TOTAL TABLE OF WORKING COST

Work Item	Amount	Unit	Price	Sum	Note	No.
Earth Work				10,675,785		
Channel				503,409		
Bridge				715,761		
Total				11,894,955		
Indirect work				1,189,495	Total X 10%	
Grand total				13,084,450		

Detail Cost of Work

Earth Work

Item	Amount	Unit	Price	Sum	Note	No.
Soil cutting	11,120	m^3	72	800,640		3
Inflow banking	2,504	"	17	42,568		4
Pure banking	692	"	89	61,588		4
Uper subbase	700	"	2,226	1,558,200		5
Lower subbase	3,098	"	2,371	7,345,358		5
Stump (1)	112	stake	207	23,184		6
" (2)	55	"	586	32,230		6
" (3)	11	"	1,029	11,319		6
Route cleaning	1,960	m^2	30	58,800	500 X 0.06	
Slope greening	4,296	"	30	128,880	500 X 0.06	
Sodding	5,137	"	100	513,700	500 X 0.20	
Pole masonry	16	m	1,126	18,016		7
Buried work	106	m	767	81,302		7
Total				10,675,785		
Bulldozer					Private use 11t	
Light oil	28.2	l	15	423.00		
Assistant	0.38	man	750.00	285.00		
Labor	0.20	"	500.00	100.00		
Head	0.08	"	625.00	50.00		
Total			per $1m^3$	858.00		
Soil cutting						
Bulldozer	38.5	h	858.00	22.28		
Labor	0.10	man	500.00	50.00		
Total			per $1m^3$	72.38		

Earth work

Item	Amount	Unit	Price	Sum	Note	No.
Inflow banking						
Bulldozer	121.5	h	858.00	7.06		
Labor	0.02	man	500.00	10.00		
Total			per $1m^3$	17.06		
Pure banking						
Soil cutting	1.0	m^3	72.38	72.38	(*)	
Bulldozer	121.5	h	858.00	7.06		
Labor	0.02	man	500.00	10.00		
Total			per $1m^3$	89.44		

(*) - cutting normal soil and banking

Earth work

Gravel pavement

Item	Amount	Unit	Price	Sum	Note	No.
Upper subbase					5% ratio of dispersing	
Crushed gravel	1.05	m^3	2,000.00	2,100.00	Transport cost	
Labor	0.252	man	500.00	126.00	Graveling 0.24 X 1.05	
Total			per $1m^3$	2,226.00		
Lower subbase					5% dispersing 10% compaction	
Crushed stone	1.15	m^3	2,000.00	2,300.00	transport cost	
Bulldozer	$\frac{1.15}{38.5}$	h	858.00	25.62		
Labor	0.092	man	500.00	46.00		
Total			per $1m^3$	2,371.62		

Earth work

Stump

Item	Amount	Unit	Price	Sum	Note	No.
Stump (1)					ϕ 30cm-50cm	
Bulldozer	$\frac{1}{8}$	h	858.00	107.25		
Labor	0.20	man	500.00	100.00		
Total			per a stake	207.25		
Stump (2)					ϕ 50cm-80cm	
Bulldozer	$\frac{1}{3}$	h	858.00	286.00		
Labor	0.60		500.00	300.00		
Total			per a stake	586.00		
Stump (3)						
Bulldozer	$\frac{1}{2}$	h	858.00	429.00	ϕ:more than 90cm	
Labor	1.20	man	500.00	600.00		
Total			per a stake	1,029.00		

Earth work

Item		Amount	Unit	Price	Sum	Note
Pole masonry						calculating for 10m
Piling log		0.32	m^3	1,396.55	446.89	0.12X0.12X2.00X11
Board lumber		0.25	m^3	10,000.00	2,500.00	0.05X0.50X10.0
Piling	labor	8.8	man	500.00	4,400.00	Stakes 11 X 0.8
Producting	labor	4.0	"	500.00	2,000.00	
Nail	length 150mm ϕ 5.2mm	15.3	kg	125.00	1,912.50	27.78kg per 100 stakes 11X5=55 stakes
Total					11,259.39	
Buried work			per 1 m	$\frac{1}{10}$	1,125.93	
Piling log		0.17	m^3	1,396.55	237.41	0.12X0.12X2.0 6
Board lumber		0.25	m^3	10,000.00	2,500.00	0.05X0.50X10.0
Piling	labor	4.8	man	500.00	2,400.00	6 stakes X 0.8
Producting	labor	3.0	man	500.00	1,500.00	
Nail	length 150mm ϕ 5.2mm	8.3	kg	125.00	1,037.50	The same as above 6 X 5 = 30 stakes
Total					7,674.91	
			per 1 m	$\frac{1}{10}$	767.49	

Detail cost of work

Channel Work

Item	Amount	Unit	Price	Sum	Note	No.
Intake box	3	piece	4,325	12,975		9
45 box culvert	41.0	m	2,636	108,076		10
60 box culvert	53.0	m	3,338	176,914		11
100 box culvert	11.5	m	7,647	87,940		12
Pole masonry	84	m	1,126	94,584		13
Treatment of final run-off	12	m	510	6,120		
Timber bridge	1			379,590	L = 7.0	14 15
Timber bridge	1			336,171	L = 6.0	16 18
Soil excavation	8	m^3	300	2,400		19
Clay excavation	32	m^3	450	14,400		19
Total				1,219,170		

Channel work

Item		Amount	Unit	Price	Sum	Note
Intake box						per 1 piece
Board lumber		0.25	m^3	10,000.00	2,500.00	1.00X1.00X5X0.05
Producting	frame worker	0.30	man	625.00	187.50	
The same as above	labor	0.30	man	500.00	150.00	
Setting	labor	0.20	man	500.00	100.00	
Nail	length 150mm ϕ 5.2mm	11.1	kg	125.00	1,387.50	27.78kg per 100 stakes 40 stakes
Total					4,325.00	
45 box culvert						calculating for 10m
Piling log		0.15	m^3	2,166.67	325.00	stakes $10 \times 0.12^2 \times 1.05$
Board lumber upper lid		0.55	m^3	10,000.00	5,500.00	0.10X0.55X10.00
Side board		0.45	m^3	10,000.00	4,500.00	0.05X0.45X10.00X2
Nail	length 150mm ϕ 5.2mm	41.7	kg	125.00	5,212.50	27.78kg per 100 stakes 150 stakes
Pil	labor	1.4	man	500.00	700.00	10 stakes X 0.14
Producting	frame worker	9.0	man	625.00	5,625.00	
The same as above	labor	9.0	man	500.00	4,500.00	
Total					26,362.50	
			Per 1 m	$\frac{1}{10}$	2,636.25	

Channel work

Item		Amount	Unit	Price	Sum	Note
60 box culvert						calculating for 10m
Piling log		0.20	m^3	1,875.00	375.00	10 stakes X0.12²X1.40
Boardllumber upper lid		0.7	"	10,000.00	7,000.00	0.10X0.70X10.00
Side board		0.6	"	10,000.00	6,000.00	0.05X0.60X10.00X2
Nail		41.7	kg	125.00	5,212.50	27.78kg per 100 stakes 150 stakes
Piling	Labor	2.6	man	500.00	1,300.00	10 stakes X 0.26
Producting	flame worker	12.0	"	625.00	7,500.00	
The same as above	Labor	12.0	"	500.00	6,000.00	
Total					33,387.50	
			per 1 m	$\frac{1}{10}$	3,338.75	
100 box culvert						
Piling log		0.29	m^3	1,396.55	404.99	10 stakes X0.12²X2.00
Square lumber		1.11	"	10,000.00	11,100.00	0.15²X1.40X21 0.15²X10.00X2
Board lumber		2.25	"	10,000.00	22,500.00	0.10X1.40X10.00 0.05X0.85X10.00X2
Nail	length 150mm ϕ 12mm	57.8	kg	125.00	7,225.00	21X8+10X4 208X27.78kg/100 stakes
Cramp	back length 150mm ϕ 12mm	18.7	"	227.00	4,244.90	21X4+10X2 104X0.18kg
Piling	labor	8.0	man	500.00	4,000.00	10 stakes X 0.80
Producting	frame worker	24.0	"	625.00	15,000.00	
The same as above	labor	24.0	"	500.00	12,000.00	
Total					76,474.89	
			per 1 m	$\frac{1}{10}$	7,647.48	

Channel work

Item		Amount	Unit	Price	Sum	Note
Pole masonry						calculating for 10m
Piling log		0.32	m^3	1,396.55	446.89	0.12X0.12X2.00X11
Board lumber		0.25	m^3	10,000.00	2,500.00	0.05X0.50X10.00
Piling	labor	8.8	man	500.00	4,400.00	11X0.8
Product		4.0	"	500.00	2,000.00	
Nail	length 150mm ϕ 5.2mm	15.3	kg	125.00	1,912.50	27.78kg per 100 stakes 11X5=55 stakes
Total					11,259.39	
Treament of final run-off			per 1 m	$\frac{1}{10}$	1,125.93	
Piling log		0.43	m^3	1,396.55	600.51	0.12^2X2.00X15 stakes
Labor		9.0	man	500.00	4,500.00	
Total					5,100.51	
			per 1 m	$\frac{1}{10}$	510.05	

Timber bridge

Item		Amount	Unit	Price	Sum	Note
Bridge						L=7.0m
Girder lumber	0.20X0.30X7.00	2.100				5 stakes
The same as above	0.20X0.30X13.00	1.560				2 stakes
Beam lumber	0.20X0.20X7.10	0.568				2 stakes
Batten	0.20X0.10X6.30	0.252				2 stakes
Batten	0.20X0.10X3.20	0.256				4 stakes
Horizontal paving board	0.20X0.10X7.10	4.970				35 sheets
Vertical paving board	0.20X0.05X7.00	0.420				6 sheets
Top beam lumber	0.10X0.05X13.00	0.130				2 stakes
Batten	0.05X0.05X13.00	0.065				2 stakes
Ground covering 10g	0.20X0.20X13.00	1.040				2 stakes
Sub-lumber	0.10X0.10X0.85	0.238				28 stakes
Short support	0.10X0.10X1.05	0.294				28 stakes
Retainig board	0.20X0.05X6.30	1.008				horizontal 16 sheets
Retainig board	0.20X0.05X2.00	1.280				vertical(abutment) 64 sheets
Retainig board	0.20X0.05X2.70	1.620				vertical 60 sheets
Square pile	0.20X0.20X4.50	3.240				(5X2)+(2X4) 18 staks
Total		19.041	m^3	10,000.00	190,410.00	

Timber bridge

Item		Amount	Unit	Price	Sum	Note
Bridge						L=7.0m
Bolt	D16X300	18.7	kg			(5X2)+(3X4)=22 22X0.85 kg
"	D16 X 210	38.3	"			18X3=54 stakes 54 X 0.71
"	D12 X 180	17.9	"			28X2=56 stakes 56 X 0.32
Iron plate	5X40X550	31.0	"			18X2=36 sheets 36 X 0.86
Brad	D9 X 120	49.0	"			35X14X0.10 Horizontal paving board
"	D6 X 99	1.9	"			16X6X0.02 vertical paving board
"	D6 X 99	1.1	"			top beam lumber 28X2X0.02
Total		157.9	"	227.00	35,843.30	
Nail	D52 X 150	146.7	"	125.00	18,337.50	(16X10)+(64X2)+ (60X4) 5.28 X 27.78kg
Piling		72	man	500.00	36,000.00	18 stakes X 4
Abutment producting	labor	13.6	"	500.00	6,800.00	6.8 X 2 spot
"	frame worker	13.6	"	625.00	8,500.00	
Upper construction	labor	41.6	"	500.00	20,800.00	13.0 X 3.2
"	frame worker	41.6	"	625.00	26,000.00	
Baluster radework	labor	20.8	"	500.00	10,400.00	13.0 X 1.6
"	frame worker	20.8	"	625.00	13,000.00	
Sheathing work	labor	12.0	"	500.00	6,000.00	3.0 X 4 X 1.0
"	frame worker	12.0	"	625.00	7,500.00	
Total					135,000.00	
Grand total					189,180.80	

