資　　料

１．調査団員・氏名

２．調 査 行 程

３．関係者リスト

４．当該国の社会経済状況

５．討議議事録（M／D）

６．事業事前計画表（基本設計時）

７．基本設計概要書

８．参考資料／入手資料リスト

９．その他の資料・情報

10．図面集

資料１　調 査 団 員・氏 名

１．調査団員・氏名

(1) 現地調査　団員名簿

氏名	担当	所属
荒津　有紀	総括(団長)	独立行政法人 国際協力機構無償資金協力部
五瀬　伸吾	業務主任／橋梁計画	(株)片平エンジニアリング・インターナショナル
川田　晋也（補　強）	環境社会配慮	(株)片平エンジニアリング・インターナショナル
松本　公典（補　強）	橋梁設計Ⅰ(上部工)	(株)片平エンジニアリング・インターナショナル
五十嵐　功	橋梁設計Ⅱ(下部工)	(株)片平エンジニアリング・インターナショナル
相澤　正雄	自然条件調査(地形・地質)	(株)片平エンジニアリング・インターナショナル
小枝　芳樹	自然条件調査(地形･地質)　(自社補強)	(株)片平エンジニアリング・インターナショナル
宝　　茂	自然条件調査(水理・水文)	(株)片平エンジニアリング・インターナショナル
村上　啓一	施工・調達計画／積算	(株)片平エンジニアリング・インターナショナル
澤野　邦彦	連絡調整　(自社補強)	(株)片平エンジニアリング・インターナショナル

(2) 基本設計概要書の現地説明・協議　団員名簿

氏名	担当	所属
荒津　有紀	総括(団長)	独立行政法人 国際協力機構無償資金協力部
五瀬　伸吾	業務主任／橋梁計画	株)片平エンジニアリング・インターナショナル
川田　晋也（補　強）	環境社会配慮	(株)片平エンジニアリング・インターナショナル
五十嵐　功	橋梁設計Ⅱ(下部工)	(株)片平エンジニアリング・インターナショナル
宝　　茂	自然条件調査(水理・水文)	(株)片平エンジニアリング・インターナショナル

資料２　調　　査　　行　　程

２．調査日程

(1) 現地調査調査日程（2004 年 7 月 5 日～8 月 18 日）

No.	日付け			総括 荒津有紀	業務主任 ／橋梁計画 五瀬伸吾	橋梁設計 I（上部工） 松本公典	連絡調整 （自社補強） 澤野邦彦	環境社会 配慮 川田晋也	自然条件 調査(水理 ・水文) 宝茂	自然条件 調査(地形 ・地質) 相澤正雄	自然条件 調査 （自社補強） 小枝芳樹	橋梁設計Ⅱ （下部工） 五十嵐功	施工・調達 計画／積算 村上啓一
1	7	5	月	----------	東京→JKT		----------	----------	東京→JKT	東京→DPS		----------	
2		6	火	----------	打合せ (JICA & 移住･地域ｲﾝﾌﾗ省)		----------	----------	ﾃﾞｰﾀ収集	DPS→ﾏﾀﾗﾑ 打合せ (NTB 政府)	DPS→ｸﾊﾟﾝ 打合せ (NTT 政府)	----------	
3		7	水	----------	打合せ (移住･地域ｲﾝﾌﾗ省)		----------	----------	↓	ﾏﾀﾗﾑ→ﾏﾙｸ 現地打合せ	ｸﾊﾟﾝ→ｿｴ 現地打合せ	----------	
4		8	木	----------	ﾃﾞｰﾀ収集		----------	----------	↓	ｻｲﾄ状況調査 （NTB）	ｻｲﾄ状況調査 （NTT）	----------	
5		9	金	----------	↓		----------	東京→DPS	↓	↓	↓	----------	
6		10	土	----------	↓		----------	DPS→ｸﾊﾟﾝ→ｿｴ	JKT→DPS	↓	↓	----------	
7		11	日	----------	↓		----------	ｻｲﾄ状況調査（NTT）		↓	↓	----------	
8		12	月	NRT → JKT	↓		----------	↓		↓	ｿｴ→ｸﾊﾟﾝ →DPS	----------	
9		13	木	打合せ JICA 事務所 （EOJ,MOF &移住･地域ｲﾝﾌﾗ省）			----------	↓		↓	DPS→ﾏﾀﾗﾑ →ﾏﾙｸ	----------	
10		14	水	JKT→ﾏﾀﾗﾑ，打合せ（NTB 政府）			----------	↓		ｻｲﾄ状況調査（NTB）		----------	
11		15	木	ﾏﾀﾗﾑ→ﾄﾝｺﾞ，ｻｲﾄ状況調査（NTB）			----------	↓		↓		東京→DPS	
12		16	金	ﾏﾙｸ→ﾏﾀﾗﾑ			----------	↓		↓		DPS→ﾏﾀﾗﾑ→ﾏﾙｸ	
13		17	土	ﾏﾀﾗﾑ→DPS			NRT→DPS	↓		ｻｲﾄ状況調査（NTB）			
14		18	日	DPS→ｸﾊﾟﾝ，打合せ(NTT 政府)，ｸﾊﾟﾝ→ｿｴ				↓		↓			
15		19	月	ｻｲﾄ状況調査（NTT） ｿｴ→ｸﾊﾟﾝ		ﾃﾞｰﾀ整理	ｿｴ→ｸﾊﾟﾝ	↓		↓			
16		20	火	ｸﾊﾟﾝ→DPS→JKT		ｻｲﾄ状況調査 （NTT）	ｸﾊﾟﾝ→DPS →JKT	ｿｴ→ｸﾊﾟﾝ→DPS		↓			
17		21	水	討論(移住･地域ｲﾝﾌﾗ省)		↓	討論	DPS→ﾏﾀﾗﾑ，ﾃﾞｰﾀ収集・整理		↓			
18		22	木	討論& ｻｲﾝ（M/D）		↓	↓	ﾃﾞｰﾀ収集・整理，ﾏﾀﾗﾑ→ﾏﾙｸ		↓			
19		23	金	報告（JICA,EOJ & MOF） JKT→	報告	↓	報告 JKT→	ｻｲﾄ状況調査（NTB）		ﾏﾙｸ→ﾏﾀﾗﾑ→DPS			
20		24	土	→東京	JKT→ﾏﾀﾗﾑ →ﾏﾙｸ	↓	→東京	↓		DPS→ｸﾊﾟﾝ→ｿｴ			
21		25	日	----------	ｻｲﾄ状況調査 （NTB）	↓	----------	↓		ｻｲﾄ状況調査（NTT）			
22		26	月	----------	↓	↓	----------	↓		↓			
23		27	火	----------	↓	↓	----------	↓		↓			
24		28	水	----------	↓	ｿｴ→ｸﾊﾟﾝ →DPS→JKT	----------	↓		↓			
25		29	木	----------	↓	解析	----------	↓		↓			
26		30	金	----------	ﾏﾙｸ→ﾏﾀﾗﾑ	↓	----------	↓		↓			
27		31	土	----------	ﾏﾀﾗﾑ→JKT	↓	----------	↓		↓			
28	8	1	日	----------	ﾃﾞｰﾀ収集・整理 & 解析		----------	↓		ｿｴ→ｸﾊﾟﾝ→DPS→JKT			
29		2	月	----------	↓		----------	ﾏﾙｸ→ﾏﾀﾗﾑ		解析	解析 ,JKT→	ﾃﾞｰﾀ収集・整理 & 解析	
30		3	火	----------	↓		NRT→JKT	ﾏﾀﾗﾑ→DPS→JKT		↓	→東京	↓	
31		4	水	----------	ﾃﾞｰﾀ収集・整理 & 解析						----------	↓	
32		5	木	----------	↓						----------	↓	
33		6	金	----------	↓						----------	↓	
34		7	土	----------	↓						----------	↓	
35		8	日	----------	↓						----------	↓	
36		9	月	----------	↓						----------	↓	
37		10	火	----------	↓						----------	↓	
38		11	水	----------	ﾃﾞｰﾀ収集・整理 & 解析			解析 ,JKT→	ﾃﾞｰﾀ収集・整理 & 解析		----------	↓	
39		12	木	----------	↓			→東京	解析 ,JKT→		----------	↓	
40		13	金	----------	↓			----------	→東京		----------	↓	
41		14	土	----------	↓			----------	----------	----------	----------	↓	
42		15	日	----------	↓			----------	----------	----------	----------	↓	
43		16	月	----------	↓			----------	----------	----------	----------	↓	
44		17	火	----------	解析 ,JKT→			----------	----------	----------	----------	解析 ,JKT→	
45		18	水	----------	→東京			----------	----------	----------	----------	→東京	

