

CONSTRUCTION COST FOR ROAD

Segment 6 (4-lane)

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	39,244	1.90	1.26	0.16	74,563	49,447	6,279	130,290
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	COMMON	m <sup>3</sup>	20,073.1	1.24	0.89	0.11	24,890.64	17,865.06	2,208.04	44,963.74
Waste	Soil	COMMON	m <sup>3</sup>	9,146.8	1.74	1.89	0.29	15,915	17,287	2,653	35,855
Embankment	Soil	COMMON	m <sup>3</sup>	10,926.5	3.85	1.46	0.51	42,067.03	15,952.69	5,572.52	63,592.24
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	25,292.6	1.26	4.94	0.32	31,868.68	124,945.44	8,093.63	164,907.75
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	7,700	46.78	90.58	5.65	360,206	697,466	43,505	1,101,177
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		840	46.21	77.71	5.23	38,816.4	65,276.4	4,393.2	108,486
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	3,748	26.21	64.03	6.26	98,235.08	239,984.44	23,462.48	361,682
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	29,586	17.49	12.76	1.43	517,459.14	377,517.36	42,307.98	937,284.48
	Shoulder	Asphalt	m <sup>2</sup>	6,765	13.64	9.13	1.10	92,274.6	61,764.45	7,441.5	161,480.55
	Service Road	Asphalt	m <sup>2</sup>	7,360	13.64	9.13	1.10	100,390.4	67,196.8	8,096	175,683.2
	Sidewalk	Concrete Block	m <sup>2</sup>	25,292.6	5.49	7.61	0.62	138,856.37	192,476.68	15,681.41	347,014.46
	Overlay	Asphalt	m <sup>2</sup>	37,599	11.00	8.00	1.00	413,589	300,792	37,599	751,980
	Kerb	Concrete	m	8,080	8.54	14.52	1.16	69,003.2	117,321.6	9,372.8	195,697.6
Additional Facility	Central Reserved	Concrete	m	3,390	20.86	43.86	3.28	70,715.4	148,685.4	11,119.2	230,520
	Guard Rail	Steel	m	1,340	44.11	3.22	6.23	59,107.4	4,314.8	8,348.2	71,770.4
	Lighting	Steel	m	1,450	40.00	19.00	7.00	58,000	27,550	10,150	95,700
	Lane-Marks	Paint	m	4,150	0.50	0.60	0.05	2,075	2,490	207.5	4,772.5
	At-Grade	Signal	No.	3	32,976	64,506	2,922	98,928	193,518	8,766	301,212
Intersection	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								2,306,960	2,721,851	255,256	5,284,067
Land Acquisition Cost											

## CONSTRUCTION COST FOR ROAD

Segment 7

(4 - lane)

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	23,300	1.90	1.26	0.16	61,370	40,698	5,168	107,236
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	common	m <sup>3</sup>	8,100	1.24	0.89	0.11	10,044	7,209	891	18,144
Waste	Soil	common	m <sup>3</sup>	300	1.74	1.89	0.29	522	567	87	1,176
Embankment	Soil	common	m <sup>3</sup>	7,800	3.85	1.46	0.51	30,030	11,388	3,978	45,396
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	16,800	1.26	4.94	0.32	21,168	82,992	5,376	109,536
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	4,800	46.78	90.58	5.65	224,544	434,784	27,120	686,448
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		500	46.21	77.71	5.23	23,105	38,855	2,615	64,575
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Hooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	2,600	26.21	64.03	6.26	68,146	166,478	16,276	250,900
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	18,500	17.49	12.76	1.43	323,565	236,060	26,455	586,080
	Shoulder	Asphalt	m <sup>2</sup>	4,000	13.64	9.13	1.10	54,560	36,520	4,400	95,480
	Service Road	Asphalt	m <sup>2</sup>	10,500	13.64	9.13	1.10	143,220	95,865	11,550	250,635
	Sidewalk	Concrete Block	m <sup>2</sup>	16,800	5.49	7.61	0.62	92,232	127,848	10,416	230,496
	Overlay	Asphalt	m <sup>2</sup>	15,400	11.00	8.00	1.00	169,400	123,200	15,400	308,000
	Kerb	Concrete	m	5,800	8.54	14.52	1.16	49,532	84,216	6,728	140,476
Additional Facility	Central Reserved	Concrete	m	1,900	20.86	43.86	3.28	39,634	83,334	6,232	129,200
	Guard Rail	Steel	m	900	44.11	3.22	6.23	39,699	2,898	5,607	48,204
	Lighting	Steel	m	900	40.00	19.00	7.00	36,000	17,100	6,300	59,400
	Lane-Marks	Paint	m	2,400	0.50	0.60	0.05	1,200	1,440	120	2,760
	At-Grade	Signal	No.	2.5	32,976	64,506	2,922	82,440	161,265	7,305	251,010
Intersection	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m		462.46	498.20	48.71	0	0	0	0
Total								1,470,411	1,752,717	162,024	3,385,152
Land Acquisition Cost											

CONSTRUCTION COST FOR ROAD

Segment 8 - 4-lane

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	31,610	1.90	1.26	0.16	60,059	39,828.6	5,057.6	104,945.2
	Field		m <sup>2</sup>	31,010	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	COMMON	m <sup>3</sup>	19,459	1.24	0.89	0.11	24,129.16	17,318.51	2,140.49	43,588.16
Waste	Soil	COMMON	m <sup>3</sup>	12,860	1.74	1.89	0.29	22,376	24,305	3,729	50,410
Embankment	Soil	COMMON	m <sup>3</sup>	6,599	3.85	1.46	0.51	25,406.15	9,634.54	3,365.49	38,406.18
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	1,300	1.26	4.94	0.32	1,638	6,422	416	8,476
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	6,420	46.78	90.58	5.65	300,327.6	581,523.6	36,273	918,124.2
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		600	46.21	77.71	5.23	27,726	46,626	3,138	77,490
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	2,348	26.21	64.03	6.26	61,541.08	150,342.44	14,698.48	226,582
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	30,934	17.49	12.76	1.43	541,035.66	394,717.84	44,235.62	979,989.12
	Shoulder	Asphalt	m <sup>2</sup>	10,980	13.64	9.13	1.10	149,767.2	100,247.4	12,078	262,092.6
	Service Road	Asphalt	m <sup>2</sup>	7,020	13.64	9.13	1.10	95,752.8	64,092.6	7,722	167,567.4
	Sidewalk	Concrete Block	m <sup>2</sup>	20,633	5.49	7.61	0.62	113,275.17	157,017.13	12,792.46	283,084.76
	Overlay	Asphalt	m <sup>2</sup>	20,123.5	11.00	8.00	1.00	221,358.5	160,988	20,123.5	402,470
Additional Facility	Kerb	Concrete	m	6,960	8.54	14.52	1.16	59,438.4	101,059.2	8,073.6	168,571.2
	Central Reserved	Concrete	m	3,285	20.86	43.86	3.28	68,525.1	144,080.1	10,774.8	223,380
	Guard Rail	Steel	m	840	44.11	3.22	6.23	37,052.4	2,704.8	5,233.2	44,990.4
	Lighting	Steel	m	3,550	40.00	19.00	7.00	142,000	67,450	24,850	234,300
	Lane-Marks	Paint	m	3,085	0.50	0.60	0.05	1,542.5	1,851	154.25	3,547.75
Intersection	At-Grade	Signal	No.	2.5	32,976	64,506	2,922	82,440	161,265	7,305	251,010
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								2,035,391	2,231,474	222,160	4,489,025
Land Acquisition Cost											