Timber bridge

Item		Amount	Unit	Price	Sum	Note
Bridge						L=6.0
Girder lumber	0.20X0.30X6.00	1.800				5 stakes
The same as above	0.20X0.30X12.00	1.440				2 stakes
Beam lumber	0.20X0.20X7.10	0.568				2 stakes
Batten	0.20X0.10X6.30	0.252				2 stakes
The same as above	0.20X0.10X3.20	0.256				4 stakes
Horizontal paving board	0.20X0.10X7.10	4.260				30 sheets
Vertical paving board	0.20X0.05X6.00	0.360				6 sheets
Top beam lumber	0.10X0.05X12.00	0.120				2 stakes
Batten	0.05X0.05X12.00	0.060				2 stakes
Ground covering log	0.20X0.20X12.00	0.960				2 stakes
Sub lumber	0.10X0.10X0.85	0.221				26 stakes
Short support	0.10X0.10X1.05	0.273				26 stakes
Retaining board	0.20X0.05X6.30	1.008				Horizontal 16 sheets
"	0.20X0.05X3.00	1.350				15X3=45 sheets
"	0.20X0.05X2.00	0.940				(32)+(15)=47 sheets
quare pile	0.20X0.20X4.00	1.920				(5)+(1)+(2X3) = 12 stakes
"	0.20X0.20X3.00	0.720				(4)+(2)=6 stakes
Total		16.508	m^3	10,000.00	165,080.00	

Timber bridge

Item		Amount	Unit	Price	Sum	Note
Bridge						
Bolt	D16 X 300	18.7	kg			(5X2)+(3X4) 22 X 0.85
"	D16 X 210	38.3	"			18X3=54 stakes 54X0.71
"	D12 X 180	16.6	"			26X2=52 stakes 52X0.32
Iron plate	5 X 40 X 550	31.0	"			18X2=36 sheet 36X0.86
Brad	D9 X 120	42.0	"			30X14X0.10 horizontal paving board
"	D6 X 99	1.7	"			14X6X0.02 vertical paving board
"	D6 X 99	1.0	"			26X2X0.02 top beam lumber
Total		149.3	kg	227.00	33,891.10	
Nail	D52 X 1.50	128.9	"	125.00	16,112.50	(16X10)+(32X2)+ (60X4) = 464 4.64 X 27.78
Piling	labor	43.2	man	500.00	21,600.00	12 stakes X 3.6
"	labor	15.6	"	500.00	7,800.00	6 stakes X 2.6
Abutment producting	labor	6.8	"	500.00	3,400.00	6.8 men
"	frame worker	6.8	"	625.00	4,250.00	6.8
"	labor	4.8	"	500.00	2,400.00	4.8
"	frame worker	4.8	"	625.00	3,000.00	4.8
Upper construction	labor	38.4	"	500.00	19,200.00	12.0 X 3.2
"	frame worker	38.4	"	625.00	24,000.00	12.0 X 3.2
Brastrade work	labor	19.2	"	500.00	9,600.00	12.0 X 1.6
"	frame worker	19.2	"	625.00	12,000.00	12.0 X 1.6
Sheathing	labor	8.4	"	500.00	4,200.00	2.5 height X 2 spots 1.4 X 3.0 X 2
"	frame worker	8.4	"	625.00	5,250.00	"
"	labor	2.4	"	500.00	1,200.00	height 1.8 m 0.8 X 3.0
"	frame worker	2.4	"	625.00	1,500.00	
"	labor	1.5	"	500.00	750.00	height 1.4m 0.5 X 3.0
"	frame worker	1.5	"	625.00	937.50	
Sub total					121,087,50	
Total					171,091.10	

Channel work

Excavation

Item	Amount	Unit	Price	Sum	Note
Soil excavation Labor	0.6	man	500.00	300.00	
Total			per,m^3	300.00	
Clay excavation	0.9	man	500.00	450.00	
Total			per,m^3	450.00	

Table computing volume of work (No 1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	c^m_-s	v	c-s	c^m_-s	v	c-s	c^m_-s	v	c-s	c^m_-s	v	i-b	p-b	c-s	c^m_-s	v	c-s	c^m_-s	v	c-s	c^m_-s	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
2				2,409.6						918.7			452.3	363.0	89.3			341.6			102.71			358.67	
3				2,014.6						830.4			1,055.4	920.8	134.6			748.1			113.63			468.28	
4				1,367.9						477.7			805.7	337.3	468.4			444.3			75.26			337.11	
5				1,921.0						812.4			489.2	489.2				448.2			99.94			430.73	
6				1,107.9						428.7			132.0	132.0				150.7			97.08			471.24	
7				1,339.0						485.2			153.8	153.8				183.6			126.45			613.99	
8				960.1						343.0			108.1	108.1				90.4			84.73			414.60	
																								3.16	
Grand total				11,120.1						4,296.1			3,196.5	2,504.2	692.3			2,406.9			699.8			3,097.78	
													sodding		banking		2,407								
														redidual earth			6,824 × 0.4 = 2,730								
																			5,137	m^3					

Table computing volume of work (No.1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	i-b	p-b	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
B.P		5.3						1.0											1.06			3.15			
12.0	12.0	8.3	6.80	81.6				2.5	1.75	21.0									0.30	0.680	8.16	0.87	2.01	24.12	
30.0	18.0	10.7	9.50	(252.6) 171.0				4.7	3.60	64.8									0.30		5.40	0.87		15.66	
B.C1 (48.2)	18.2	14.0	12.35	224.8				6.3	5.50	100.1									0.30		5.46	0.87		15.83	
M.C1 (56.7)	8.5	15.0	14.50	(348.1) 123.3				5.9	6.10	51.9									0.30		2.55	0.87		7.40	
E.C1 (65.3)	8.6	15.5	15.25	131.2				6.2	6.05	52.0									0.30		2.58	0.87		7.48	
B.C2 (72.7)	7.4	17.2	16.35	121.0				6.7	6.45	47.7									0.30		2.22	0.87		6.44	
M.C2 (82.3)	9.6	14.1	15.65	(402.4) 150.2				5.2	5.95	57.1									0.30		2.88	0.87		8.35	
E.C2 (92.0)	9.7	13.2	13.65	132.4				5.4	5.30	51.4									0.30		2.91	0.87		8.44	
B.C3 (100.8)	8.8	12.3	12.75	112.2				4.6	5.00	44.0									0.34	0.320	2.82	0.99	0.930	8.18	
M.C3 (107.6)	6.8	8.5	10.40	(315.3) 70.7				3.6	4.10	27.9									0.34		2.31	0.99		6.73	
E.C3 (114.5)	6.9	9.3	8.90	61.4				3.4	3.50	24.2									0.34		2.35	0.99		6.83	
B.C4 (125.8)	11.3	7.0	8.15	92.1				3.5	3.45	39.0									0.34		3.84	0.99		11.19	
M.C4 (135.2)	9.4	4.9	5.95	(209.4) 55.9				1.9	2.70	25.4									0.34		3.20	0.99		9.31	
E.C4 (144.7)	9.5	2.3	3.60	34.2				0.6	1.25	11.9									0.34		3.23	1.65	1.320	12.54	
B.C5 (154.2)	9.5	0.3	1.30	12.4					0.30	2.9	0.8	0.40	3.8			1.6	0.80	7.6	0.34		3.23	1.65		15.68	
M.C5 (160.7)	6.5	0.1	0.20	(47.9) 1.3							0.8	0.80	(9.0) 5.2	9.0		1.7	1.65	10.7	0.35	0.345	2.24	1.70	1.675	10.89	
E.C6 (167.2)	6.5		0.05	0.3							3.8	2.30	15.0			3.0	2.35	15.3	0.34	0.345	2.24	1.65	1.675	10.89	
M.C6 (179.9)	12.7	0.5	0.25	(3.5) 3.2							1.1	2.45	(46.1) 31.1	42.4	3.7	1.7	2.35	29.8	0.34		4.32	1.65		20.96	
E.C6 (192.0)	12.1	0.8	0.65	7.9				1.3	0.65	7.9	5.7	3.40	41.1			4.9	3.30	39.9	0.34		4.11	1.65		19.97	
I.P7 (199.6)	7.6	0.3	0.55	(12.1) 4.2				1.1	1.20	9.1	9.2	7.45	(97.7) 56.6	12.1	85.6	7.1	6.00	45.6	0.30	0.320	2.43	1.45	1.550	0.15 11.78	intake box 10×015×10= 0.15
230.0	30.4	5.4	2.85	86.6				2.3	1.70	51.7		4.60	139.8	139.8			3.55	107.9	0.30		9.12	0.87	1.160	35.26	
B.C8 (253.1)	23.1	18.5	11.95	276.0				5.4	3.85	88.9									0.54	0.420	9.70	1.59	1.230	28.41	
M.C8 (260.0)	6.9	42.8	30.65	(487.5) 211.5				11.3	8.35	57.6									0.54		3.73	1.59		10.97	
E.C8 (266.9)	6.9	9.7	26.25	181.1				3.4	7.35	50.7	0.2	0.10	0.7			0.9	0.45	3.1	0.54		3.73	1.59		10.97	
B.C9 (275.3)	8.4	2.6	6.15	51.7				2.0	2.70	22.7	0.9	0.55	4.6			1.9	1.40	11.8	0.34	0.440	3.70	1.65	1.620	13.61	
284.1	8.8		1.30	11.4					1.00	8.8	20.7	10.80	95.0			7.9	4.90	43.1	0.34		2.99	1.65		14.52	
M.C9 (287.8)	3.7			(244.2)							11.4	16.05	(159.7) 59.4	159.7		6.6	7.25	26.8	0.34		1.26	1.65		6.11	
total				2,409.6						918.7			452.3	363.0	89.3			341.6			102.71			358.67	

