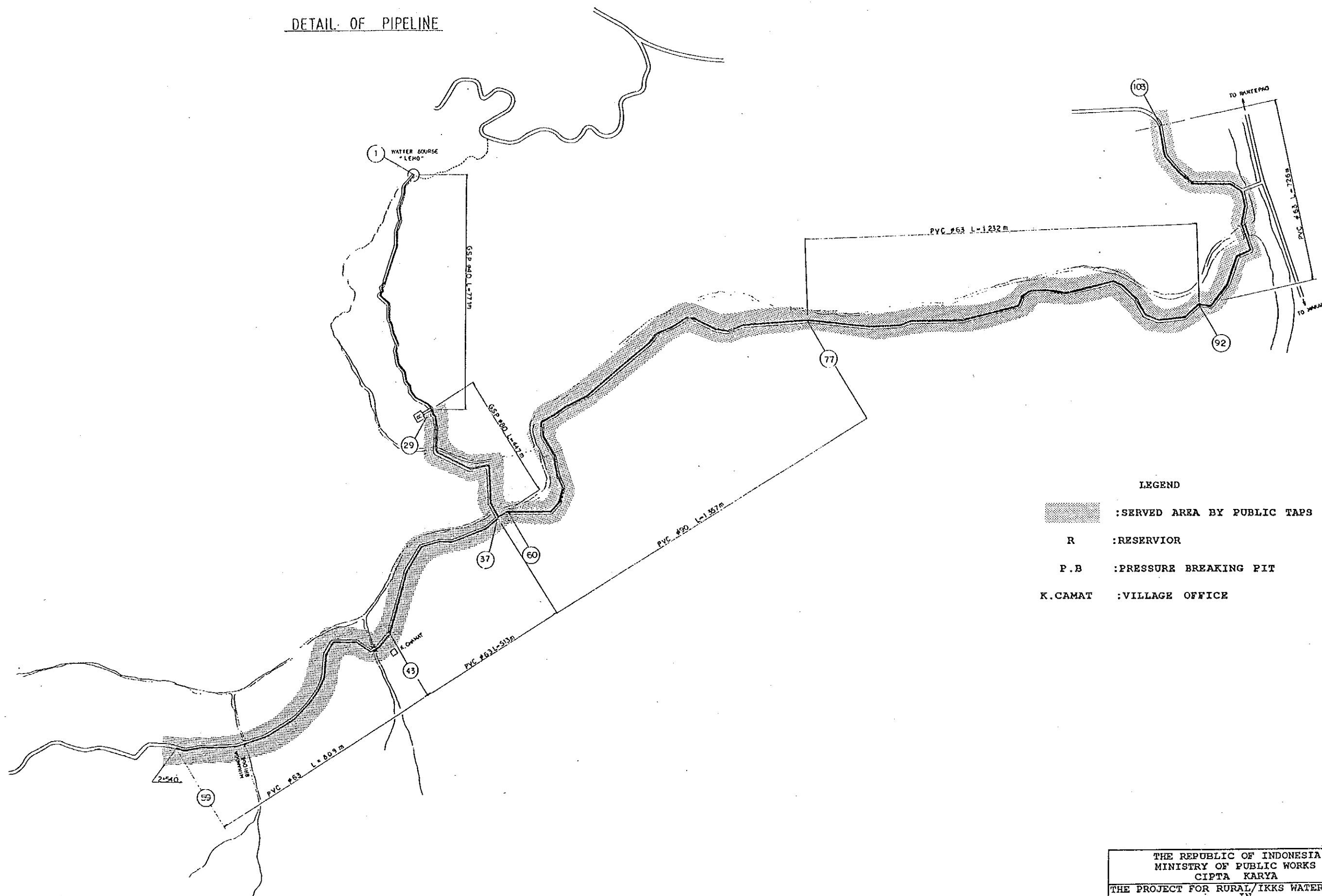
DATUM	220	220
SIZE & TYPE OF PIPE	PVC #63 L=443m	PVC #40 L=310m
HYDRAULIC GRADIENT LEVEL (M)	281.8	281.8
GROUND LEVELS (M)	238.45, 239.95, 238.50, 238.90, 241.75, 242.75, 242.50, 242.80, 240.75, 243.00	242.55, 241.90, 241.30, 241.70, 241.25, 241.55, 241.60
DISTANCE (M)	0.00, 67.00, 105.40, 172.00, 200.00, 377.50, 443.00	0.00, 92.50, 218.50, 309.00
STATION	72.00, 72.67, 73.72, 74.72, 76.72, 78.72, 79.72	74.00, 74.92, 76.10, 77.10



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
ULUSALU PLAN & LONGITUDINAL SECTION (3/3)		
NOVEMBER 1990	SCALE /	DRAWING NO. 5
JAPAN INTERNATIONAL COOPERATION AGENCY		

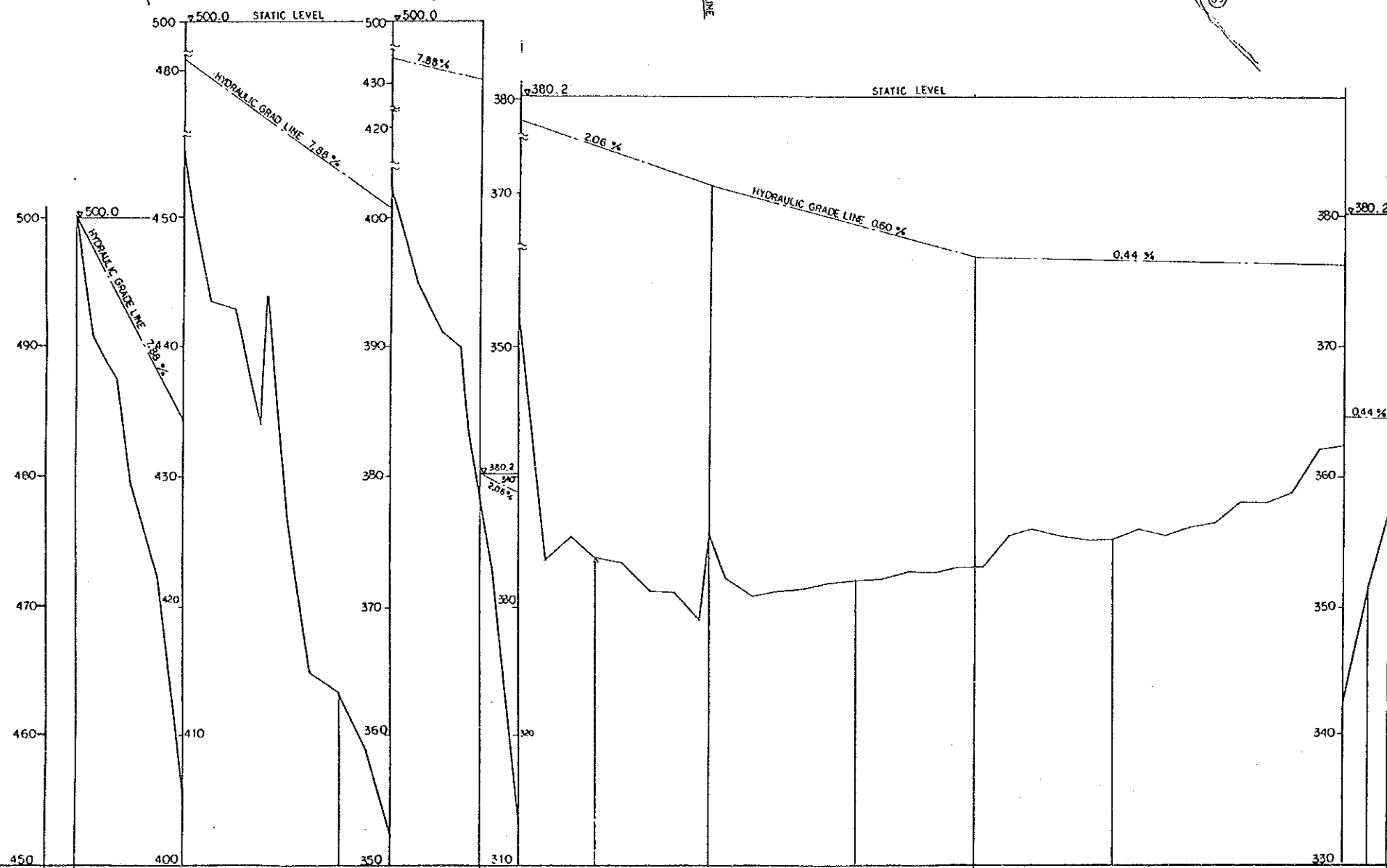
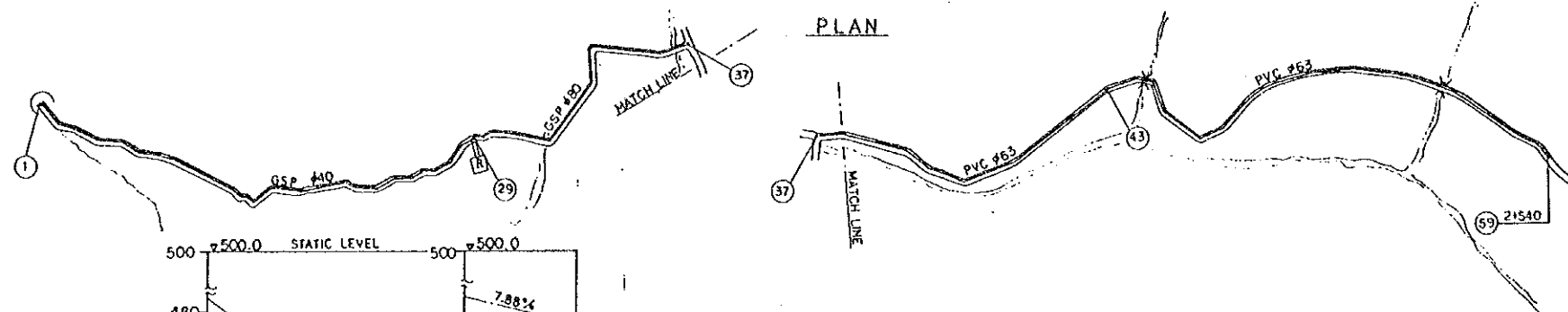
DETAIL OF PIPELINE



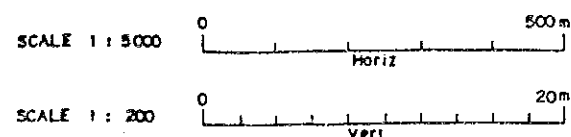
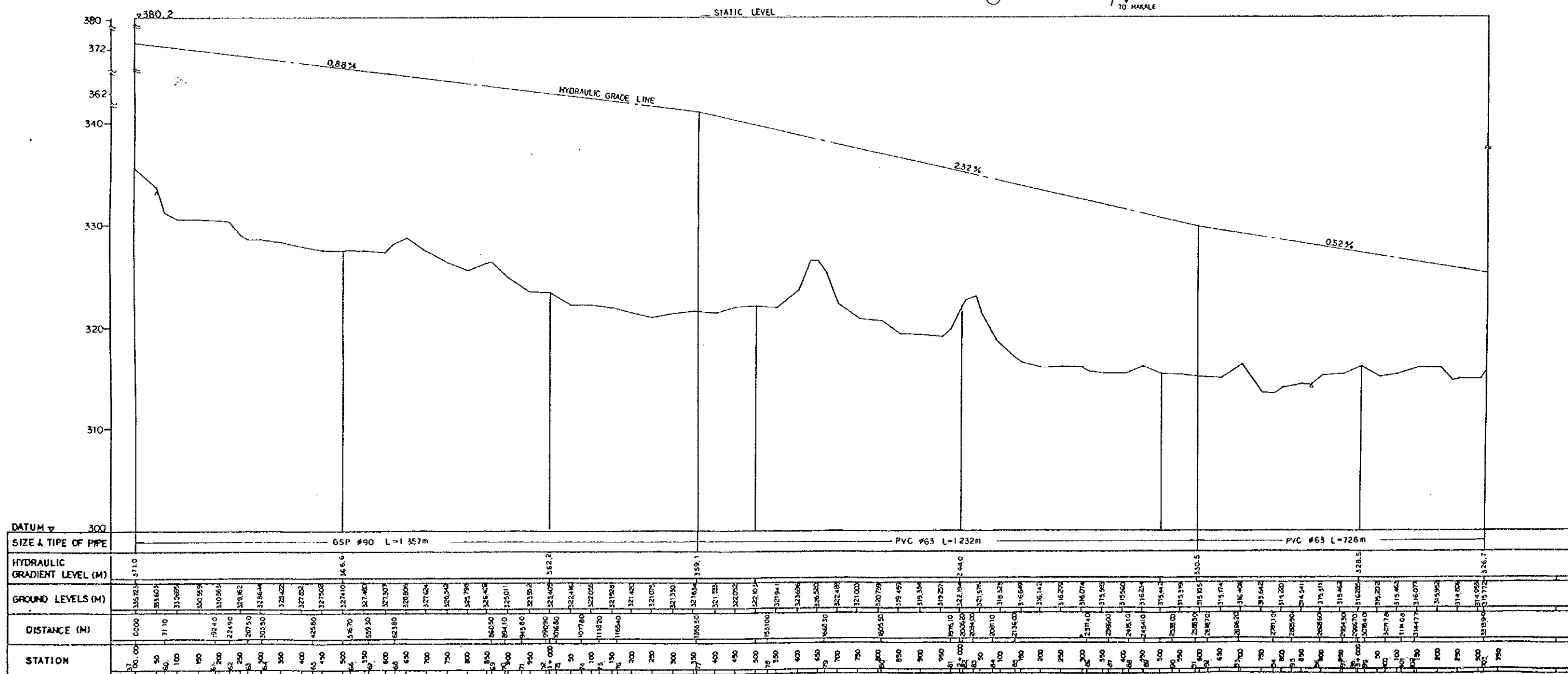
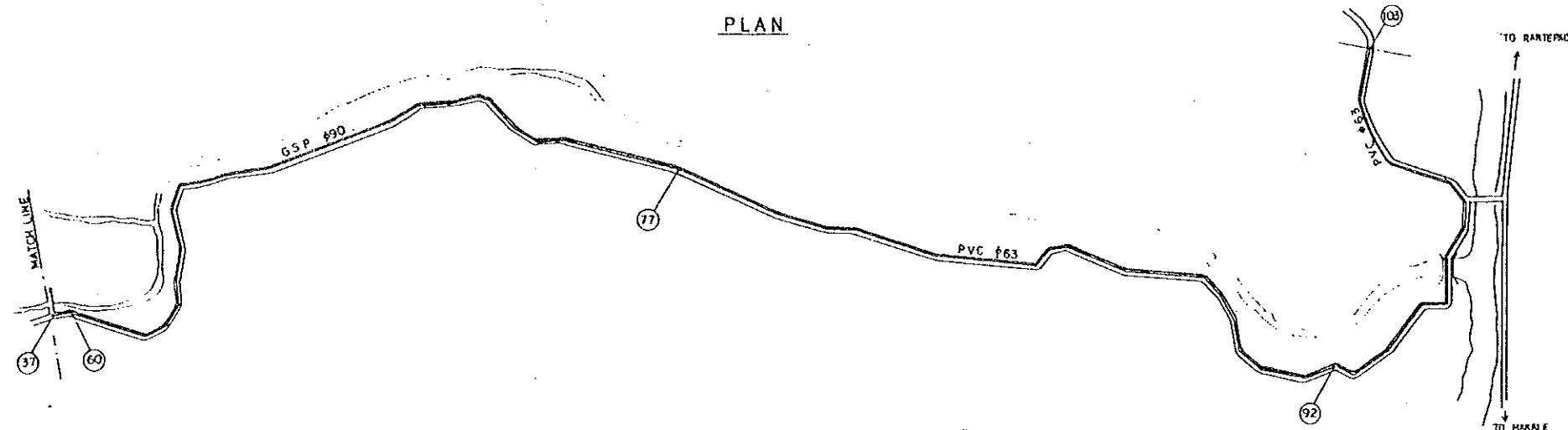
LEGEND

- :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
SALU DETAIL OF PIPELINE		
NOVEMBER 1990	SCALE /	DRAWING NO. 6
JAPAN INTERNATIONAL COOPERATION AGENCY		



DATUM	450	400	350	310					330
SIZE & TYPE OF PIPE	GSP #40 L=771m				GSP #80 L=447m		PVC #63 L=513m		PVC #63 L=809m
HYDRAULIC GRADIENT LEVEL (M)									
GROUND LEVELS (M)	500.000	498.864	499.036	497.054	495.918	494.842	493.992	492.969	491.864
DISTANCE (M)	0.00	46.28	92.56	138.84	185.12	231.40	277.68	323.96	370.24
STATION	0+00	0+46.28	0+92.56	0+138.84	0+185.12	0+231.40	0+277.68	0+323.96	0+370.24



THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

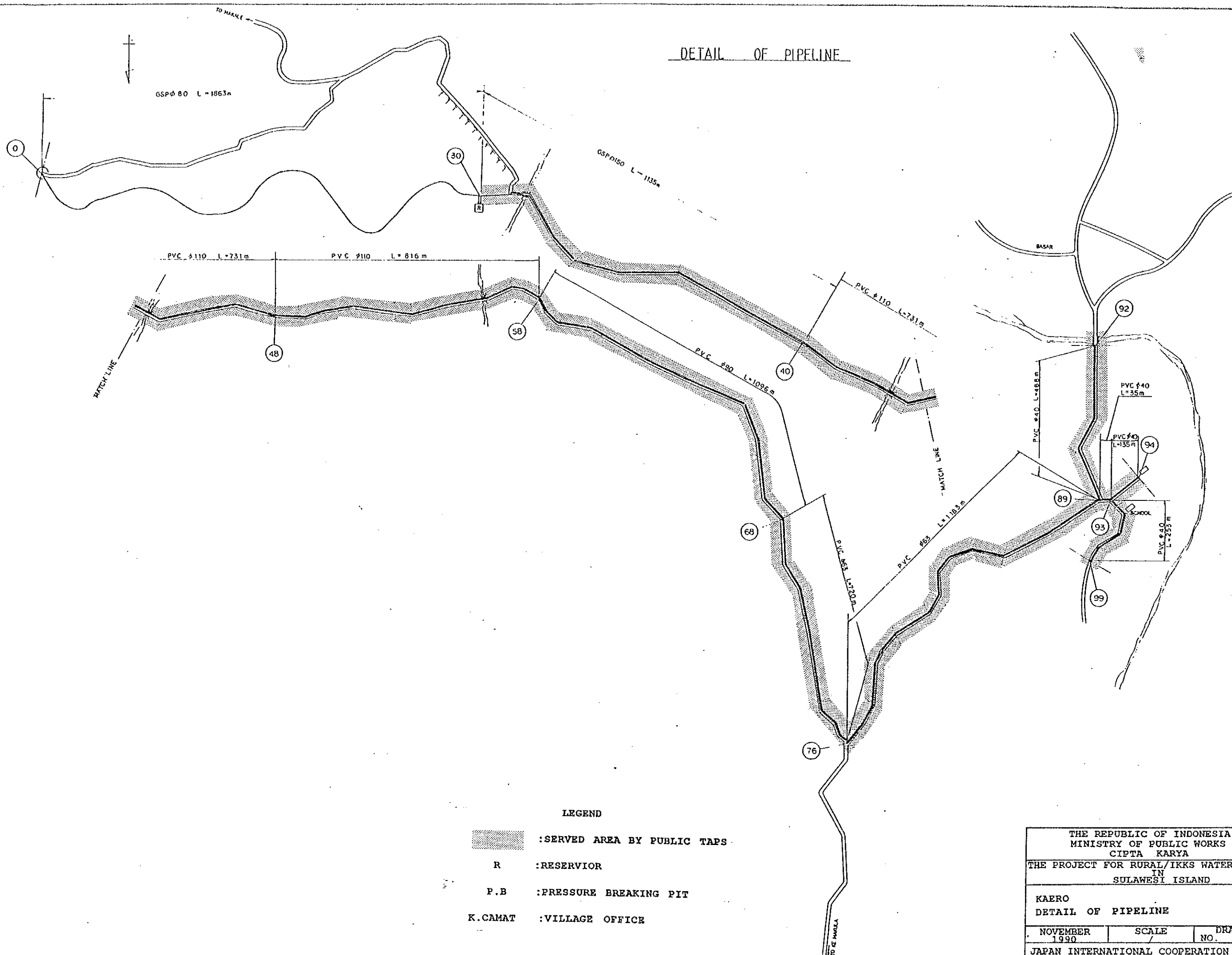
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

SALU
PLAN & LONGITUDINAL SECTION (2/2)

NOVEMBER 1990	SCALE /	DRAWING NO. 8
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JAPAN INTERNATIONAL COOPERATION AGENCY

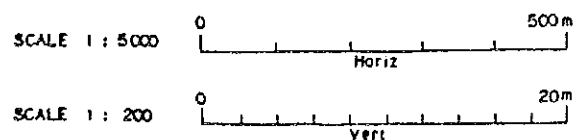
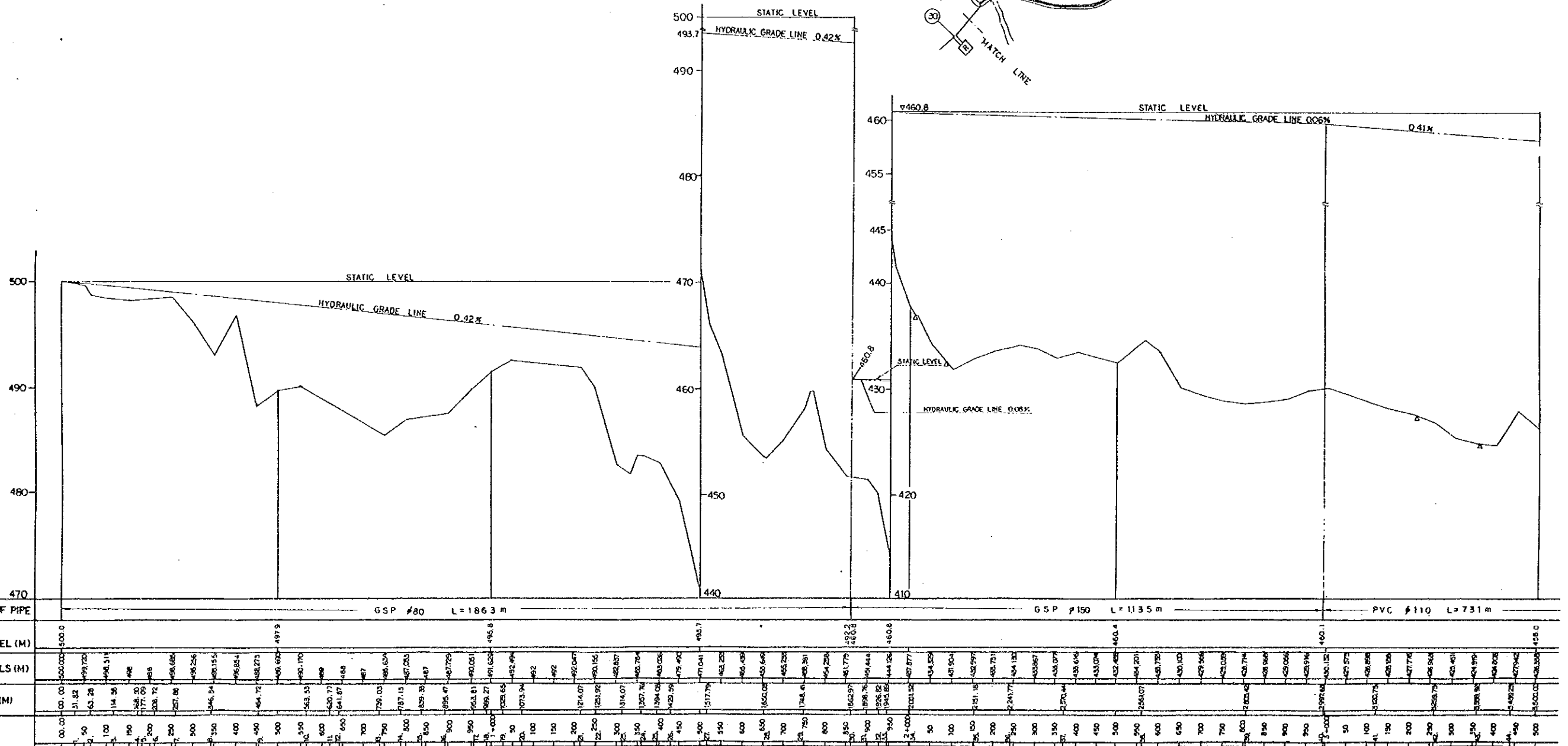
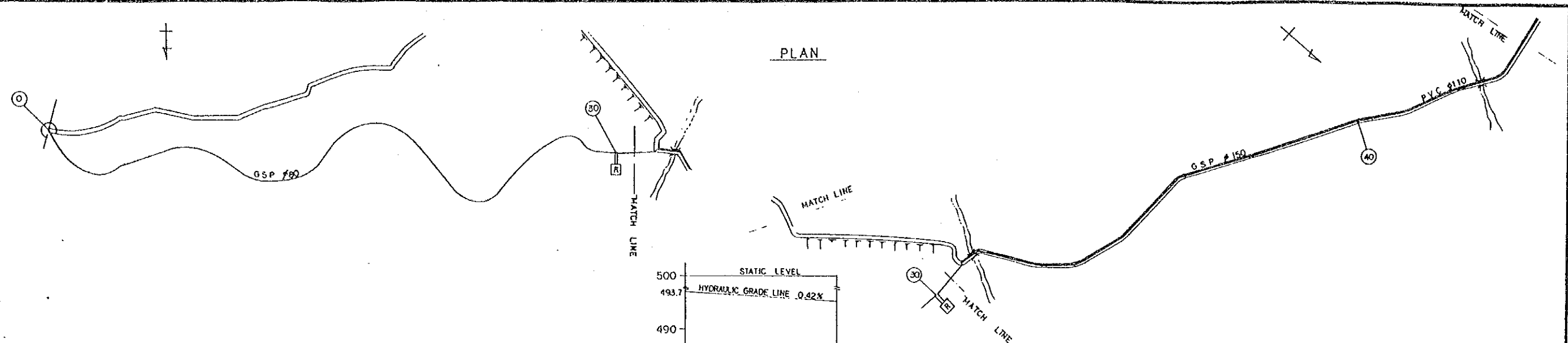
DETAIL OF PIPELINE