CONSTRUCTION COST FOR ROAD

Segment 9 (4-lane)

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					P.C.	L.C.	Tax	P.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	20,000	1.90	1.26	0.16	38,000	25,200	3,200	66,400
	Field		m <sup>2</sup>	69,394	0.26	0.17	0.02	18,042	11,796.98	1,387.88	31,226.86
Excavation	Soil	common	m <sup>3</sup>	110,409.8	1.24	0.89	0.11	136,908.15	98,264.72	12,145.08	247,317.95
Waste	Soil	common	m <sup>3</sup>	0	1.74	1.89	0.29	0	0	0	0
Embankment	Soil	common	m <sup>3</sup>	139,115	3.85	1.46	0.51	535,592.75	203,107.9	70,948.65	809,649.3
Slope	Grass		m <sup>2</sup>	11,200	0	5.25	0.30	0	58,800	3,360	62,160
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	4,208	1.26	4.94	0.32	5,302.08	20,787.52	1,346.56	27,436.16
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	8,700	46.78	90.58	5.65	406,986	788,046	49,155	1,244,187
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		880	46.21	77.71	5.23	40,664.8	68,384.8	4,602.4	113,652
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	894	26.21	64.03	6.26	23,431.74	57,242.82	5,596.44	86,271
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	63,193	17.49	12.76	1.43	1,105,245.5	806,342.68	90,365.99	2,001,954
	Shoulder	Asphalt	m <sup>2</sup>	10,695	13.64	9.13	1.10	145,879.8	97,645.35	11,764.5	255,289.65
	Service Road	Asphalt	m <sup>2</sup>	3,720	13.64	9.13	1.10	50,740.8	33,963.6	4,092	88,796.4
	Sidewalk	Concrete Block	m <sup>2</sup>	4,208	5.49	7.61	0.62	23,101.92	32,022.88	2,608.96	57,733.76
	Overlay	Asphalt	m <sup>2</sup>	10,453	11.00	8.00	1.00	114,983	83,624	10,453	209,060
Additional Facility	Kerb	Concrete	m	9,020	8.54	14.52	1.16	77,030.8	130,970.4	10,463.2	218,464.4
	Central Reserved	Concrete	m	4,200	20.86	43.86	3.28	87,612	184,212	13,776	285,600
	Guard Rail	Steel	m	320	44.11	3.22	6.23	14,115.2	1,030.4	1,993.6	17,139.2
	Lighting	Steel	m	400	40.00	19.00	7.00	16,000	7,600	2,800	26,400
	Lane-Marks	Paint	m	4,350	0.50	0.60	0.05	2,175	2,610	217.5	5,002.5
Intersection	At-Grade	Signal	No.	2.5	32,976	64,506	2,922	82,440	161,265	7,305	251,010
	Interchange	Diamond Type	Vol.	1.0	357,359	303,075	46,703	357,359	303,075	46,703	707,137
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								3,281,611	3,175,992	354,284.76	6,811,887
Land Acquisition Cost											

CONSTRUCTION COST FOR ROAD

(4 - lane)

Segment 10

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	46,100	1.90	1.26	0.16	87,590	58,086	7,376	153,052
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	COMMON	m <sup>3</sup>	14,900	1.24	0.89	0.11	18,476	13,261	1,639	33,376
Waste	Soil	COMMON	m <sup>3</sup>	4,600	1.74	1.89	0.29	8,004	8,694	1,334	18,032
Embankment	Soil	COMMON	m <sup>3</sup>	10,300	3.85	1.46	0.51	39,655	15,038	5,253	59,946
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	21,500	1.26	4.94	0.32	27,090	106,210	6,880	140,180
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	7,200	46.78	90.58	5.65	336,816	652,176	40,680	1,029,672
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		600	46.21	77.71	5.23	27,726	46,626	3,138	77,490
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	2,600	26.21	64.03	6.26	68,146	166,478	16,276	250,900
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	29,800	17.49	12.76	1.43	521,202	380,248	42,614	944,064
	Shoulder	Asphalt	m <sup>2</sup>	2,900	13.64	9.13	1.10	39,566	26,477	3,190	69,223
	Service Road	Asphalt	m <sup>2</sup>	16,300	13.64	9.13	1.10	222,332	148,819	17,930	389,081
	Sidewalk	Concrete Block	m <sup>2</sup>	21,500	5.49	7.61	0.62	118,035	163,615	13,330	294,980
	Overlay	Asphalt	m <sup>2</sup>	26,500	11.00	8.00	1.00	291,500	212,000	26,500	530,000
Additional Facility	Kerb	Concrete	m	7,500	8.54	14.52	1.16	64,050	108,900	8,700	181,650
	Central Reserved	Concrete	m	2,400	20.86	43.86	3.28	50,064	105,264	7,872	163,200
	Guard Rail	Steel	m	900	44.11	3.22	6.23	39,699	2,898	5,607	48,204
	Lighting	Steel	m	3,300	40.00	19.00	7.00	132,000	62,700	23,100	217,800
	Lane-Marks	Paint	m	5,200	0.50	0.60	0.05	2,600	3,120	260	5,980
Intersection	At-Grade	Signal	No.	2.5	32,976	64,506	2,922	82,440	161,265	7,305	251,010
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	1	1,330,379	1,156,337	132,370	1,330,379	1,156,337	132,370	2,619,086
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								3,507,360	3,598,212	371,354	7,476,926
Land Acquisition Cost											

## CONSTRUCTION COST FOR ROAD

(4-lane)