Table computing volume of work (No.1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	i-b	p-b	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
M. C 9 (287.8)											11.4					6.6			0.34			1.65			
E. C 9 (300.3)	12.5										19.0	15.20	190.0			6.7	6.65	83.1	0.34		4.25	1.65		20.63	
M. C 10 (306.5)	6.2	12.5	6.25	38.8				6.5	3.25	20.2	1.1	10.05	62.3			3.4	5.05	31.3	0.34		2.11	0.99	1.320	8.18	
E. C 10 (311.5)	5.0	13.0	12.75	(102.6) 63.8				5.7	6.10	30.5	0.1	0.60	(255.3) 3.0	255.3		0.9	2.15	10.8	0.34		1.70	0.99		4.95	
340.0	28.5	11.4	12.20	347.7				5.8	5.75	163.9	3.6	1.85	52.7	52.7		7.4	4.15	118.3	0.30	0.320	9.12	0.87	0.930	26.51	
357.0	17.0	17.7	14.55	247.4				5.7	5.75	97.8		1.80	30.6				3.70	62.9	0.30		5.10	0.87		14.79	
B. C 11 (362.4)	5.4	16.8	17.25	(340.6) 93.2				5.4	5.55	30.0				30.6					0.34	0.320	1.73	0.99	0.930	5.02	
M. C 11 (377.8)	15.4	15.2	16.00	246.4				4.9	5.15	79.3									0.34		5.24	0.99		15.25	
E. C 11 (393.2)	15.4	2.7	8.95	(384.2) 137.8				1.5	3.20	49.3	0.3	0.15	2.3	2.3		0.9	0.45	6.9	0.34		5.24	1.65	1.320	20.33	
409.0	15.8	5.8	4.25	67.2				2.5	2.00	31.6		0.15	2.4	2.4			0.45	7.1	0.30	0.320	5.06	1.45	1.550	24.49	
B. C 12 (432.2)	23.2		2.90	67.3					1.25	29.0	2.4	1.20	27.8	27.8		2.2	1.10	25.5	0.34	0.320	7.42	1.65	1.550	35.96	
M. C 12 (440.8)	8.6	5.6	2.80	24.1				1.9	0.95	8.2		1.20	10.3				1.10	9.5	0.34		2.92	1.65		14.19	
E. C 12 (449.5)	8.7	3.7	4.65	(64.6) 40.5				1.8	1.85	16.1				10.3					0.34		2.96	1.65		14.36	
465.0	15.5		1.85	28.7					0.90	14.0	1.0	0.50	7.8			2.2	1.10	17.1	0.30	0.320	4.96	1.45	1.550	24.03	
B. C 13 (473.3)	8.3										14.3	7.65	63.5			7.3	4.75	39.4	0.34	0.320	2.66	1.65	1.550	12.87	
476.0	2.7										24.4	19.35	(123.5) 52.2	93.0	30.5	7.3	7.30	19.7	0.34		0.92	1.65		4.46	
M. C 13 (485.9)	9.9										10.4	17.40	172.3			6.7	7.00	69.3	0.34		3.37	1.65		16.34	
E. C 13 (498.6)	12.7	9.5	4.75	60.3				4.2	2.10	26.7	0.1	5.25	66.7			0.4	3.55	45.1	0.34		4.32	0.99	1.320	16.76	
B. C 14 (504.1)	5.5	11.8	10.65	(118.9) 58.6				4.1	4.15	22.8		0.05	(239.3) 0.3	239.3			0.20	1.1	0.54	0.440	2.42	1.59	1.290	7.10	
M. C 14 (518.9)	14.8	10.9	11.35	168.0				3.8	3.95	58.5									0.54		7.99	1.59		23.53	
E. C 14 (533.7)	14.8	7.1	9.00	(301.2) 133.2				3.0	3.40	50.3	2.1	1.05	15.5	15.5		3.5	1.75	25.9	0.54		7.99	2.65	2.120	31.38	
B. C 15 (541.7)	8.0	4.6	5.85	46.8				2.7	2.85	22.8	0.4	1.25	10.0			1.3	2.40	19.2	0.30	0.420	3.36	1.45	2.050	16.40	
M. C 15 (550.2)	8.5	4.2	4.40	37.4				2.1	2.40	20.4	0.1	0.25	2.1			0.6	0.95	8.1	0.30		2.55	1.45		12.33	
E. C 15 (558.8)	8.6	4.9	4.55	(123.3) 39.1				2.4	2.25	19.4	0.1	0.10	(13.0) 0.9	13.0		0.8	0.70	6.0	0.30		2.58	1.45		12.47	
B. C 16 (566.5)	7.7	4.9	4.90	37.7				3.0	2.70	20.8	0.8	0.45	3.5			1.9	1.35	10.4	0.37	0.335	2.58	1.80	1.625	12.51	
M. C 16 (579.0)	12.5		2.45	30.6					1.50	18.8	3.0	1.90	23.8			3.5	2.70	33.8	0.38	0.375	4.69	1.85	1.825	22.81	
E. C 16 (591.6)	12.6										10.4	6.70	84.4			5.9	4.70	59.2	0.37	0.375	4.73	1.80	1.825	23.00	
604.6	13.0			(68.3)							15.9	13.15	(282.7) 171.0	178.6	104.1		2.95	38.4	0.50	0.435	5.66	2.45	2.125	27.63	
total				2,014.6						830.4			1055.4	920.8	134.6			748.1			113.63			468.28	

Table computing volume of work (No.1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c\frac{m}{-}s$	v	c-s	$c\frac{m}{-}s$	v	c-s	$c\frac{m}{-}s$	v	c-s	$c\frac{m}{-}s$	v	i-b	p-b	c-s	$c\frac{m}{-}s$	v	c-s	$c\frac{m}{-}s$	v	c-s	$c\frac{m}{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
604.6											15.9														abutment
607.0	(2.4)																								
B.C1.7 (611.6)	(4.6)										15.9	7.95							0.50			2.45			abutment
M.C1.7 (620.1)	8.5	1.7						1.5	0.75	6.4	4.0	9.95	84.6			4.0	2.00	17.0	0.38	0.440	3.74	1.85	2.150	18.28	
E.C1.7 (628.6)	8.5	26.8	0.85	7.2				8.0	4.75	40.4		2.00	17.0				2.00	17.0	0.37	0.375	3.19	1.08	1.465	12.45	
637.0	8.4	21.6	14.25	121.1				7.6	7.80	65.5									0.30	0.335	2.81	0.87	0.975	8.19	
644.0	7.0		24.20	203.3					3.80	26.6	10.9	5.45	(139.8) 38.2	139.8					0.50	0.400	2.80	2.45	1.660	11.62	abutment
647.0	(3.0)		10.80	(407.2) 75.6																					
650.0	(3.0)										15.2	7.60							0.50			2.45			abutment
B.C1.8 (662.6)	12.6										16.6	15.90	200.3			8.3	4.15	52.3	0.34	0.420	5.29	1.65	2.050	25.83	
M.C1.8 (672.7)	10.1										10.0	13.30	(334.6) 134.3		334.6	6.2	7.25	73.2	0.34		3.43	1.65		16.67	
E.C1.8 (682.8)	10.1										3.0	6.50	65.7			3.4	4.80	48.5	0.34		3.43	1.65		16.67	
B.C1.9 (692.9)	10.1										5.4	4.20	42.4			4.2	3.80	38.4	0.30	0.320	3.23	1.45	1.550	15.66	
M.C1.9 (702.7)	9.8	0.4	0.20	2.0				0.8	0.40	3.9	4.1	4.75	(154.7) 46.6	20.9	133.8	4.4	4.30	42.1	0.30		2.94	1.45		14.21	
E.C1.9 (712.6)	9.9	0.9	0.65	6.4				0.8	0.80	7.9	1.9	3.00	29.7			3.2	3.80	37.6	0.30		2.97	1.45		14.36	
B.C2.0 (718.9)	6.3	1.1	1.00	6.3				1.2	1.00	6.3	3.2	2.55	16.1			3.5	3.35	21.1	0.37	0.335	2.11	1.80	1.625	10.24	
M.C2.0 (728.9)	10.0	12.5	6.80	(80.7) 68.0				3.8	2.50	25.0		1.60	(61.8) 16.0	61.8			1.75	17.5	0.38	0.375	3.75	1.11	1.455	14.55	
E.C2.0 (739.0)	10.1	21.0	16.75	169.2				5.9	4.85	49.0									0.37	0.375	3.79	1.08	1.095	11.06	
B.C2.1 (745.2)	6.2	25.3	23.15	143.5				6.6	6.25	38.8									0.34	0.355	2.20	0.99	1.035	6.42	
M.C2.1 (755.1)	9.9	6.9	16.10	(472.1) 159.4				4.6	5.60	55.4	2.6	1.30	12.9	12.9		3.8	1.90	18.8	0.34		3.37	1.65	1.320	13.07	
759.0	3.9		3.45	13.5					2.30	9.0	8.1	5.35	20.9			3.7	3.75	14.6	0.34		1.33	1.65		6.44	
E.C2.1 (765.1)	6.1	3.9	1.95	11.9				1.7	0.85	5.2	0.2	4.15	25.3			0.6	2.15	13.1	0.34		2.07	1.65		10.07	
M.C2.2 (780.9)	15.8	11.6	7.75	(147.9) 122.5				4.4	3.05	48.2		0.10	(47.8) 1.6	47.8			0.30	4.7	0.34		5.37	1.65		26.07	
790.0	9.1		5.80	52.8					2.20	20.0	7.2	3.60	32.8			3.1	1.55	14.1	0.34		3.09	1.65		15.02	
E.C2.2 (794.6)	4.6	1.7	0.85	(56.7) 3.9				1.6	0.80	3.7	0.3	3.75	(50.1) 17.3	50.1		0.4	1.75	8.1	0.34		1.56	1.65		7.59	
B.C2.3 (811.9)	17.3	9.3	5.50	95.2				2.8	2.20	38.1	0.1	0.20	3.5			0.2	0.30	5.2	0.54	0.440	7.61	2.65	2.150	37.20	
M.C2.3 (821.5)	9.6	12.8	11.05	(201.3) 106.1				3.1	2.95	28.3		0.05	(4.0) 0.5	4.0			0.10	1.0	0.54		5.18	2.65		25.44	
total				1,367.9						477.7			805.7	337.3	468.4			444.3			75.26			337.11	

Table computing volume of work (No.1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	i-b	p-b	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^3	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
MC 23 (821.5)		12.8						3.1											0.54			2.65			
EC 23 (831.2)	9.7	4.8	8.80	85.4				2.3	2.70	26.2	0.7	0.35	3.4			1.8	0.90	8.7	0.54		5.24	2.65		25.71	
BC 24 (836.8)	5.6	1.8	3.30	18.5				1.8	2.05	11.5	4.5	2.60	14.6			5.2	3.50	19.6	0.34	0.440	2.46	1.65	2.150	12.04	
MC 24 (849.6)	12.8	8.3	5.05	(168.5) 64.6				3.6	2.70	34.6		2.25	(46.8) 28.8	46.8			2.60	33.3	0.34		4.35	0.99	1.320	16.90	
EC 24 (862.5)	12.9	9.2	8.75	112.9				3.8	3.70	47.7									0.34		4.39	0.99		12.77	
BC 25 (871.0)	8.5	9.3	9.25	(191.5) 78.6				3.7	3.75	31.9									0.30	0.320	2.72	0.87	0.930	7.91	
MC 25 (881.2)	10.2	14.5	11.90	121.4				4.5	4.10	41.8									0.30		3.06	0.87		8.87	
EC 25 (891.4)	10.2	12.2	13.35	(257.6) 136.2				5.1	4.80	49.0	2.1	1.05	10.7	10.7		4.8	2.40	24.5	0.30		3.06	0.87		8.87	
905.0	13.6	7.1	9.65	131.2				5.0	5.05	68.7	2.3	2.20	29.9			4.5	4.65	63.2	0.30		4.08	0.87		11.83	
918.0	13.0	23.0	15.05	(326.9) 195.7				7.5	6.25	81.3		1.15	(44.9) 15.0	44.9			2.25	29.3	0.30		3.90	0.87		11.31	
BC 26 (926.8)	8.8	17.2	20.10	176.9				6.8	7.15	62.9	0.6	0.30	2.6			2.1	1.05	9.2	0.34	0.320	2.82	0.99	0.930	8.18	
MC 26 (936.8)	10.0	1.9	9.55	95.5				3.1	4.95	49.5	13.6	7.10	71.0			6.3	4.20	42.0	0.34		3.40	1.65	1.320	13.20	
942.8	6.0		0.95	5.7					1.55	9.3	22.1	17.85	107.1			9.1	7.70	46.2	0.34		2.04	1.65		9.90	
EC 26 (946.8)	4.0			(278.1)							4.5	13.30	(233.9) 53.2	233.9		2.6	5.85	23.4	0.34		1.36	1.65		6.60	
955.0	8.2	1.8	0.90	7.4				0.8	0.40	3.3	0.1	2.30	18.9			0.2	1.40	11.5	0.30	0.320	2.62	1.45	1.550	12.71	
974.0	19.0	5.7	3.75	(78.7) 71.3				2.1	1.45	27.6		0.05	(19.9) 1.0	19.9			0.10	1.9	0.30		5.70	1.45		27.55	
BC 27 (982.6)	8.6		2.85	24.5					1.05	9.0	9.2	4.60	39.6			3.9	1.95	16.8	0.32	0.310	2.67	1.55	1.500	12.90	
MC 27 (992.8)	10.2	4.2	2.10	21.4				2.2	1.10	11.2	0.7	4.95	50.5			1.4	2.65	27.0	0.32		3.26	1.55		15.81	
EC 27 (1003.1)	10.3	6.4	5.30	(100.5) 54.6				3.3	2.75	28.3	0.3	0.50	(95.3) 5.2	95.3		0.8	1.10	11.3	0.32		3.30	1.55		15.97	
BC 28 (1020.4)	17.3	7.0	6.70	115.9				2.8	3.05	52.8		0.15	2.6				0.40	6.9	0.34	0.330	5.71	1.65	1.600	27.68	
MC 28 (1028.6)	8.2	6.5	6.75	(171.3) 55.4				2.5	2.65	21.7	0.1	0.05	(3.0) 0.4	3.0		0.8	0.40	3.3	0.34		2.79	1.65		13.53	
EC 28 (1036.8)	8.2	3.3	4.90	40.2				1.9	2.20	18.0	0.5	0.30	2.5			1.4	1.10	9.0	0.34		2.79	1.65		13.53	
BC 29 (1047.7)	10.9	0.2	1.75	19.1				0.9	1.40	15.3	1.4	0.95	10.4			2.3	1.85	20.2	0.30	0.320	3.49	1.45	1.550	0.15 16.90	intake box 1.0×0.15×1.0=0.15
MC 29 (1058.0)	10.3	0.1	0.15	(60.8) 1.5					0.45	4.6	1.2	1.30	(26.3) 13.4	26.3		2.0	2.15	22.1	0.30		3.09	1.45		14.94	
EC 29 (1068.4)	10.4	1.7	0.90	9.4				0.9	0.45	4.7	0.1	0.65	6.8	6.8		0.4	1.20	12.5	0.30		3.12	1.45		15.08	
1.100.0	31.6	4.5	3.10	98.0				1.8	1.35	42.7		0.05	1.6	1.6			0.20	6.3	0.30		9.48	1.45		45.82	
BC 30 (1.122.6)	22.6	11.4	7.95	179.7				3.4	2.60	58.8									0.50	0.400	9.04	2.45	1.950	44.07	
total				1921.0						812.4			489.2	489.2				448.2			99.94			430.73	