LEGEND

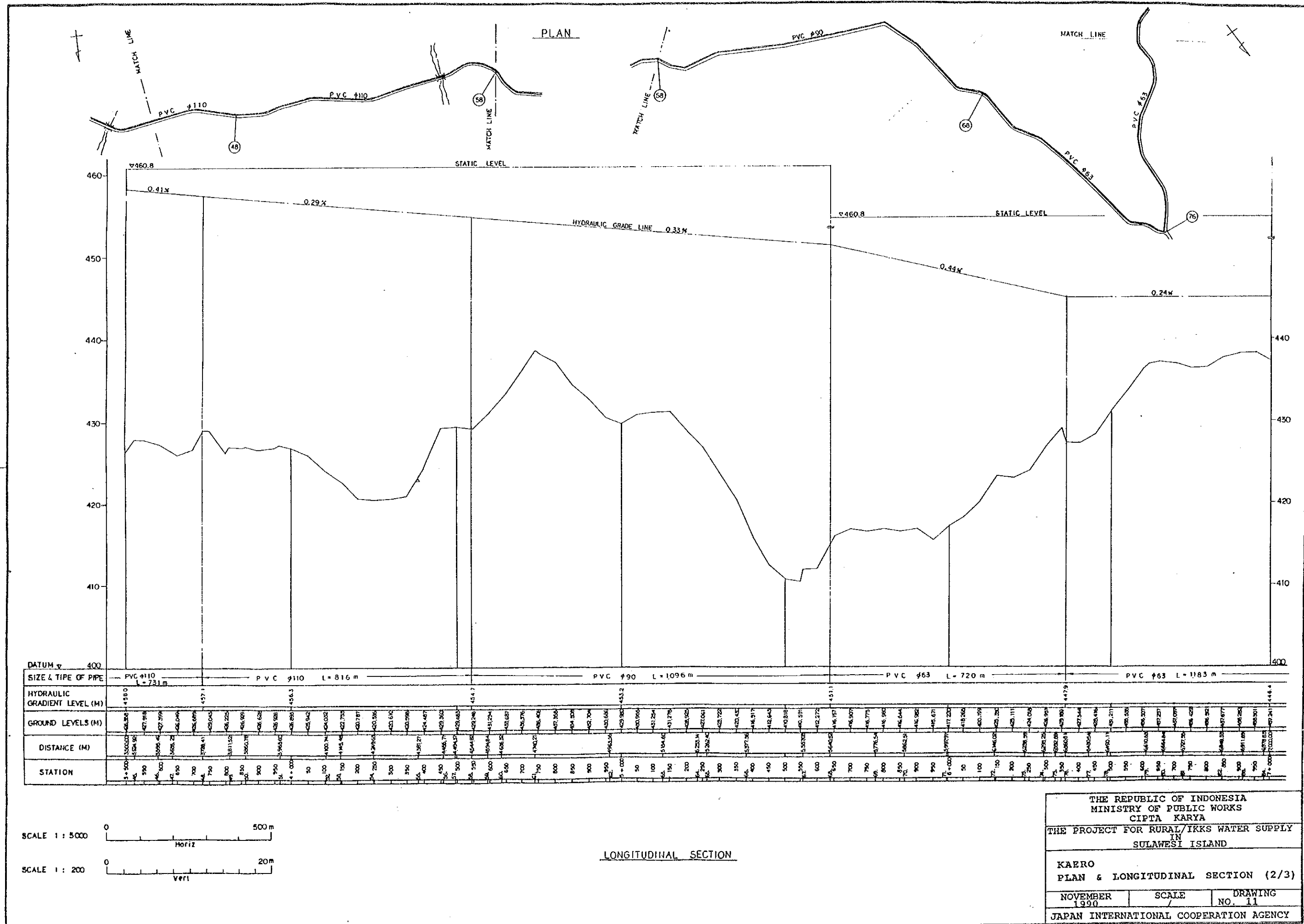
-  :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
KAERO		
DETAIL OF PIPELINE		
NOVEMBER	SCALE	DRAWING
1990	/	NO. 9
JAPAN INTERNATIONAL COOPERATION AGENCY		



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
KAERO PLAN & LONGITUDINAL SECTION (1/3)		
NOVEMBER 1990	SCALE /	DRAWING NO. 10
JAPAN INTERNATIONAL COOPERATION AGENCY		



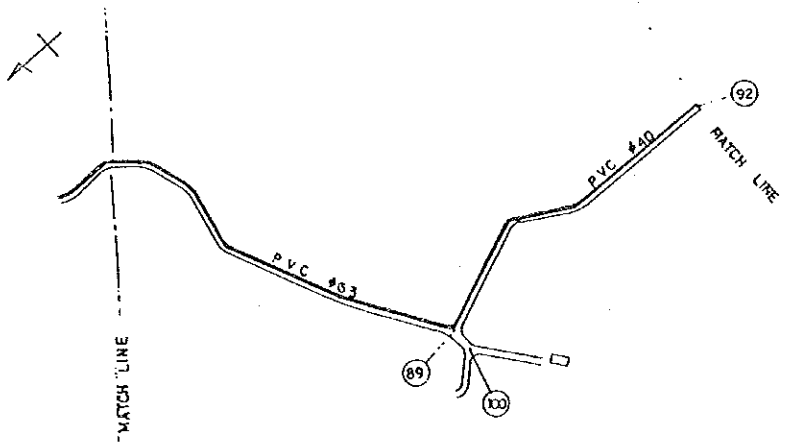
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

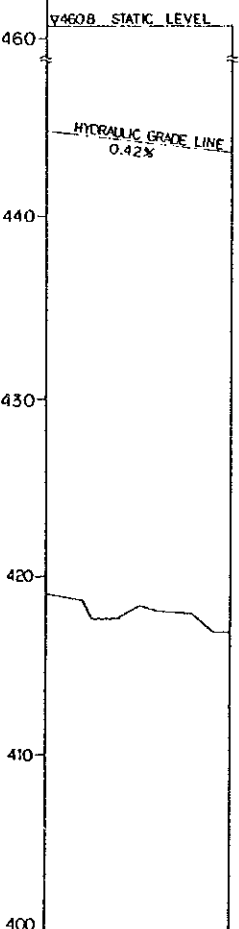
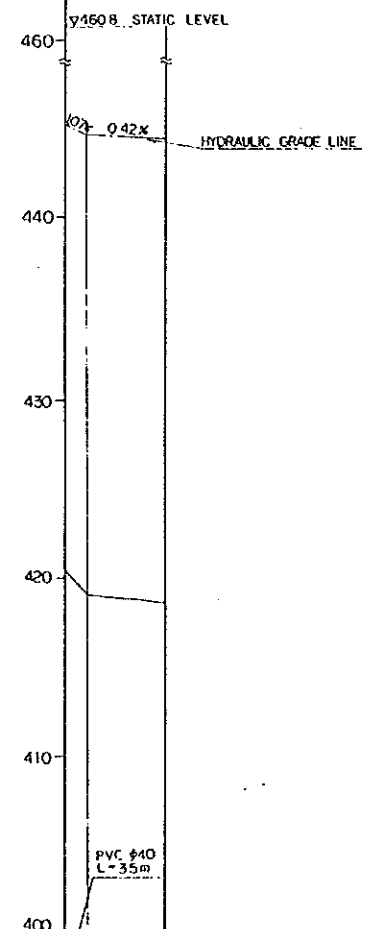
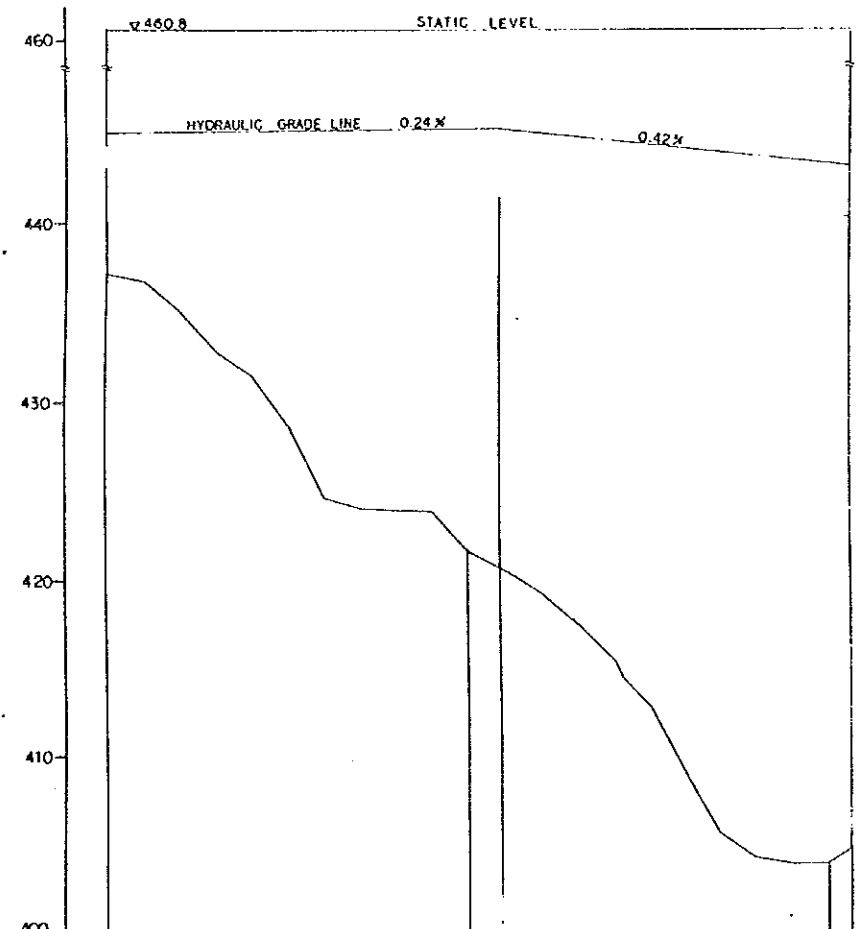
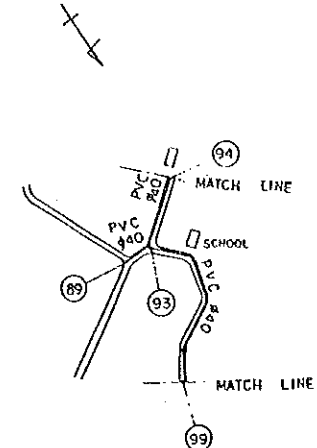
KAERO
PLAN & LONGITUDINAL SECTION (2/3)

NOVEMBER 1990	SCALE /	DRAWING NO. 11
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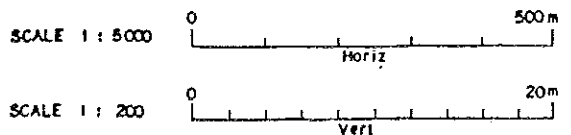
JAPAN INTERNATIONAL COOPERATION AGENCY



PLAN



SIZE & TYPE OF PIPE	PVC #63 L=1183 m										PVC #40 L=488 m										PVC #40 L=335 m										PVC #40 L=253 m									
HYDRAULIC GRADIENT LEVEL (M)	446.4										445.1										444.7										444.1									
GROUND LEVELS (M)	452.21	451.80	451.39	450.98	450.57	450.16	449.75	449.34	448.93	448.52	448.11	447.70	447.29	446.88	446.47	446.06	445.65	445.24	444.83	444.42	444.01	443.60	443.19	442.78	442.37	441.96	441.55	441.14	440.73	440.32	439.91	439.50	439.09	438.68	438.27	437.86	437.45	437.04		
DISTANCE (M)	7000.00	7007.62	7015.24	7022.86	7030.48	7038.10	7045.72	7053.34	7060.96	7068.58	7076.20	7083.82	7091.44	7099.06	7106.68	7114.30	7121.92	7129.54	7137.16	7144.78	7152.40	7160.02	7167.64	7175.26	7182.88	7190.50	7198.12	7205.74	7213.36	7220.98	7228.60	7236.22	7243.84	7251.46	7259.08	7266.70	7274.32			
STATION	7+000	7+050	7+100	7+150	7+200	7+250	7+300	7+350	7+400	7+450	7+500	7+550	7+600	7+650	7+700	7+750	7+800	7+850	7+900	7+950	8+000	8+050	8+100	8+150	8+200	8+250	8+300	8+350	8+400	8+450	8+500	8+550	8+600	8+650	8+700	8+750				



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

KAERO
PLAN & LONGITUDINAL SECTION (3/3)

NOVEMBER 1990	SCALE /	DRAWING NO. 12
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JAPAN INTERNATIONAL COOPERATION AGENCY



GOVERNMENT OF THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT
DIRECTORATE OF SWAMPS

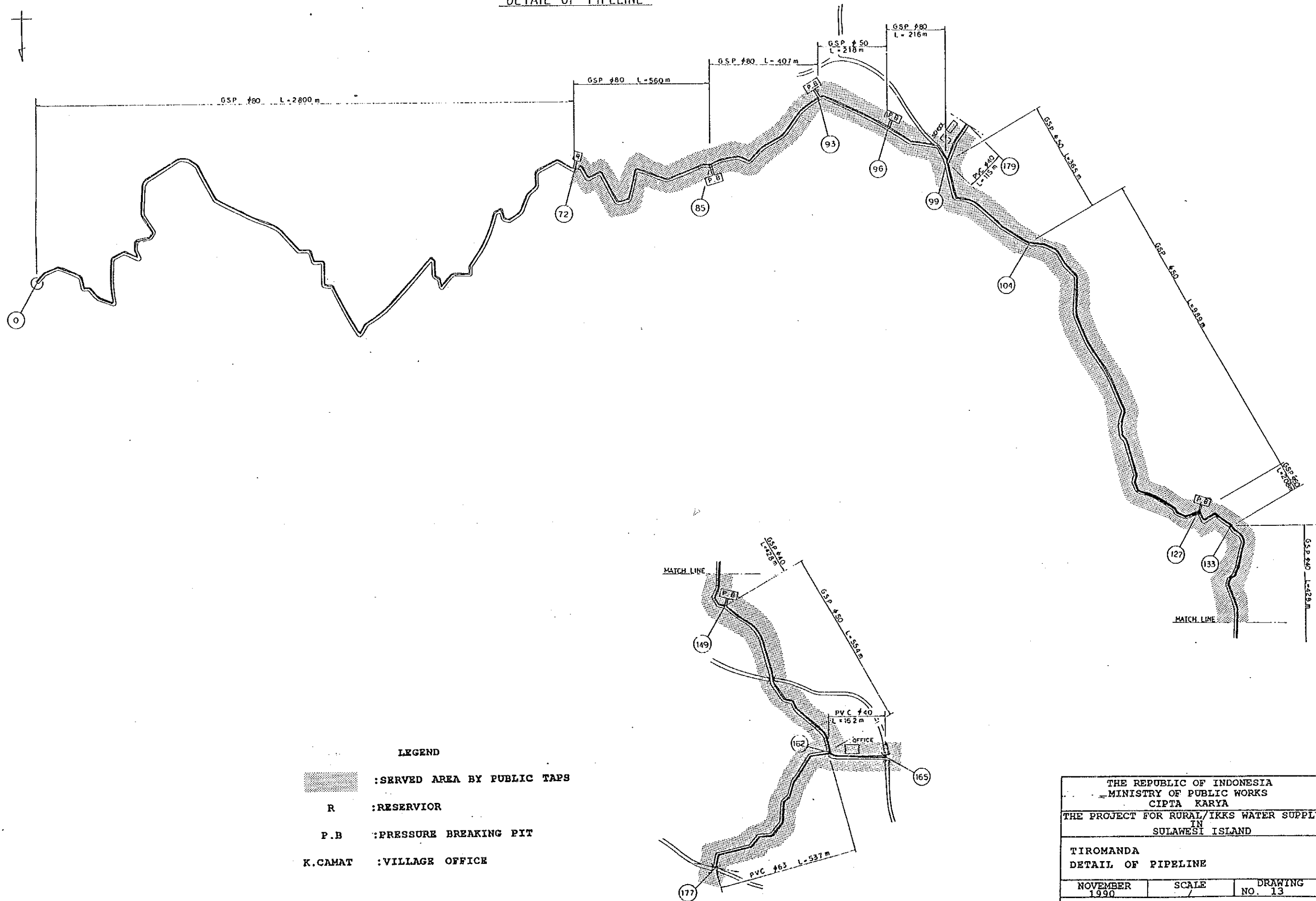
RECONNAISSANCE REPORT
ON
THE PULAU RIMAU INTEGRATED
SWAMP IMPROVEMENT PROJECT
IN SOUTH SUMATRA

NOVEMBER 1990



PACIFIC CONSULTANTS INTERNARIONAL

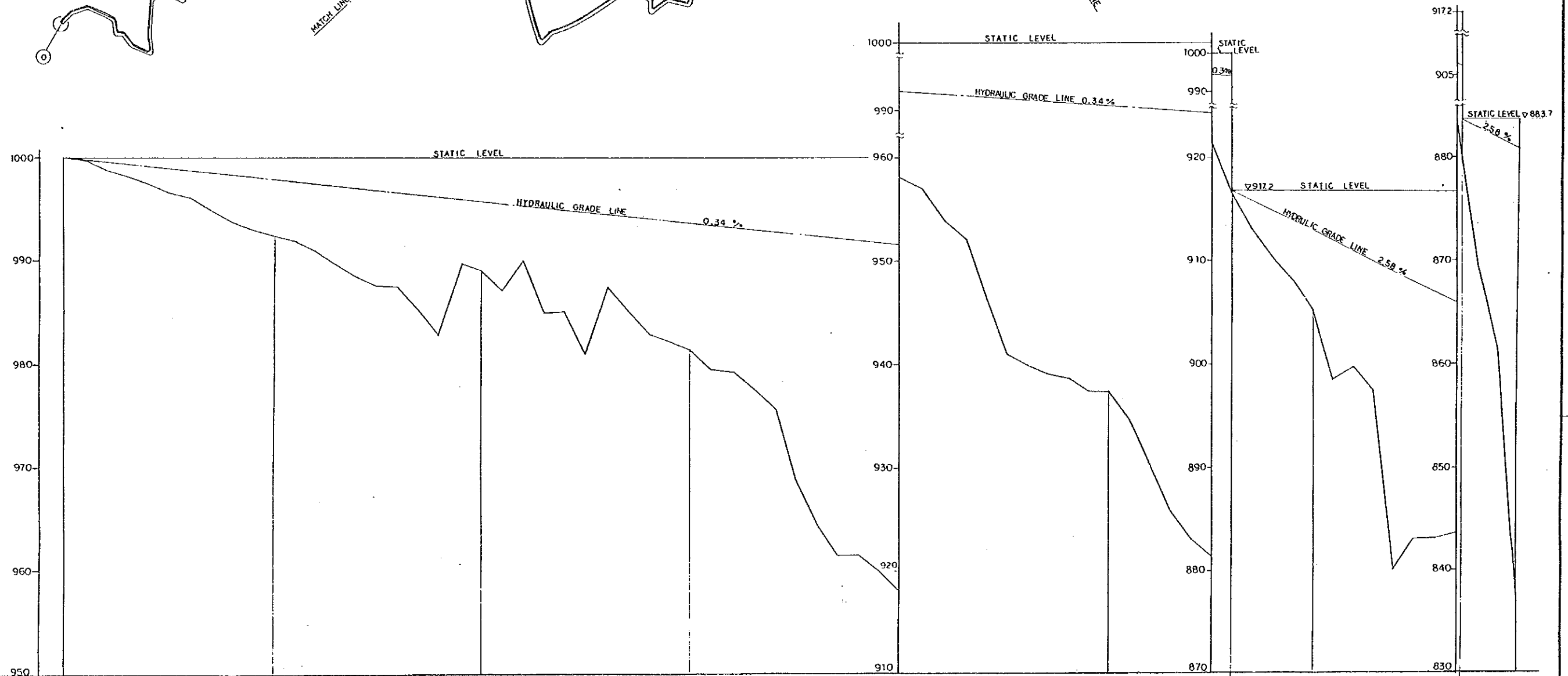
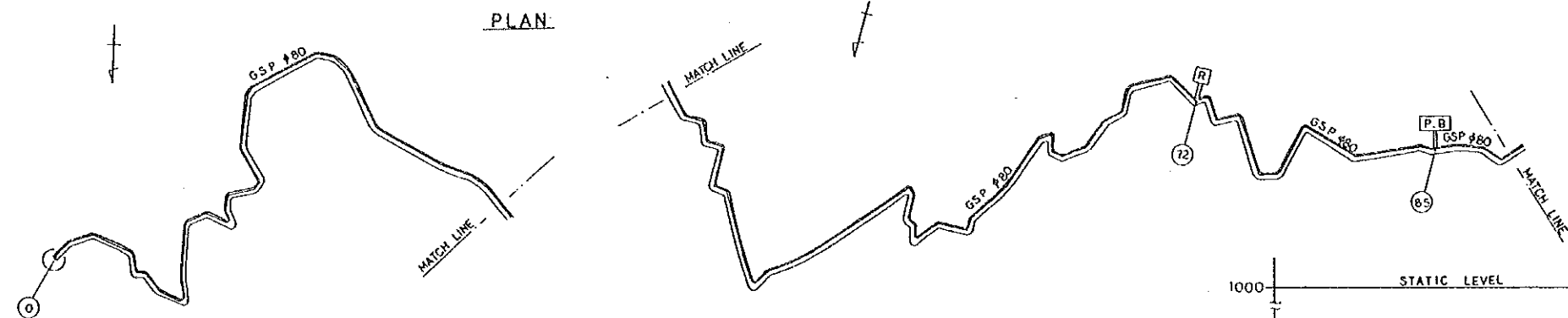
DETAIL OF PIPELINE



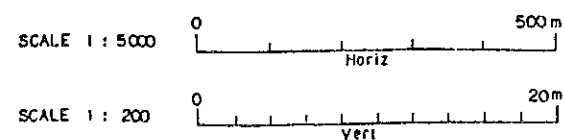
LEGEND

- :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
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THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
TIROMANDA		
DETAIL OF PIPELINE		
NOVEMBER	SCALE	DRAWING
1990	/	NO. 13
JAPAN INTERNATIONAL COOPERATION AGENCY		

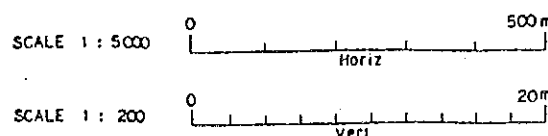
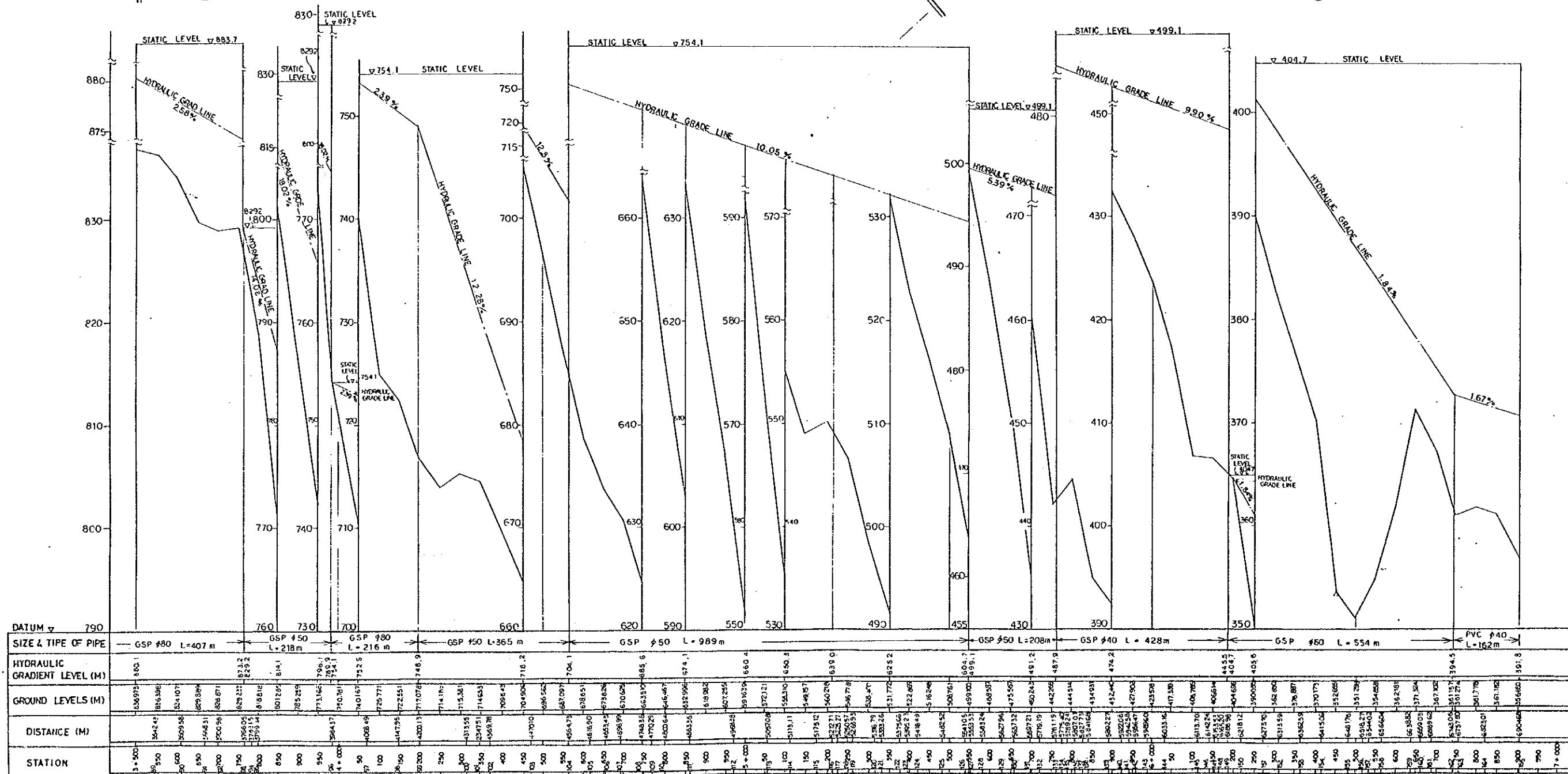
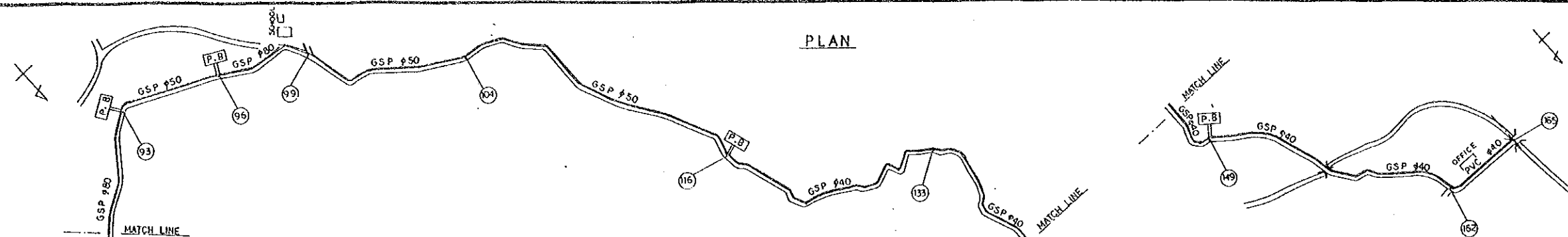