NRT：成田，JKT：ｼﾞｬｶﾙﾀ，DPS：ﾃﾞﾝﾊﾟｻｰﾙ，JICA：Japan International Cooperation Agency

EOJ：Embassy of Japan，MOF：Ministry of Finance，NTT：Nusa Tenggara Timor，NTB：Nusa Tenggara Barat

(2) 基本設計概要書の現地説明日程（2004 年 10 月 28 日～11 月 10 日）

No.	日付け			総括 荒津有紀	業務主任／橋梁計画 五瀬伸吾	環境社会配慮 川田晋也	自然条件調査(水理・水文) 宝茂	橋梁設計Ⅱ(下部工) 五十嵐功
1	10	28	木	----------	東京→JKT			
2		29	金	----------	設計概要説明(JICA)、表敬訪問(公共事業省)			
3		30	土	----------	打合せ(団内)		JKT→ﾏﾀﾗﾑ→ﾏﾙｸ	
4		31	日	----------	↓		ﾀﾋﾞｽⅡ橋の調査・測量(NTB)	
5	11	1	月	----------	打合せ(公共事業省)		ﾏﾙｸ→ﾏﾀﾗﾑ	
6		2	火	東京→JKT	↓		設計概要説明 (NTB 政府)	
7		3	水	表敬訪問及び打合せ(JICA、公共事業省、BAPPENAS)、挨拶(大使館)			ﾏﾀﾗﾑ→ｸﾊﾟﾝ	
8		4	木	議事録協議・署名			設計概要説明 (NTT 政府)、ｸﾊﾟﾝ→JKT	
9		5	金	打合せ(公共事業省)、報告(JICA、大使館)、荒津氏：夜 JKT→				
10		6	土	→東京	打合せ(団内)			
11		7	日	----------	↓			
12		8	月	----------	打合せ(公共事業省)、現地調査整理			
13		9	火	----------	打合せ(公共事業省)、夜 JKT→			
14		10	水	----------	→東京			

資料３　関 係 者 リ ス ト

３．相手国関係者リスト

所属および氏名	役　　職	
１．公共事業省地方インフラ局（ジャカルタ）		
Mr. Hendrianto	- Director General of Regional Infrastructures	地域インフラ総局長
Mr. Frankie Tayu	- Director of Eastern Regional Infrastructures	東部地域部長
Mr. Yayan Suryana	- Subdirectorate of Design and Supervision	課長
Mr. Djoko Sulistyono	- Subdirectorate of Design and Supervision	係長
Mrs. Yani Agustin	- Subdirectorate of Environmental Affairs	部長
Mrs. Sri Indrarni	- Subdirectorate of Region I, Eastern	部長
Mr. Judiono	- Subdirectorate of budgeting and Foreign Aid Programme	係長
Mr. Mahfudz Madjid	- Director of Technical Affairs	技術局長
Mr. Haryanto	- Subdirectorate of NTB	係長
Mr. Bamang Prihartontano	- Head for Subdirectorate of Road Transport	陸上交通局課長
２．JICA（ジャカルタ）		
Mr. Kaminaga	- JICA expert	
３．西ヌサトゥンガラ州政府インフラ局（マタラム）		
Mr. Nanang Samudera	- NTB Provincial Secretary	州知事秘書官
Mr. Djalal	- Chief of Dinas Kimpraswil NTB	地方局長
Mr. Supardi	- Chief of Subdinas Prasarana Jalan NTB	副局長
Mr. Yayan Suryana	- Subdirectorate of Design and Supervision	課長
Mr. Tino Suryadi	- Chief of P3JJ NTB	部長
Mr. Darmandani	- Dinas Kimpraswil NTB	係長
Mr. Mahlil	- Dinas Kimpraswil NTB	スタッフ
４．東ヌサトゥンガラ州政府インフラ局（クパン）		
Mr. Piet Alexander Tallo	- Governor of NTT	州知事
Mr. Pieter D. Rebo	- Chief of Dinas Kimpraswil NTT	地方局長
Mr. Yohanes de Rozari	- Chief of Sub Dinas Province NTT	課長
Mr. Herman Banoet	- Chief of Economic Beureau	課長
Mr. Umbu Saga Anakaka	- Chief of Public Relation Section	課長
Mr. Piet Nua Wea	- Chief of Bappeda NTT (Planning)	
Mr. Gulam Husein	- Chief of Program Beureau (Budgeting)	
Mrs. Regina Maanary	- Coordinator of Foreign Aid Section Province NTT	
Mr. Djoko Sulistyono	- Subdirectorate of Design and Supervision	
Mr. Ridolf Adam	- Chief of P3JJ NTT	

資料４　当該国の社会経済状況

４．当該国の社会経済状況

国　名	インドネシア共和国
	The Republic of Indonesia

主要指標一覧

	指標項目	1992年	2000年	2001年	2002年	2002年の地域平均値
	国土面積(1000km^2)	1,812	1,812	1,812	1,812	n.a.
	人口(百万人)	184.3	206.3	209.0	211.7	1,840.0
	人口増加率(%)	1.6	1.3	1.3	1.3	0.9
	出生時平均余命(歳)	63	66	n.a.	67	69
	妊産婦死亡率(／10万人)	n.a.	n.a.	n.a.	380(85-02)	115(2000)
社	乳児死亡率(／1000人)	n.a.	35.0	n.a.	32.0	32.4
会	一人当たりカロリー摂取量(kcal/1日)*1	2,774	2,920	2,911	2,904	2,696
指	初等教育総就学率(男)(%)	116.2	110.9	112.1	n.a.	n.a.
標	(女)(%)	112.3	108.5	109.7	n.a.	n.a.
等	中等教育総就学率(男)(%)	47.9	57.4	58.3	n.a.	n.a.
	(女)(%)	38.9	56.1	57.5	n.a.	n.a.
	高等教育総就学率(%)	9.3	14.4	15.1	n.a.	n.a.
	成人識字率(15歳以上の人口の内:%)	81.2	86.8	87.3	87.9	n.a.
	絶対的貧困水準(1日1$以下の人口比:%)	n.a.	n.a.	n.a.	7.51	n.a.
	失業率(%)	n.a.	6.1	n.a.	n.a.	n.a.
	GDP(百万USドル)	139,116	150,196	141,255	172,911	1,830,000
	一人当たりGNI(USドル)	680	570	680	710	960
	実質GDP成長率(%)	7.2	4.9	3.4	3.7	6.7
	産業構造(対GDP比:%)					
	農業	18.7	17.2	17.0	17.5	14.7
	工業	39.6	46.1	45.6	44.5	47.4
	サービス業	41.7	36.7	37.5	38.1	37.8
	産業別成長率(%)					
経	農業	5.9	1.9	1.0	1.7	2.8
	工業	17.7	5.9	3.3	3.7	8.5
済	サービス業	-2.1	5.2	4.6	4.4	5.9
	消費者物価上昇率(インフレ:%)	7.5	4.5	12.0	11.5	n.a.
指	財政収支(対GDP比:%)	-0.4	0.0	-1.2	n.a.	n.a.
	輸出成長率(金額:%)	13.7	26.5	1.9	-1.2	18.4
標	輸入成長率(金額:%)	8.7	25.9	8.1	-8.3	17.0
	経常収支(対GDP比:%)	-2.0	5.3	4.9	4.5	n.a.
	外国直接投資純流入額(百万ドル)	1,777	-4,550	-3,278	-1,513	54,800
	総資本形成率(対GDP比:%)	30.5	16.1	17.4	14.3	32.0
	貯蓄率(対GDP比:%)	33.4	25.6	24.9	21.1	36.7
	対外債務残高(対GNI比:%)	10.2	12.0	11.5	10.3	4.9
	DSR(対外債務返済比率:%)	32.6	22.5	23.6	24.8	12.1
	外貨準備高(対輸入月比:%)	3.3	5.3	5.7	6.3	8.7
	名目対ドル為替レート*2	2,029.9	8,421.8	10,260.9	9,311.2	n.a.
	(通貨単位:ルピア Rupiah)					

政*3	政治体制:共和制。大統領が最高権力者
治	憲法:1945年8月18日施行、2002年8月第4次改正
指	元首:大統領。ｽｼﾛ･ﾊﾞﾝﾊﾞﾝ･ﾕﾄﾞﾖﾉ(Susilo Bambang YUDHOYONO)。直接選挙制。任期5年。
標	2004年10月20日就任。
	議会:1院制。500議席。任期5年