Segment 3 No.60+0~No.70+0 1 = 1.000m

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	20,000	1.90	1.26	0.16	38,000	25,200	3,200	66,400
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	COMMON	m <sup>3</sup>	0	1.24	0.89	0.11	0	0	0	0
Waste	Soil	COMMON	m <sup>3</sup>	0	1.74	1.89	0.29	0	0	0	0
Embankment	Soil	COMMON	m <sup>3</sup>	116,800	3.85	1.46	0.51	449,680	170,528	59,568	679,776
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	30,000	1.26	4.94	0.32	37,800	148,200	9,600	195,600
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	2,000	46.78	90.58	5.65	93,560	181,160	11,300	286,020
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		300	46.21	77.71	5.23	13,863	23,313	1,569	38,745
	Box Culvert	3.0 x 2.0	m	50	489.60	577.43	58.50	24,480	28,871.5	2,925	56,276.5
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	640	26.21	64.03	6.26	16,774.4	40,979.2	4,006.4	61,760
	Revetment	Stone	m	1,000	818.70	1,169.70	132.70	818,700	1,169,700	132,700	2,121,100
Pavement	Carriage	Asphalt	m <sup>2</sup>	17,000	17.49	12.76	1.43	297,330	216,330	24,310	538,560
	Shoulder	Asphalt	m <sup>2</sup>	3,000	13.64	9.13	1.10	40,920	27,390	3,300	71,610
	Service Road	Asphalt	m <sup>2</sup>	6,000	13.64	9.13	1.10	81,840	54,780	6,600	143,220
	Sidewalk	Concrete Block	m <sup>2</sup>	7,000	5.49	7.61	0.62	38,430	53,270	4,340	96,040
	Overlay	Asphalt	m <sup>2</sup>	0	11.00	8.00	1.00	0	0	0	0
Additional Facility	Kerb	Concrete	m	4,000	8.54	14.52	1.16	34,160	58,080	4,640	96,880
	Central Reserved	Concrete	m	1,000	20.86	43.86	3.28	20,860	43,860	3,280	68,000
	Guard Rail	Steel	m	320	44.11	3.22	6.23	14,115.2	1,030.4	1,993.6	17,139.2
	Lighting	Steel	m	1,000	40.00	19.00	7.00	40,000	19,000	7,000	66,000
	Lane-Marks	Paint	m	1,000	0.50	0.60	0.05	500	600	50	1,150
Intersection	At-Grade	Signal	No.	1.5	32,976	64,506	2,922	49,464	96,759	4,383	150,606
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m		462.46	498.20	48.71	0	0	0	0
Total								2,110,477	2,359,641	284,765	4,754,883
Land Acquisition Cost and Compensation											

CONSTRUCTION COST FOR ROAD

(4 - lane)

Segment 8 (No. 70 ~ No. 75) 1 = 500<sup>m</sup>

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					P.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	12,540	1.90	1.26	0.16	23,826	15,800	2,006	41,632
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	common	m <sup>3</sup>	470	1.24	0.89	0.11	582.8	418.3	51.7	1052.8
Waste	Soil	common	m <sup>3</sup>	470	1.74	1.89	0.29	817.8	888.3	239.7	1945.8
Embankment	Soil	common	m <sup>3</sup>	0	3.85	1.46	0.51	0	0	0	0
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	0	1.26	4.94	0.32	0	0	0	0
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	1,320	46.78	90.58	5.65	61,749.6	119,565.6	7,458.0	188,773.2
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		95	46.21	77.71	5.23	4,389.9	7,382.5	496.9	12,269.4
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Hooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	1,280	26.21	64.03	6.26	33,548.8	81,958.4	8,012.8	123,520.0
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	9,010	17.49	12.76	1.43	157,584.9	114,967.6	12,884.3	285,436.8
	Shoulder	Asphalt	m <sup>2</sup>	600	13.64	9.13	1.10	8,184	5,478	660	14,322
	Service Road	Asphalt	m <sup>2</sup>	3,720	13.64	9.13	1.10	50,740	33,963.6	4,092	88,795.6
	Sidewalk	Concrete Block	m <sup>2</sup>	2,170	5.49	7.61	0.62	11,913.3	16,513.7	1,345.4	29,772.4
	Overlay	Asphalt	m <sup>2</sup>	0	11.00	8.00	1.00	0	0	0	0
Additional Facility	Kerb	Concrete	m	720	8.54	14.52	1.16	6,148.8	10,454.4	835.2	17,438.4
	Central Reserved	Concrete	m	360	20.86	43.86	3.28	7,509.6	15,789.6	1,180.8	24,480
	Guard Rail	Steel	m	1,240	44.11	3.22	6.23	54,696.4	3,992.8	7,725.2	66,414.4
	Lighting	Steel	m	620	40.00	19.00	7.00	24,800	11,780	4,340	40,920.0
	Lane-Marks	Paint	m	660	0.50	0.60	0.05	330	396	33	759
Intersection	At-Grade	Signal	No.	0	32,976	64,506	2,922	0	0	0	0
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								446,822	439,349	51,361	937,532
Land Acquisition Cost											



**CONSTRUCTION COST FOR ROAD**

(6 - lane)

Segment 1

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	600	1.90	1.26	0.16	1,140	756	96	1,992
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	common	m <sup>3</sup>	18,219	1.24	0.89	0.11	22,591.6	16,214.9	2,004.1	40,810.6
Waste	Soil	common	m <sup>3</sup>	13,189	1.74	1.89	0.29	22,948.9	24,927.2	3,824.8	51,700.9
Embankment	Soil	common	m <sup>3</sup>	5,030	3.85	1.46	0.51	19,365.5	7,343.8	2,565.3	29,274.6
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	12,853	1.26	4.94	0.32	16,194.8	63,493.8	4,113	83,801.6
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	3,760	46.78	90.58	5.65	175,892.8	340,580.8	21,244	537,717.6
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		500	46.21	77.71	5.23	23,105	38,855	2,615	64,575
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	894	26.21	64.03	6.26	23,431.7	57,242.8	5,596.4	86,270.9
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	26,811	17.49	12.76	1.43	468,924.4	342,108.4	38,339.7	849,372.5
	Shoulder	Asphalt	m <sup>2</sup>	4,920	13.64	9.13	1.10	67,108.8	44,919.6	5,412	117,440.4
	Service Road	Asphalt	m <sup>2</sup>	3,720	13.64	9.13	1.10	50,740.8	33,963.6	4,092	88,796.4
	Sidewalk	Concrete Block	m <sup>2</sup>	12,853.4	5.49	7.61	0.62	70,565.2	97,814.4	7,969.1	168,379.6
	Overlay	Asphalt	m <sup>2</sup>	18,108	11.00	8.00	1.00	199,188	144,864	18,108	362,160
Additional Facility	Kerb	Concrete	m	4,220	8.54	14.52	1.16	36,038.8	61,274.4	4,895.2	102,211.4
	Central Reserved	Concrete	m	1,800	20.86	43.86	3.28	37,548	78,948	5,904	122,400
	Guard Rail	Steel	m	320	44.11	3.22	6.23	14,115.2	1,030.4	1,993.6	17,139.2
	Lighting	Steel	m	3,010	40.00	19.00	7.00	120,400	57,190	21,070	198,660
	Lane-Marks	Paint	m	1,950	0.50	0.60	0.05	975	1,170	97.5	2,242.5
Intersection	At-Grade	Signal	No.	0.5	32,976	64,506	2,922	16,488	32,253	1,461	50,202
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								1,386,762	1,444,950	151,401	2,983,113
Land Acquisition Cost											