Table computing volume of work (No.1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	i-b	p-b	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
BC 30 (1,122.6)		11.4						3.4											0.50			2.45			
MC 30 (1,134.6)	12.0	6.4	8.90	106.8				1.8	2.60	31.2									0.50		6.00	2.45		29.40	
EC 30 (1,146.7)	12.1	6.2	6.30	(183.0) 76.2				2.0	1.90	23.0	0.1	0.05	0.6	0.6		0.2	0.10	1.2	0.50		6.05	2.45		29.65	
BC 31 (1,167.2)	20.5	3.8	5.00	102.5				1.7	1.85	37.9	0.1	0.10	2.1			0.2	0.20	4.1	0.30	0.40	8.20	1.45	1.950	39.98	
MC 31 (1,176.3)	9.1	3.7	3.75	(136.6) 34.1				1.5	1.60	14.6	0.1	0.10	(3.0) 0.9	3.0		0.2	0.20	1.8	0.30		2.73	1.45		13.20	
EC 31 (1,185.4)	9.1	3.8	3.75	34.1				1.4	1.45	13.2		0.05	0.5				0.10	0.9	0.30		2.73	1.45		13.20	
BC 32 (1,193.5)	8.1	5.6	4.70	(72.2) 38.1				2.4	1.90	15.4				0.5					0.34	0.320	2.59	1.65	1.550	12.56	
MC 32 (1,207.2)	13.7	5.7	5.65	77.4				3.2	2.80	38.4									0.34		4.66	1.65		22.61	
EC 32 (1,221.0)	13.8	5.4	5.55	(154.0) 76.6				2.3	2.75	38.0									0.34		4.69	1.65		22.77	
MC 33 (1,231.0)	10.0	5.1	5.25	52.5				2.1	2.20	22.0									0.34		3.40	1.65		16.50	
EC 33 (1,240.8)	9.8	3.3	4.20	(93.7) 41.2				1.5	1.80	17.6									0.34		3.33	1.65		16.17	
MC 34 (1,252.9)	12.1	2.4	2.85	34.5				0.6	1.05	12.7									0.34		4.11	1.65		19.97	
EC 34 (1,263.5)	10.6	2.3	2.35	(59.4) 24.9				1.0	0.80	8.5	0.1	0.05	0.5	0.5		0.2	0.10	1.1	0.34		3.60	1.65		17.49	
BC 35 (1,273.8)	10.3	4.7	3.50	36.1				1.9	1.45	14.9		0.05	0.5				0.10	1.0	0.34		3.50	1.65		17.00	
MC 35 (1,281.6)	7.8	6.3	5.50	42.9				2.4	2.15	16.8									0.34		2.65	1.65		12.87	
EC 35 (1,289.4)	7.8	8.5	7.40	(136.7) 57.7				3.0	2.70	21.1				0.5					0.34		2.65	1.65		12.87	
1,305.0	15.6	4.3	6.40	99.8				1.7	2.35	36.7									0.30	0.320	4.99	1.45	1.550	24.18	
1,318.0	13.0	5.8	5.05	(165.5) 65.7				2.1	1.90	24.7									0.30		3.90	1.45		18.85	
BC 36 (1,322.6)	4.6	5.0	5.40	24.8				1.9	2.00	9.2									0.30		1.38	1.45		6.67	
MC 36 (1,331.7)	9.1		2.50	22.8					0.95	8.6	2.1	1.05	9.6			2.6	1.30	11.8	0.30		2.73	1.45		13.20	
EC 36 (1,340.9)	9.2			(47.6)							2.5	2.30	(30.8) 21.2	30.8		2.5	2.55	23.5	0.30		2.76	1.45		13.34	
1,360.0	19.1	1.5	0.75	14.3				0.7	0.35	6.7	0.1	1.30	24.8				1.25	23.9	0.30		5.73	1.45		27.70	
BC 37 (1,370.7)	10.7		0.75	(22.3) 8.0					0.35	3.7	2.7	1.40	(39.8) 15.0	39.8		3.0	1.50	16.1	0.30		3.21	1.45		15.52	
MC 37 (1,380.6)	9.9										3.6	3.15	31.2			3.5	3.25	32.2	0.30		2.97	1.45		14.36	
EC 37 (1,390.6)	10.0	0.2	0.10	1.0							0.5	2.05	20.5			1.1	2.30	23.0	0.30		3.00	1.45		14.50	
1,409.0	18.4	3.7	1.95	(36.9) 35.9				1.5	0.75	13.8		0.25	(56.3) 4.6	56.3			0.55	10.1	0.30		5.52	1.45		26.68	
total				1,107.9						428.7			132.0	132.0				150.7			97.08			471.24	

Table computing volume of work (No. 1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	i-b	p-b	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
1,409.0		3.7						1.5											0.30			1.45			
BC 38 (1,420.8)	11.8	9.6	6.65	78.5				2.4	1.95	23.0									0.50	0.400	4.72	2.45	1.950	23.01	
MC 38 (1,430.0)	9.2	12.6	11.10	102.1				3.2	2.80	25.8									0.50		4.60	2.45		22.54	
EC 38 (1,439.3)	9.3	7.8	10.20	(275.5) 94.9				2.0	2.60	24.2									0.50		4.65	2.45		22.79	
1,939 (1,464.9)	25.6	1.1	4.45	113.9					1.00	25.6	0.4	0.20	5.1	5.1		1.0	0.50	12.8	0.30	0.400	10.24	1.45	1.950	49.92	
1,476.0	11.1	0.2	0.65	7.2				0.8	0.40	4.4	5.5	2.95	32.7			3.9	2.45	27.2	0.30		3.33	1.45		0.15 16.10	intake box 1.0×0.15×1.0=0.15
1,493.0	17.0	5.4	2.80	(54.8) 47.6				2.4	1.60	27.2		2.75	(79.5) 46.8	79.5			1.95	33.2	0.30		5.10	1.45		24.65	
1,940 (1,516.0)	23.0	3.9	4.65	107.0				1.6	2.00	46.0									0.30		6.90	1.45		33.35	
1,532.0	16.0	1.4	2.65	42.4					0.80	12.8	0.1	0.05	0.8			0.2	0.10	1.6	0.30		4.80	1.45		23.20	
BC 41 (1,547.0)	15.0	0.7	1.05	(58.2) 15.8				0.7	0.35	5.3	0.5	0.30	(5.3) 4.5	5.3		1.0	0.60	9.0	0.30		4.50	1.45		21.75	
MC 41 (1,560.2)	13.2	3.1	1.90	25.1				1.6	1.15	15.2	0.2	0.35	4.6			0.7	0.85	11.2	0.30		3.96	1.45		19.14	
EC 41 (1,573.5)	13.3	3.4	3.25	(68.3) 43.2				1.7	1.65	21.9	0.1	0.15	(6.6) 2.0	6.6		0.2	0.45	6.0	0.30		3.99	1.45		19.29	
BC 42 (1,595.8)	22.3	4.7	4.05	90.3				2.2	1.95	43.5		0.05	1.1				0.10	2.2	0.30		6.69	1.45		32.34	
MC 42 (1,604.8)	9.0	5.0	4.85	43.7				2.1	2.15	19.4									0.30		2.70	1.45		13.05	
EC 42 (1,613.9)	9.1	2.7	3.85	35.0				1.0	1.55	14.1									0.30		2.73	1.45		13.20	
1,620.0	6.1	4.2	3.45	(99.7) 21.0				1.7	1.35	8.2				1.1					0.30		1.83	1.45		8.85	
1,634.0	14.0		2.10	29.4					0.85	11.9	1.2	0.60	8.4			1.5	0.75	10.5	0.30		4.20	1.45		20.30	
1,649.0	15.0										1.7	1.45	(30.2) 21.8	30.2		2.0	1.75	26.3	0.30		4.50	1.45		21.75	
1,943 (1,662.9)	13.9	0.2	0.10	1.4							0.5	1.10	15.3			1.2	1.60	22.2	0.30		4.17	1.45		20.16	
1,682.0	19.1	0.7	0.45	(10.0) 8.6							0.3	0.40	(22.9) 7.6	22.9		0.6	0.90	17.2	0.30		5.73	1.45		27.70	
BC 44 (1,696.1)	14.1	2.2	1.45	20.4				0.7	0.35	4.9		0.15	2.1				0.30	4.2	0.30		4.23	1.45		20.45	
MC 44 (1,706.1)	10.0	5.3	3.75	(57.9) 37.5				2.4	1.55	15.5				2.1					0.30		3.00	1.45		14.50	
EC 44 (1,716.1)	10.0	4.9	5.10	51.0				2.1	2.25	22.5									0.30		3.00	1.45		14.50	
1,730.0	13.9	5.8	5.35	(125.4) 74.4				1.9	2.00	27.8									0.50	0.400	5.56	2.45	1.950	27.11	
1,945 (1,751.9)	21.9	5.2	5.50	120.5				1.6	1.75	38.3									0.50		10.95	2.45		53.66	
1,756.0	4.1	2.4	3.80	(135.1) 15.6				0.7	1.15	4.7	0.1	0.05	0.2	0.2					0.50		2.05	2.45		10.05	
1,772.0	16.0	6.5	4.45	71.2				2.6	1.65	26.4		0.05	0.8	0.8					0.30	0.400	6.40	1.45	1.950	31.20	
BC 46 (1,778.4)	6.4	6.4	6.45	(112.5) 41.3				2.6	2.60	16.6									0.30		1.92	1.45		9.28	
total				1,339.0						485.2			153.8	153.8				183.6			126.45			613.99	

Table computing volume of work (No. 1)