出典　2004 World Development Indicators　World Bank Onlineおよび書籍
*1 FAO Food Balance Sheets 2004年 9月 FAO Homepage
*2 International Financial Statistics Yearbook 2003 IMF
*3 世界年鑑 2004 共同通信社、外務省 新着情報 2004年10月 外務省Homepage
BBC News Country Profile 2004年10月 BBC Homepage

注 ●( )に示されている数値は調査年を示す。(85-02)と示されている場合は1985年から2002年までの間の最新値を示す
●「人口」、「GDP」及び「外国直接投資純流入額」の「2002年の地域平均値」においては、地域の総数を示す
●「妊産婦死亡率」の「2002年の地域平均値」においては、WHO・ユニセフの調整済データを示す
●地域は東アジア・大洋州。ただし「一人当たりカロリー摂取量」における地域はアジア広域
●就学率が100を超えているのは、学齢人口推計値と実際の就学データの間にずれがあるため

政府歳入・歳出[インドネシア]

	1998年 (十億ルピア)	1999年 (十億ルピア)	2001年p (十億ルピア)	2001年p (百万US$)*	2001年 対GDP比**
歳入＋贈与受取額	157,411	198,673	307,927	30,010	21.0%
歳入	157,412	198,673	307,876	30,005	21.0%
経常歳入	157,381	198,611	307,841	30,001	21.0%
租税収入	147,600	183,281	196,720	19,172	13.4%
非税収入	9,781	15,330	111,121	10,830	7.6%
資本歳入	31	62	35	3	0.0%
贈与受取額	−	−	52	5	0.0%
歳出＋純貸付額	185,603	211,318	325,268	31,700	22.2%
歳出	174,097	225,874	359,038	34,991	24.5%
経常歳出	114,412	170,684	n.a.	n.a.	n.a.
資本歳出	59,686	55,190	n.a.	n.a.	n.a.
純貸付額	11,506	−14,556	−33,771	−3,291	−2.3%
財政収支	−28,192	−12,645	−17,340	−1,690	−1.2%

歳出内訳[インドネシア]

	1998年 (十億ルピア)	1999年 (十億ルピア)	2001年p (十億ルピア)	2001年p (百万US$)*	2001年 内訳	2001年 対GDP比**
歳出	174,097	225,874	359,038	34,991	100.0%	24.5%
一般サービス	16,148	11,425	16,607	1,618	4.6%	1.1%
国防	8,955	8,576	10,673	1,040	3.0%	0.7%
公安	3,080	4,453	7,400	721	2.1%	0.5%
教育	11,918	14,349	13,433	1,309	3.7%	0.9%
保健・医療	3,889	5,186	4,542	443	1.3%	0.3%
社会保障・福祉	9,220	12,006	30,766	2,998	8.6%	2.1%
住宅・生活関連施設	23,435	33,787	4,726	461	1.3%	0.3%
ﾚｸﾘｭｴｰｼｮﾝ・文化	2,992	3,347	2,257	220	0.6%	0.2%
エネルギー	1,136	2,895	2,382	232	0.7%	0.2%
農林水産業	11,511	8,610	4,652	453	1.3%	0.3%
鉱工業・建設業	639	656	1,146	112	0.3%	0.1%
運輸・通信	6,395	5,580	3,709	361	1.0%	0.3%
その他	74,779	115,004	256,745	25,022	71.5%	17.5%

−:0または四捨五入すると0になる数　　会計年度は4月? 3月
p:the letter p denotes data that are preliminary or provisional.
*:対ﾄﾞﾙ換算ﾚｰﾄはMarket Rate, Period Average 出典はInternational Financial Statistics Yearbook 2003 IMF
**:GDPの出典はThe World Economic Outlook 2004 IMF Homepage
出典 Government Finance Statistics Yearbook 2002 IMF

JICAの対インドネシア技術協力

通貨単位	1998年度	1999年度	2000年度	2001年度	2002年度	累計
億円	109.27	101.78	100.65	113.22	106.32	2496.38
百万ドル	83.48	89.36	93.37	93.19	84.85	

注:年の区切りは日本の会計年度(4月? 3月)。また対ﾄﾞﾙ換算ﾚｰﾄはOECD Homepageによる。
出典 JICA実績表 2003年3月 国際協力機構

対インドネシアODA実績 《我が国》

(支出純額、単位:百万ドル)

暦年	贈与						政府貸付			合計	
	無償資金協力		技術協力		計		支出総額	支出純額			
97	66.57	(13)	148.39	(30)	214.96	(43)	739.61	281.90	(57)	496.86	(100)
98	114.59	(14)	123.99	(15)	238.59	(29)	1,034.51	589.88	(71)	828.47	(100)
99	100.54	(6)	130.80	(8)	231.34	(14)	1,994.04	1,374.49	(86)	1,605.83	(100)
2000	52.07	(5)	144.60	(15)	196.67	(20)	945.66	773.43	(80)	970.10	(100)
2001	45.16	(5)	117.27	(14)	162.43	(19)	702.83	697.64	(81)	860.07	(100)
累計	1,331.91	(7)	2,427.14	(13)	3,759.09	(21)	20,726.70	14,464.39	(79)	18,223.47	(100)

《DAC諸国・国際機関》

(支出純額、単位:百万ドル)

暦年	1位		2位		3位		4位		5位		うち日本	合計
98	日本	828.5	ドイツ	212.8	豪州	74.1	英国	40.1	米国	36.6	828.5	1,243.3
99	日本	1,605.8	米国	207.3	オーストリア	102.4	豪州	72.3	オランダ	71.9	1,605.8	2,169.4
2000	日本	970.1	米国	174.2	英国	33.9	フランス	21.7	ドイツ	6.4	970.1	1,617.2

暦年	1位		2位		3位		4位		5位		その他	合計
98	CEC	14.9	Montreal Protocol	11.3	UNICEF	7.1	UNFPA	5.4	UNDP	4.9	−16.4	27.2
99	CEC	28.7	UNICEF	7.7	UNTA	6.7	UNDP	4.1	UNFPA	4.1	−11.1	40.2
2000	CEC	37.7	IDA	33.2	ADB	17.9	UNICEF	6.7	UNTA	6.6	7.4	109.5

注:年の区切りは1月? 12月の暦年。　　(　)内はODA 合計に占める各形態の割合(%)。
出典 ODA国別データブック2002 外務省

資料５　討 議 議 事 録 (M/D)

5．討議議事録（M／D）

Minutes of Discussions
on the Basic Design Study on the Project for Bridge Construction
in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB)
in the Republic of Indonesia

In response to the request from the Government of the Republic of Indonesia (hereinafter referred to as "Indonesia"), the Government of Japan decided to conduct a Basic Design Study on the Project for Bridge Construction in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB) (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Indonesia the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Ir. Yuki Aratsu, Team Director, Traffic Infrastructure Team of the Project Management Group II, Grant Aid Management Department, JICA, and is scheduled to stay in the country from July 5 to August 17, 2004.

The Team held discussions with the concerned officials of the Government of Indonesia.

In the course of the discussions, both sides have confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Jakarta, July 22, 2004

Ir.Yuki Aratsu
Leader
Basic Design Study Team
Japan International Cooperation Agency

Ir.Machfudz Madjid
Director of Technical Affairs
on behalf of Director General of
Regional Infrastructure
Ministry of Settlement and Regional
Infrastructure
Republic of Indonesia

ATTACHMENT

1. Objective

The objective of the Project is to construct bridges in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB).

2. Project Site

The sites of the Project are shown in Annex-1.

3. Responsible and Implementing Organizations

(1) The Responsible Ministry is the Ministry of Settlement and Regional Infrastructure (KIMPRASWIL).
(2) The Implementing Agency is the Directorate General of Regional Infrastructure, KIMPRASWIL.
(3) The organization chart of Implementing Agency is shown in Annex-2.

4. Components Requested by the Government of Indonesia

After discussions with the Team, the following items were finally requested by the Indonesian side, details are shown in Annex-3.

- The East Nusa Tenggara (NTT): total two (2) bridges
  Menu Bridge, Fatuat Bridge
- The West Nusa Tenggara (NTB): total nine (9) bridges
  Tanaman I Bridge, Puna I Bridge, Puna III Bridge, Tabisu I Bridge, Tabisu II Bridge, Tabisu III Bridge, Tabisu IV, Tabisu V Bridge, Tongoloka Bridge

The Team will put the priority and assess the appropriateness of each component and the final components of the Project will be decided by the Japanese side after further studies in Japan.