SIZE & TYPE OF PIPE	GSP #80 L = 2800 m										GSP #80 L = 560 m									
HYDRAULIC GRADIENT LEVEL (M)	1000.00	999.80	999.60	999.40	999.20	999.00	998.80	998.60	998.40	998.20	998.00	997.80	997.60	997.40	997.20	997.00	996.80	996.60	996.40	996.20
GROUND LEVELS (M)	1000.00	999.80	999.60	999.40	999.20	999.00	998.80	998.60	998.40	998.20	998.00	997.80	997.60	997.40	997.20	997.00	996.80	996.60	996.40	996.20
DISTANCE (M)	0	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850	900	950
STATION	0+00	0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50	5+00	5+50	6+00	6+50	7+00	7+50	8+00	8+50	9+00	9+50



LONGITUDINAL SECTION

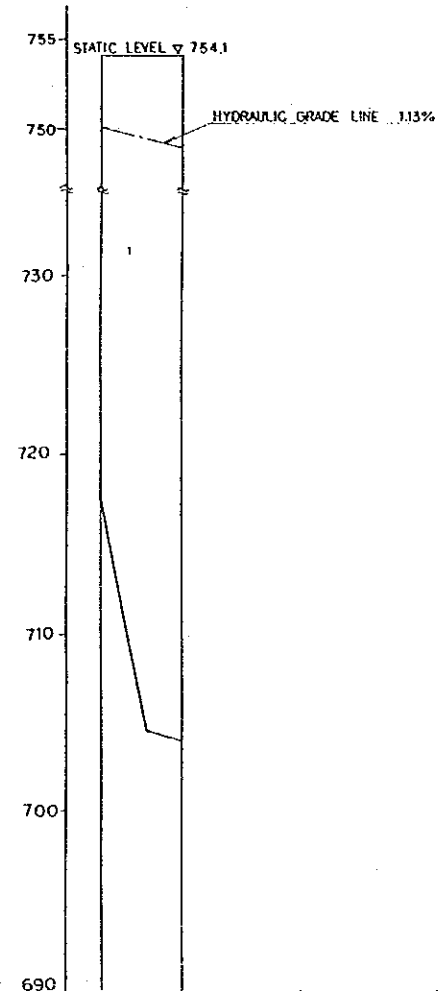
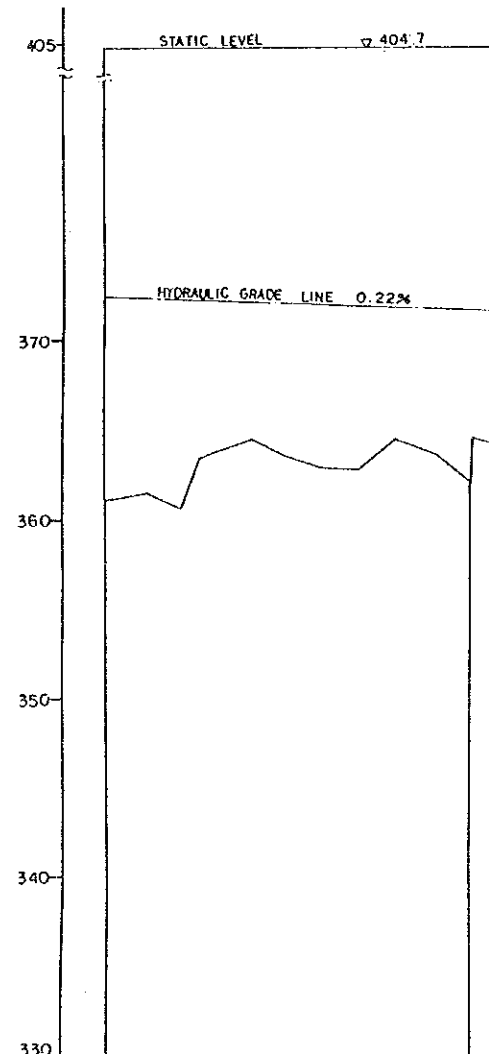
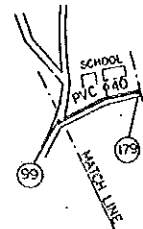
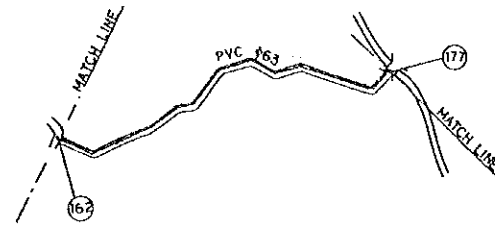
THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
TIROMANDA PLAN & LONGITUDINAL SECTION (1/3)		
NOVEMBER 1990	SCALE /	DRAWING NO. 14
JAPAN INTERNATIONAL COOPERATION AGENCY		



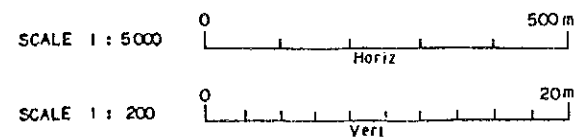
LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA
 MINISTRY OF PUBLIC WORKS
 CIPTA KARYA
 THE PROJECT FOR RURAL/IKKS WATER SUPPLY
 IN
 SULAWESI ISLAND
 TIROMANDA
 PLAN & LONGITUDINAL SECTION (2/3)
 NOVEMBER 1990 SCALE DRAWING NO. 15
 JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN



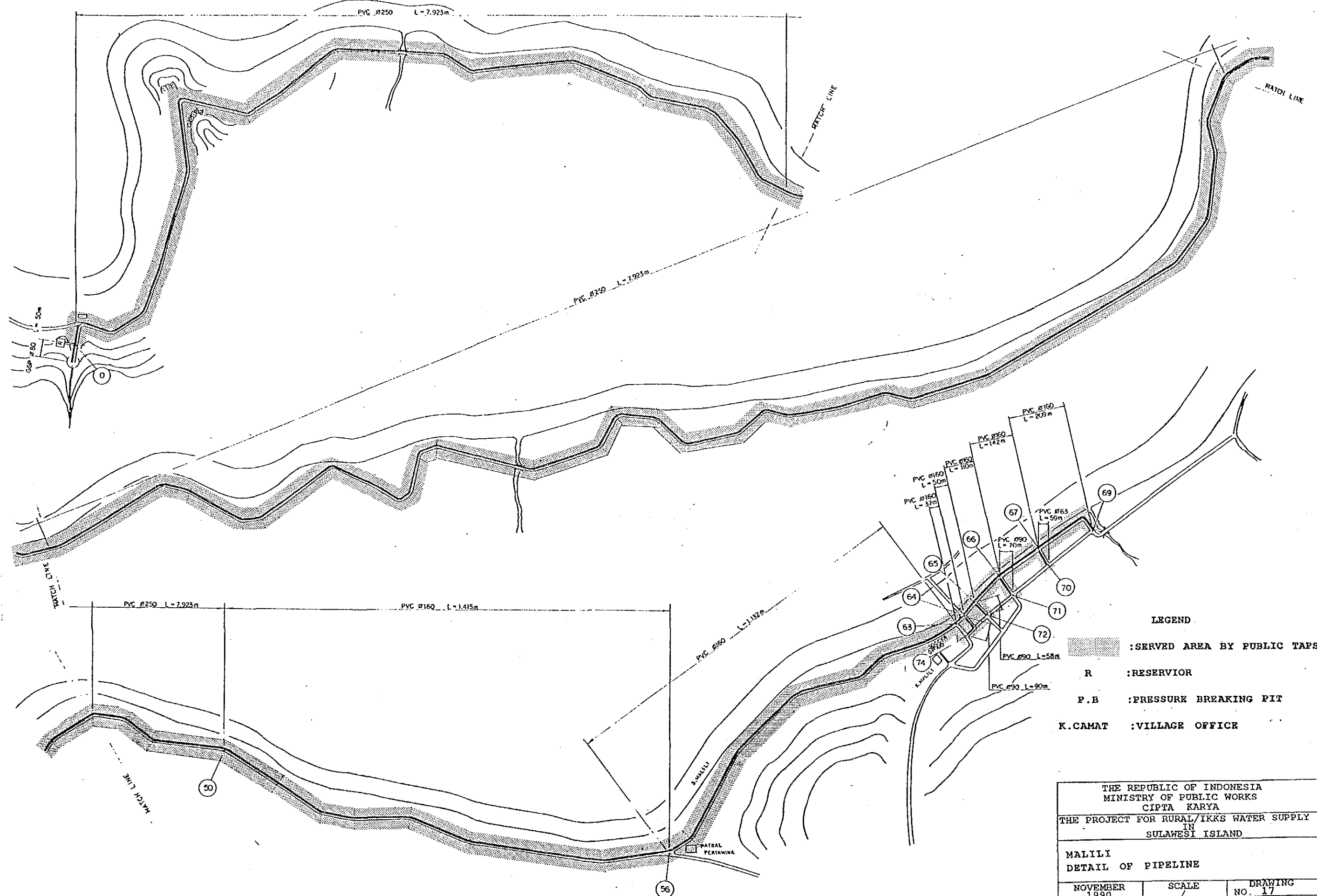
SIZE & TYPE OF PIPE	PVC #40 L=537m										PVC #40 L=115m
HYDRAULIC GRADIENT LEVEL (M)	344.5	345.5	346.5	347.5	348.5	349.5	350.5	351.5	352.5	353.5	748.9
GROUND LEVELS (M)	346.5	347.5	348.5	349.5	350.5	351.5	352.5	353.5	354.5	355.5	748.9
DISTANCE (M)	0.00	100.0	200.0	300.0	400.0	500.0	600.0	700.0	800.0	900.0	1000.0
STATION	162	163	164	165	166	167	168	169	170	171	172



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
TIROMANDA PLAN & LONGITUDINAL SECTION (3/3)		
NOVEMBER 1990	SCALE /	DRAWING NO. 16
JAPAN INTERNATIONAL COOPERATION AGENCY		

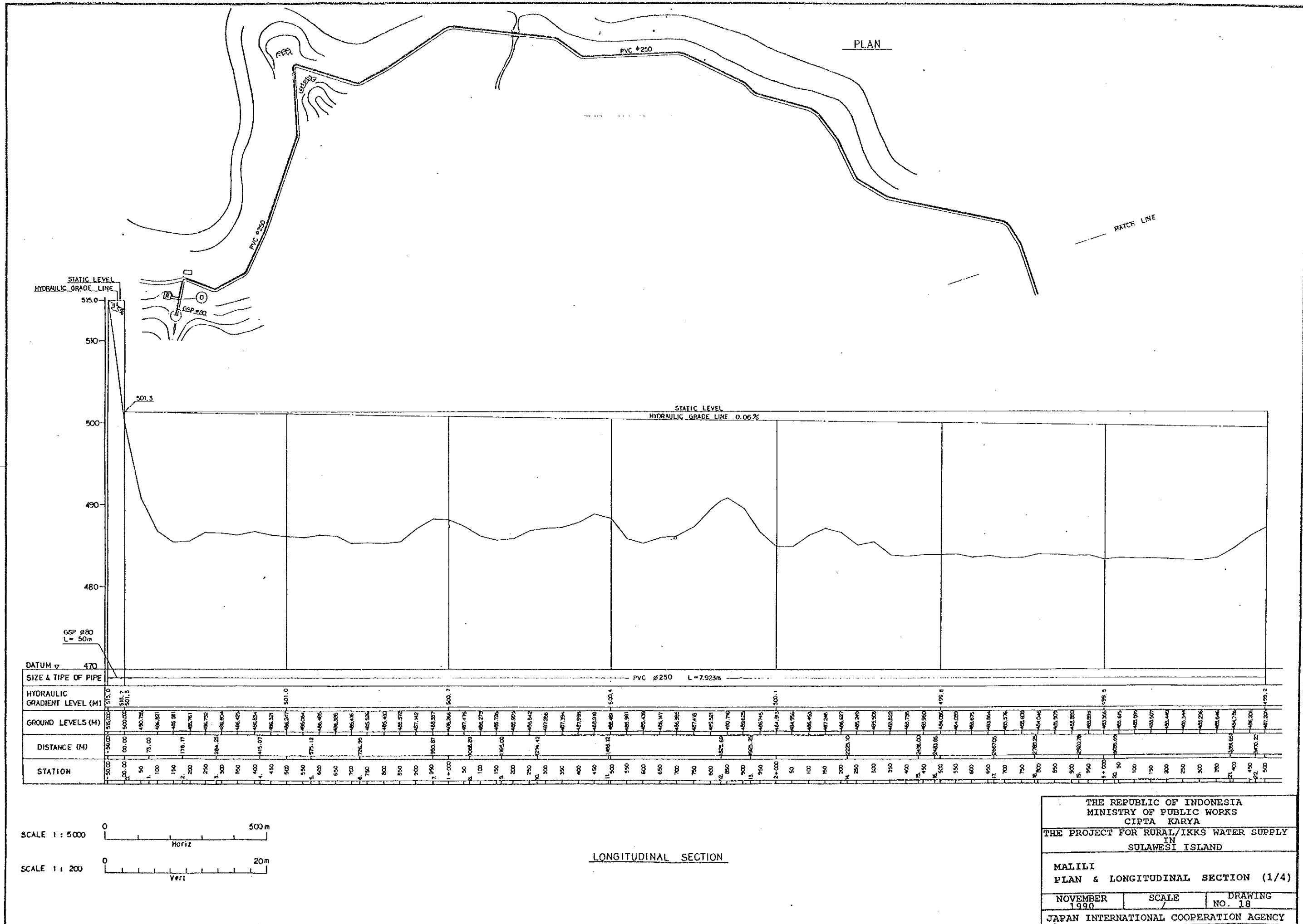
DETAIL OF PIPELINE



LEGEND

- :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA		
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THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN SULAWESI ISLAND		
MALILI		
DETAIL OF PIPELINE		
NOVEMBER 1990	SCALE	DRAWING NO. 17
JAPAN INTERNATIONAL COOPERATION AGENCY		



PLAN

MATCH LINE

STATIC LEVEL
HYDRAULIC GRADE LINE 0.06%

STATIC LEVEL
HYDRAULIC GRADE LINE

GSP Ø80
L = 50m

DATUM ∇ 470

SIZE & TYPE OF PIPE

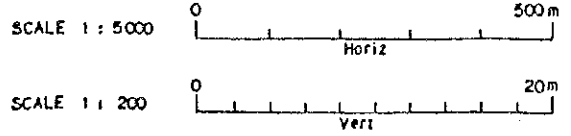
HYDRAULIC GRADIENT LEVEL (M)

GROUND LEVELS (M)

DISTANCE (M)

STATION

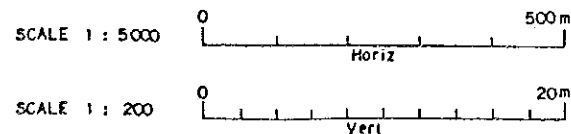
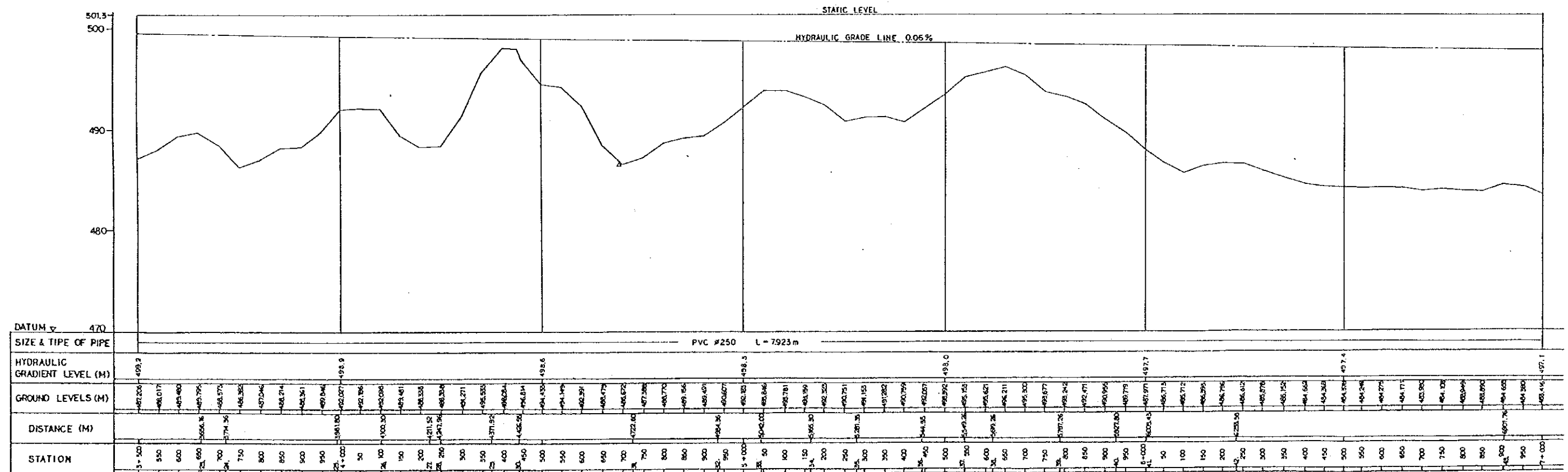
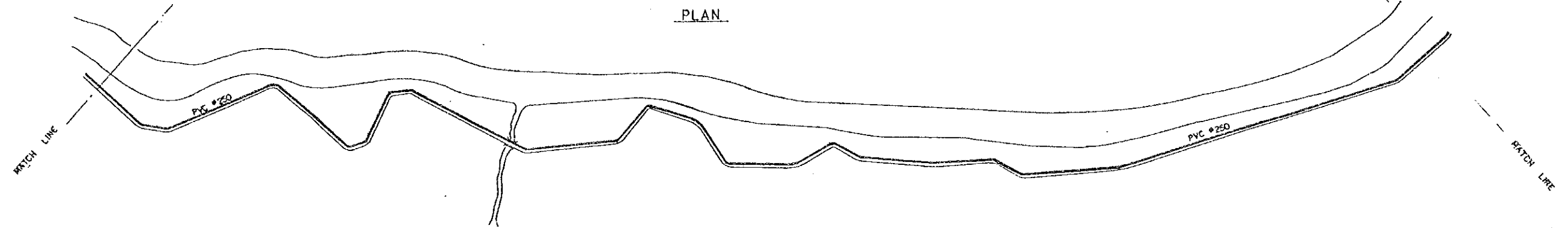
LONGITUDINAL SECTION



THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

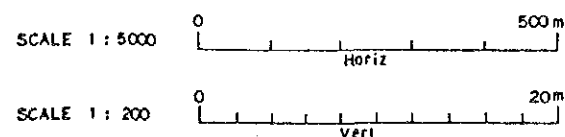
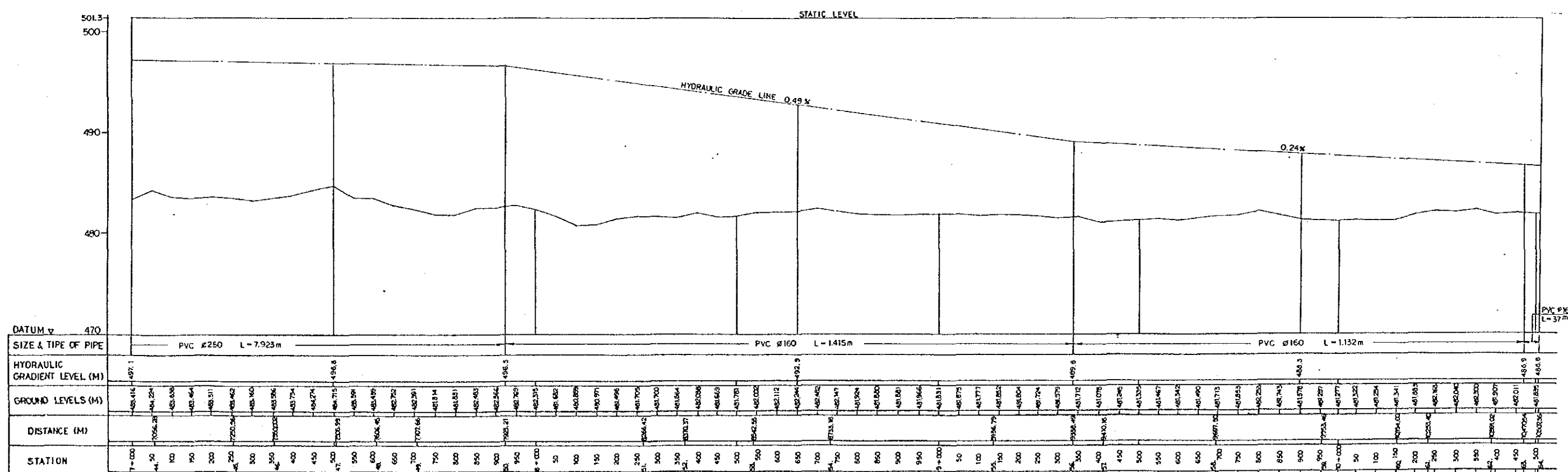
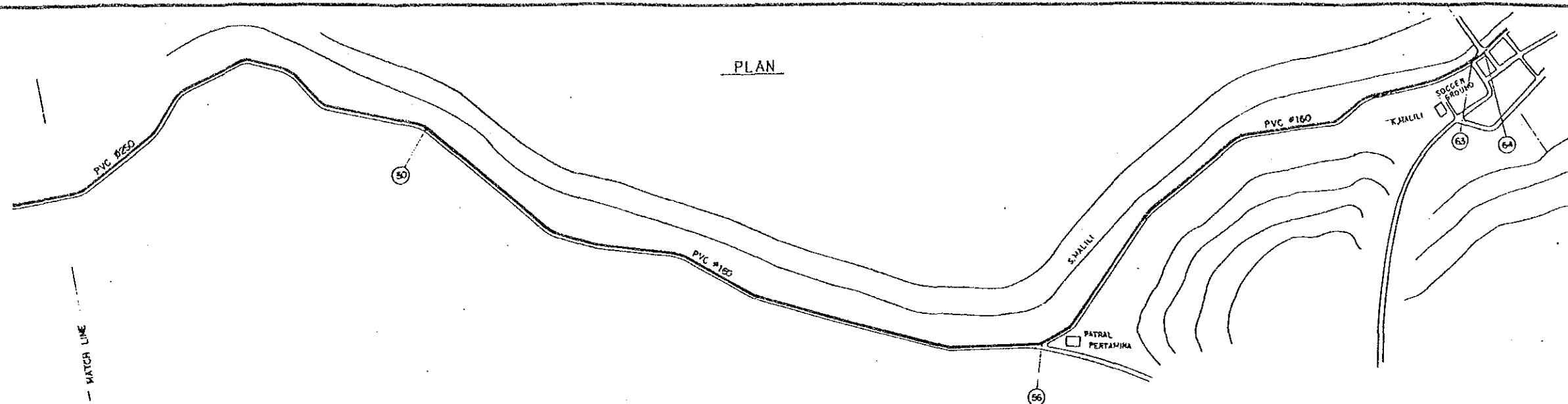
MALILI
PLAN & LONGITUDINAL SECTION (1/4)