No.	distance	cutting						greening			banking					sodding			road base						digest
		soil			clay														upper subbase			lower subbase			
		c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	i-b	p-b	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	c-s	$c^{m}_{-}s$	v	
	M	M^2	M^2	M^3	M^2	M^2	M^3	M	M	M^2	M^2	M^2	M^3	M^3	M^3	M	M	M^2	M^2	M^2	M^3	M^2	M^2	M^3	
B. C45 (1,778.4)		6.4						2.6											0.30			1.45			
M. C46 (1,790.9)	12.5	6.1	6.25	78.1				2.3	2.45	30.6									0.30		3.75	1.45		18.13	
E. C46 (1,803.4)	12.5	2.3	4.20	(130.6) 52.5				1.3	1.80	22.5	0.4	0.20	2.5	2.5		0.9	0.45	5.6	0.30		3.75	1.45		18.13	
1,826.0	22.6	5.8	4.05	91.5				2.2	1.75	39.6		0.20	4.5	4.5			0.45	10.2	0.30		6.78	1.45		32.77	
1,844.0	18.0	6.7	6.25	112.5				2.5	2.35	42.3									0.30		5.40	1.45		26.10	
I. P47 (1,858.3)	14.3	6.0	6.35	90.8				2.3	2.40	34.3									0.30		4.29	1.45		20.74	
1,880.0	21.7	5.6	5.80	125.9				2.3	2.30	49.9									0.30		6.51	1.45		31.47	
1,894.0	14.0	4.5	5.05	70.7				2.2	2.25	31.5									0.30		4.20	1.45		20.30	
B. C48 (1,904.9)	10.9		2.25	(95.2) 23.5					1.10	12.0	1.5	0.75	8.2	8.2		1.8	0.90	9.8	0.30		3.27	1.45		15.81	
M. C48 (1,914.4)	9.5	0.9	0.45	4.3							0.3	0.90	8.6			0.6	1.20	11.4	0.30		2.85	1.45		13.78	
E. C48 (1,924.0)	9.6	4.6	2.75	(30.7) 26.4				2.4	1.20	11.5		0.15	(10.0) 1.4	10.0			0.30	2.9	0.30		2.88	1.45		13.92	
1,941.0	17.0	4.2	4.40	74.8				1.0	1.70	28.9	3.6	1.80	30.6			1.8	0.90	15.3	1.40	0.850	14.45	6.95	4.200	71.40	
E. P (1,960.0)	19.0	17.7	10.95	(282.9) 208.1				3.2	2.10	39.9	1.9	2.75	(82.9) 52.3	82.9		1.9	1.85	35.2	1.40		26.60	6.95		132.05	
total				960.1						343.0			108.1	108.1				90.4			84.73			414.60	

Table computing volume of work (No. 2)

No	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump diameter			route clearing kind		digest
						soil			clay														
		dia	l	kind	l	c-s	$\frac{m}{c-s}$	v	c-s	$\frac{m}{c-s}$	v	s-l	$\frac{m}{s-l}$	area	s-l	$\frac{m}{s-l}$	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
10		45 60 100	11.0 12.8 11.5		1			2.6			2.9			4.0			9.6	10	6	1			
11		45 50 100	11.0 11.5 11.5								3.4						(66.0) 30.0	17	13	3			
12		45 60	8.5 8.0								24.3						25.0 (40.0)	10	8	1			
13		45 60	7.0 22.0		1			2.6			1.5			4.0			(16.0) 19.2	23	9	1			
14																		16	7	3			
15		45	7.5		1			2.6						4.0				20	8	2			
16																		16	4				
Grand total		45 60 100	41.0 53.0 11.5		3			7.8			32.1			12.0			83.8 (106.0) (16.0)	112	55	11	1,960		

Table computing volume of work (No.2)

No.	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump diameter			route clearing kind		digest
						soil			clay														
		dia	l	kind	l	c-s	m c-s	v	c-s	m c-s	v	s-l	m s-l	area	s-l	m s-l	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
BP																							
12.0	12.0																						
30.0	18.0																						
BC1 (48.2)	18.2																	1	1				
MC1 (56.7)	8.5																						
EC1 (65.3)	8.6																						
BC2 (72.7)	7.4																	1					
MC2 (82.3)	9.6																		1				
EC2 (92.0)	9.7																		1				
BC3 (100.8)	8.8																	1					
MC3 (107.6)	6.8																	1					
EC3 (114.5)	6.9																	2					
BC4 (125.8)	11.3																	2					
MC4 (135.2)	9.4																	1					
EC4 (144.7)	9.5																						
BC5 (154.2)	9.5																		1				
MC5 (160.7)	6.5																						
EC5 (167.2)	6.5																						
MC6 (179.9)	12.7																		1				
EC6 (192.0)	12.1																						
IP7 (199.6)	7.6	45	11.0		1			2.6						4.0									lower subbase 0.15+1.17=1.32
230.0	30.4																	1					
BC8 (253.1)	23.1																						
MC8 (260.0)	6.9																		1				
EC8 (268.9)	6.9																			1			
BC9 (275.3)	8.4																						
284.1	8.8	60	12.0								2.9						9.6						
MC9 (287.8)	3.7																						
total		45 60	11.0 12.0		1			2.6			2.9			4.0			9.6m	10	6	1			

Table computing volume of work (No.2)

No.	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump diameter			route clearing kind		digest
						soil			clay														
		dia	l	kind	l	c-s	m c-s	v	c-s	m c-s	v	s-l	m s-l	area	s-l	m s-l	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
MC 9 (287.8)																							
EC 9 (300.3)	12.5	60	11.0														9.6						
MC 10 (306.5)	6.2																(6.0)			1			(1.5×4.0=6.0)
EC 10 (311.5)	5.0																		1				
340.0	28.5																(60.0)	2	2	2			(4.0×15.0=60.0)
357.0	17.0																	1	2				
BC 11 (362.4)	5.4																		1				
MC 11 (377.8)	15.4																	2	2				
EC 11 (393.2)	15.4																	3	1				
409.0	15.8																	2					
BC 12 (432.2)	23.2	45	7.0								0.8						9.4						
MC 12 (440.8)	8.6																		1				
EC 12 (449.5)	8.7																		1				
465.0	15.5																		1				
BC 13 (473.3)	8.3																						
476.0	2.7	100	11.5								2.6						11.0						
MC 13 (485.9)	9.9																						
EC 13 (498.6)	12.7																	2					
BC 14 (504.1)	5.5																	1	1				
MC 14 (518.9)	14.8																						
EC 14 (533.7)	14.8																	1					
BC 15 (541.7)	8.0																						
MC 15 (550.2)	8.5																	2					
EC 15 (558.8)	8.6																	1					
BC 16 (566.5)	7.7																						
MC 16 (579.0)	12.5																						
EC 16 (591.6)	12.6																						
604.6	13.0																						
total		45 60 100	7.1 11.0 11.5								3.4						(66.0) 30.0m	17	13	3			

Table computing volume of work (No.2)

No.	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump diameter			route clearing kind		digest
						soil			clay														
		dia	l	kind	l	c-s	$\overset{m}{c\text{-}s}$	v	c-s	$\overset{m}{c\text{-}s}$	v	s-l	$\overset{m}{s\text{-}l}$	area	s-l	$\overset{m}{s\text{-}l}$	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^3	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
604.6																							
607.0	(2.4)										19.6						6.0						1.5×4.0=6.0 2.8×7.0=19.6
BC 17 (611.6)	(4.6)																						
MC 17 (620.1)	8.5																		2				
EC 17 (628.6)	8.5																	1					
637.0	8.4																	1	1	1			
644.0	7.0																						
647.0	(3.0)																						
650.0	(3.0)																						
BC 18 (662.6)	12.6																						
MC 18 (672.7)	10.1																						
EC 18 (682.8)	10.1																						
BC 19 (692.9)	10.1																						
MC 19 (702.7)	9.8																						
EC 19 (712.6)	9.9																						
BC 20 (718.9)	6.3																						
MC 20 (728.9)	10.0																		2				
EC 20 (739.0)	10.1																	3					
BC 21 (745.2)	6.2																	1					
MC 21 (755.1)	9.9																						
759.0	3.9	45	8.5								1.7						9.4						
EC 21 (765.1)	6.1																		2				
MC 22 (780.9)	15.8																	2	1				
790.0	9.1	60	8.0								3.0						9.6						
EC 22 (794.6)	4.6																						
BC 23 (811.9)	17.3																	2					
MC 23 (821.5)	9.6																						
total		45 6.0	8.5 8.0								24.3						25.0m	10	8	1			

Table computing volume of work (No. 2)

No.	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump diameter			route clearing kind		digest
						soil			clay														
		dia	l	kind	l	c-s	$\frac{m}{c\text{-}s}$	v	c-s	$\frac{m}{c\text{-}s}$	v	s-l	$\frac{m}{s\text{-}l}$	area	s-l	$\frac{m}{s\text{-}l}$	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^3	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
MC 23 (821.5)	-																						
EC 23 (831.2)	9.7																						
BC 24 (836.8)	5.6																	1					
MC 24 (849.6)	12.8																		2				
EC 24 (862.5)	12.9																			1			
BC 25 (871.0)	8.5																						
MC 25 (881.2)	10.2																	1					
EC 25 (891.4)	10.2																16.0 (40.0)						2.0×8.0=16.0 (2.0×20.0=40.0)
905.0	13.6																	2					
918.0	13.0																	1					
BC 26 (926.8)	8.8																	1					
MC 26 (936.8)	10.0																						
942.8	6.0	60	13.5								0.9						9.6						4.0×
EC 26 (946.8)	4.0																						
955.0	8.2																						
974.0	19.0																	1					
BC 27 (982.6)	8.6	60	8.5								0.6						9.6						4.0×
MC 27 (992.8)	10.2																	3					
EC 27 (1,003.1)	10.3																						
BC 28 (1,020.4)	17.3																	2	1				
MC 28 (1,028.6)	8.2																	2					
EC 28 (1,036.8)	8.2																						
BC 29 (1,047.7)	10.9	45	7.0		1			2.6						4.0				3					lower subbase 0.15+0.74=0.89
MC 29 (1,058.0)	10.3																						
EC 29 (1,068.4)	10.4																	1	1				
1,100.0	31.6																	4					
BC 30 (1,122.6)	22.6																	1	5				
total		45 60	7.0 22.0		1			2.6			1.5			4.0			(40.0) 16.0m 19.2m	23	9	1			

Table computing volume of work (No.2)

No.	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump diameter			route clearing kind		digest
						soil			clay														
		dia	l	kind	l	c-s	m c-s	v	c-s	m c-s	v	s-l	m s-l	area	s-l	m s-l	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^3	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
BC30 (1,122.6)																							
MC30 (1,134.6)	12.0																	1	1				
EC30 (1,146.7)	12.1																						
BC31 (1,167.2)	20.5																	2					
MC31 (1,176.3)	9.1																	1		1			
EC31 (1,185.4)	9.1																						
BC32 (1,193.5)	8.1																	1					
MC32 (1,207.2)	13.7																		3	2			
EC32 (1,221.0)	13.8																	2					
MC33 (1,231.0)	10.0																						
EC33 (1,240.8)	9.8																						
MC34 (1,252.9)	12.1																		1				
EC34 (1,263.5)	10.6																						
BC35 (1,273.8)	10.3																						
MC35 (1,281.6)	7.8																						
EC35 (1,289.4)	7.8																						
1,305.0	15.6																	1	1				
1,318.0	13.0																	1					
BC36 (1,322.6)	4.6																	1					
MC36 (1,331.7)	9.1																						
EC36 (1,340.9)	9.2																						
1,360.0	19.1																	4					
BC37 (1,370.7)	10.7																						
MC37 (1,380.6)	9.9																						
EC37 (1,390.6)	10.0																		1				
1,409.0	18.4																	2					
total																		16	7	3			