5. Japan's Grant Aid Scheme

(1) The Indonesian side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Indonesia explained by the Team as described in Annex-4.
(2) The Indonesian side promised to take necessary measures, as described in Annex-5, for smooth implementation of the Project as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the study

(1) The Team will proceed to further studies in Indonesia until August 17, 2004.
(2) JICA will prepare the draft report in English and dispatch a team to Indonesia in order to explain its contents around the end of October 2004.
(3) When the contents of the draft report are accepted in principle by the Government of Indonesia, JICA will complete the final report and send it to the Government of Indonesia around the end of January 2005.

7. JICA Guidelines for Environmental and Social Considerations

The Team explained outline of the JICA Guidelines for Environmental and Social Considerations (hereinafter referred to as "the new JICA Guidelines"). The Indonesian side took the new JICA Guidelines into consideration.

8. Information Disclosure

Both sides agreed that information disclosure shall be implemented regarding all the studies and surveys.

9. Explanation of the Policy of the Government of Japan

The Team explained the present policy of the Government of Japan as follows:

(1) The Ministry of Foreign Affairs of Japan (hereinafter referred to as "MOFA") will make its own Environmental and Social Considerations Guideline for Grant Aid Project, referring to the new JICA Guidelines, too. MOFA will set down critical path(s) for each stage of projects from the viewpoints of the Environmental and Social Considerations (hereinafter referred to as "the ESC") especially for the resettlement issues.

(2) MOFA may suspend the implementation of projects unless otherwise the appropriate process of the ESC is followed.

(3) Specifically the benchmark for the start of the Detailed Design Study and the implementation stage of projects should be determined for each project. The both sides agreed that the benchmarks for the start of the Detailed Design Study and implementation stage of the Project should be as below;

- To conduct public information campaigns to local residents/stakeholders and obtain their in-principle agreement. The public meeting in NTT was completed on July 17 and is scheduled to be held in NTT on July 26.

-To obtain the general approval from the Local Environment Controlling Agency(BAPEDALDA) of the Provincial Government by submitting the Initial Environmental Examination (IEE) report including screening format of the JICA Guidelines and confirm that the Project has no significant adverse impacts on the environment and society and submit the report by October 15, 2004.

- To submit the Environmental Management Effort (UKL) report and Environmental Monitoring Effort (UPL) report by the end of January, 2005.

- To obtain agreements from all of the Project Affected Persons (PAPs) about the conditions and contents of the resettlement and land acquisition, and submit its report(s) to the Japanese side through JICA Indonesia Office by the end of March, 2005.

10. Other Relevant Issues

(1)Both sides confirmed that the Tanaman II Bridge and Puna II Bridge in the NTB are excluded from the Project.

(2)The Indonesian side explained the team that the both Provincial Governments have started to improve the provincial roads and bridges relevant and connecting to the requested bridges, which schedules are shown in Annex-6. The Team pointed out the roads improvement is the must of the Project and strongly requested the Indonesian side to proceed with the necessary implementation on schedule.

(3) Both sides confirmed that the table of the Authority and Responsibility Sharing on the Project among the Indonesian side as shown in Annex-7 and List of Undertakings of Each Agencies as shown in Annex-8. The Indonesian side agreed to arrange the budget allocation and take necessary procedures by Central and Provincial Governments on each stage of the Project and the scheduled roads/ bridges projects in Annex-6, such as survey, implementation (construction), and maintenance in accordance with the Memorandum of Understanding (hereinafter referred to as "MOU").

The MOU should be signed up in accordance with the above List between DGRI and the Provincial

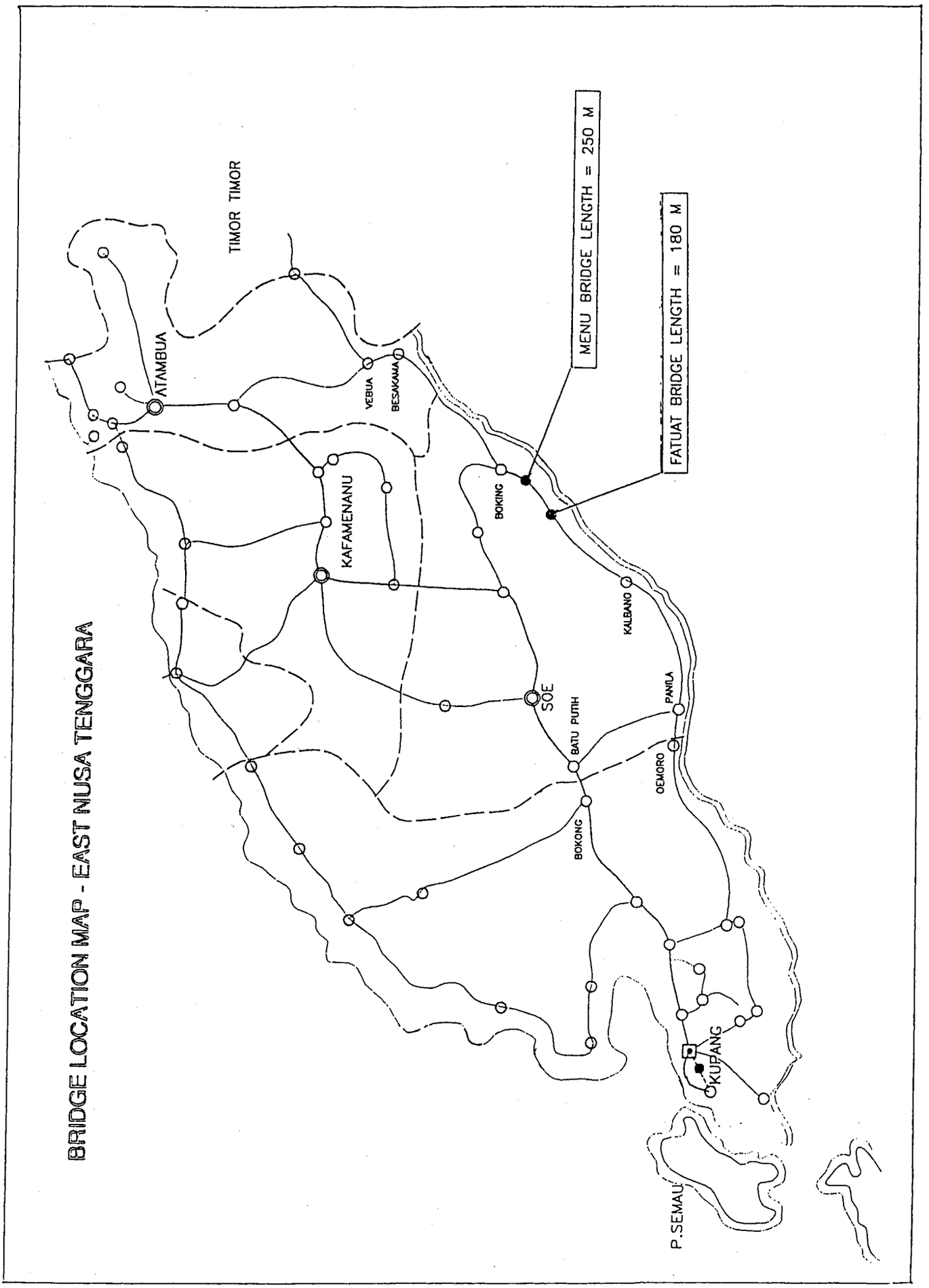
Governments in order to make sure the budget and work sharing for the Project by the end of September, 2004.