NOVEMBER 1990 SCALE 1:200 DRAWING NO. 18
JAPAN INTERNATIONAL COOPERATION AGENCY



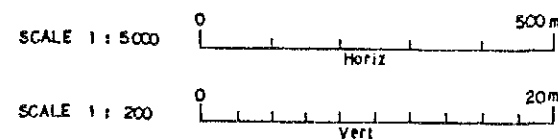
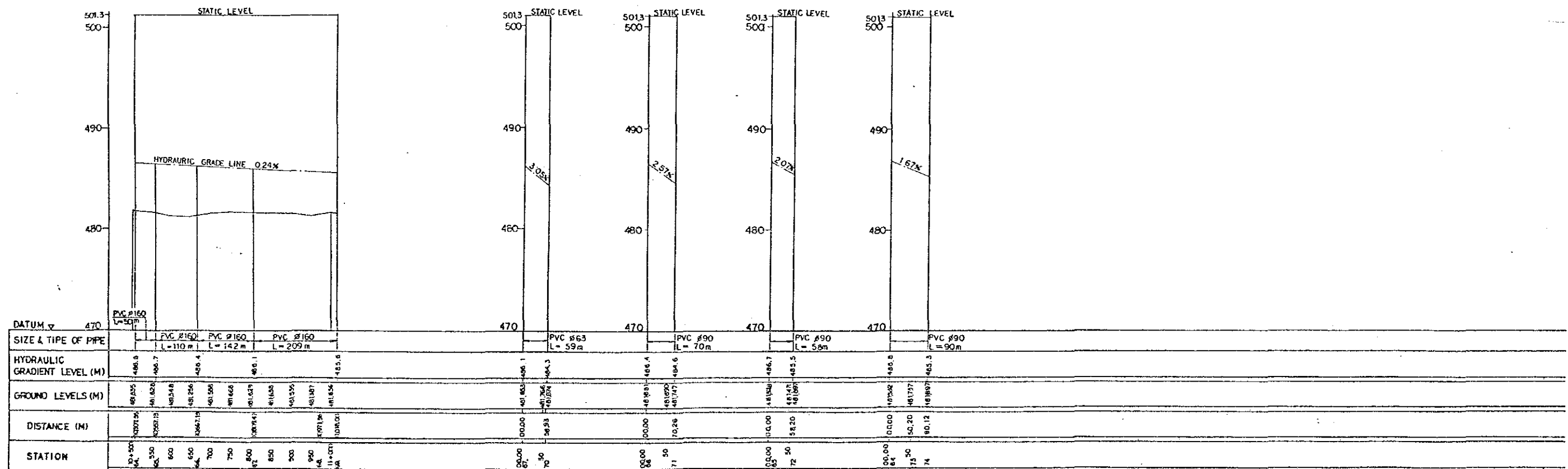
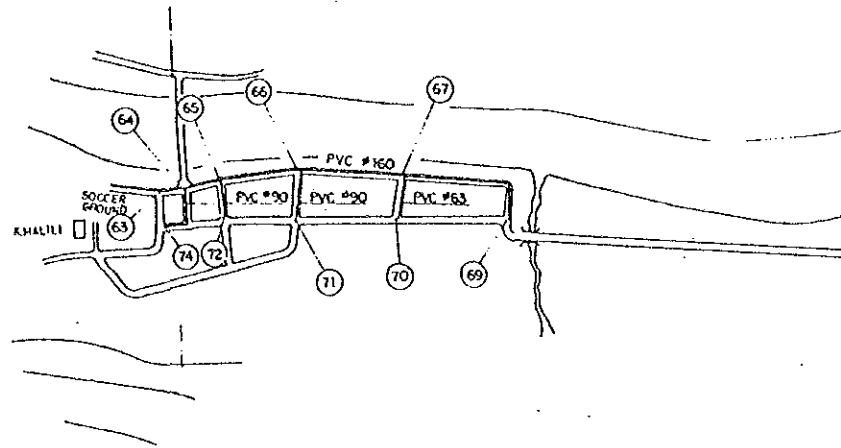
LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
MALILI		
PLAN & LONGITUDINAL SECTION (2/4)		
NOVEMBER	SCALE	DRAWING
1990	/	NO. 19
JAPAN INTERNATIONAL COOPERATION AGENCY		



THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
MALILI		
PLAN & LONGITUDINAL SECTION (3/4)		
NOVEMBER	SCALE	DRAWING
1990	/	NO. 20
JAPAN INTERNATIONAL COOPERATION AGENCY		

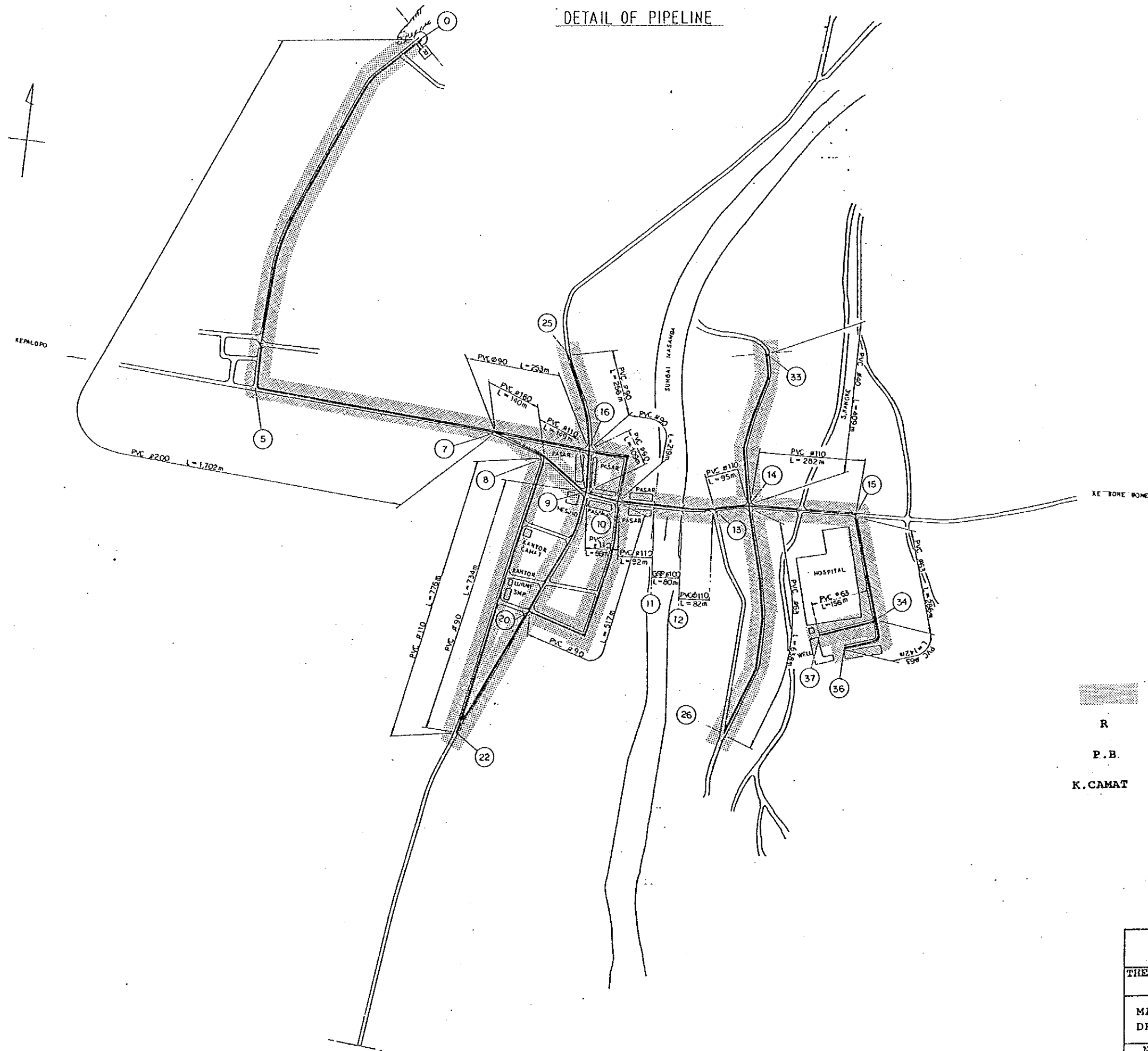
PLAN



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
MALILI PLAN & LONGITUDINAL SECTION (4/4)		
NOVEMBER 1990	SCALE /	DRAWING NO. 21
JAPAN INTERNATIONAL COOPERATION AGENCY		

DETAIL OF PIPELINE

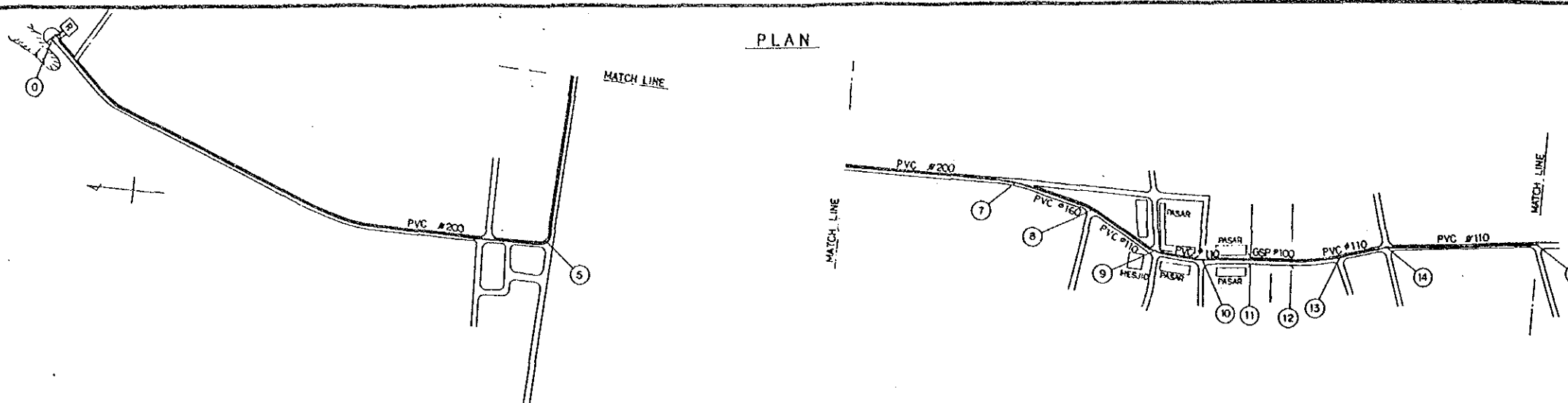


LEGEND

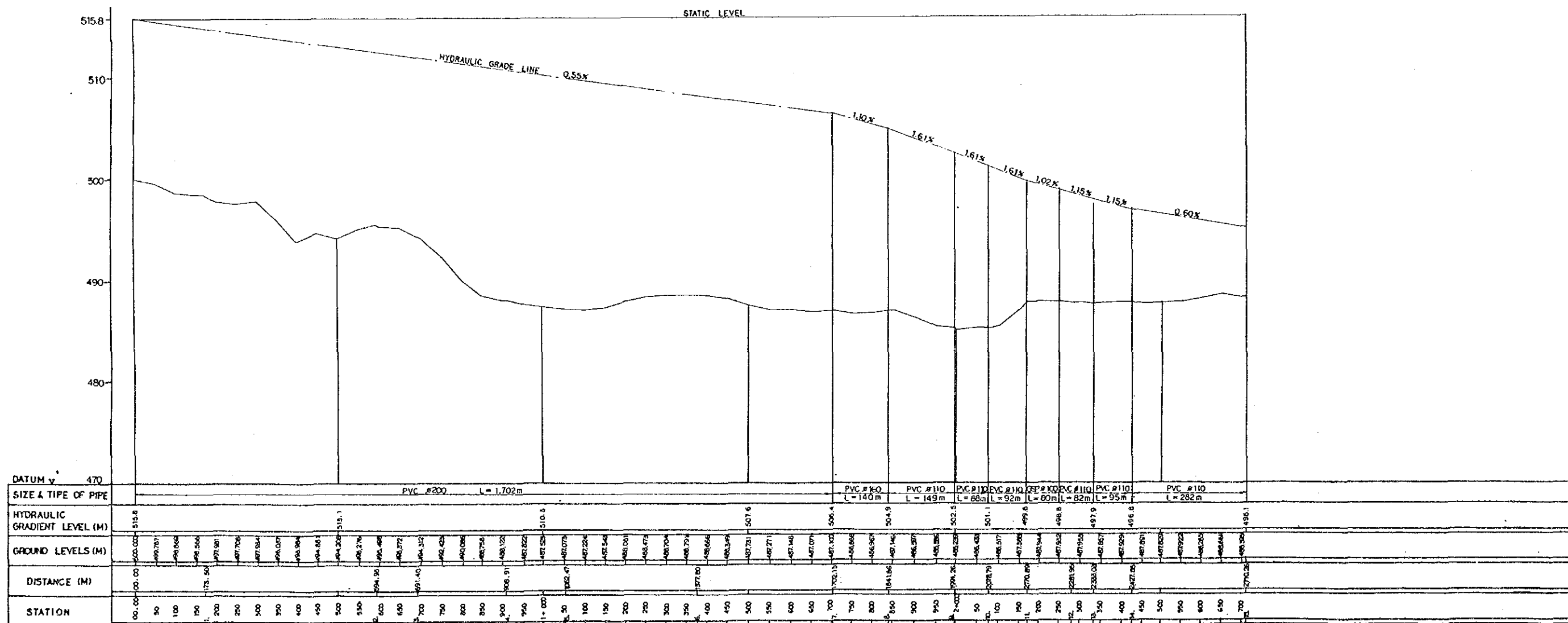
- :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B. :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
MASAMBA DETAIL OF PIPELINE		
NOVEMBER 1990	SCALE /	DRAWING NO. 22
JAPAN INTERNATIONAL COOPERATION AGENCY		

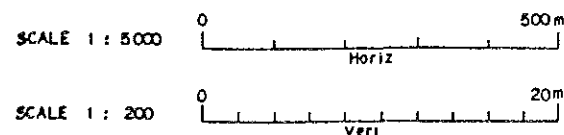
PLAN



STATIC LEVEL

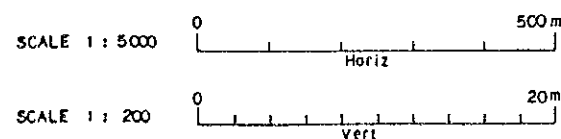
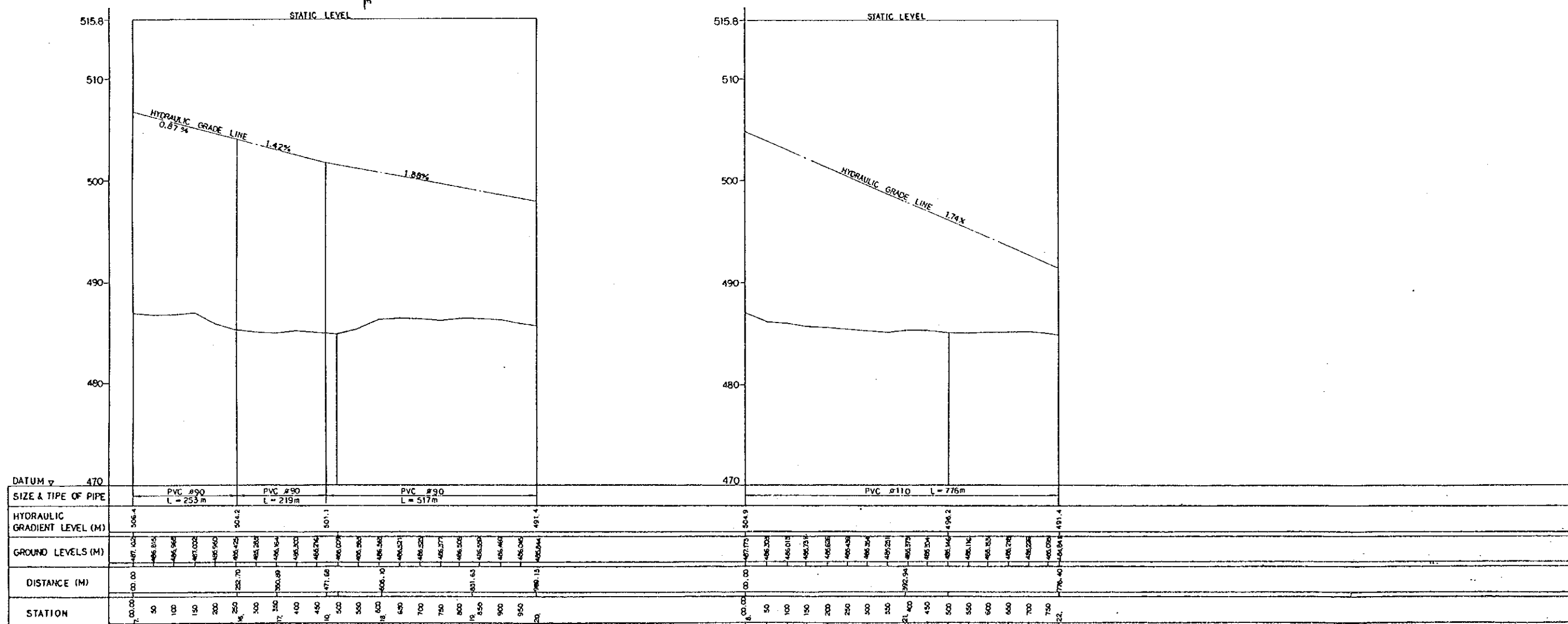
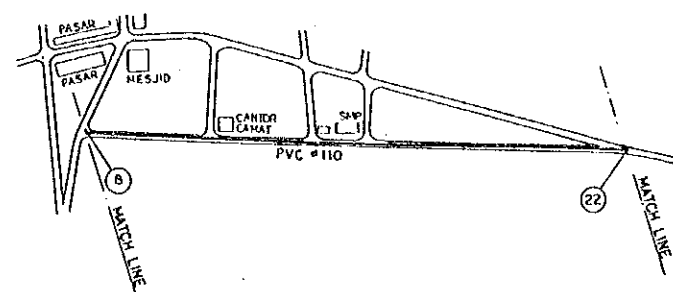
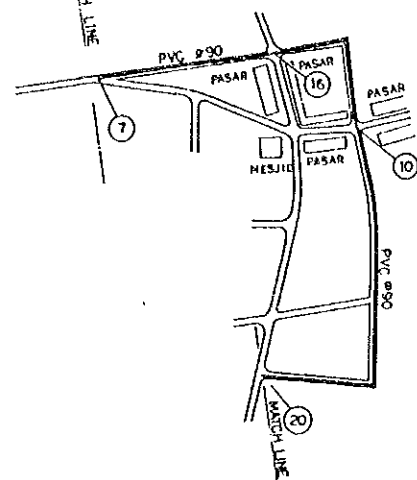


LONGITUDINAL SECTION



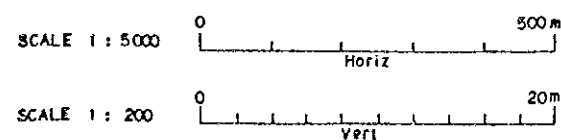
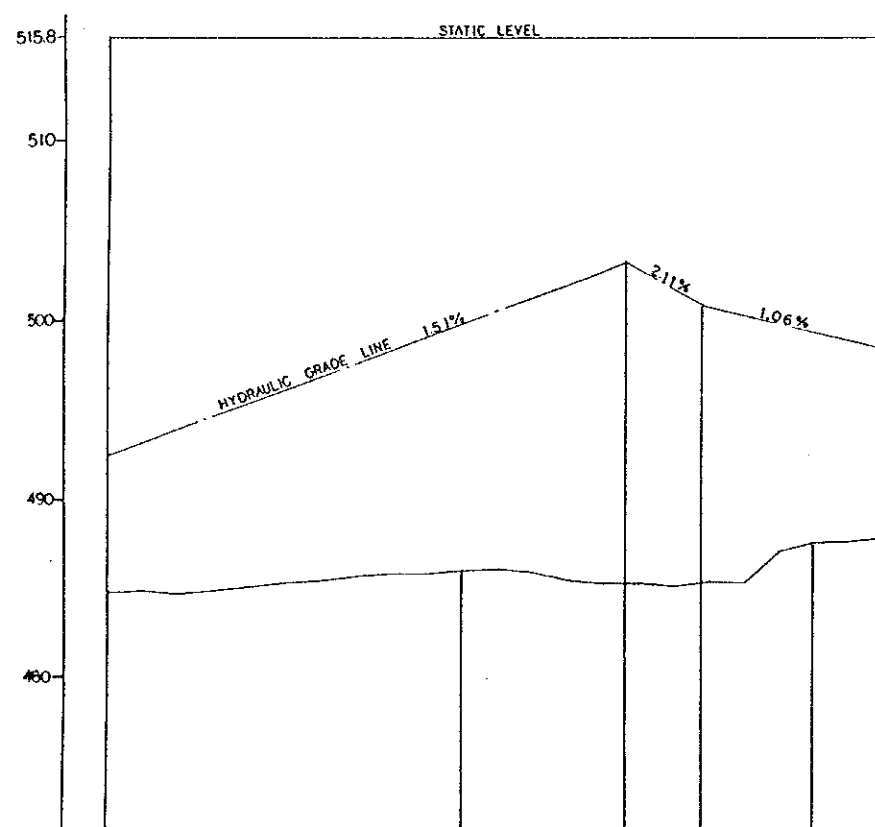
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND
MASAMBA
PLAN & LONGITUDINAL SECTION (1/4)
NOVEMBER 1990 SCALE / DRAWING NO. 23
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
MASAMBA PLAN & LONGITUDINAL SECTION (2/4)		
NOVEMBER 1990	SCALE /	DRAWING NO. 24
JAPAN INTERNATIONAL COOPERATION AGENCY		



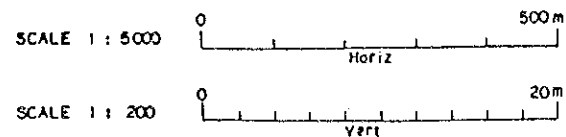
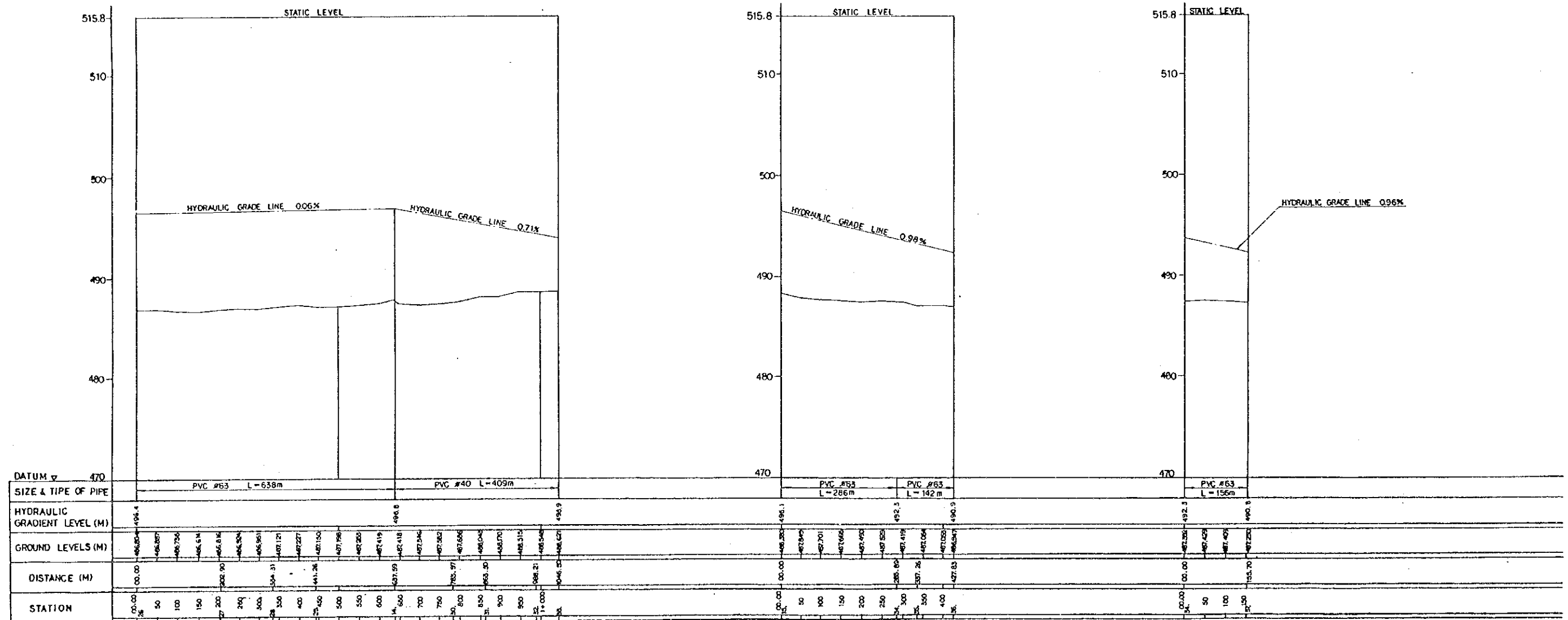
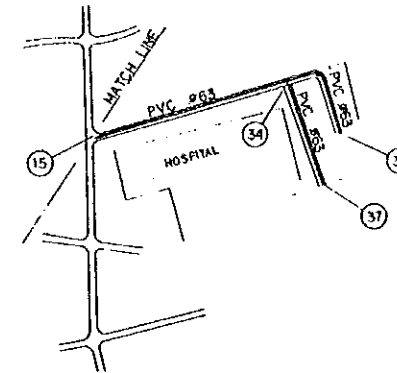
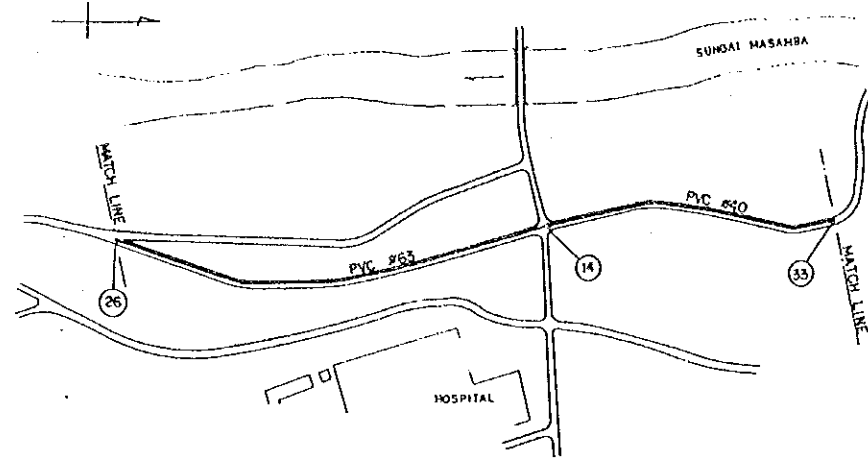
THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA
THE PROJECT FOR KURAL/TKKS WATER SUPPLY IN SULAWESI ISLAND

MASAMBA
PLAN & LONGITUDINAL SECTION (3/4)

NOVEMBER 1990	SCALE /	DRAWING NO. 25
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JAPAN INTERNATIONAL COOPERATION AGENCY