## CONSTRUCTION COST FOR ROAD

(6-lane)

Segment 2 High Level

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	50,015	1.90	1.26	0.16	95,028.5	63,018.9	3,002.4	166,049.8
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	common	m <sup>3</sup>	8,502	1.24	0.89	0.11	10,542.5	7,566.8	935.2	19,044.5
Waste	Soil	common	m <sup>3</sup>	0	1.74	1.89	0.29	0	0	0	0
Embankment	Soil	common	m <sup>3</sup>	14,647	3.85	1.46	0.51	56,391	21,384.6	7,470	85,245.6
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	15,645	1.26	4.94	0.32	19,712.7	77,286.3	5,006.4	102,005.4
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	4,370	46.78	90.58	5.65	204,428.6	395,834.6	24,690.5	624,953.7
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		650	46.21	77.71	5.23	30,036.5	50,511.5	3,399.5	83,947.5
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	2,405	26.21	64.03	6.26	63,035.1	153,992.2	15,055.3	232,082.6
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	23,197	17.49	12.76	1.43	405,715.5	295,993.7	33,171.7	734,880.9
	Shoulder	Asphalt	m <sup>2</sup>	0	13.64	9.13	1.10	0	0	0	0
	Service Road	Asphalt	m <sup>2</sup>	25,530	13.64	9.13	1.10	348,229.2	233,088.9	28,083	609,401.1
	Sidewalk	Concrete Block	m <sup>2</sup>	15,645	5.49	7.61	0.62	85,891.1	119,058.5	9,699.9	214,649.4
	Overlay	Asphalt	m <sup>2</sup>	2,047	11.00	8.00	1.00	22,517	16,376	2,047	40,940
Additional Facility	Kerb	Concrete	m	5,270	8.54	14.52	1.16	45,005.8	76,520.4	6,113.2	127,639.4
	Central Reserved	Concrete	m	990	20.86	43.86	3.28	20,651.4	43,421.4	3,247.2	67,320
	Guard Rail	Steel	m	860	44.11	3.22	6.23	37,934.6	2,769.2	5,357.8	46,061.6
	Lighting	Steel	m	2,665	40.00	19.00	7.00	106,600	50,635	18,655	175,890
	Lane-Marks	Paint	m	2,600	0.50	0.60	0.05	1,300	1,560	130	2,990
Intersection	At-Grade	Signal	No.	1	32,976	64,506	2,922	32,976	64,506	2,922	100,404
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	1	1,330,379	1,156,337	132,370	1,330,379	1,156,337	132,370	2,619,086
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								2,916,375	2,829,861	306,356	6,052,592
Land Acquisition Cost											

## CONSTRUCTION COST FOR ROAD

Segment 3 No.46 → No.60 1 = 1400<sup>m</sup>

(6 - lane)

Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					F.C.	L.C.	Tax	F.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	52,500	1.90	1.26	0.16	99,750	66,150	8,400	174,300
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	common	m <sup>3</sup>	13,125	1.24	0.89	0.11	16,275	11,681.25	1,443.8	29,400
Waste	Soil	common	m <sup>3</sup>	0	1.74	1.89	0.29	0	0	0	0
Embankment	Soil	common	m <sup>3</sup>	22,500	3.85	1.46	0.51	86,625	32,850	11,475	130,950
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	0	1.26	4.94	0.32	0	0	0	0
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	0	46.78	90.58	5.65	0	0	0	0
		1.0 x 0.5	m	4,470	25.73	80.00	3.38	209,106.6	404,892.6	25,255.5	639,254.7
	Pipe Culvert	D = 600		720	46.21	77.71	5.23	33,271.2	55,951.2	3,765.6	92,988
	Box Culvert	3.0 x 2.0	m	50	489.60	577.43	58.50	24,480	28,871.5	2,925	56,276.5
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	1,200	26.21	64.03	6.26	31,452	76,836	7,512	115,800
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	24,675	17.49	12.76	1.43	431,565.8	314,853	35,285.3	781,704
	Shoulder	Asphalt	m <sup>2</sup>	3,150	13.64	9.13	1.10	42,961	28,759.5	3,465	75,190.5
	Service Road	Asphalt	m <sup>2</sup>	7,440	13.64	9.13	1.10	101,481.6	67,927.2	8,184	177,592.8
	Sidewalk	Concrete Block	m <sup>2</sup>	9,100	5.49	7.61	0.62	49,959	69,251	5,642	124,852
	Overlay	Asphalt	m <sup>2</sup>	0	11.00	8.00	1.00	0	0	0	0
Additional Facility	Kerb	Concrete	m	5,740	8.54	14.52	1.16	49,019.6	83,344.8	6,658.4	139,002.8
	Central Reserved	Concrete	m	1,980	20.86	43.86	3.28	41,302.8	86,842.8	6,494.4	134,640
	Guard Rail	Steel	m	920	44.11	3.22	6.23	40,581.2	2,962.4	5,731.6	49,275.2
	Lighting	Steel	m	1,785	40.00	19.00	7.00	71,400	33,915	12,495	117,810
	Lane-Marks	Paint	m	2,390	0.50	0.60	0.05	1,195	1,434	119.5	2,748.5
Intersection	At-Grade	Signal	No.	2.5	32,976	64,506	2,922	82,440	161,265	7,305	251,010
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								1,412,870.8	1,527,787.2	152,157.1	3,092,815
Land Acquisition Cost											