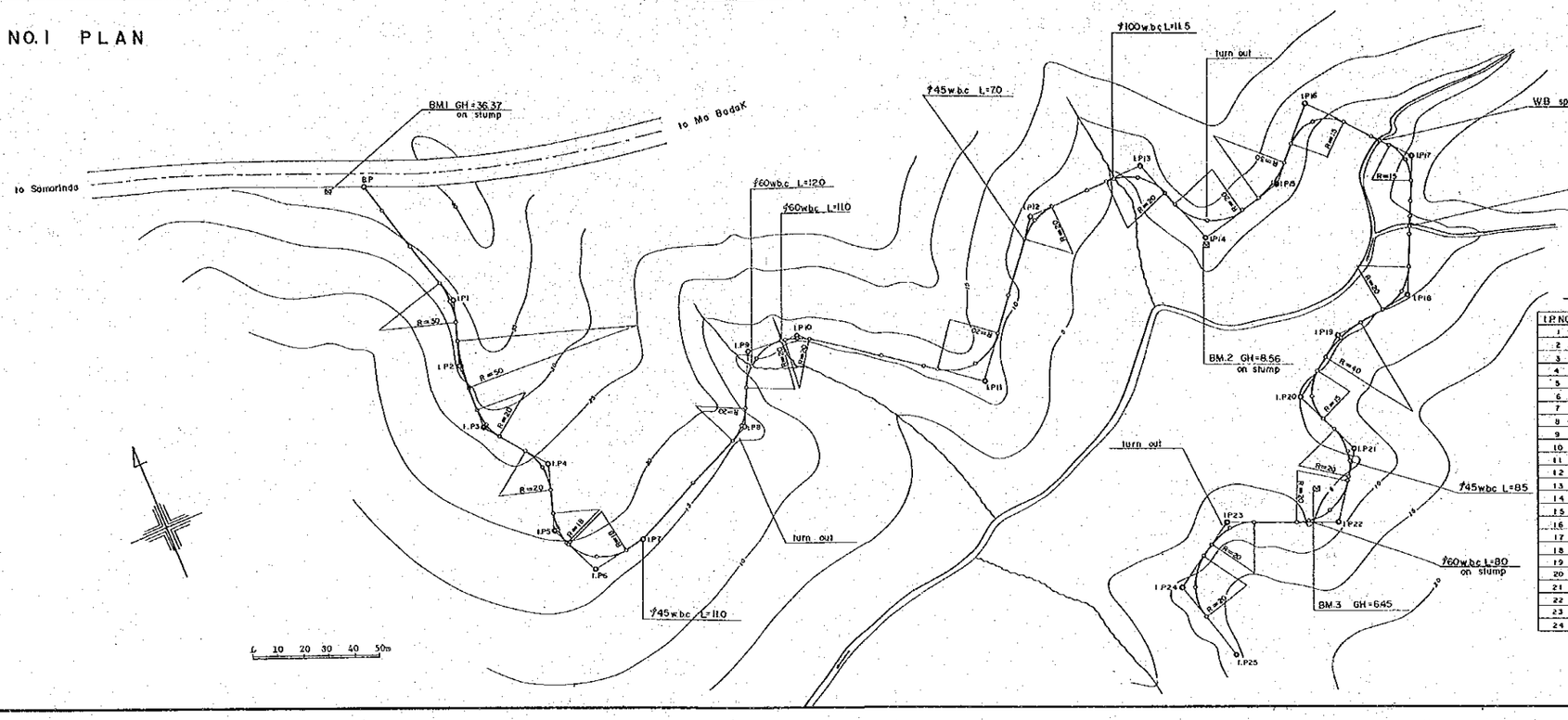
Table computing volume of work (No.2)

No	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump			route clearing		digest
						soil			clay									diameter			kind		
		dia	l	kind	l	c-s	$\frac{m}{c\text{-}s}$	v	c-s	$\frac{m}{c\text{-}s}$	v	s-l	$\frac{m}{s\text{-}l}$	area	s-l	$\frac{m}{s\text{-}l}$	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3	M^2	M^2	M^3				M	M	
1,409.0																							
BC38 (1,420.8)	11.8																						
MC38 (1,430.0)	9.2																	2					
EC38 (1,439.3)	9.3																	1	1				
IP39 (1,464.9)	25.6																						
1,476.0	11.1	45	7.5		1			2.6						4.0									lower subbase 0.15+0.80=0.95
1,493.0	17.0																	1	2				
IP40 (1,516.0)	23.0																	1	1				
1,532.0	16.0																						
BC41 (1,547.0)	15.0																	1					
MC41 (1,560.2)	13.2																						
EC41 (1,573.5)	13.3																						
BC42 (1,595.8)	22.3																	1					
MC42 (1,604.8)	9.0																	1		1			
EC42 (1,613.9)	9.1																						
1,620.0	6.1																	2					
1,634.0	14.0																	1		1			
1,649.0	15.0																						
IP43 (1,662.9)	13.9																						
1,682.0	19.1																	2					
BC44 (1,696.1)	14.1																						
MC44 (1,706.1)	10.0																	1					
EC44 (1,716.1)	10.0																						
1,730.0	13.9																	2					
IP45 (1,751.9)	21.9																	3	3				
1,756.0	4.1																						
1,772.0	16.0																	1	1				
BC46 (1,778.4)	6.4																						
total		45	7.5		1			2.6						4.0				20	8	2			

Table computing volume of work (No.2)

No.	distance	wooden culvert		intake box		excavation									pole masonry (buried work)			stump			route clearing		digest
						soil			clay									diameter			kind		
		dia	l	kind	1	c·s	m c·s	v	c·s	m c·s	v	s-1	m s-1	area	s-1	m s-1	area	30~50	50~80	90Max	1	2	
	M	CM	M		M	M²	M²	M³	M²	M²	M³	M²	M²	M³	M²	M²	M³				M	M	
BC 46 (1,778.4)																							
MC 46 (1,790.9)	12.5																	2					
EC 46 (1,803.4)	12.5																	2					
1,826.0	22.6																	1	1				
1,844.0	18.0																		1				
I P 47 (1,858.3)	14.3																	2	1				
1,880.0	21.7																	2	1				
1,894.0	14.0																	2					
BC 48 (1,904.9)	10.9																	1					
MC 48 (1,914.4)	9.5																						
EC 48 (1,942.0)	9.6																	1					
1,941.0	17.0																	1					
EP (1,960.0)	19.0																	2					
total																		16	4				

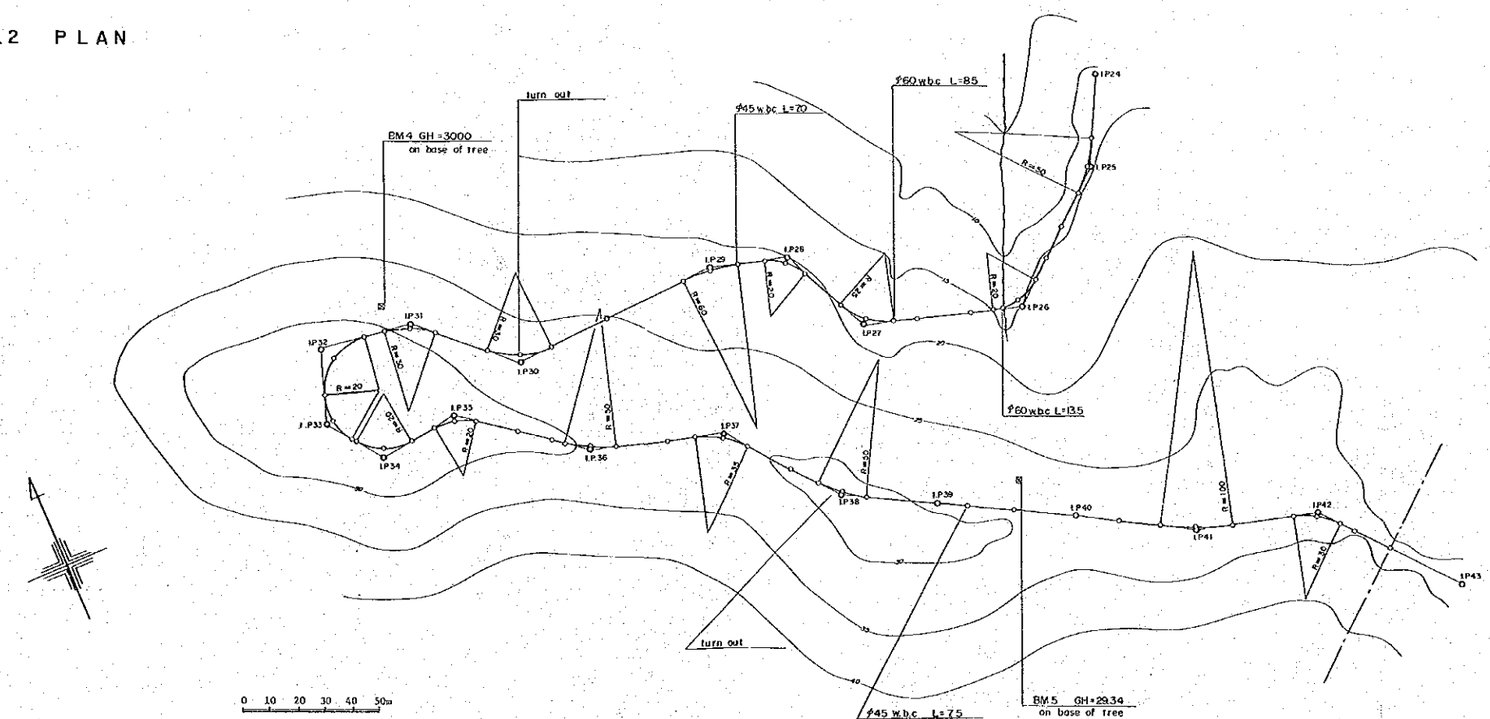
NO.1 PLAN



CURE SETTING TABLE

I.P.NO	D	A	I.A.	R	T.L.	S.L.	C.L.
1	37.0	312°40'	38°40'	30	8.8	1.3	17.1
2	25.9	164.10	13.50	70	9.7	0.7	19.3
3	25.7	140.40	39.20	20	7.2	1.2	13.7
4	28.7	234.35	54.55	20	10.2	2.5	18.9
5	26.5	138.30	41.30	18	6.8	1.3	13.0
6	21.8	103.10	76.50	20	14.3	5.0	24.1
7	21.9	165.45	14.15	----	----	----	----
8	60.7	140.25	39.35	20	7.2	1.3	13.8
9	30.0	234.40	71.40	20	14.4	4.2	25.0
10	20.7	208.40	28.40	20	5.1	0.6	10.0
11	25.4	91.50	80.10	20	19.4	7.8	30.8
12	57.6	229.25	49.25	20	9.2	2.0	17.3
13	47.6	252.26	72.26	20	14.6	4.8	25.3
14	38.5	95.18	84.42	20	18.2	7.1	29.6
15	35.0	187.26	32.34	30	8.8	1.3	17.1
16	33.2	276.00	95.00	15	15.7	7.9	25.1
17	46.3	245.00	65.00	15	9.6	2.8	17.0
18	54.7	237.57	57.57	20	11.1	2.9	20.2
19	31.2	181.50	28.10	40	10.0	1.2	19.7
20	28.2	103.20	76.40	15	11.9	4.1	20.1
21	29.0	237.05	57.05	20	10.9	2.8	19.9
22	29.4	258.35	78.35	20	16.4	5.9	27.4
23	44.2	124.40	55.20	20	10.5	2.6	19.3
24	31.1	106.25	73.35	20	15.0	5.0	25.7