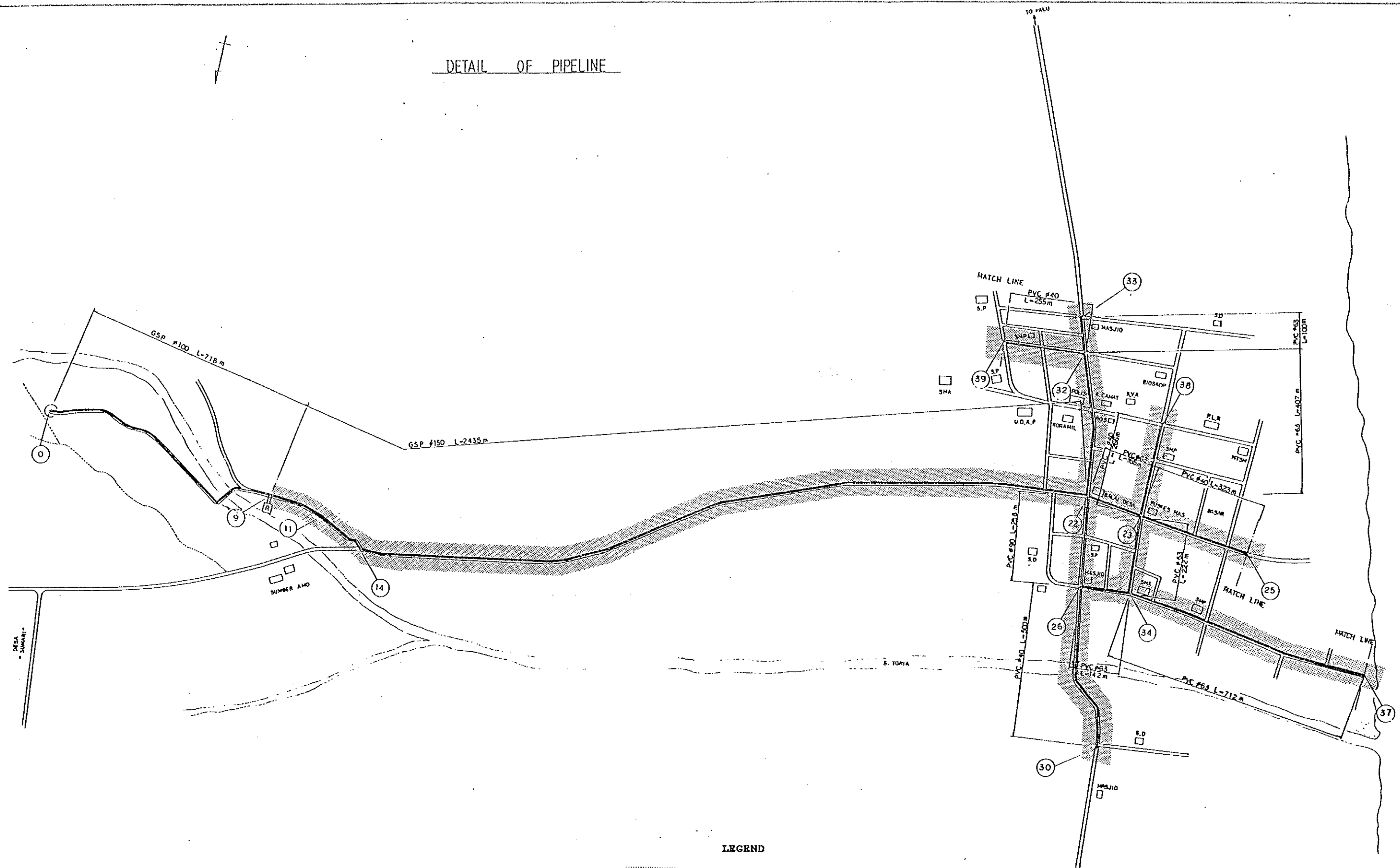
PLAN



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
MASAMBA		
PLAN & LONGITUDINAL SECTION (4/4)		
NOVEMBER 1990	SCALE	DRAWING NO. 26
JAPAN INTERNATIONAL COOPERATION AGENCY		

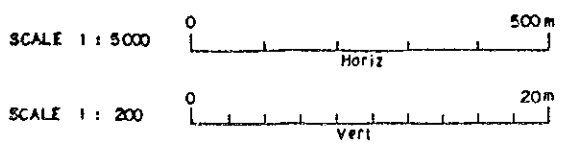
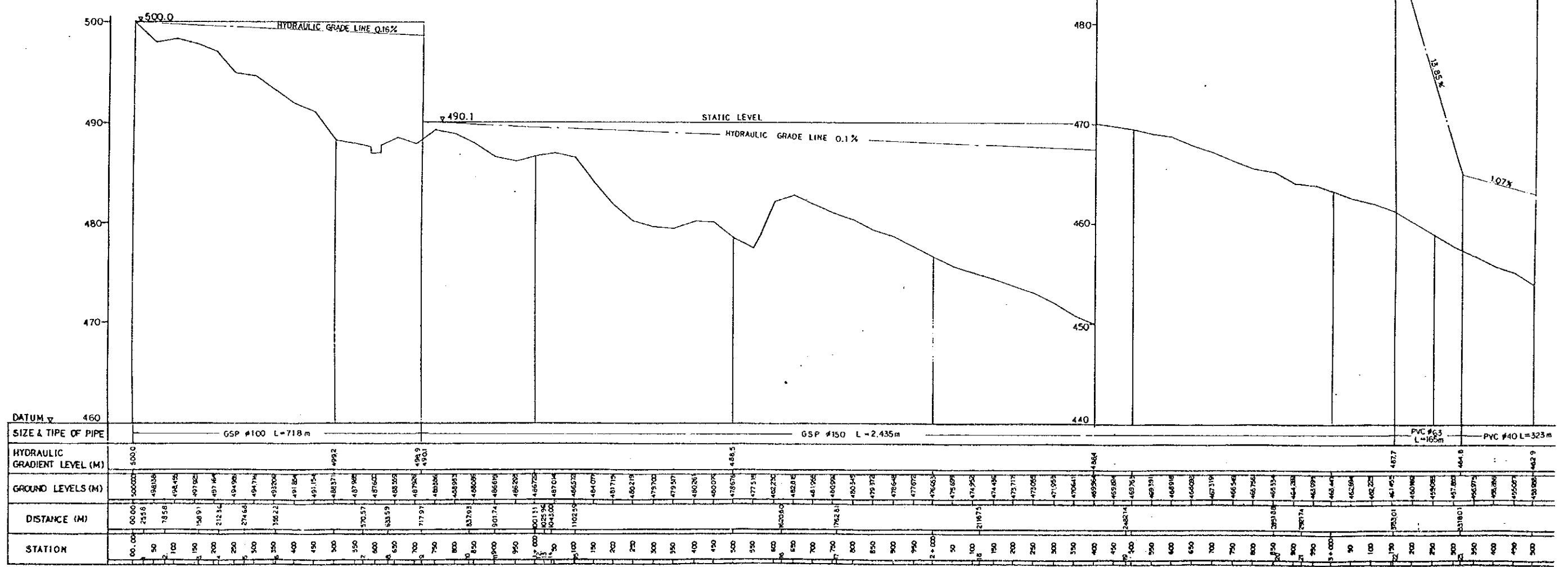
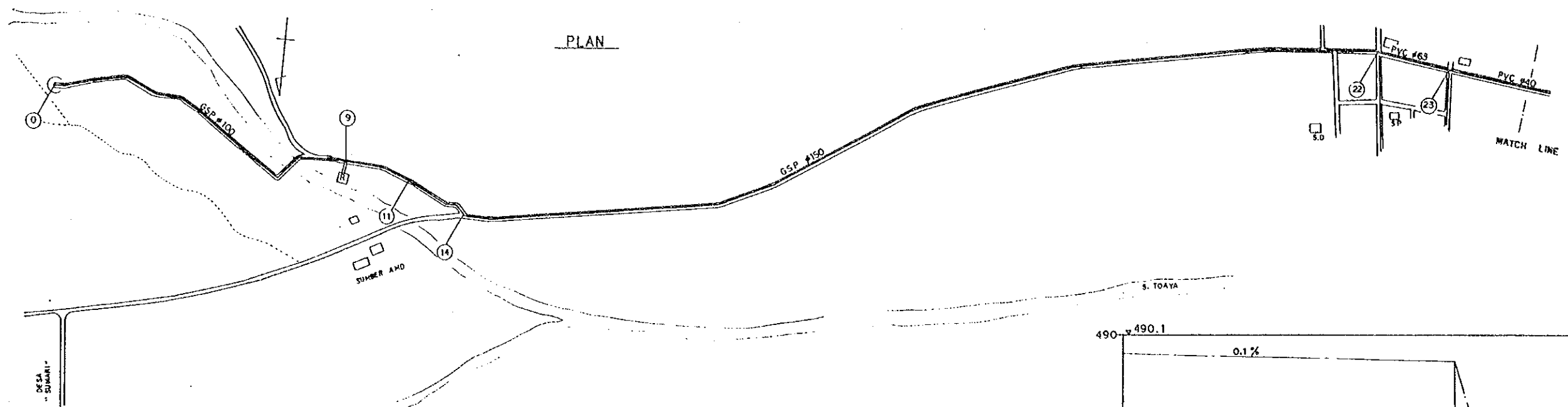
DETAIL OF PIPELINE



LEGEND

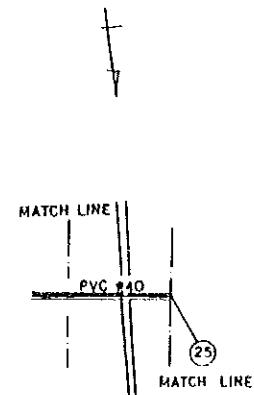
-  :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
TOAYA		
DETAIL OF PIPELINE		
NOVEMBER	SCALE	DRAWING
1990		NO. 27
JAPAN INTERNATIONAL COOPERATION AGENCY		

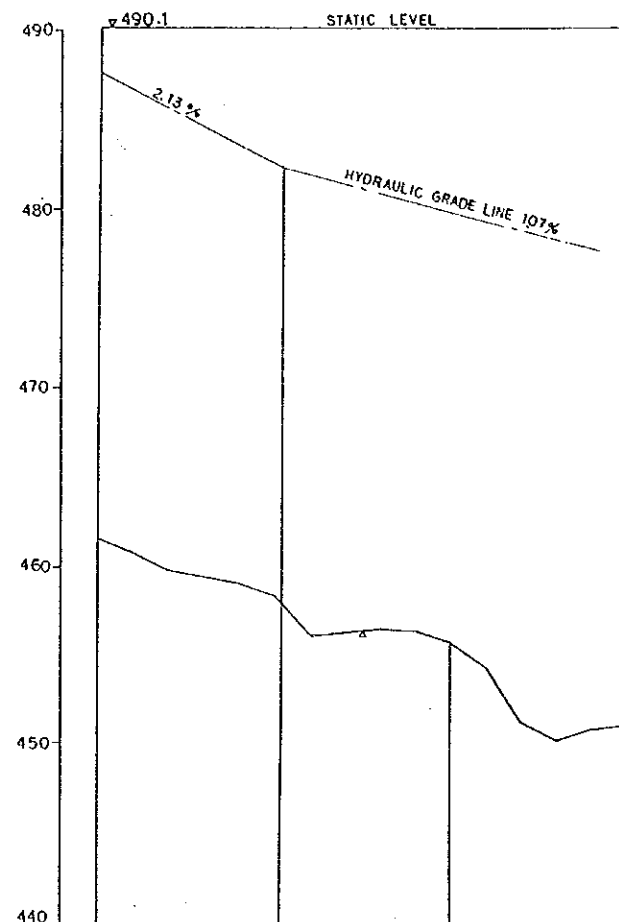
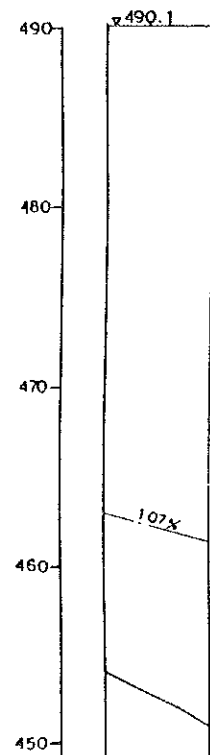
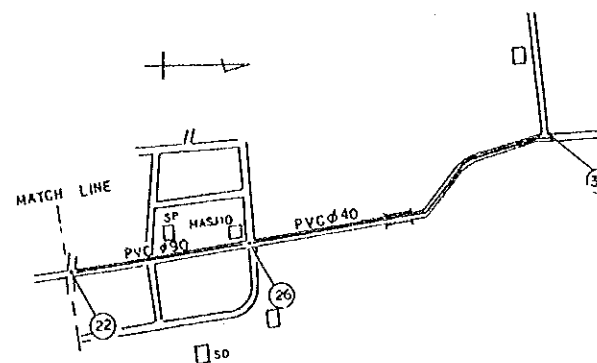


LONGITUDINAL SECTION

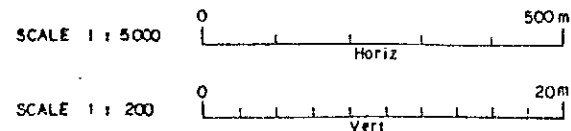
THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
TOAYA PLAN & LONGITUDINAL SECTION (1/4)		
NOVEMBER 1990	SCALE /	DRAWING NO. 28
JAPAN INTERNATIONAL COOPERATION AGENCY		



PLAN



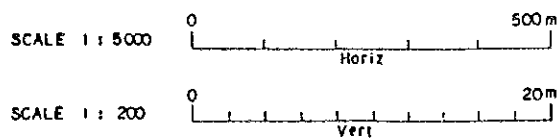
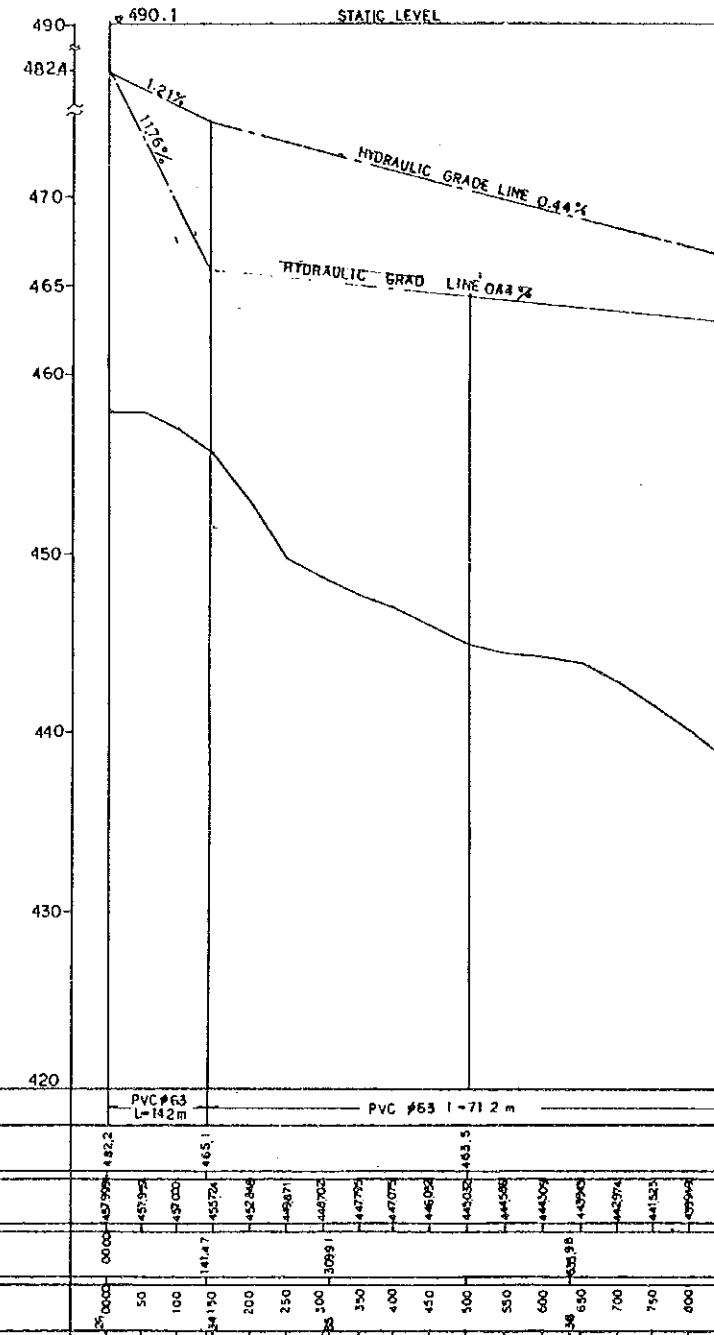
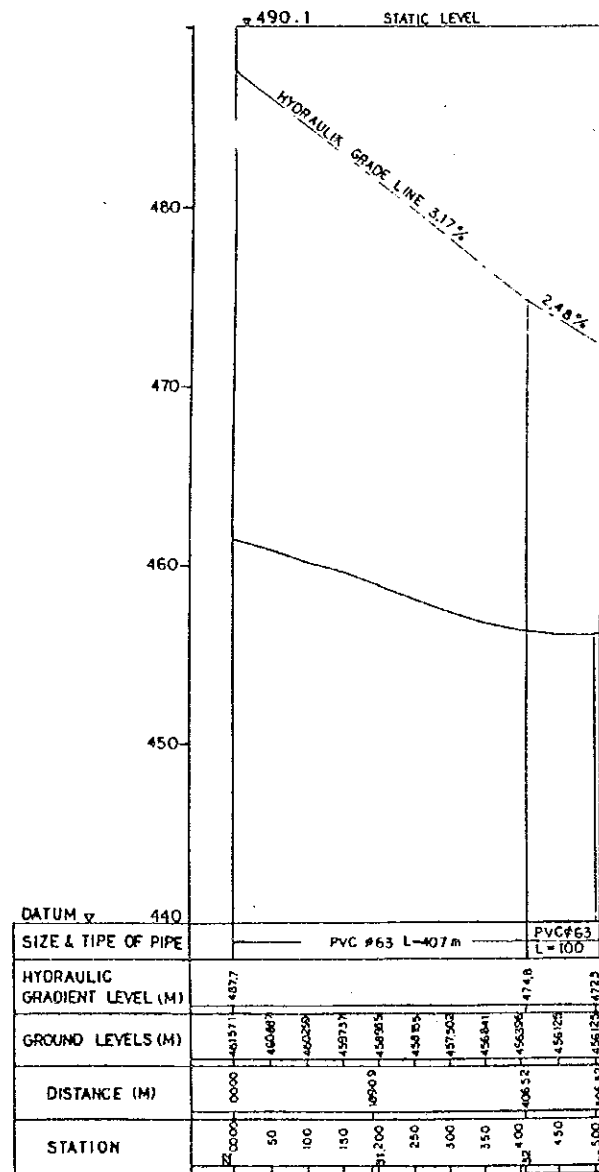
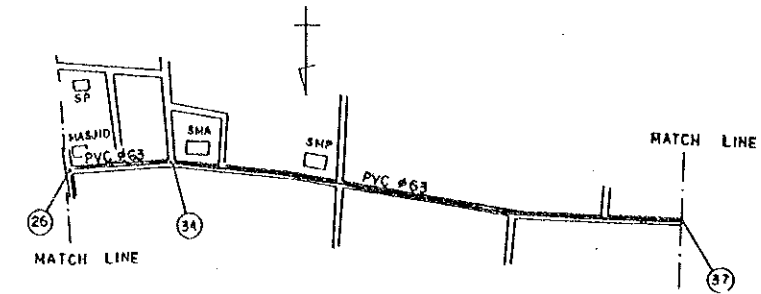
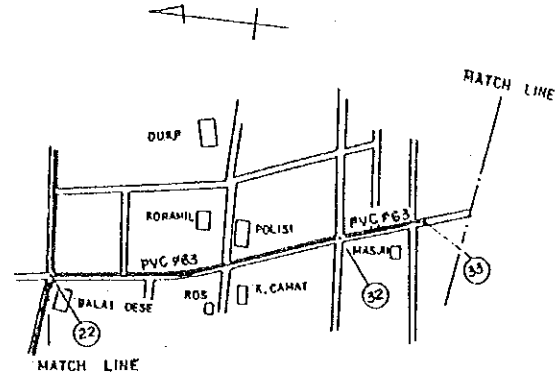
DATUM	440	
SIZE & TYPE OF PIPE	PVC #40 L=323m	
HYDRAULIC GRADIENT LEVEL (M)	482.9	481.3
GROUND LEVELS (M)	453.930 452.970 451.979 450.800	
DISTANCE (M)	0+000 500 1000	
STATION	0+000 500 1000	



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
TOAYA PLAN & LONGITUDINAL SECTION (2/4)		
NOVEMBER 1990	SCALE /	DRAWING NO. 29
JAPAN INTERNATIONAL COOPERATION AGENCY		

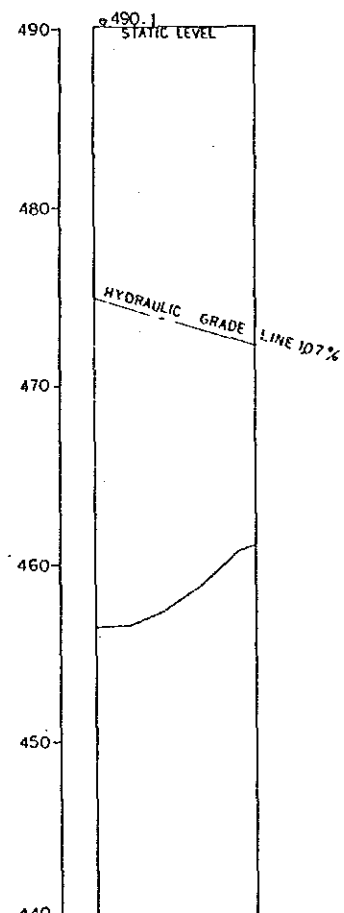
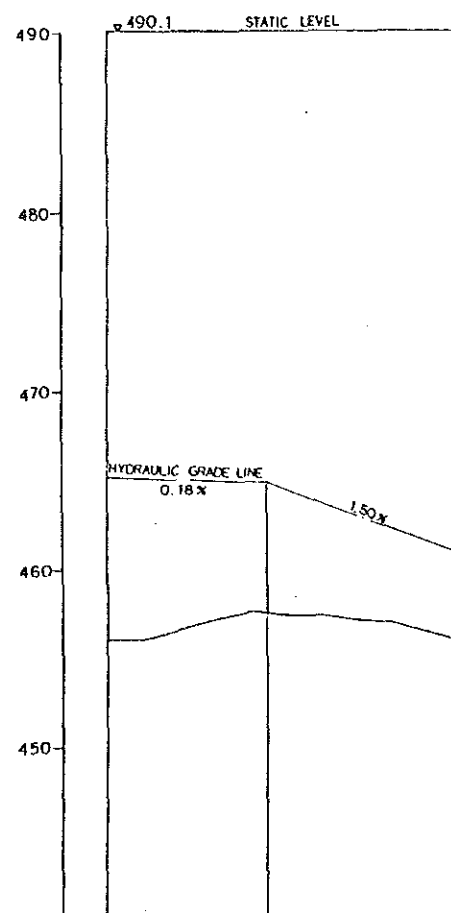
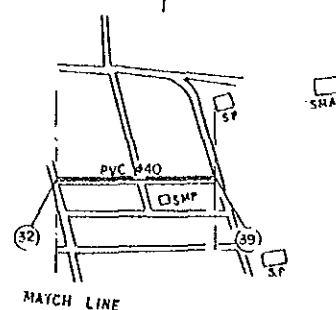
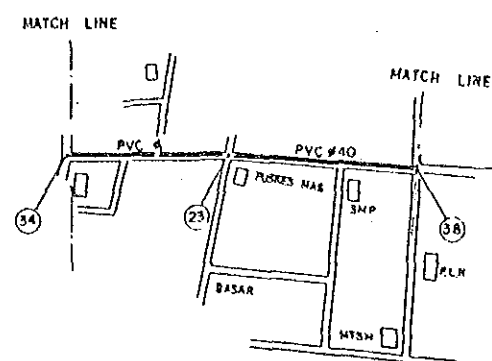
PLAN



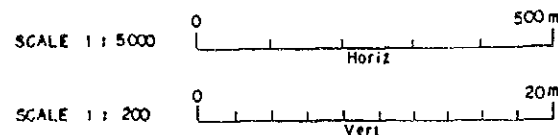
LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
TOAYA		
PLAN & LONGITUDINAL SECTION (3/4)		
NOVEMBER 1990	SCALE	DRAWING NO. 30
JAPAN INTERNATIONAL COOPERATION AGENCY		