## CONSTRUCTION COST FOR ROAD

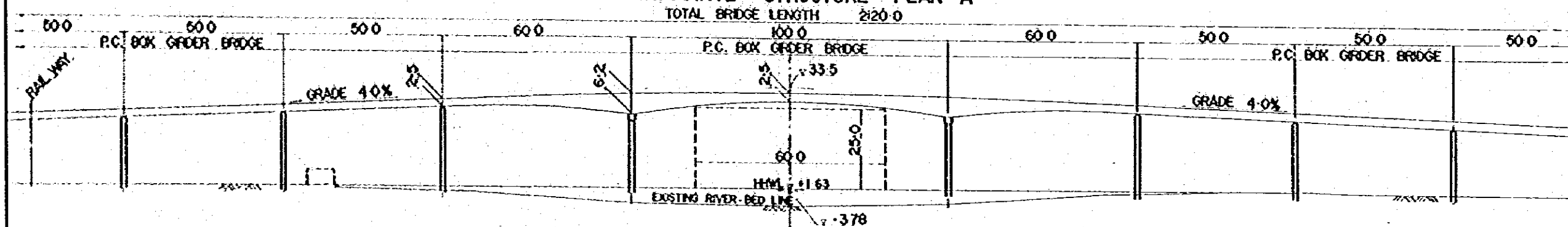
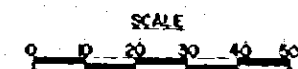
(6-lane)

Segment 6

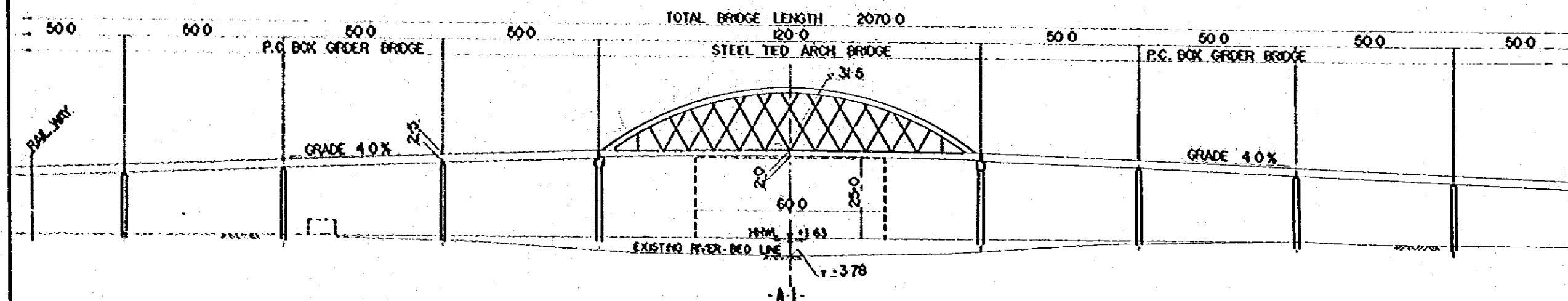
Item	Sub-Item	Class	Unit	Quantity	Unit Cost			Construction Cost			
					P.C.	L.C.	Tax	P.C.	L.C.	Tax	Total
Site Clearing	Residential		m <sup>2</sup>	55,244	1.90	1.26	0.16	104,963.6	69,607.4	8,839	183,410.1
	Field		m <sup>2</sup>	0	0.26	0.17	0.02	0	0	0	0
Excavation	Soil	common	m <sup>3</sup>	31,319.8	1.24	0.89	0.11	38,836.6	27,874.6	3,445.2	70,156.4
Waste	Soil	common	m <sup>3</sup>	17,846.9	1.74	1.89	0.29	31,053.6	33,730.6	5,175.6	69,959.8
Embankment	Soil	common	m <sup>3</sup>	13,472.9	3.85	1.46	0.51	51,870.7	19,670.4	6,871.2	78,412.3
Slope	Grass		m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Turfing	Sidewalk	Grass & Tree	m <sup>2</sup>	25,292.6	1.26	4.94	0.32	31,868.7	124,945.4	8,093.6	164,907.8
	Open Space	Grass	m <sup>2</sup>	0	0	5.25	0.30	0	0	0	0
Drainage	Roadside	1.0 x 1.0	m	7,700	46.78	90.58	5.65	360,206	697,466	43,505	1,101,177
		1.0 x 0.5	m	0	25.73	80.00	3.38	0	0	0	0
	Pipe Culvert	D = 600		1,050	46.21	77.71	5.23	48,520.5	81,595.5	5,491.5	135,607.5
	Box Culvert	3.0 x 2.0	m	0	489.60	577.43	58.50	0	0	0	0
		3.0 x 3.0	m	0	612.00	721.79	73.12	0	0	0	0
	Transfer	D = 24"	m	0	239.30	91.33	14.59	0	0	0	0
Wall	Mooring		Vol.	0	6,139.00	38,155.00	5,970.00	0	0	0	0
	Masonry	H = 4.0	m <sup>2</sup>	3,748	26.21	64.03	6.26	98,235.1	239,984.4	23,462.5	361,682
	Revetment	Stone	m	0	818.70	1,169.70	132.70	0	0	0	0
Pavement	Carriage	Asphalt	m <sup>2</sup>	49,436	17.49	12.76	1.43	864,635.6	630,803.4	70,693.5	1,566,132.5
	Shoulder	Asphalt	m <sup>2</sup>	7,540	13.64	9.13	1.10	102,845.6	68,840.2	8,294	179,979.8
	Service Road	Asphalt	m <sup>2</sup>	7,360	13.64	9.13	1.10	100,390.4	67,196.8	8,096	175,683.2
	Sidewalk	Concrete Block	m <sup>2</sup>	25,292.6	5.49	7.61	0.62	138,856.4	192,476.7	15,681.4	347,014.5
	Overlay	Asphalt	m <sup>2</sup>	42,658	11.00	8.00	1.00	469,238	341,264	42,658	853,160
Additional Facility	Kerb	Concrete	m	8,080	8.74	14.52	1.16	69,003.2	117,321.6	9,372.8	195,697.6
	Central Reserved	Concrete	m	3,390	20.86	43.86	3.28	70,715.4	148,685.4	11,119.2	230,520
	Guard Rail	Steel	m	1,340	44.11	3.22	6.23	59,107.4	4,314.8	8,348.2	71,770.4
	Lighting	Steel	m	1,450	40.00	19.00	7.00	58,000	27,550	10,150	95,700
	Lane-Marks	Paint	m	4,150	0.50	0.60	0.05	2,075	2,490	207.5	4,772.5
Intersection	At-Grade	Signal	No.	3	32,976	64,506	2,922	98,928	193,518	8,766	301,212
	Interchange	Diamond Type	Vol.	0	357,359	303,075	46,703	0	0	0	0
		Loop Type	Vol.	0	1,330,379	1,156,337	132,370	0	0	0	0
Approach Road			m	0	462.46	498.20	48.71	0	0	0	0
Total								2,799,350	3,089,335	298,270	6,186,955
Land Acquisition Cost											