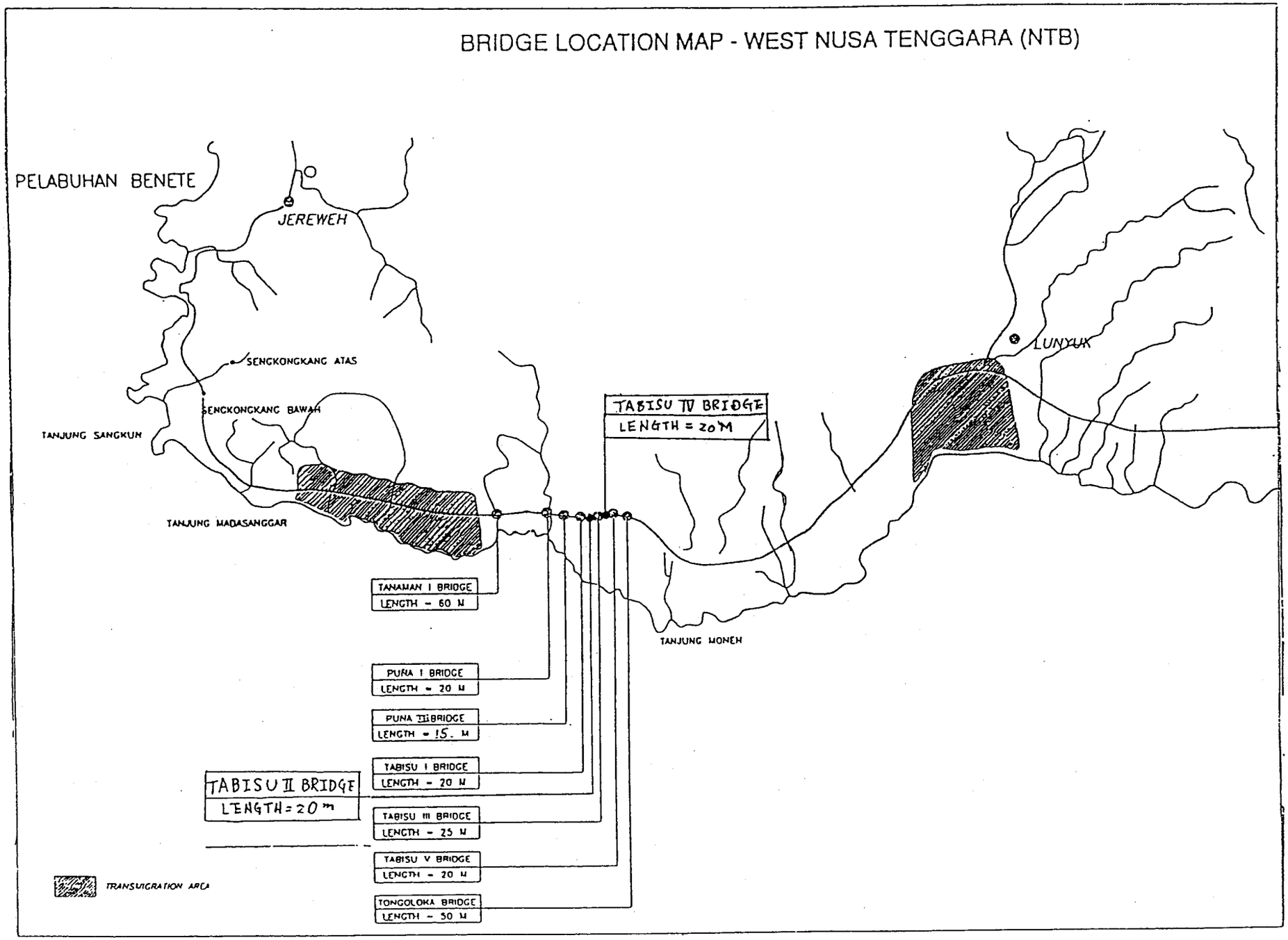
(4)The Indonesian side strongly requested the further cooperation by Japan's Grant Aid on the construction of remaining bridges between Tongoloka and Lunyuk in West Nusa Tenggara (NTB) . The Team took notes and promised to convey the request to the Government of Japan.

(5)The Indonesian side will submit answers in English to the Questionnaire, which the Team handed to the Indonesian side, by August 3, 2004.

(6) The Indonesian side shall provide necessary number(s) of counterpart personnel to the Team during the period of the studies in Indonesia.

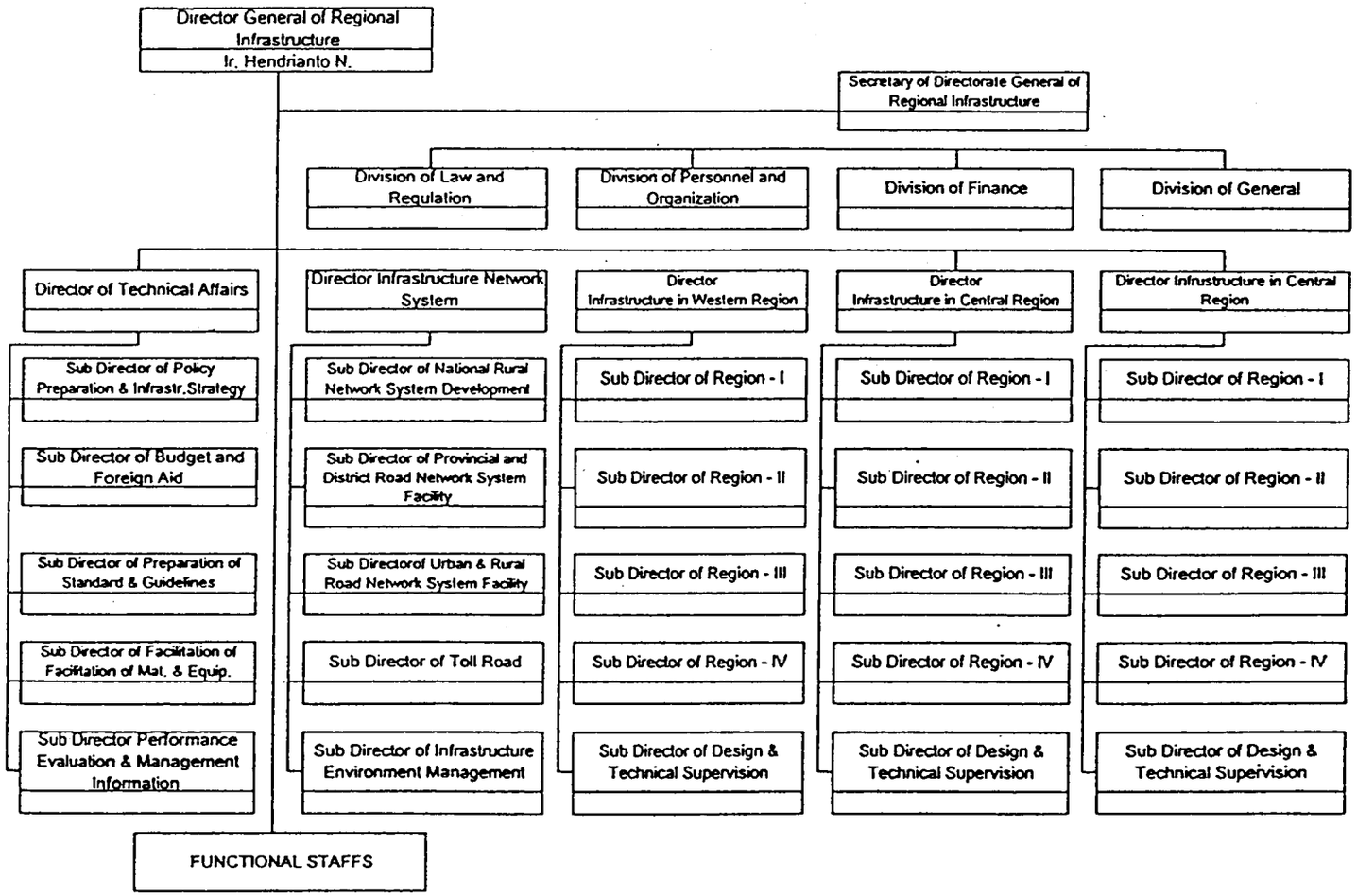
A4


BRIDGE LOCATION MAP - EAST NUSA TENGGARA
TIMOR TIMOR
ATAMBUA
VEBUA
BESAKAMA
KAFAMENANU
BOKING
MENU BRIDGE LENGTH = 250 M
FATUAT BRIDGE LENGTH = 180 M
KALBANO
SOE
BATU PUTIH
PANLA
OEMORO
BOKONG
KUPANG
P.SEMAU


BRIDGE LOCATION MAP - WEST NUSA TENGGARA (NTB)
PELABUHAN BENETE
JEREWEH
SENGKONGKANG ATAS
SENGKONGKANG BAWAH
TANJUNG SANGKUN
TANJUNG MADASANGGAR
LUNYUK
TANJUNG MONEH
TABISU IV BRIDGE
LENGTH = 20M
TANAMAN I BRIDGE
LENGTH = 60 M
PUNA I BRIDGE
LENGTH = 20 M
PUNA II BRIDGE
LENGTH = 15 M
TABISU I BRIDGE
LENGTH = 20 M
TABISU II BRIDGE
LENGTH = 20 m
TABISU III BRIDGE
LENGTH = 25 M
TABISU V BRIDGE
LENGTH = 20 M
TONGOLOKA BRIDGE
LENGTH = 50 M
TRANSMIGRATION AREA