PLAN



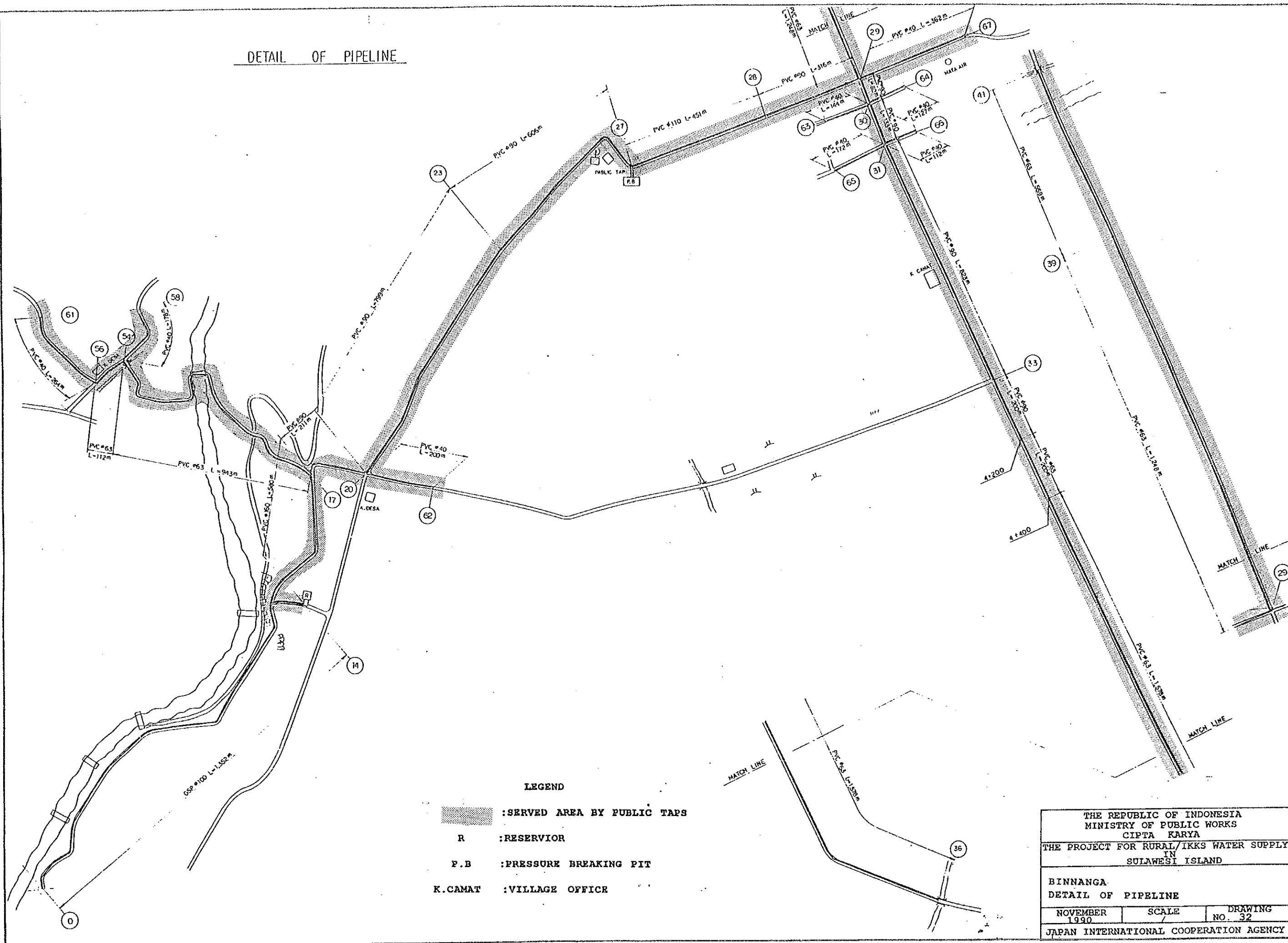
DATUM	v	440	
SIZE & TYPE OF PIPE		PVC #63 L=222.2 m	PVC #40 L=256 m
HYDRAULIC GRADIENT LEVEL (M)		465.1	474.8
GROUND LEVELS (M)		465.0, 464.5, 464.0, 463.5, 463.0, 462.5, 462.0, 461.5, 461.0, 460.5, 460.0	474.8, 474.5, 474.2, 473.9, 473.6, 473.3, 473.0, 472.7, 472.4, 472.1
DISTANCE (M)		0, 50, 100, 150, 200, 222.2	0, 50, 100, 150, 200, 256
STATION		0+00, 0+50, 0+100, 0+150, 0+200, 0+222.2	0+00, 0+50, 0+100, 0+150, 0+200, 0+256



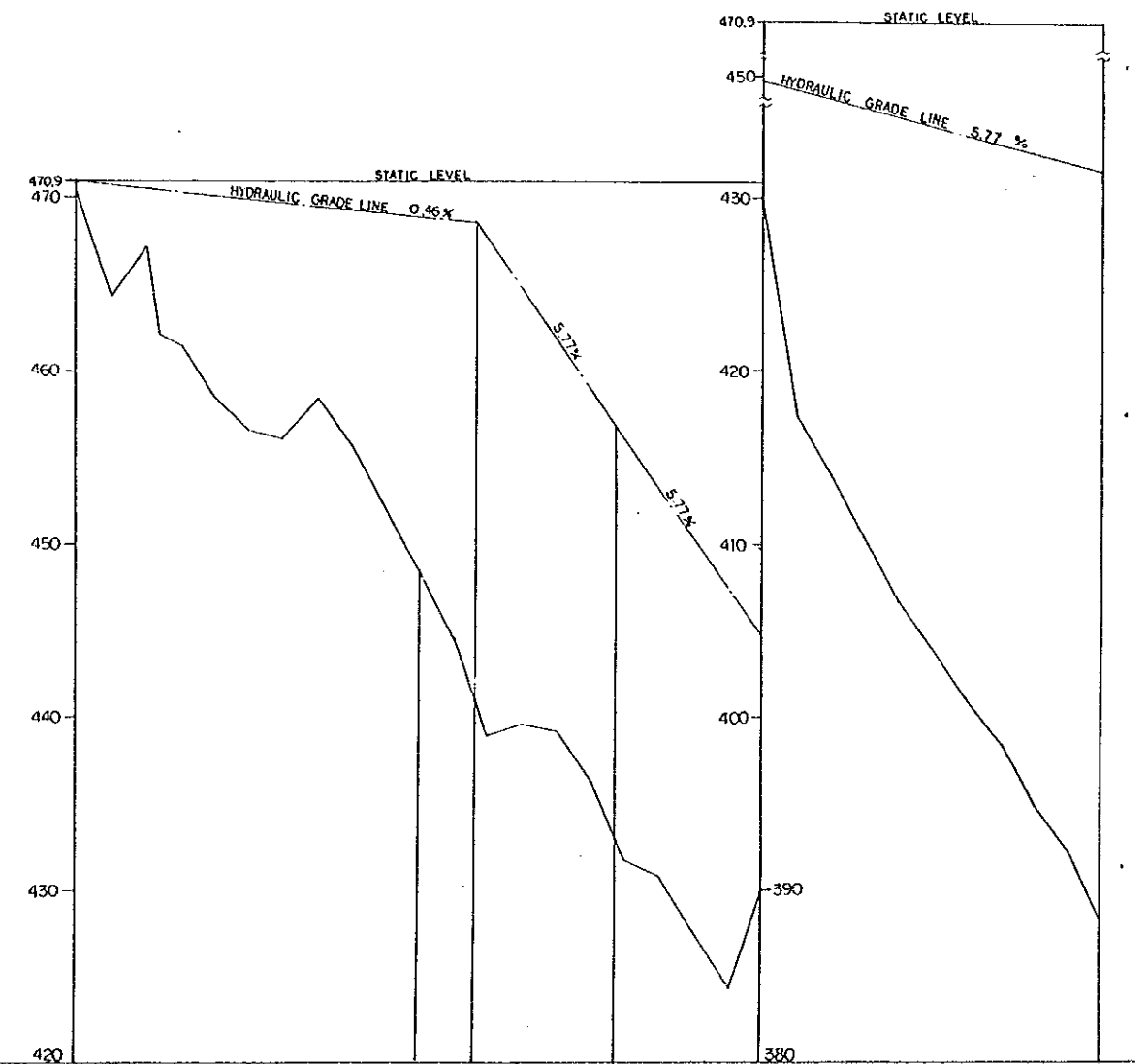
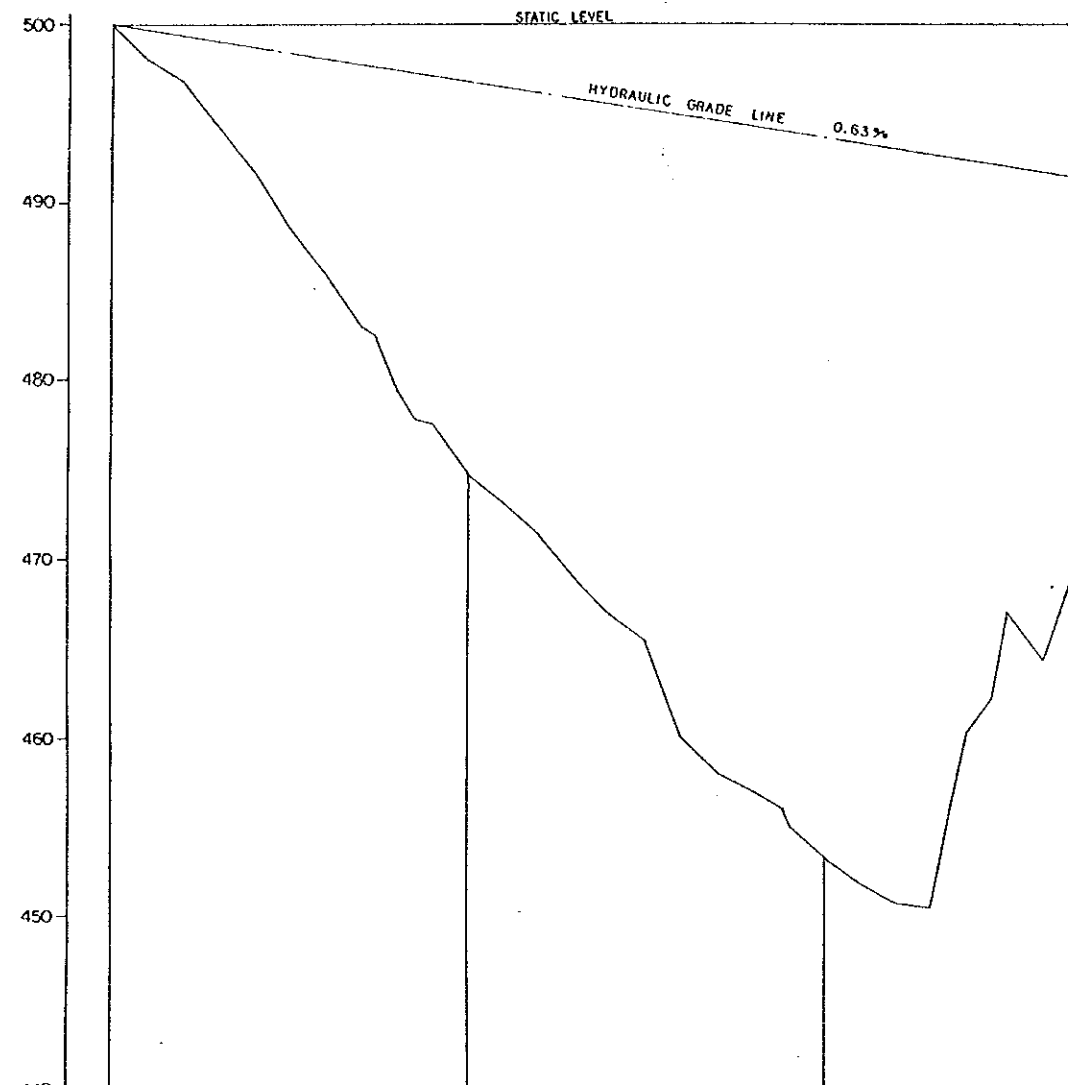
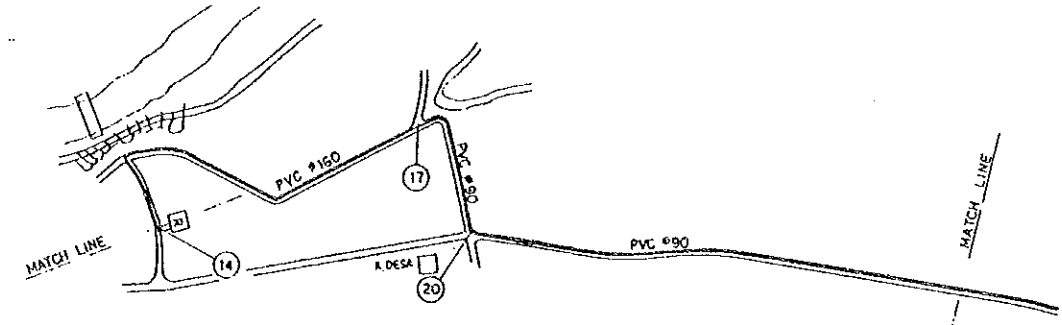
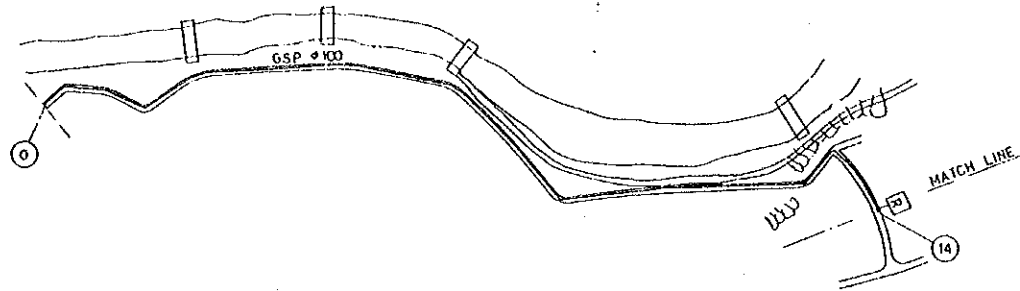
LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
TOAYA PLAN & LONGITUDINAL SECTION (4/4)		
NOVEMBER 1990	SCALE 1:5000	DRAWING NO. 31
JAPAN INTERNATIONAL COOPERATION AGENCY		

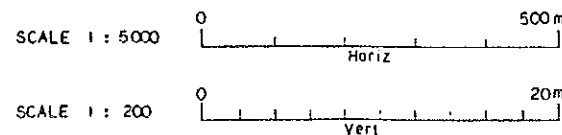
DETAIL OF PIPELINE



PLAN



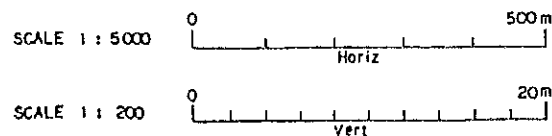
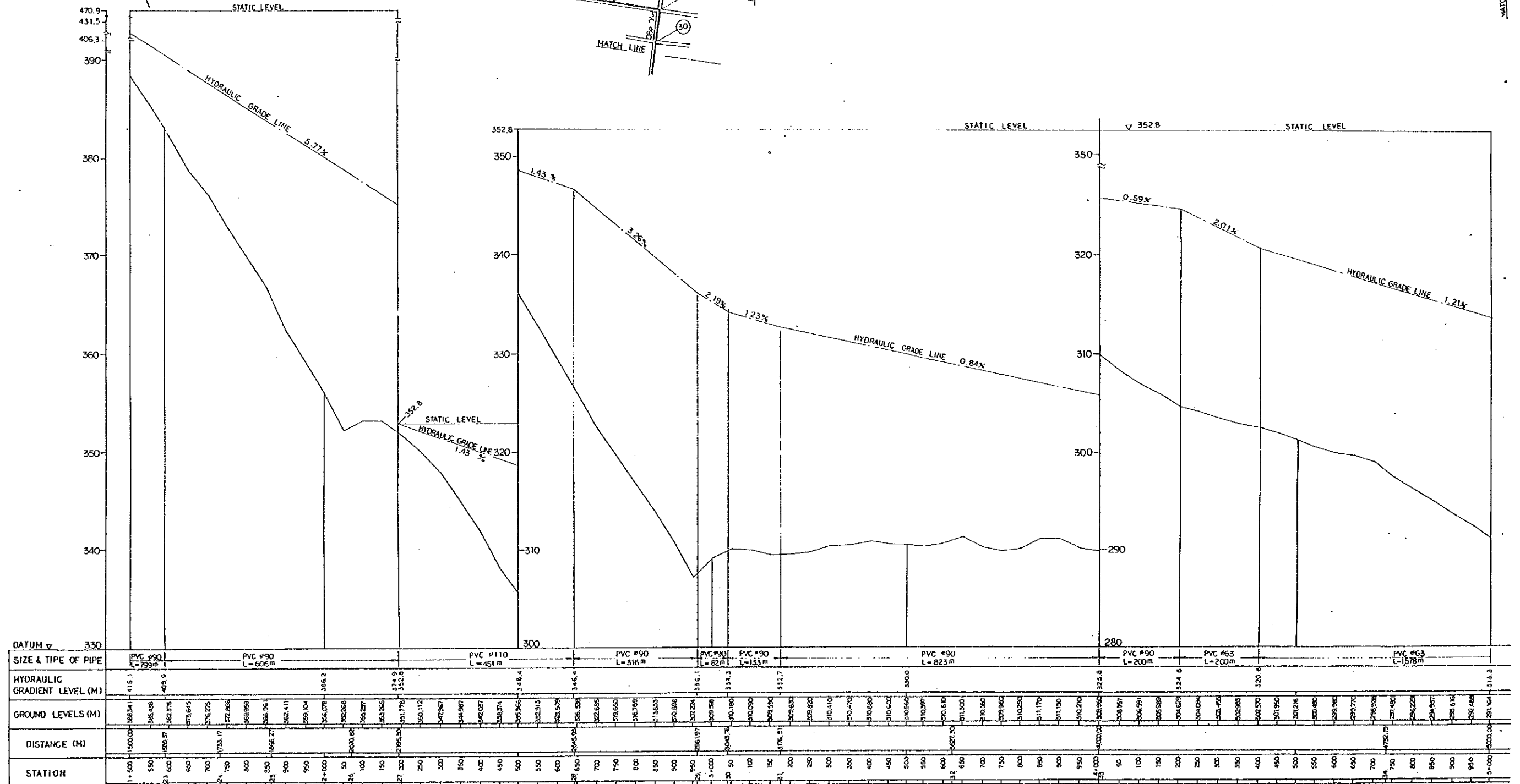
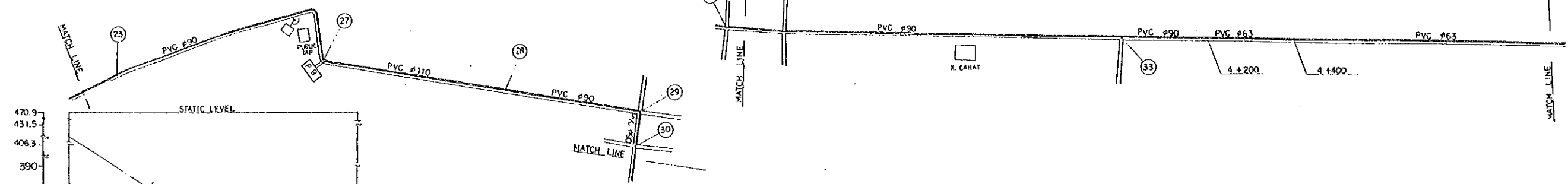
DATUM	440
SIZE & TYPE OF PIPE	GSP #100 L=1352m
HYDRAULIC GRADIENT LEVEL (M)	500.00 499.99 499.98 499.97 499.96 499.95 499.94 499.93 499.92 499.91 499.90 499.89 499.88 499.87 499.86 499.85 499.84 499.83 499.82 499.81 499.80 499.79 499.78 499.77 499.76 499.75 499.74 499.73 499.72 499.71 499.70 499.69 499.68 499.67 499.66 499.65 499.64 499.63 499.62 499.61 499.60 499.59 499.58 499.57 499.56 499.55 499.54 499.53 499.52 499.51 499.50 499.49 499.48 499.47 499.46 499.45 499.44 499.43 499.42 499.41 499.40 499.39 499.38 499.37 499.36 499.35 499.34 499.33 499.32 499.31 499.30 499.29 499.28 499.27 499.26 499.25 499.24 499.23 499.22 499.21 499.20 499.19 499.18 499.17 499.16 499.15 499.14 499.13 499.12 499.11 499.10 499.09 499.08 499.07 499.06 499.05 499.04 499.03 499.02 499.01 499.00
GROUND LEVELS (M)	500.00 499.99 499.98 499.97 499.96 499.95 499.94 499.93 499.92 499.91 499.90 499.89 499.88 499.87 499.86 499.85 499.84 499.83 499.82 499.81 499.80 499.79 499.78 499.77 499.76 499.75 499.74 499.73 499.72 499.71 499.70 499.69 499.68 499.67 499.66 499.65 499.64 499.63 499.62 499.61 499.60 499.59 499.58 499.57 499.56 499.55 499.54 499.53 499.52 499.51 499.50 499.49 499.48 499.47 499.46 499.45 499.44 499.43 499.42 499.41 499.40 499.39 499.38 499.37 499.36 499.35 499.34 499.33 499.32 499.31 499.30 499.29 499.28 499.27 499.26 499.25 499.24 499.23 499.22 499.21 499.20 499.19 499.18 499.17 499.16 499.15 499.14 499.13 499.12 499.11 499.10 499.09 499.08 499.07 499.06 499.05 499.04 499.03 499.02 499.01 499.00
DISTANCE (M)	0.00 100.00 200.00 300.00 400.00 500.00 600.00 700.00 800.00 900.00 1000.00 1100.00 1200.00 1300.00 1352.00
STATION	0+00 0+100 0+200 0+300 0+400 0+500 0+600 0+700 0+800 0+900 0+1000 0+1100 0+1200 0+1300 0+1352



LONGITUDINAL SECTION

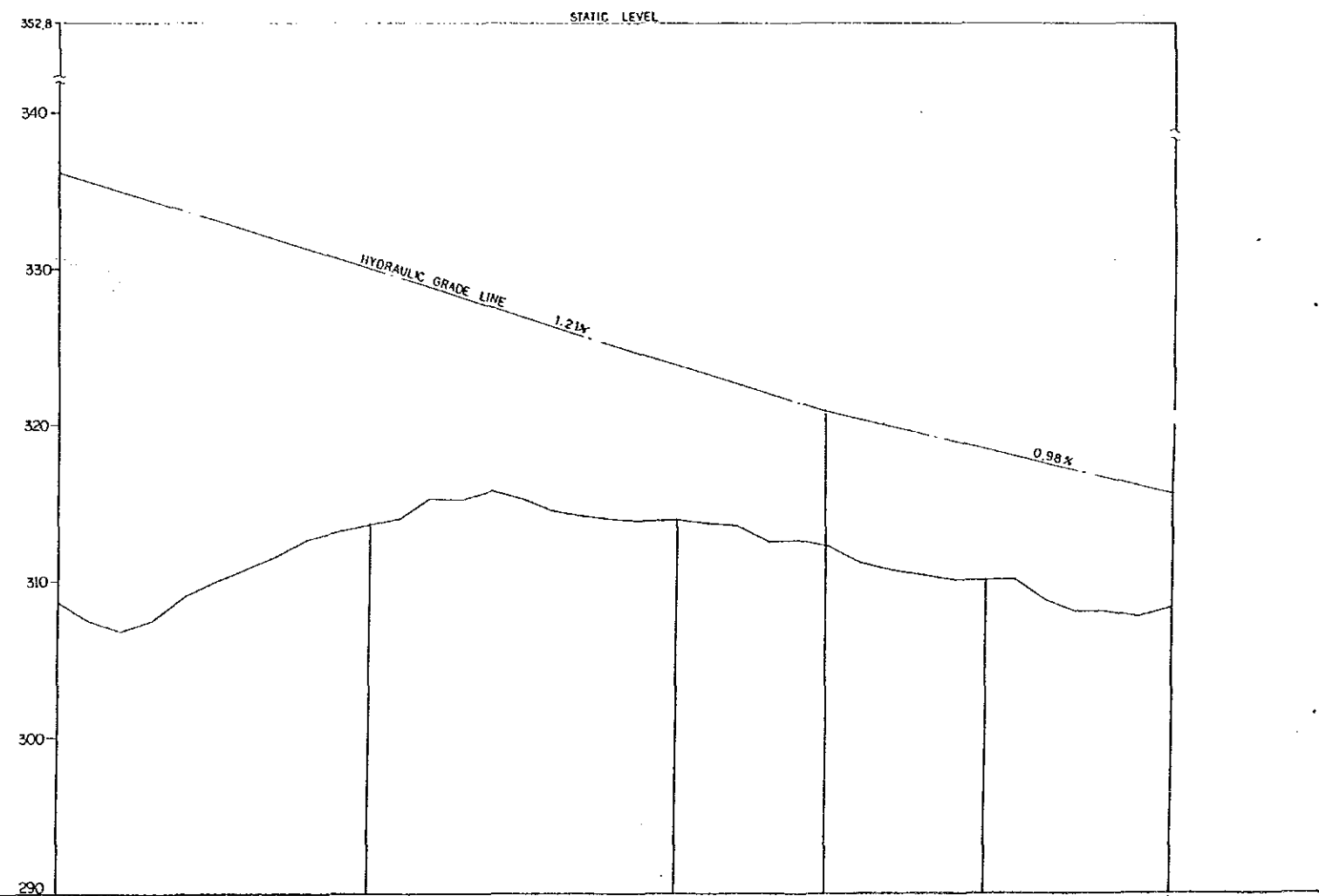
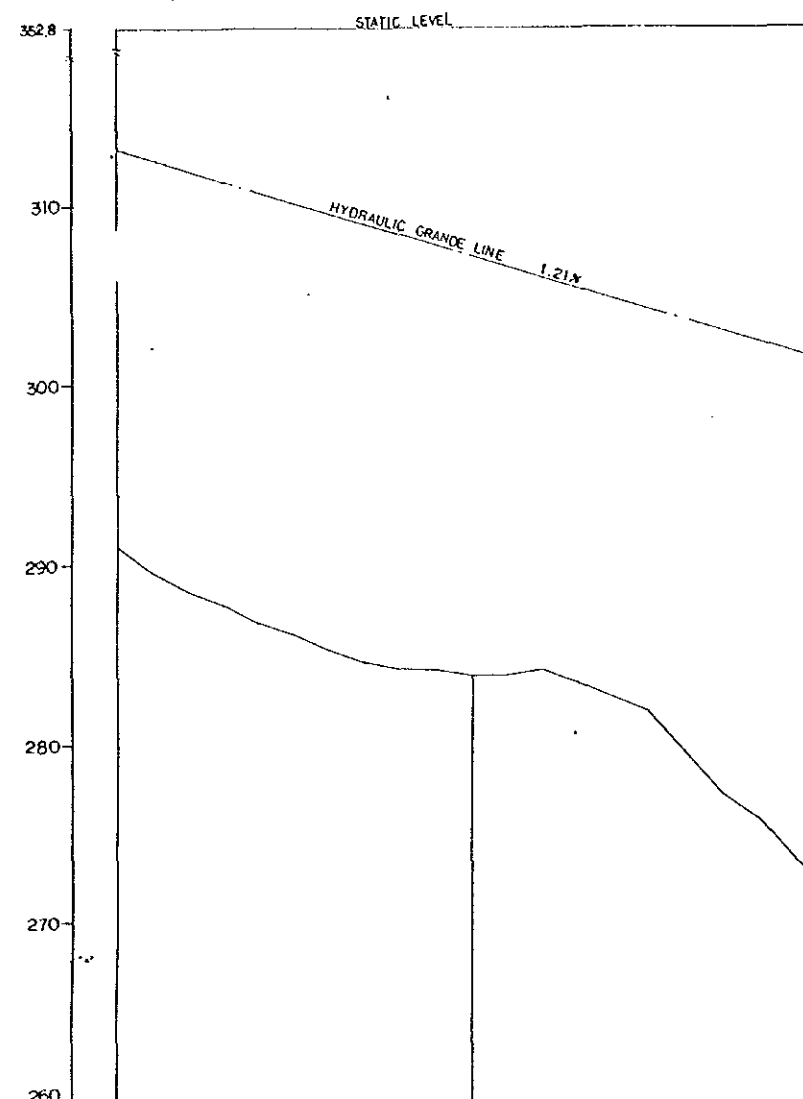
THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND
BINNANGA
PLAN & LONGITUDINAL SECTION (1/5)
NOVEMBER 1990 SCALE / DRAWING NO. 33
JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN



LONGITUDINAL SECTION

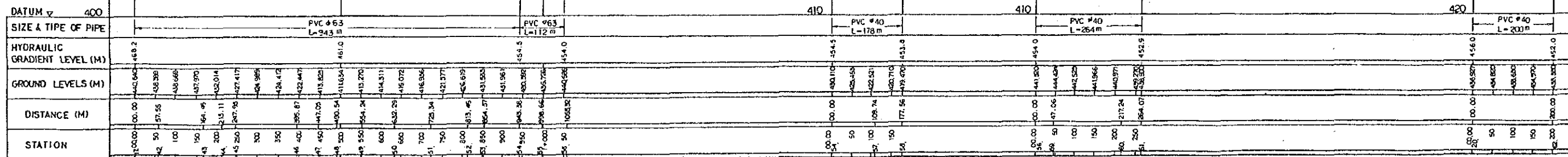
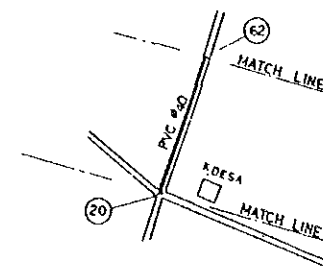
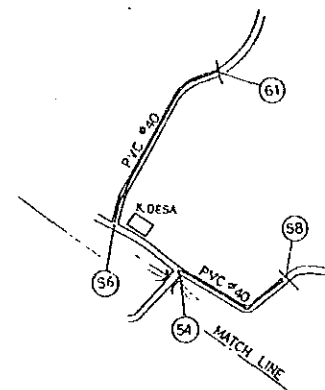
THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
BINNANGA PLAN & LONGITUDINAL SECTION (2/5)		
NOVEMBER 1990	SCALE /	DRAWING NO. 34
JAPAN INTERNATIONAL COOPERATION AGENCY		



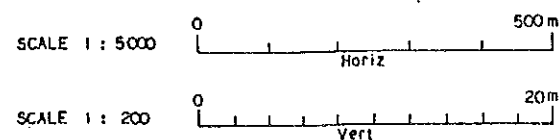
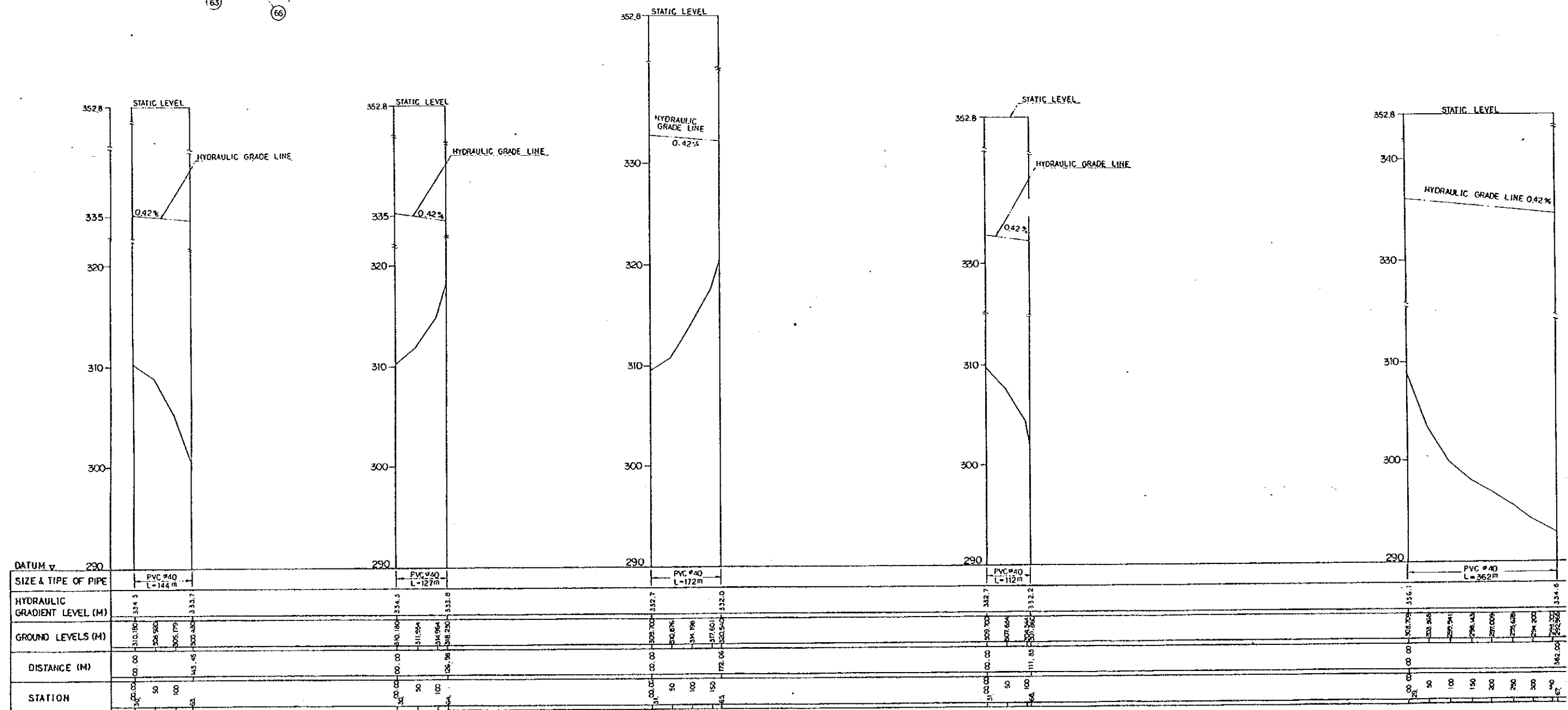
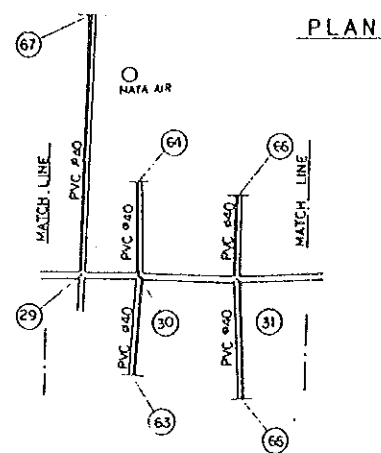
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LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
BINNANGA PLAN & LONGITUDINAL SECTION (3/5)		
NOVEMBER 1990	SCALE /	DRAWING NO. 35
JAPAN INTERNATIONAL COOPERATION AGENCY		



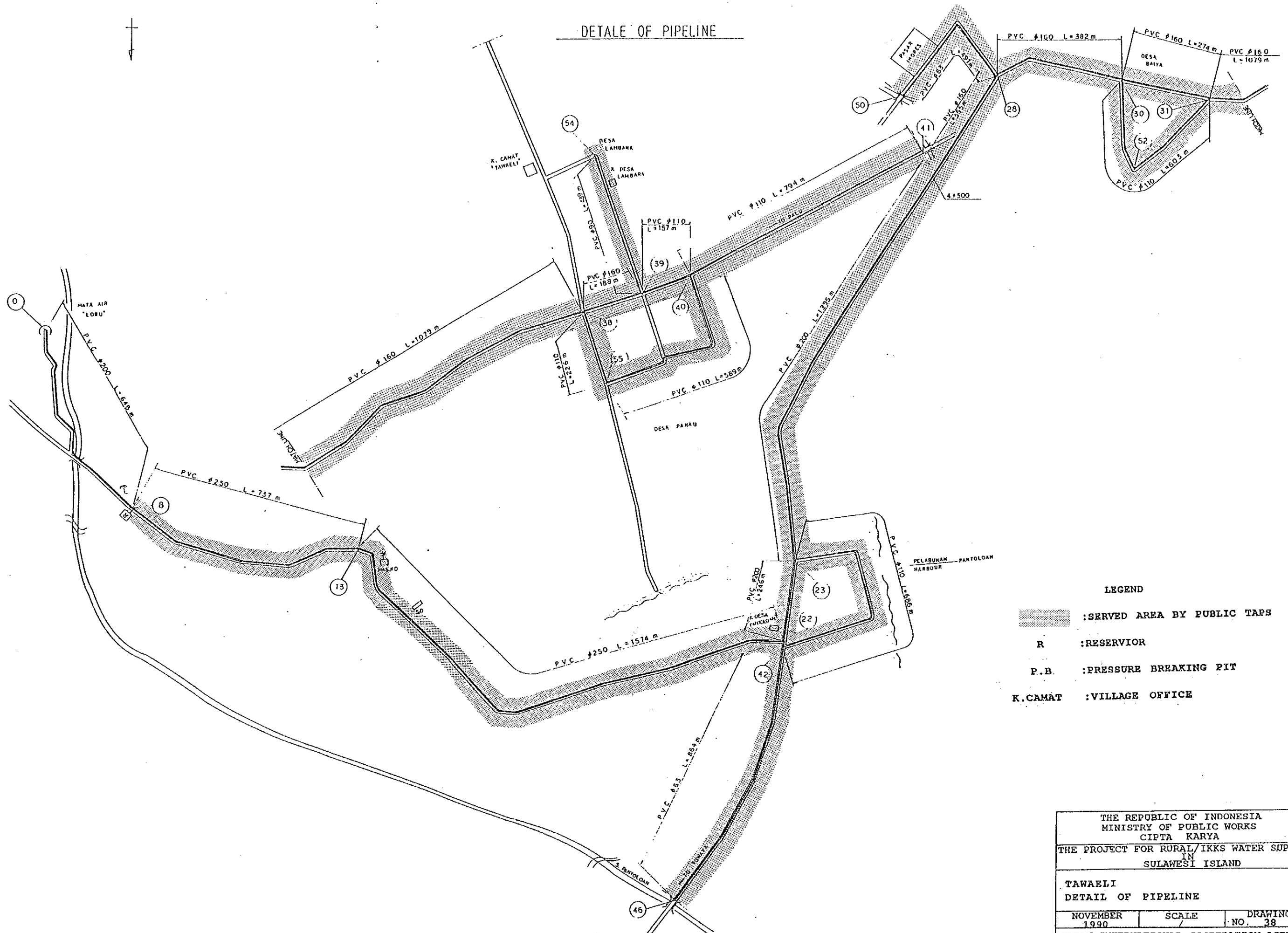
THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
BINNANGA PLAN & LONGITUDINAL SECTION (4/5)		
NOVEMBER 1990	SCALE /	DRAWING NO. 36
JAPAN INTERNATIONAL COOPERATION AGENCY		



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
BINNANGA PLAN & LONGITUDINAL SECTION (5/5)		
NOVEMBER 1990	SCALE /	DRAWING NO. 37
JAPAN INTERNATIONAL COOPERATION AGENCY		

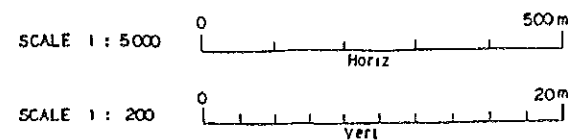
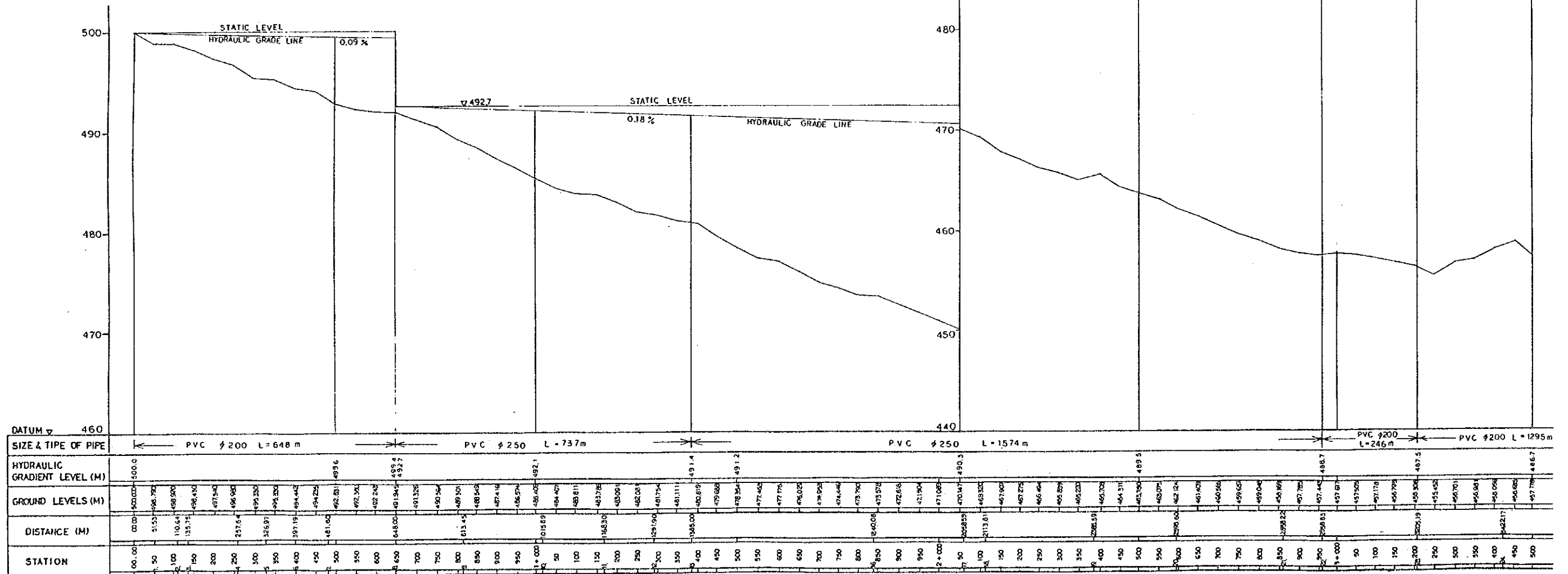
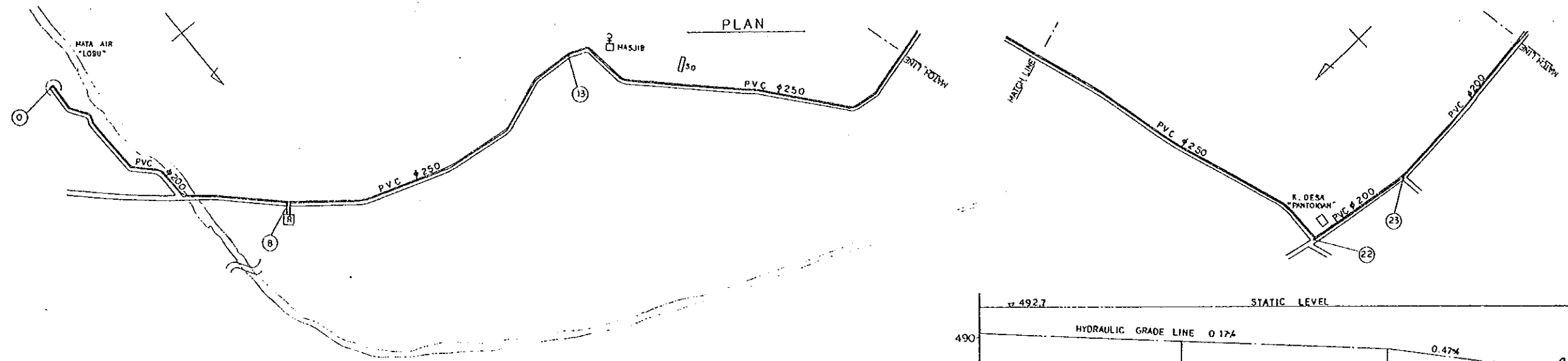
DETALE OF PIPELINE



LEGEND

- :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B. :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
TAWALI		
DETAIL OF PIPELINE		
NOVEMBER	SCALE	DRAWING
1990	/	NO. 38
JAPAN INTERNATIONAL COOPERATION AGENCY		



THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

THE PROJECT FOR RURAL/IRKS WATER SUPPLY
IN
SULAWESI ISLAND

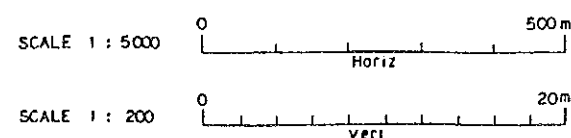
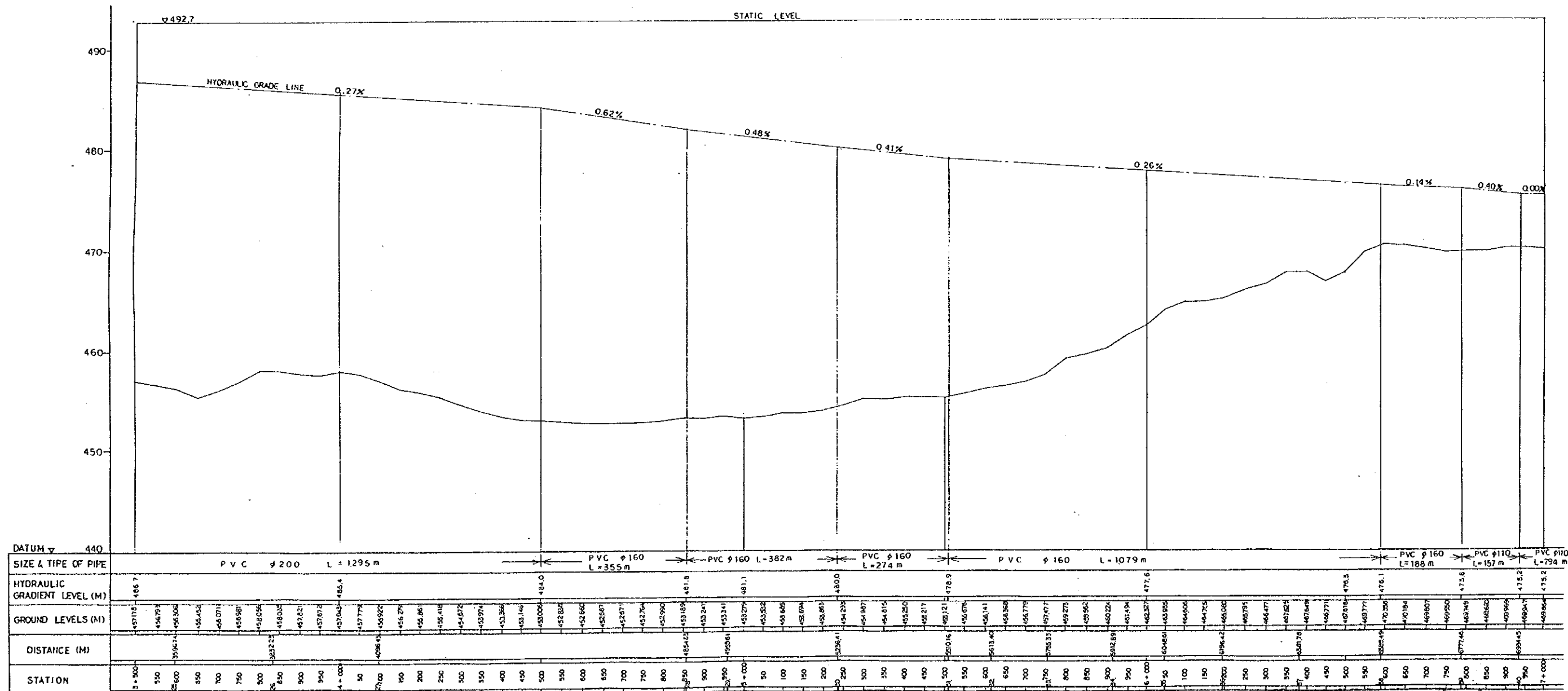
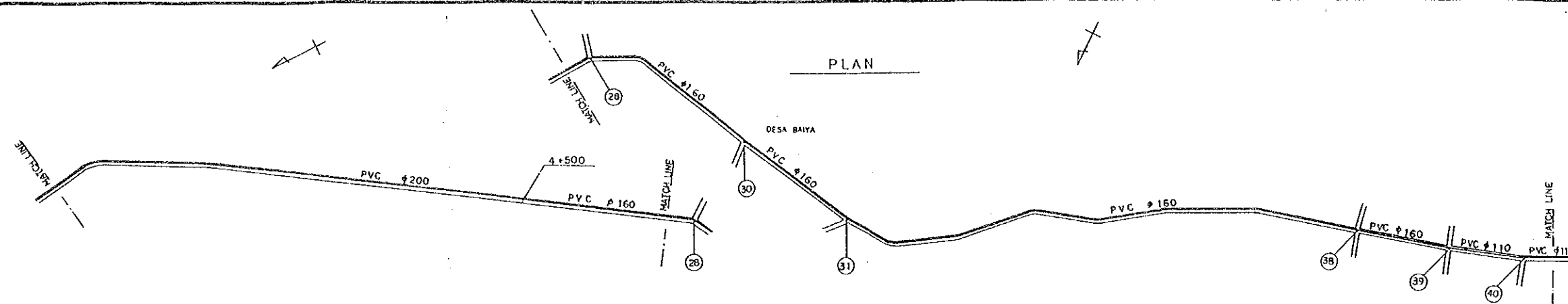
TAWAELI
PLAN & LONGITUDINAL SECTION (1/5)

NOVEMBER 1990

SCALE

DRAWING NO. 39

JAPAN INTERNATIONAL COOPERATION AGENCY



THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

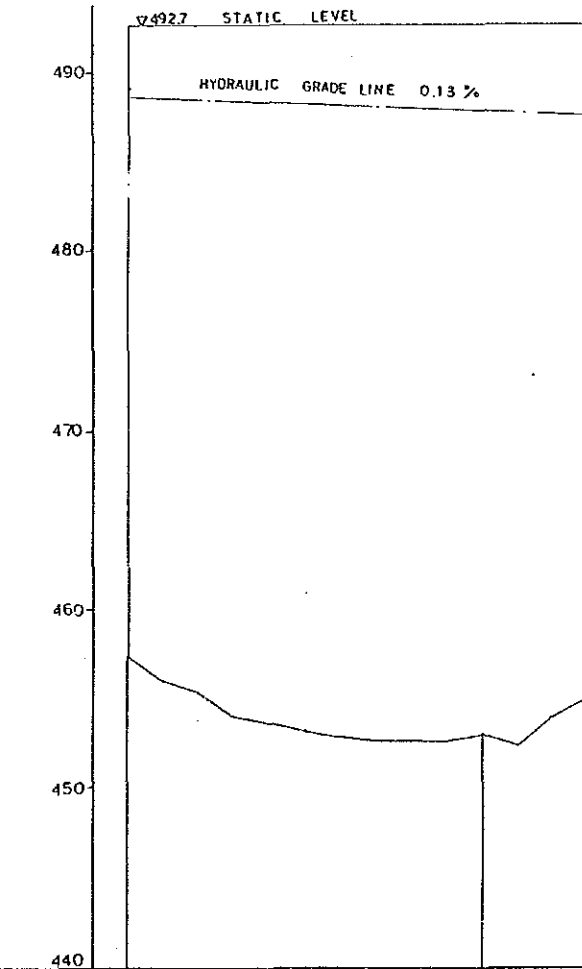
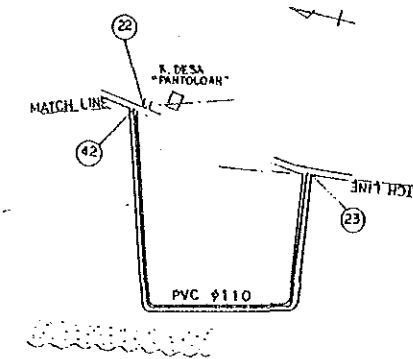
TAWAELI
PLAN & LONGITUDINAL SECTION (2/5)

NOVEMBER 1990

SCALE /

DRAWING NO. 40

JAPAN INTERNATIONAL COOPERATION AGENCY



SCALE 1 : 5000

0 500 m

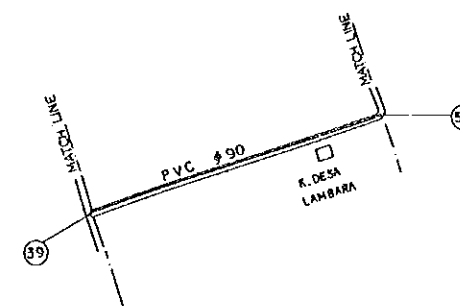
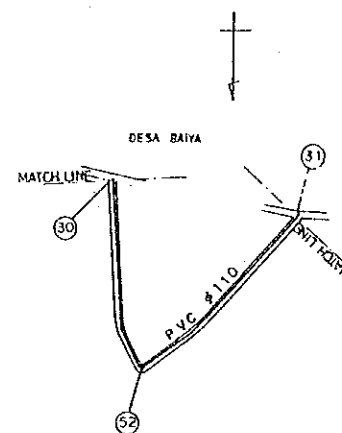
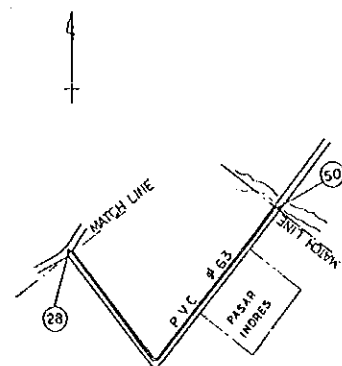
Horiz