## APPENDIX

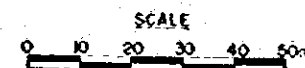
# HIGH LEVEL BRIDGE ALTERNATIVE STRUCTURE PLAN A



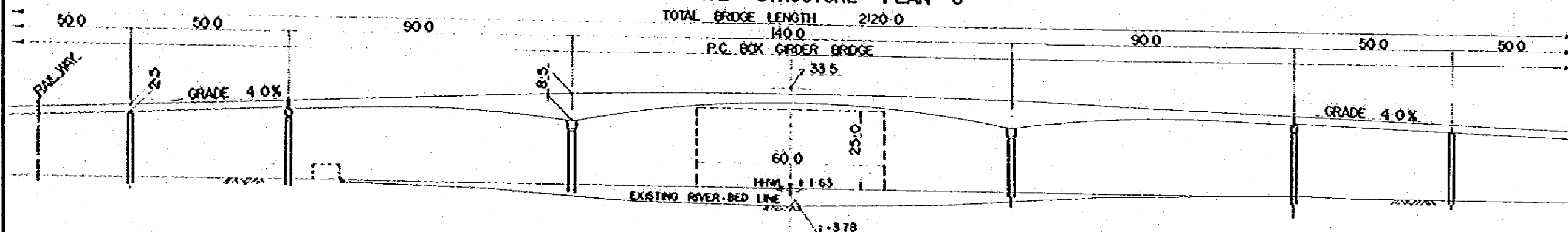
# ALTERNATIVE STRUCTURE PLAN B



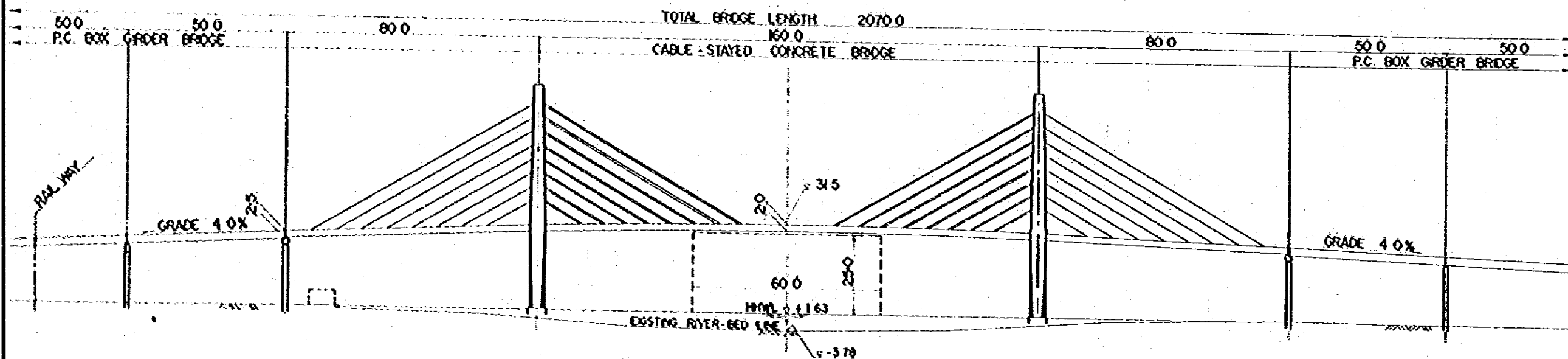
# HIGH LEVEL BRIDGE



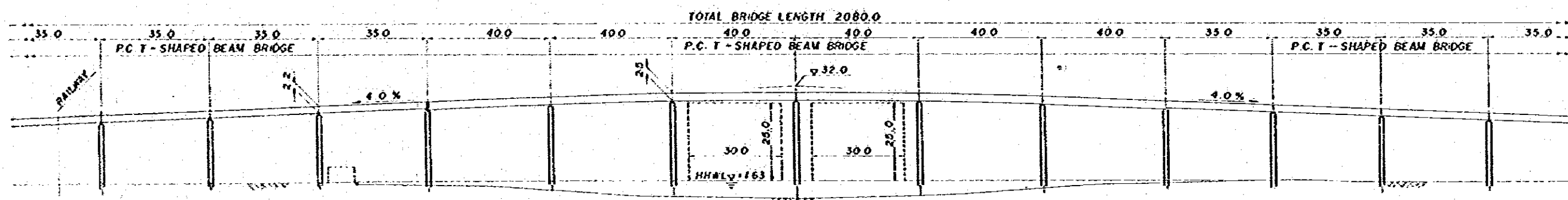
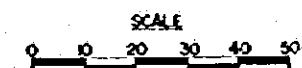
## ALTERNATIVE STRUCTURE PLAN C