Annex - 1 (b)

ORGANIZATION CHART OF DIRECTORATE GENERAL OF REGIONAL INFRASTRUCTURE



Annex-2(a)

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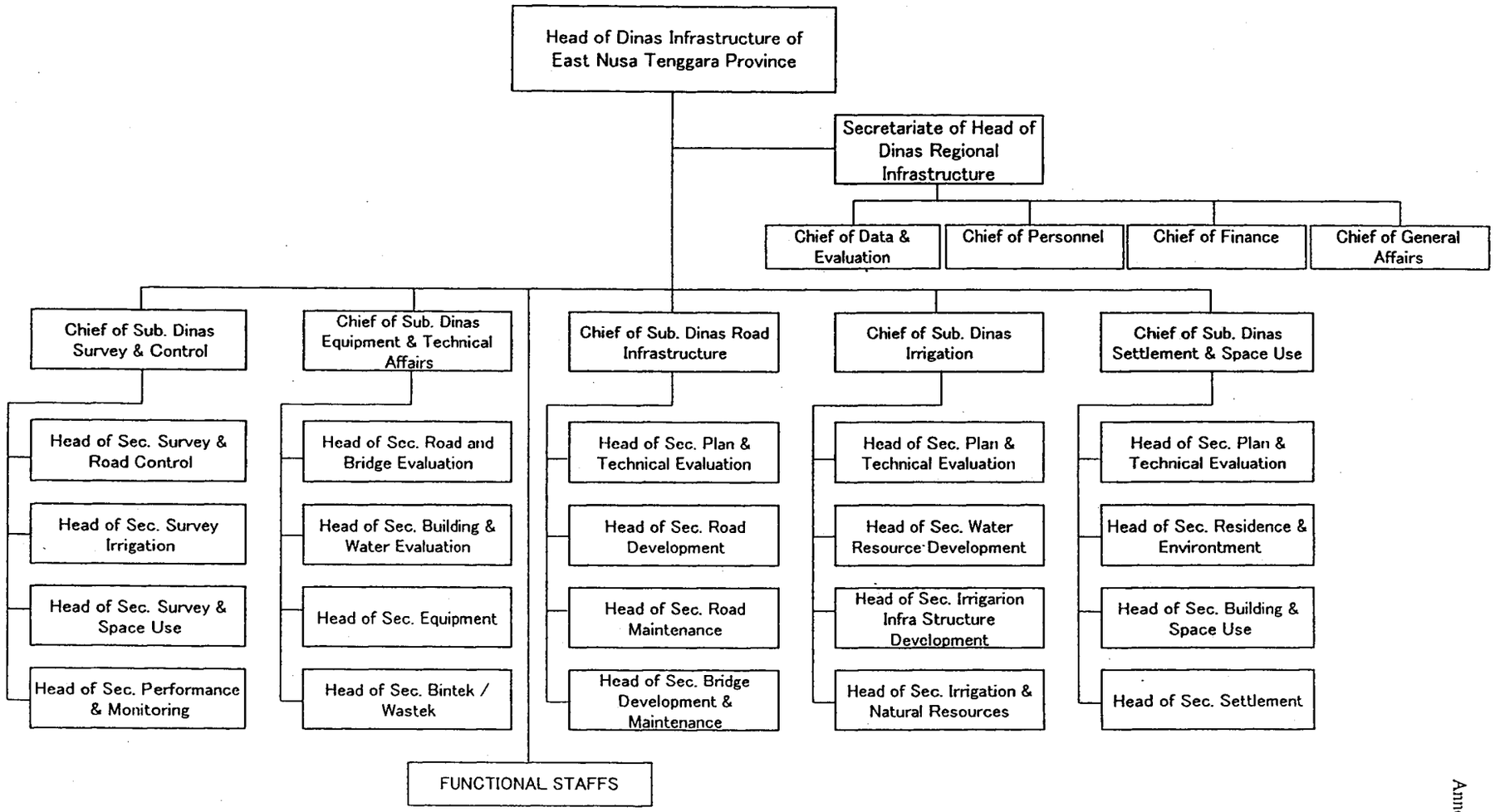
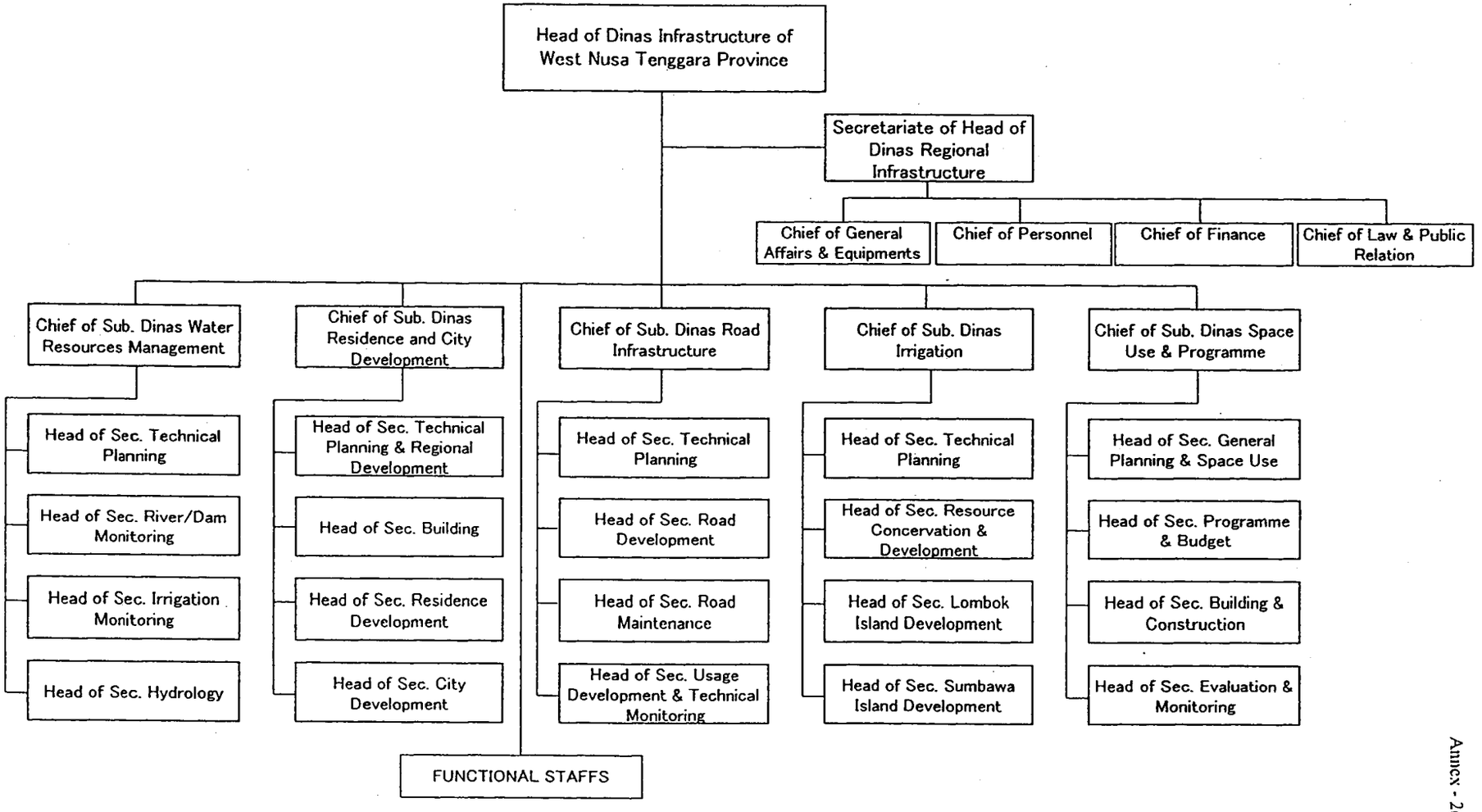
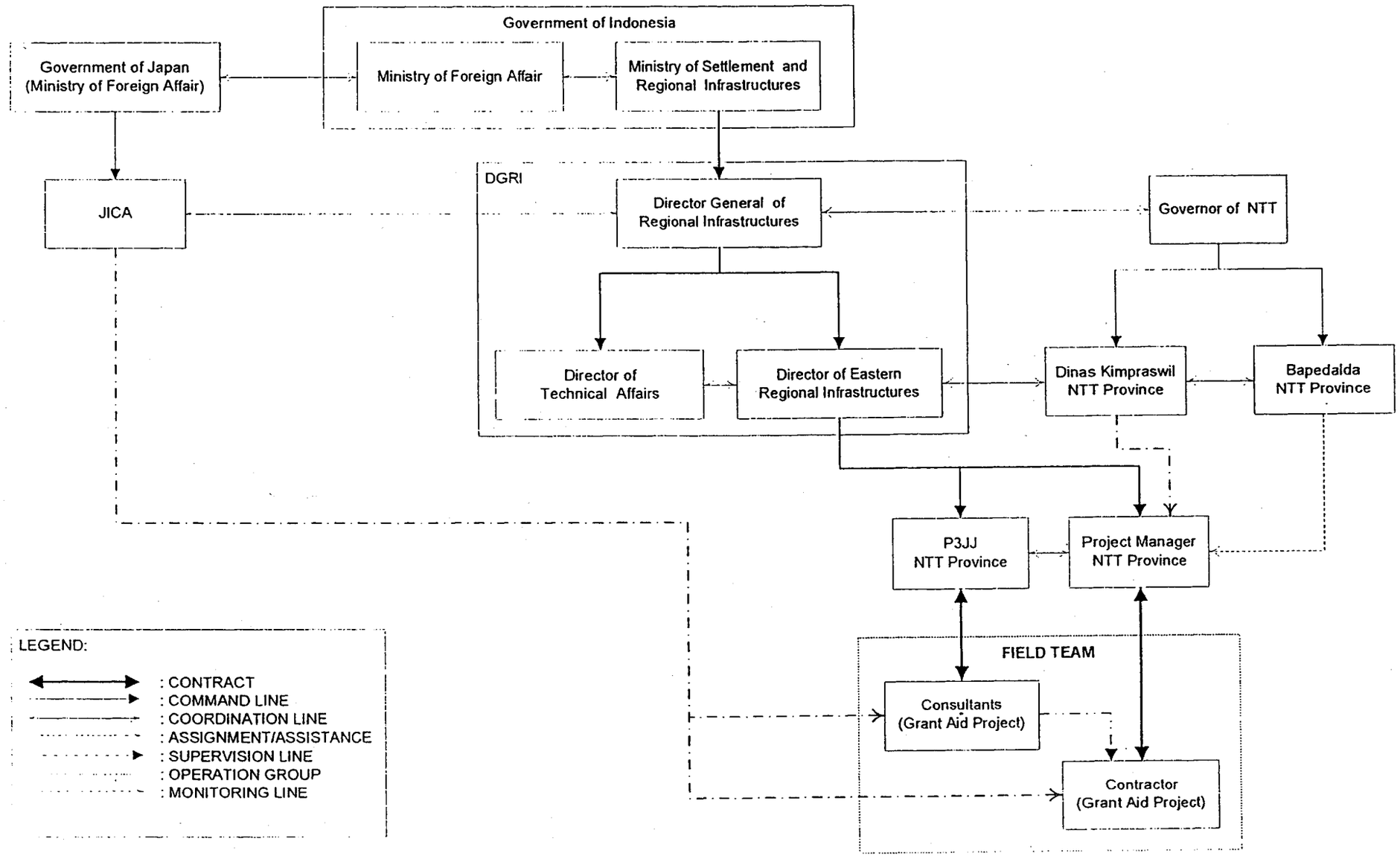
ORGANIZATION CHART OF PROVINCIAL KIMPRASWIL (NTT)