SCALE 1 : 200

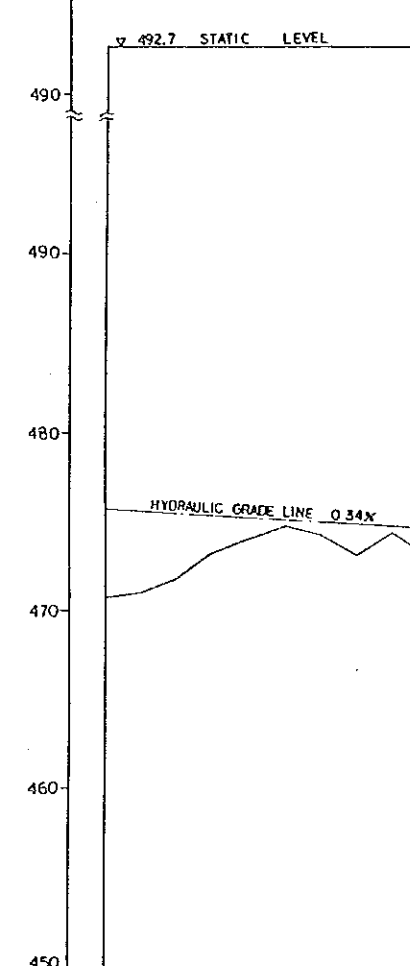
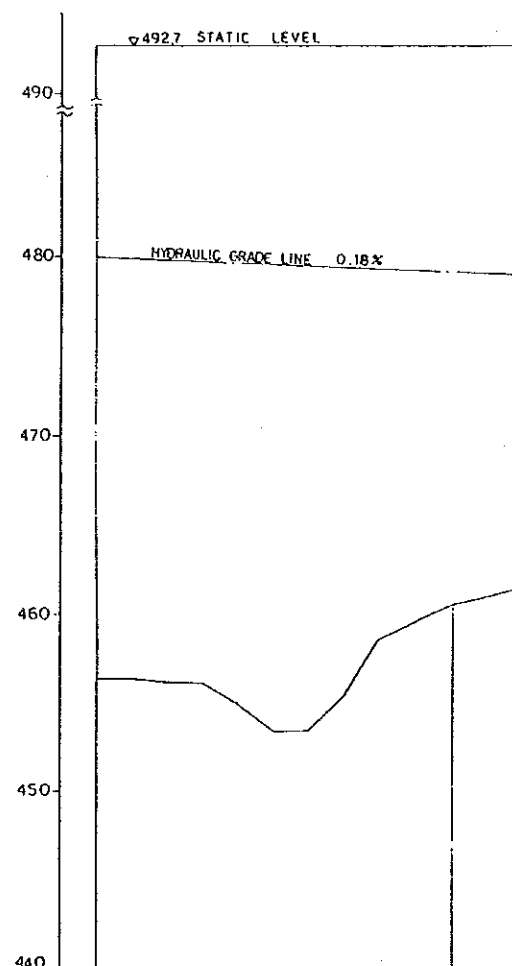
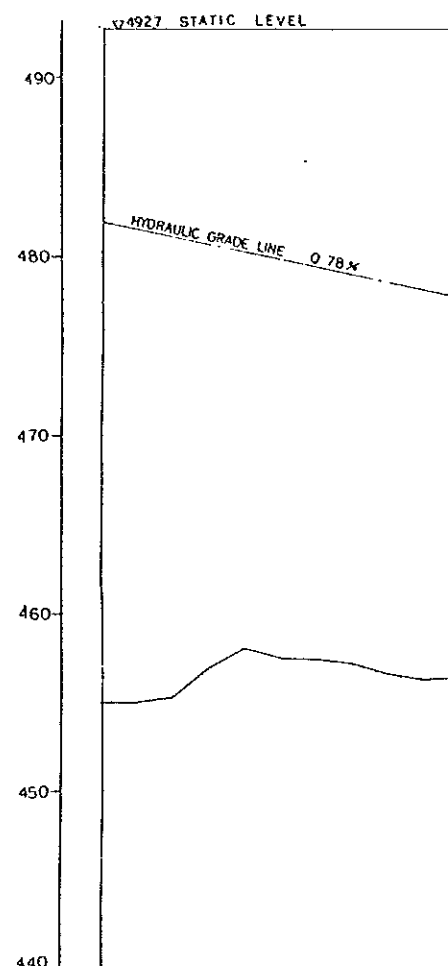
0 20 m

VERT

THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
TAWARELI PLAN & LONGITUDINAL SECTION (3/5)		
NOVEMBER 1990	SCALE /	DRAWING NO. 41
JAPAN INTERNATIONAL COOPERATION AGENCY		

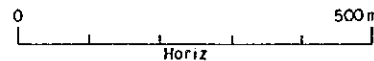


PLAN

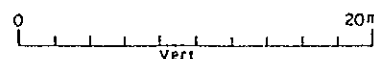


SIZE & TYPE OF PIPE	PVC 63 L=491 m										
HYDRAULIC GRADIENT LEVEL (M)	481.8										
GROUND LEVELS (M)	455.08	455.08	455.08	455.08	455.08	455.08	455.08	455.08	455.08	455.08	455.08
DISTANCE (M)	0.00	50	100	150	200	250	300	350	400	450	491.03
STATION	0+00	0+50	1+00	1+50	2+00	2+50	3+00	3+50	4+00	4+50	5+00

SCALE 1 : 5000



SCALE 1 : 200



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

TAWALI
PLAN & LONGITUDINAL SECTION (4/5)

NOVEMBER 1990 SCALE / DRAWING NO. 42

JAPAN INTERNATIONAL COOPERATION AGENCY

PLAN

DES A PANAU

TO PALU

38

55

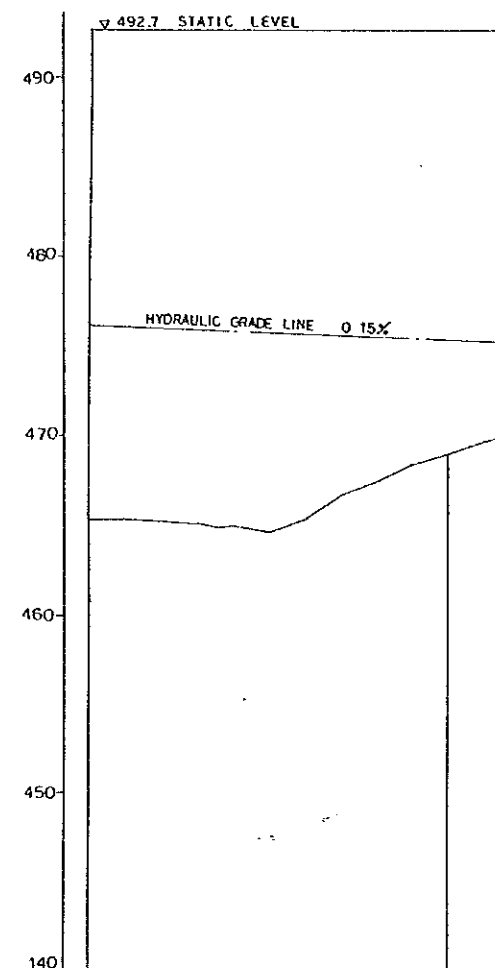
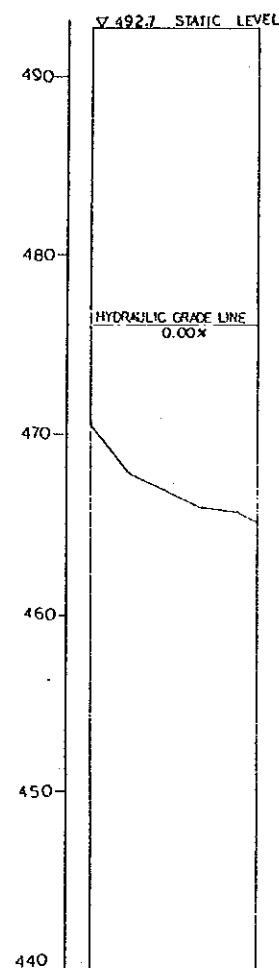
10

MATCH LINE

MATCH LINE

MATCH LINE

PVC #110



DATUM ∇	440	140
SIZE & TYPE OF PIPE	PVC ϕ 110 L = 226 m	PVC ϕ 110 L = 589 m
HYDRAULIC GRADIENT LEVEL (M)	476.1	476.1
GROUND LEVELS (M)	470.49 467.971 467.028 466.075 465.200 465.271	465.967 465.408 465.916 466.062 465.046 464.727 465.264 466.235 464.319 467.044 460.711 468.041 469.625 470.031
DISTANCE (M)	0000 50 100 150 200 226	0000 50 100 150 200 203.74 250 300 350 367 400 450 500 550 589.18
STATION	35+00 35+50 36+00 36+50 37+00 37+26	35+00 35+50 36+00 36+50 37+00 37+50 38+00 38+50 39+00 39+50 40+00 40+50 41+00 41+50 42+00

SCALE 1 : 5000

0 500 m

Horiz

SCALE 1 : 200

0 20 m

Vert

THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
CIPTA KARYA

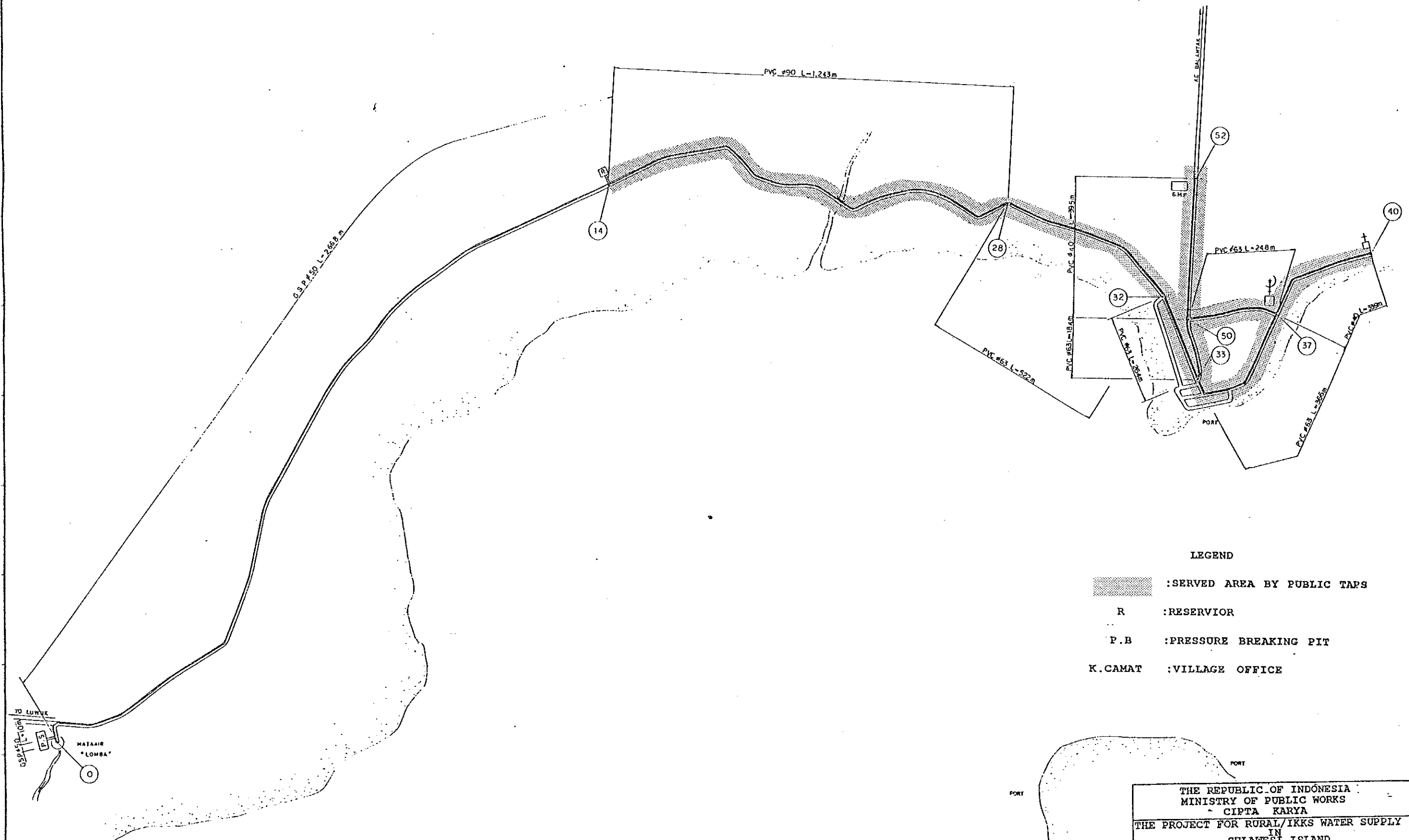
THE PROJECT FOR RURAL/IKKS WATER SUPPLY
IN
SULAWESI ISLAND

TAWAELI
PLAN & LONGITUDINAL SECTION (5/5)

NOVEMBER 1990	SCALE 1	DRAWING NO. 43
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JAPAN INTERNATIONAL COOPERATION AGENCY

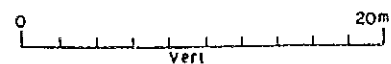
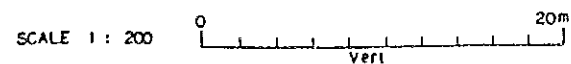
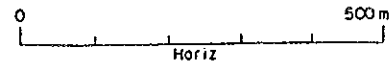
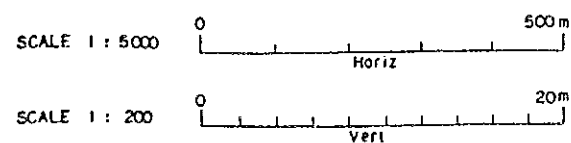
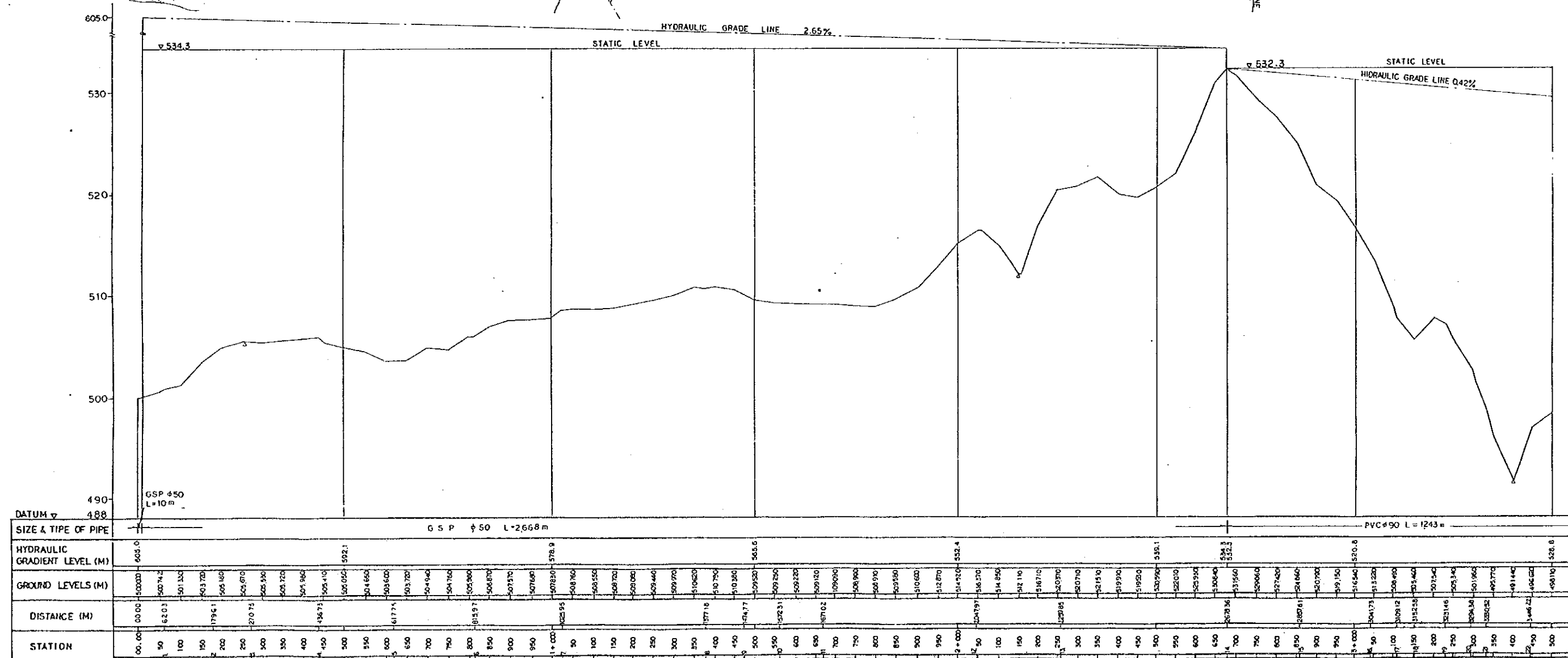
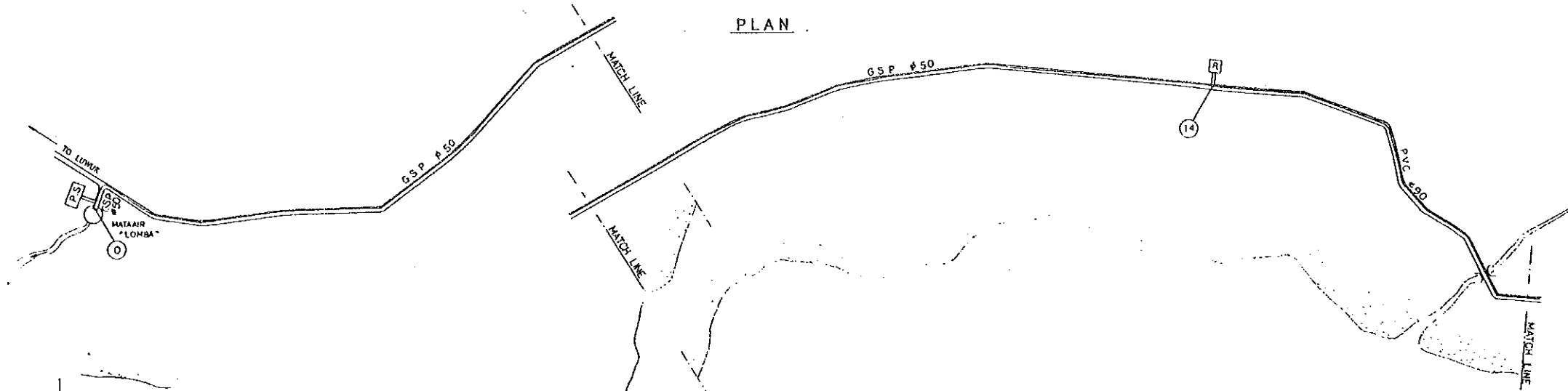
DETAIL OF PIPELINE



LEGEND

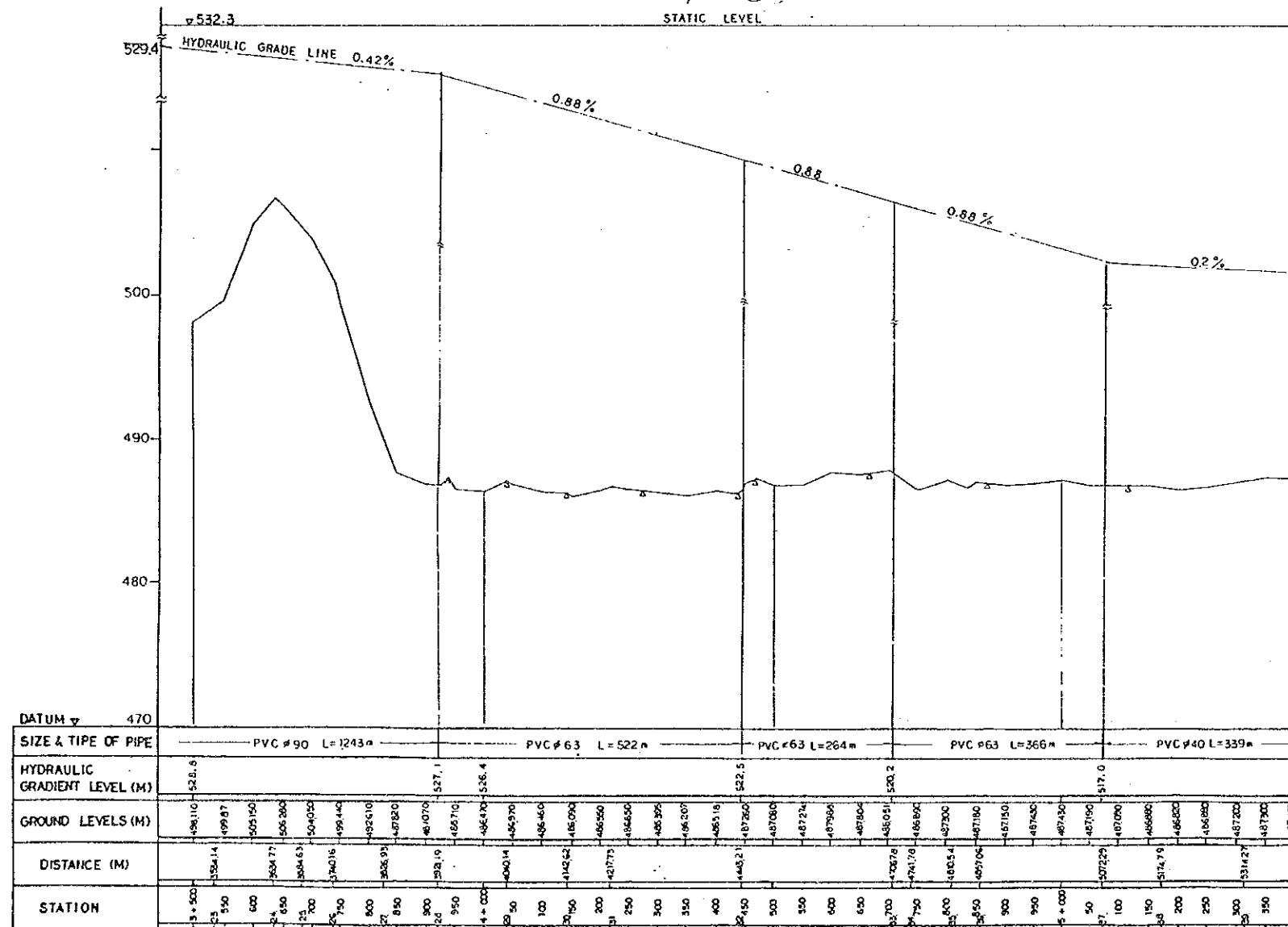
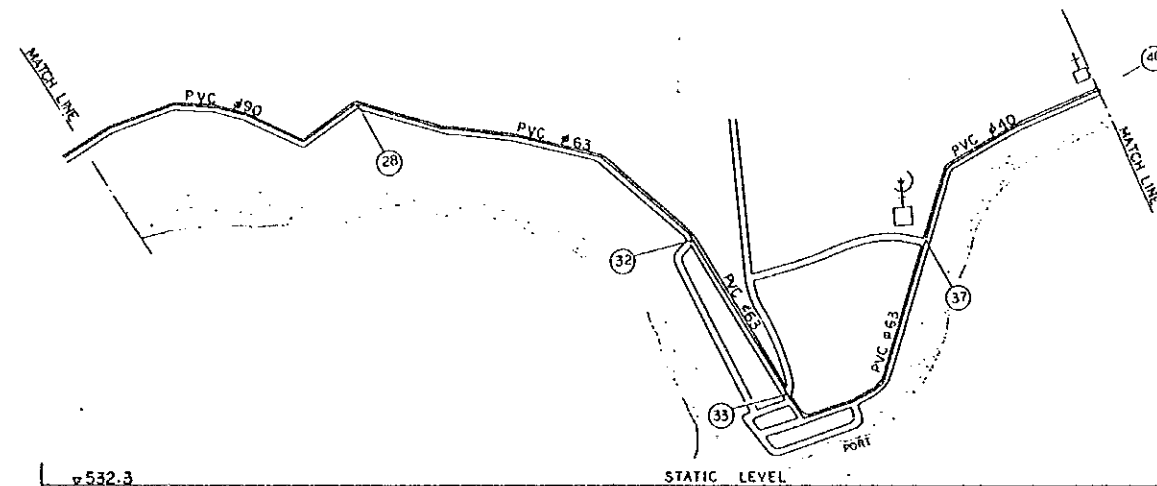
- :SERVED AREA BY PUBLIC TAPS
- R :RESERVIOR
- P.B :PRESSURE BREAKING PIT
- K.CAMAT :VILLAGE OFFICE

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
BONEBOBAKAL		
DETAIL OF PIPELINE		
NOVEMBER	SCALE	DRAWING
1990	/	NO. 44
JAPAN INTERNATIONAL COOPERATION AGENCY		

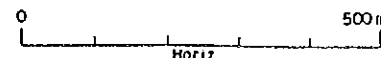


THE REPUBLIC OF INDONESIA MINISTRY OF PUBLIC WORKS CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY IN SULAWESI ISLAND		
BONEBOBAKAL PLAN & LONGITUDINAL SECTION (1/3)		
NOVEMBER 1990	SCALE /	DRAWING NO. 45
JAPAN INTERNATIONAL COOPERATION AGENCY		

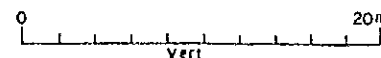
PLAN



SCALE 1 : 5000



SCALE 1 : 200



LONGITUDINAL SECTION

THE REPUBLIC OF INDONESIA		
MINISTRY OF PUBLIC WORKS		
CIPTA KARYA		
THE PROJECT FOR RURAL/IKKS WATER SUPPLY		
IN		
SULAWESI ISLAND		
BONEBOBAKAL		
PLAN & LONGITUDINAL SECTION (2/3)		
NOVEMBER 1990	SCALE	DRAWING NO. 46
JAPAN INTERNATIONAL COOPERATION AGENCY		