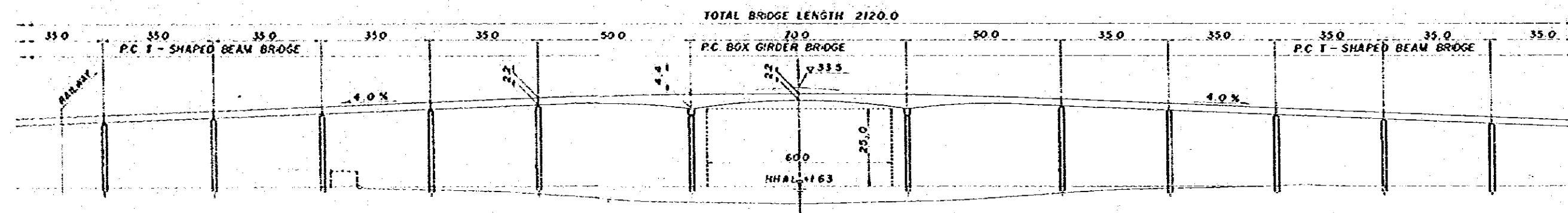
## ALTERNATIVE STRUCTURE PLAN D



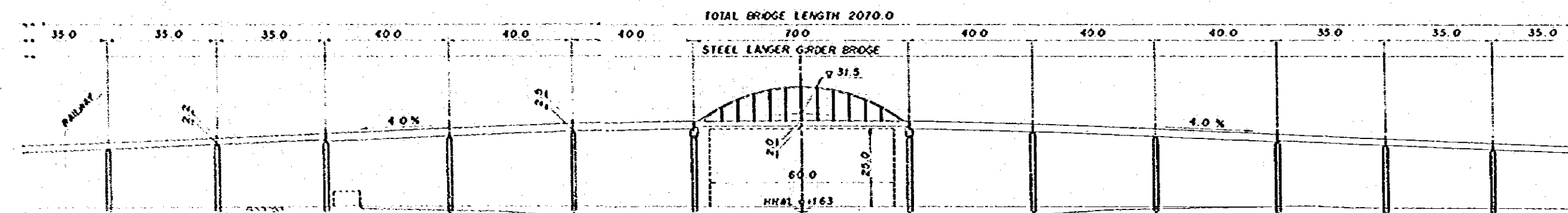
# HIGH LEVEL BRIDGE ALTERNATIVE STRUCTURE PLAN E



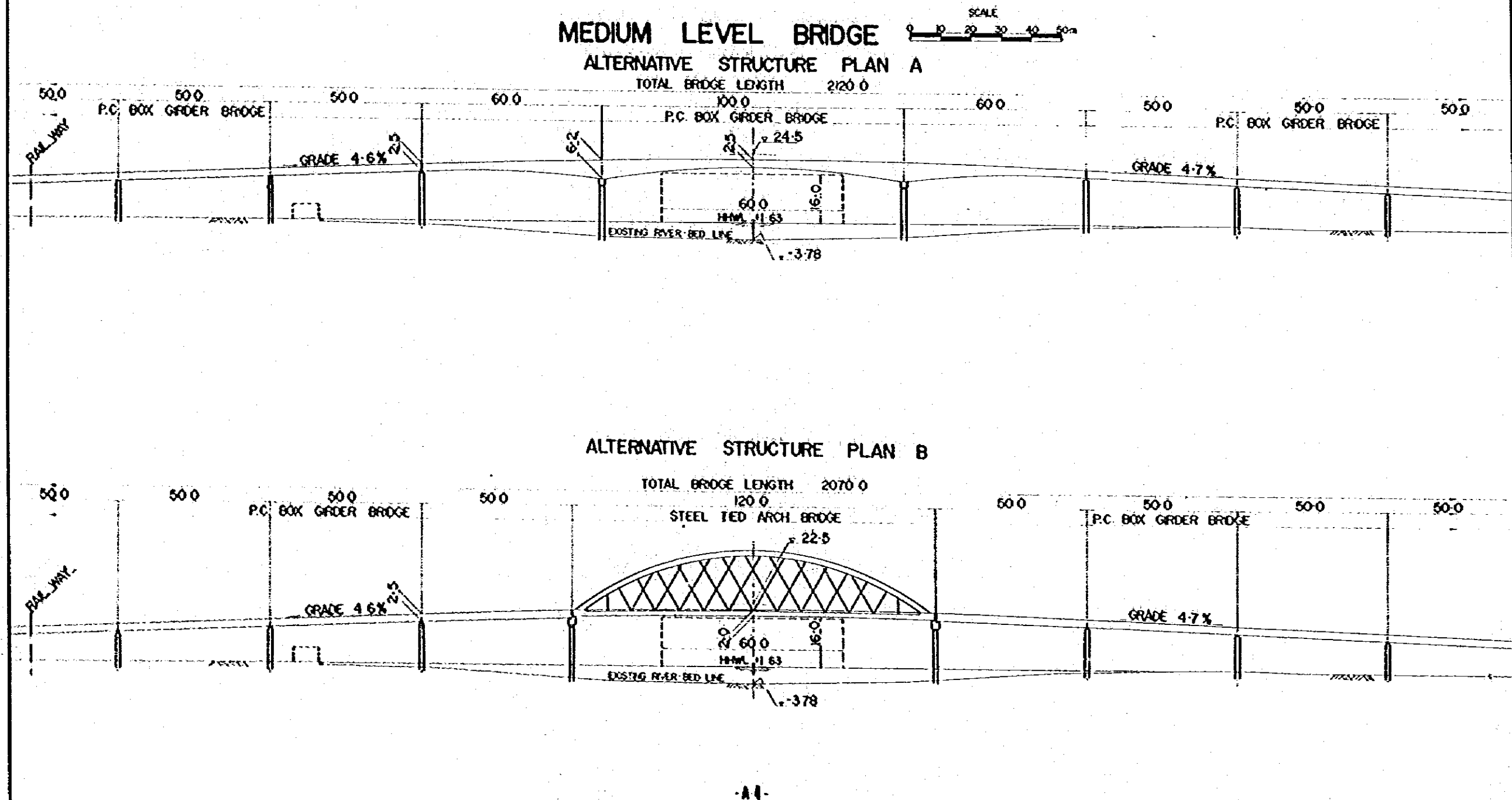
## ALTERNATIVE STRUCTURE PLAN F



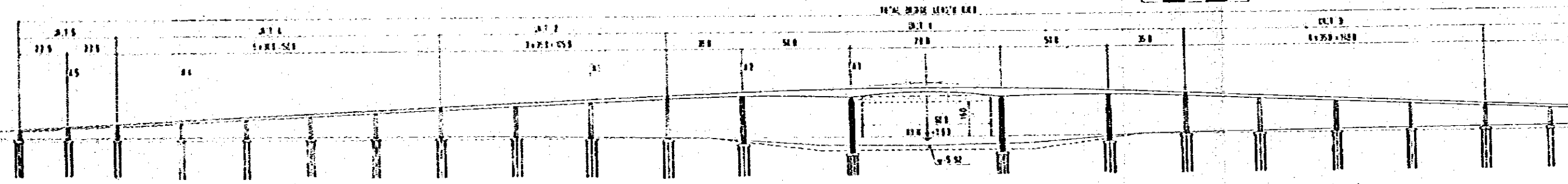
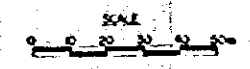
## ALTERNATIVE STRUCTURE PLAN G



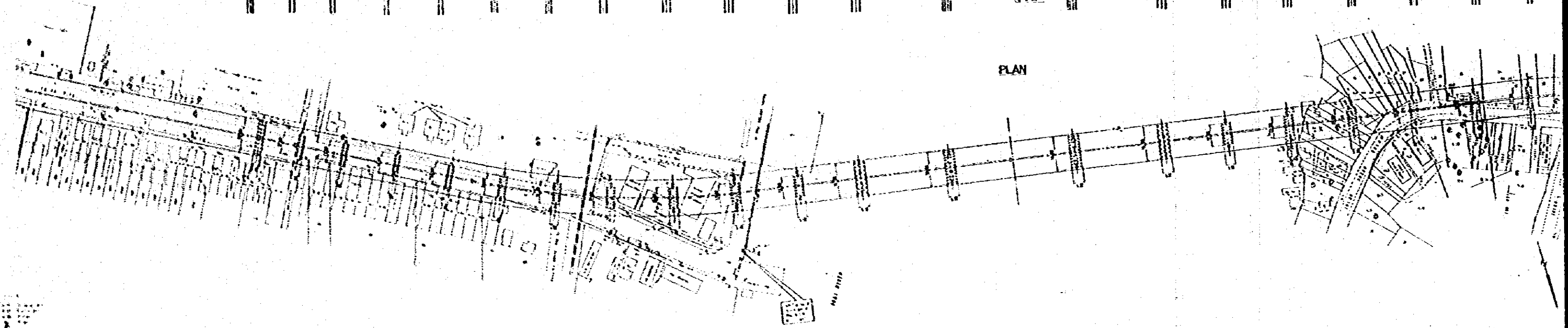




# GENERAL VIEW OF MEDIUM LEVEL BRIDGE



PLAN



# GENERAL VIEW OF MEDIUM LEVEL BRIDGE

1:1000 (1:1000)