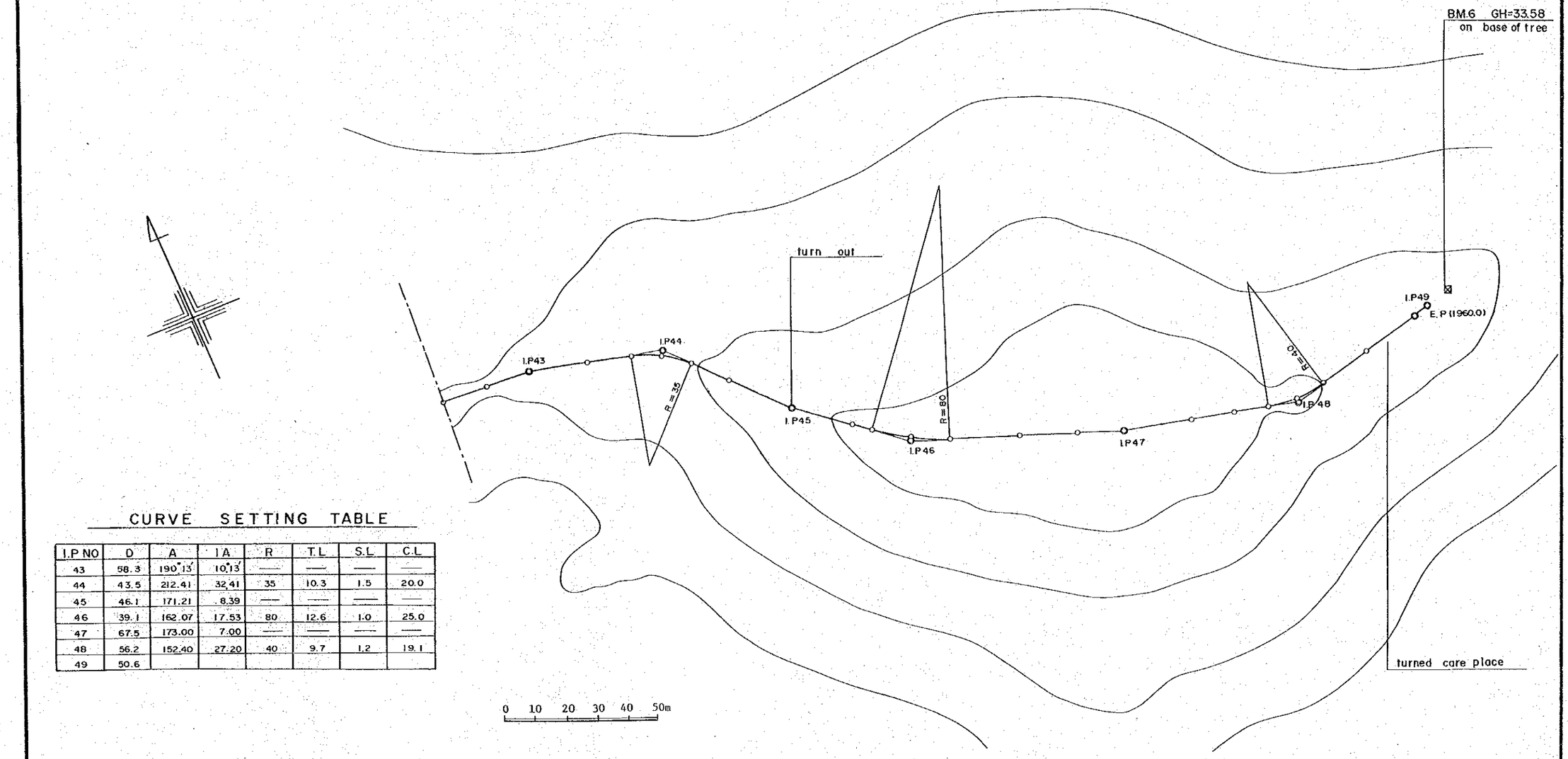
NO.2 PLAN



CURVE SETTING TABLE

I.P.NO	D	A	I.A	R	T.L	S.L	C.L
25	33.9	203°25'	23°25'	50	10.4	1.1	20.4
26	56.8	237.25	57.25	20	11.0	2.8	20.0
27	57.7	227.05	47.05	25	10.9	2.3	20.5
28	36.9	133.00	47.00	20	8.7	1.8	16.4
29	30.1	160.15	19.45	60	10.5	0.9	20.7
30	77.4	225.58	45.58	30	12.7	2.6	24.1
31	42.6	145.20	34.40	30	9.4	1.4	18.2
32	33.9	101.20	78.40	20	16.4	5.9	27.5
33	27.2	124.00	56.00	20	10.6	2.7	19.6
34	23.8	119.20	60.40	20	11.7	3.2	21.2
35	30.2	224.40	44.40	20	8.2	1.6	15.6
36	50.7	159.00	21.00	50	9.3	0.9	18.3
37	49.3	212.35	32.35	35	10.2	1.5	19.9
38	49.7	159.50	21.10	50	9.3	0.9	18.5
39	35.0	180.05	0.05	----	----	----	----
40	51.1	182.00	2.00	----	----	----	----
41	44.3	164.50	15.10	100	13.3	0.9	26.5
42	44.9	214.30	34.30	30	9.3	1.4	18.1

NO.3 PLAN

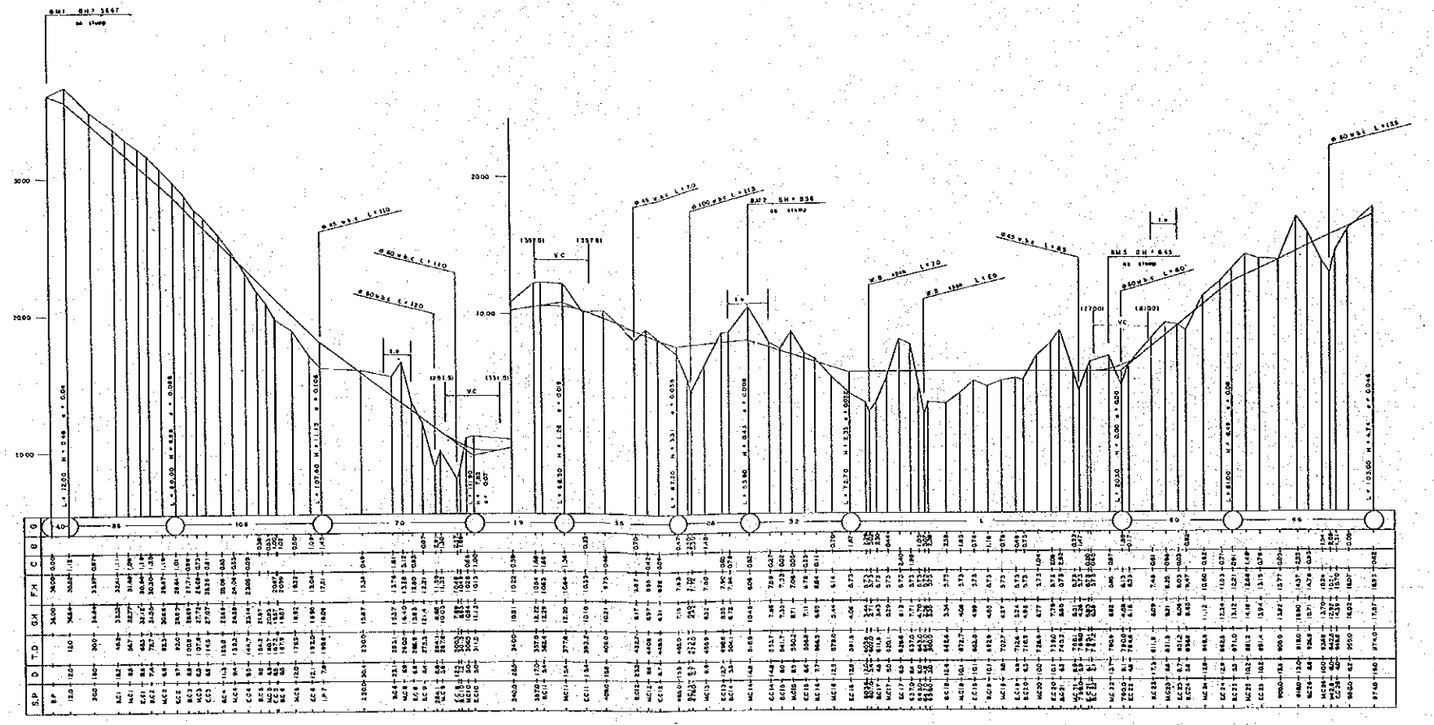


CURVE SETTING TABLE

I.P NO	D	A	I A	R	T.L	S.L	C.L
43	58.3	190°13'	10°13'	——	——	——	——
44	43.5	212.41	32.41	35	10.3	1.5	20.0
45	46.1	171.21	8.39	——	——	——	——
46	39.1	162.07	17.53	80	12.6	1.0	25.0
47	67.5	173.00	7.00	——	——	——	——
48	56.2	152.40	27.20	40	9.7	1.2	19.1
49	50.6						