ORGANIZATION CHART OF PROVINCIAL KIMPRASWIL (NTB)



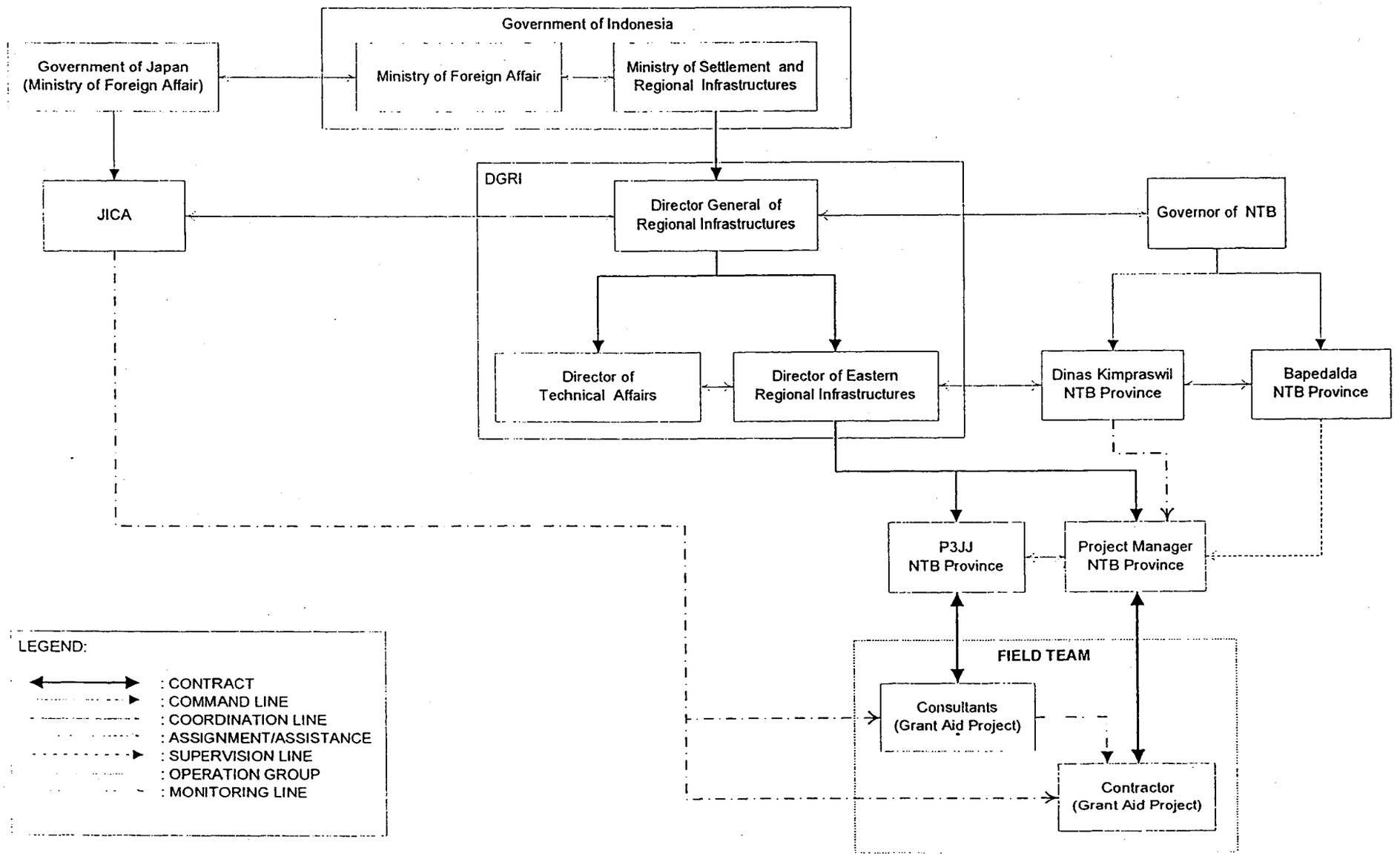
GRANT AID PROJECT - BRIDGE CONSTRUCTION FOR REGIONAL DEVELOPMENT IN NTT
PROJECT ORGANIZATION



A5-10

Annex-2(d)

GRANT AID PROJECT - BRIDGE CONSTRUCTION FOR REGIONAL DEVELOPMENT IN NTB
PROJECT ORGANIZATION



A5 – 11

Annex-2(e)

List of the Project Bridges

East Nusa Tenggara (NTT)

Name	Proposed Length (m)	Bridge Type *	Remarks
Menu Bridge	250	Type – B	New Construction
Fatuat Bridge	180	Type – B	New Construction

West Nusa Tenggara (NTB)

Name	Proposed Length (m)	Bridge Type *	Remarks
Tanaman I Bridge	60	Type – B	New Construction
Puna I Bridge	20	Type – B	New Construction
Puna III Bridge	15	Type – B	New Construction
Tabisu I Bridge	20	Type – B	New Construction
Tabisu II Bridge	20	Type – B	Depending on the bridge condition to be inspected during the field survey
Tabisu III Bridge	25	Type – B	New Construction
Tabisu IV Bridge	20	Type – B	New Construction
Tabisu V Bridge	20	Type – B	New Construction
Tongoloka Bridge	50	Type – B	New Construction

Type – B: Standard type applied to Provincial Roads, with a carriageway width of 6.0 m.