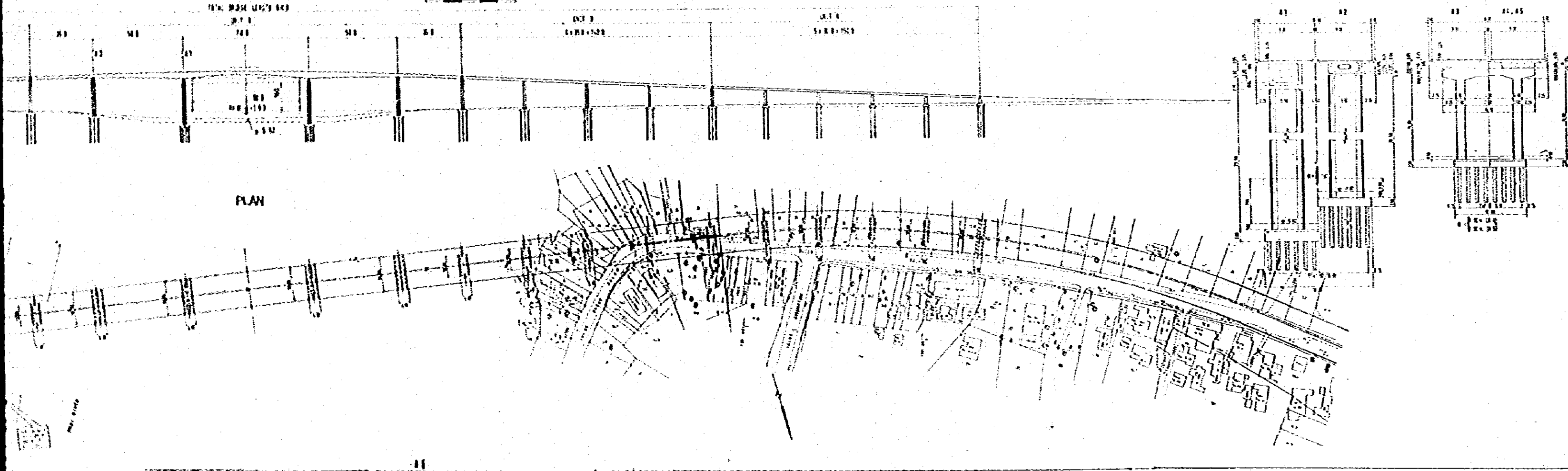
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1:1000 (1:1000)

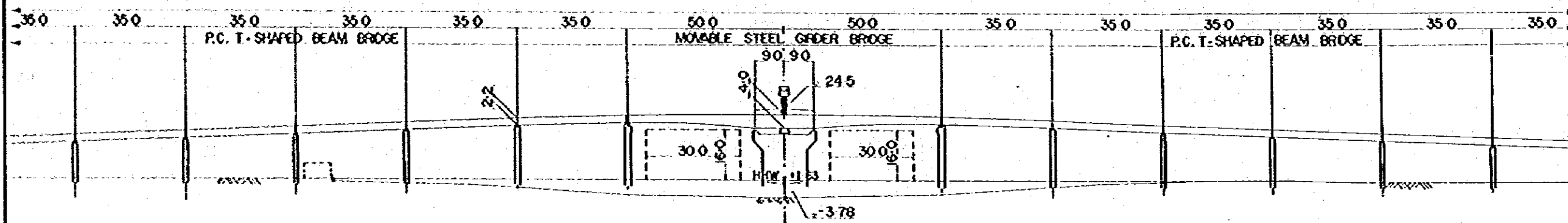
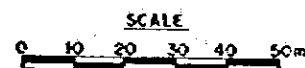
PLAN

CROSS-SECTION

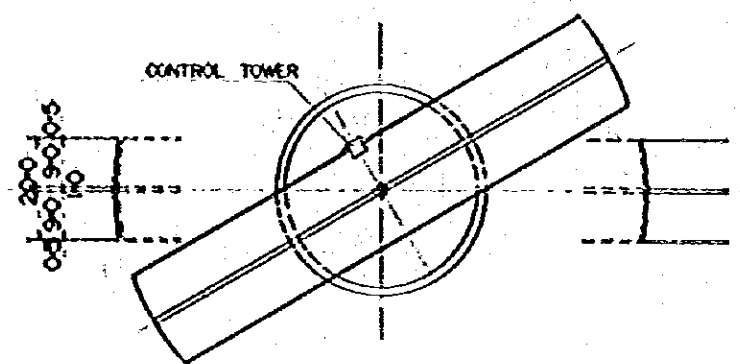
APPENDIX 5



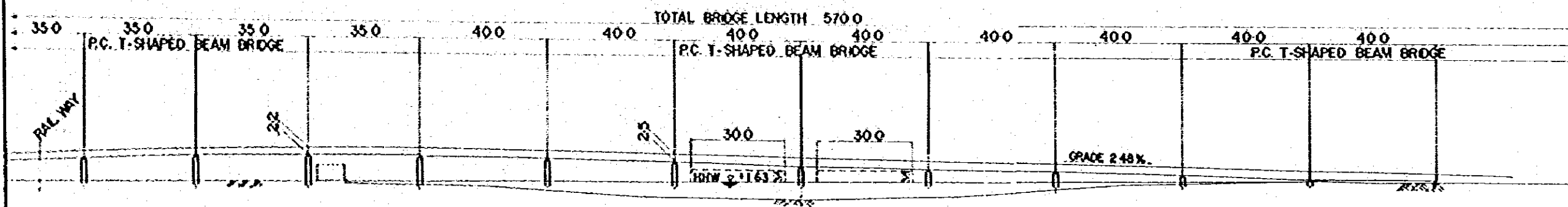
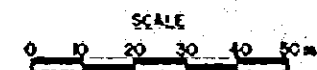
# MEDIUM LEVEL BRIDGE (MOVABLE)



## PLAN



# LOW LEVEL BRIDGE



JICA