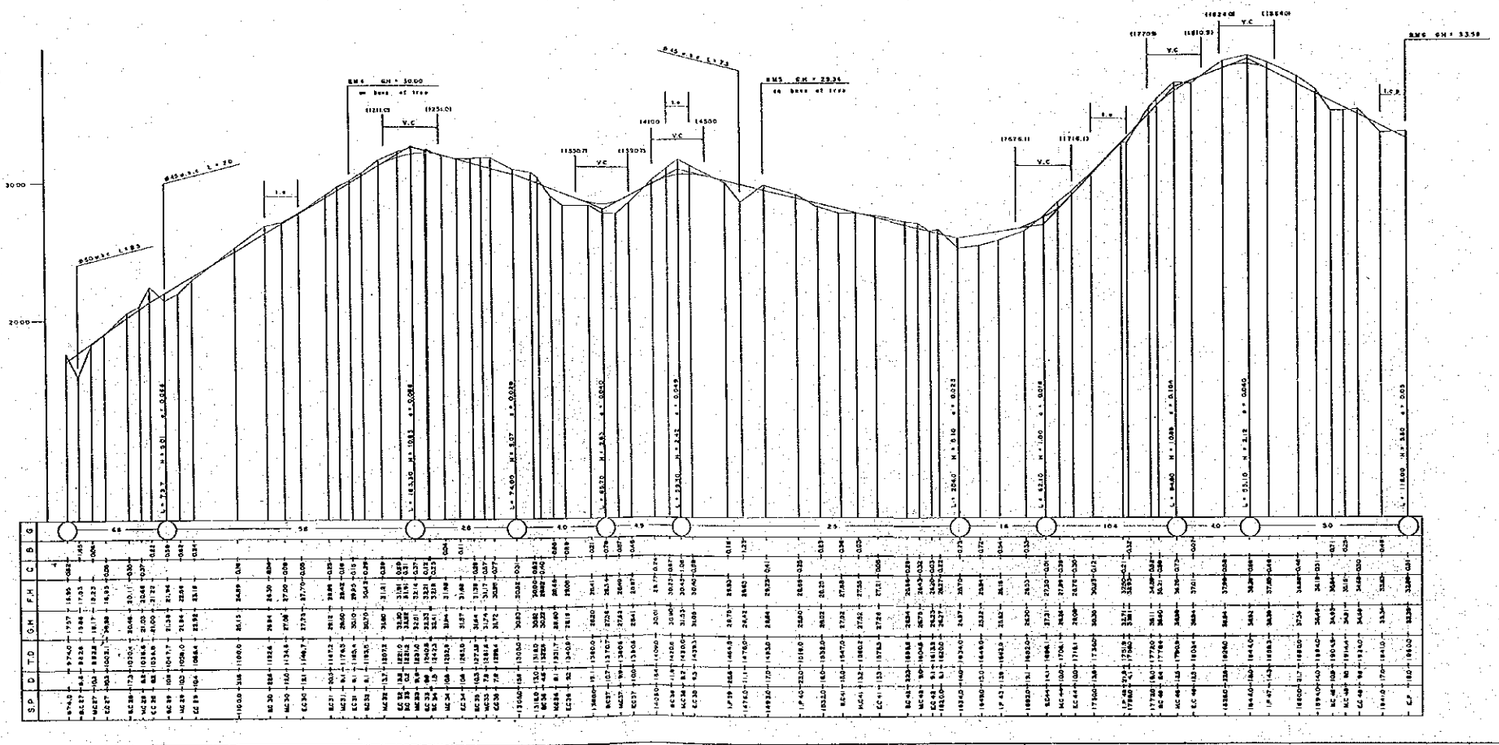
PROFILE

No.1

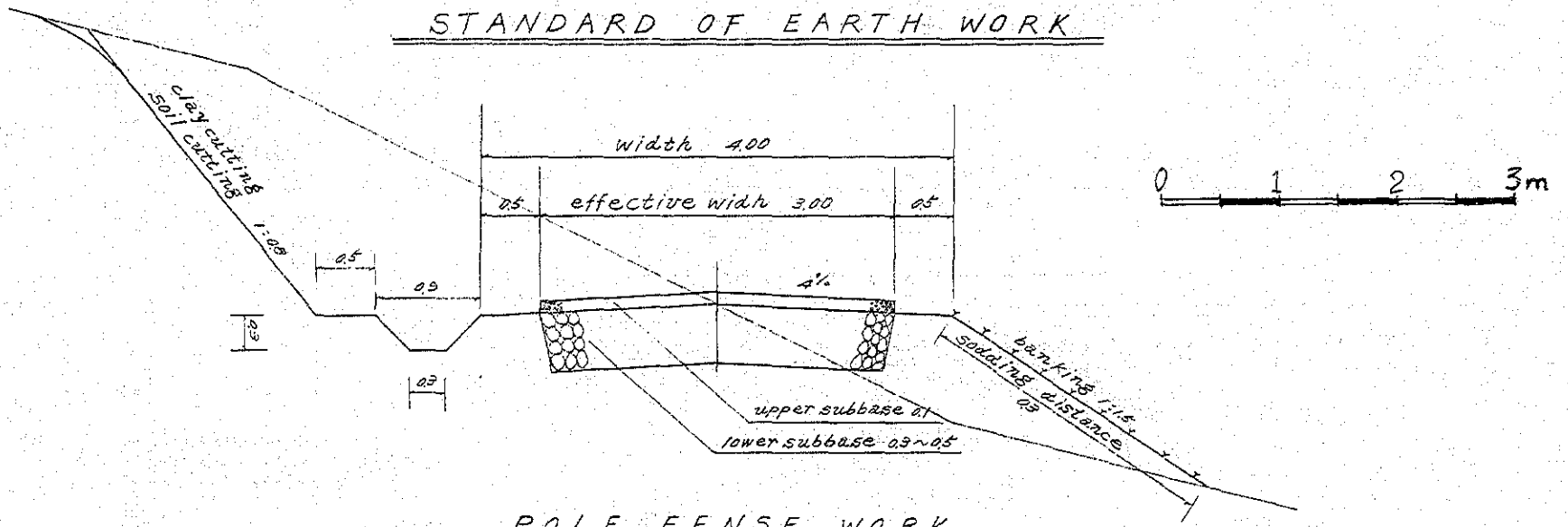


PROFILE

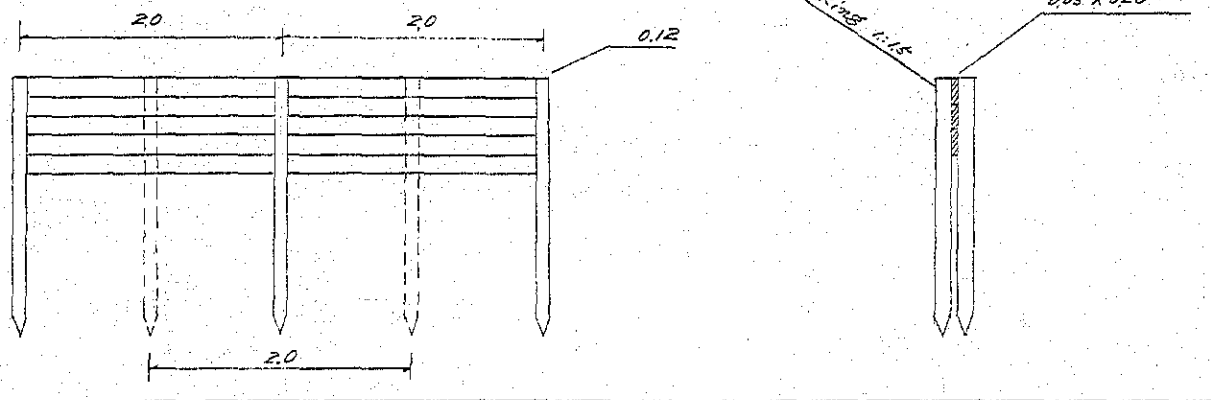
No.2



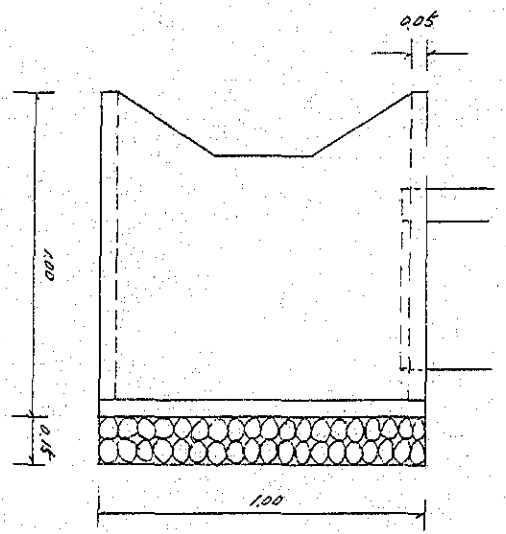
STANDARD OF EARTH WORK

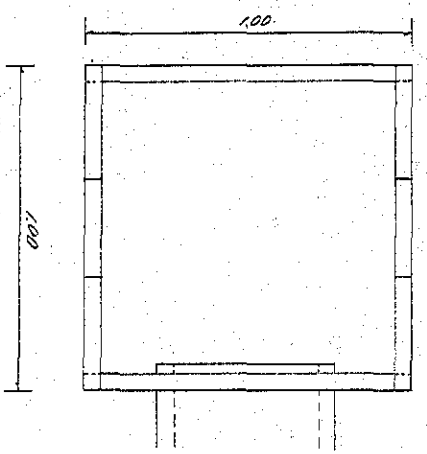


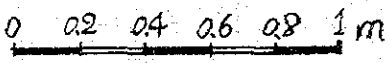
POLE FENSE WORK



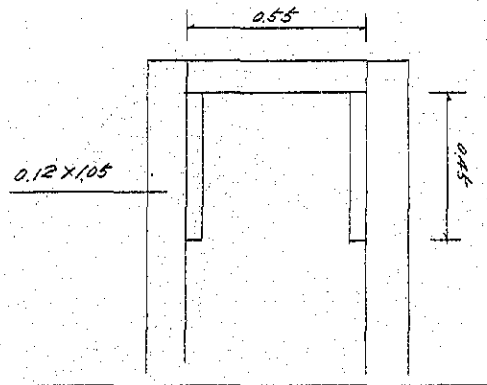
INTAKE BOX

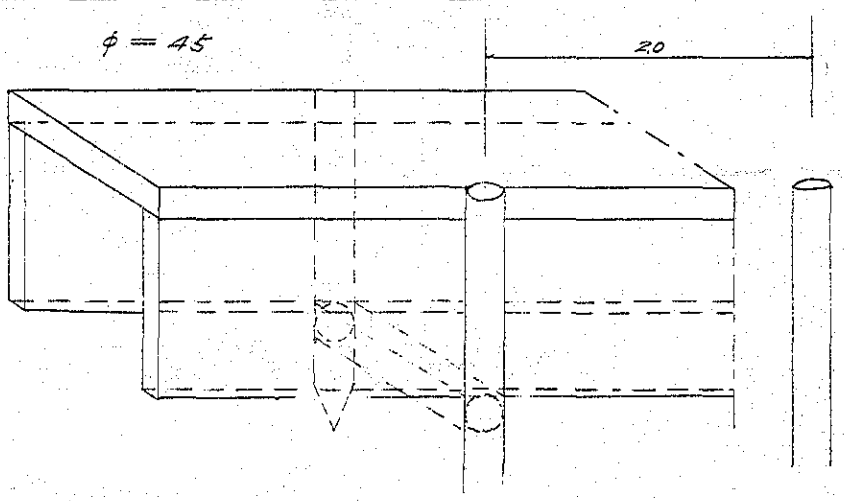




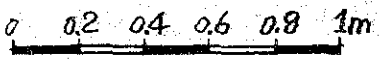


WODEN BOX CULVERT



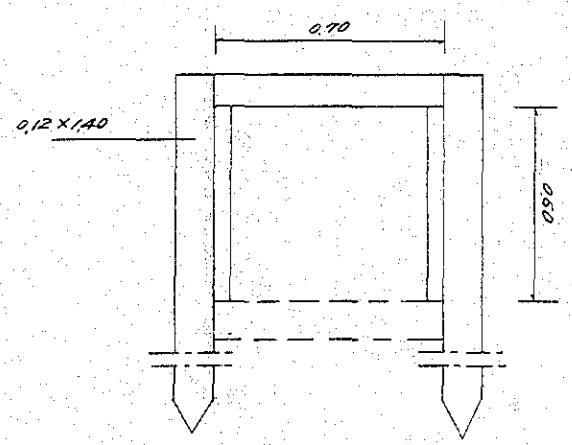


WODEN BOX CULVERT

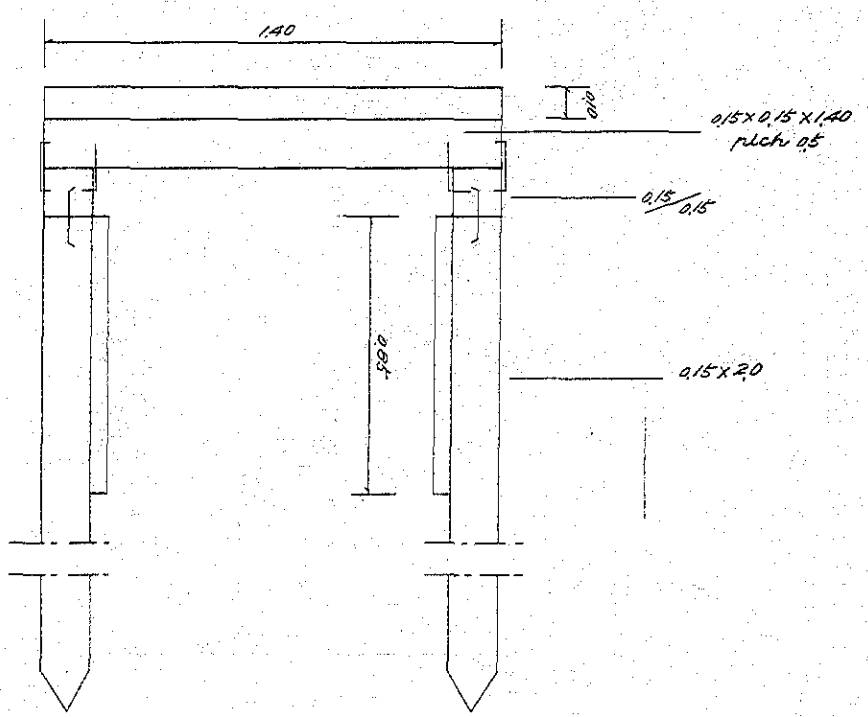


— 3 —

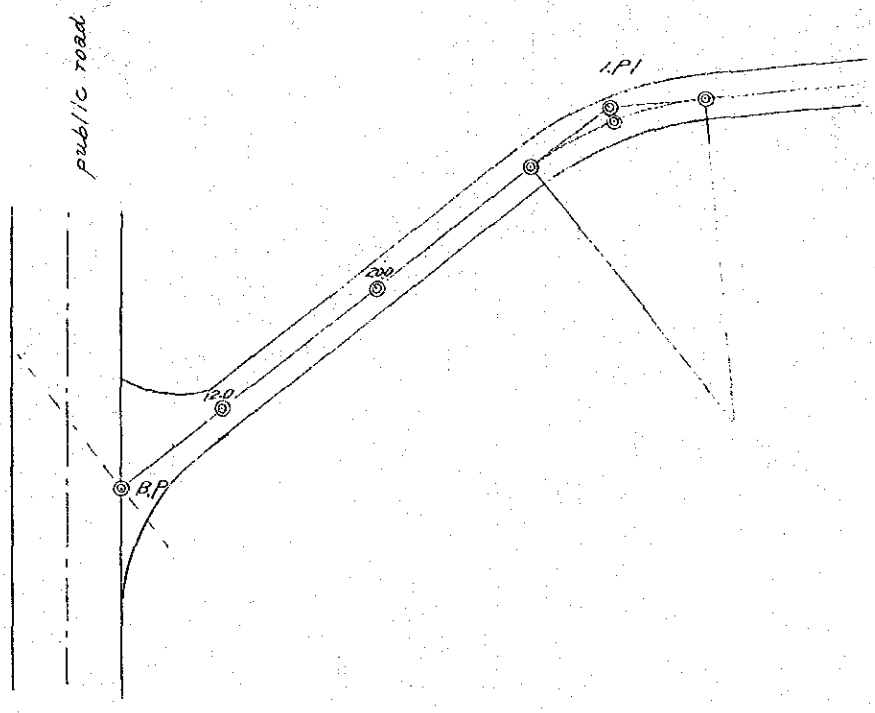
$\phi = 70^{cm}$

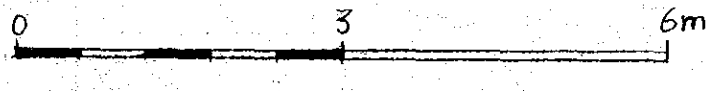


$\phi = 100^{cm}$



PLAN





— 4 —