A12

Japan's Grant Aid Scheme

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid scheme is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the smooth implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

- Confirmation of the background, objectives, and benefits of the requested project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid scheme from a technical, social and economic point of view.

A13

- Confirmation of items agreed upon by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project
- Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the Project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consulting firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"

The Government of recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

M/P 0, A14

5) Undertakings required of the Government of the Recipient Country

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

a) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
b) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
c) To secure buildings prior to the procurement in case the installation of the equipment.
d) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
e) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
f) To accord Japanese nationals, whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay (A/P) issued by the Government of the recipient country or its designated authority.

9) Authorization to Pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and Payment commissions to the Bank.

Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient side
1	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		•
	2) Payment commission		•
2	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1) Marine(Air) transportation of the products from Japan to the recipient country	•	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		•
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		•
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		•
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		•

(B/A: Banking Arrangement, A/P: Authorization to Pay)

Q, A16

Schedule of Relevant Road Improvement to be undertaken by the Government of Indonesia

East Nusa Tenggara (NTT)

Activity	Schedule
Improvement of Wanibesak – Boking Section	from 2005 to 2008
Improvement of Boking – Kolbano Section including 3 small bridges/culverts	from 2005 to 2008
Improvement of Kolbano – Panite Section	from 2005 to 2008
Improvement of Panite – Batuputih Section	from 2005 to 2008
Construction of Boking Bridge	from 2003 to 2005 (under construction)
Construction of Menu Bridge & Fatuat Bridge	(to be constructed under this project)
Construction of Kotolin Bridge	(completed)

West Nusa Tenggara (NTB)

Activity	Schedule
Improvement of Sejorong – Lunyuk Section (geometric improvement and gravel surfacing)	from 2005 to 2006
Improvement of Sejorong – Lunyuk Section (paving with asphalt)	from 2007 to 2012
Construction of Tanaman I Br, Puna I Br, Puna III Br, Tabisu I Br, Tabisu II Br, Tabisu III Br, Tabisu IV Br, Tabisu V Br, & Tongoloka Br,	(to be constructed under this project)
Construction of Tanaman II Bridge	(completed)
Construction of Puna II Bridge	from 2003 to 2005 (under construction)
Remaining, about 20 bridges	(Expecting Japan's Grant Aid)

A17

AUTHORITY AND RESPONSIBILITY SHARING
IN ROAD ADMINISTRATION

ROAD ADMINISTRATION STATUS	LONG TERM PLANNING	MEDIUM TERM PLANNING	PROGRAMMING	DESIGNING	CONSTRUCTION	MAINTENANCE
Nasional Roads	Central Government	Central Government	Central Government	Central Government	Central Government	Central Government
Provincial Roads	Central Government	Provincial Government	Provincial Government	Provincial Government	Provincial Government	Provincial Government
Distric (Kabupaten) Roads	Central Government	District (Kabupaten) Government	District (Kabupaten) Government	District (Kabupaten) Government	District (Kabupaten) Government	District (Kabupaten) Government
Minicipal (Kota) Roads	Central Government	Minicipal (Kota) Government	Minicipal (Kota) Government	Minicipal (Kota) Government	Minicipal (Kota) Government	Minicipal (Kota) Government
Village Roads	Central Government	District (Kabupaten) Government	District (Kabupaten) Government	District (Kabupaten) Government	District (Kabupaten) Government	District (Kabupaten) Government
Toll Roads	Central Government	Central Government	Central Government	Central Government	Central Government	Central Government

Sources: Road Law 13/1980

List of undertakings of Each Agencies

Item		Japan	JKT Kimpraswil/ Bappenas	NTB Province	NTT Province	Remarks
1. General						
1.1	B/A: Bank Arrangement		DGRI			M/D Annex 4, 3.8)
1.2	A/P: Authorization to Pay a. Advising Commission of A/P b. Payment Commission		 DGRI DGRI			M/D Annex 4, 3.9) M/D Annex 5, 1.1)
2. Preparation						
2.1	Budget preparation for Land acquisition & compensation, Consultants services, Civil works, Utility relocation and others.		Bapenas *1	DKP*2	DKP*2	*1 Budget allocation *2 Budget request
2.2	Implementation for Land acquisition & compensation.			DKP	DKP	
2.3	Contracts with Japanese Consultant and Contractor(s)		DERI			
2.4	Execution of environmental studies and obtaining their clearances			DKP	DKP	
3. Implementation						
3.1	To secure land necessary for the sites of the Project and to clear. Level and reclaim the land prior to commencement of the construction.			DKP	DKP	M/D Annex 4, 3.5)a)
3.2	To provide facilities for the distribution of electricity, water supplay and drainage and other incidental facilities in and around the sites.			DKP	DKP	M/D Annex 4, 3.5)b)
3.3	To ensure all the expenses and prompt excursion for unloading, costums clearance at the port of disembarkation and internal transportation of the product purchased under the Grant Aid.					
	1) Marine (air) transportation of the products from Japan to the recipient country.	O				M/D Annex 5, 2.1)
	2) Tax exemption and customs clearance of the products at the port of disembarkation.		DTA			M/D Annex 4, 3.5)d) M/D Annex 5, 2.2)
3.4	To exempt Japanese nationals from Customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supplay of the products and services under the Verified Contracts.		DTA			M/D Annex 4, 3.5)e) M/D Annex 5,4
3.5	To accord Japanese nationals, whose services may be required in connection with the supplay of the products and services under Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		DTA	DKP	DKP	M/D Annex 4, 3.5)f) M/D Annex 5,3
3.6	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid.			DKP	DKP	M/D Annex 4, 3.6) M/D Annex 5,5
3.7	To bear all the expense, other than those to be borne by Grant Aid, necessary for construction of facilities.		DGRI	DKP	DKP	M/D Annex 5,6
3.8	Accessibility to the construction site: The Indonesian side shall maintain sound accessibility to the construction site during the construction stage.			DKP	DKP	

LEGEND :

DGRI = Director General of Regional Infrastructure
DTA = Director of Technical Affairs
DERI = Director of Eastern Regional Infrastructure
DKP = Dinas Kimpraswil Propinsi

A19

Minutes of Discussions
on the Basic Design Study on the Project for Bridge Construction
in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB)
in the Republic of Indonesia
(Explanation on the Draft Report)

In July, 2004, the Japan International Cooperation Agency(hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Bridge Construction in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB) (hereinafter referred to as "the Project") to the Republic of Indonesia(hereinafter referred to as "Indonesia") and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and consult the Government of Indonesia on the components of the draft report, JICA sent to Indonesia the Draft Report Explanation Team(hereinafter referred to as "the Team"), which is headed by Mr. Yuki ARATSU, Team Director, Traffic Infrastructure Team of the Project Management Group II, Grant Aid Management Department, JICA, and is scheduled to stay in the country from October 28 to November 9, 2004.

As a result of discussions, both sides have confirmed the main items described in the attached sheets.

Jakarta, November 4, 2004

Ir.. Yuki Aratsu
Leader
Draft Report Explanation Team
Japan International Cooperation Agency

Ir.. Machfudz Madjid
Director of Technical Affairs
on behalf of Director General of
Regional Infrastructure
Ministry of Public Works

ATTACHMENT

1. Components of the Draft Report

The Indonesian side agreed and accepted in principle the components of the Draft Report explained by the Team.

2. Schedule of the Study

JICA will complete the Final Report in accordance with the confirmed items and send it to the Indonesian side around the end of January 2005.

3.Responsible and Implementing Organization

(1) The Responsible Ministry is the Ministry of Public Works(MPW)

(2) The Implementing Agency is the Directorate General of Regional Infrastructure, MPW

4. Other Relevant Issues

(1) The Team received the letter of approval attached with IEE (Initial Environmental Examination) report from the NTB Government. The Indonesian side shall obtain the general approval from the NTT Government with IEE report and submit the report to the Team by and not later than November 12, 2004.

(2) The Indonesian side shall submit to the Team the Memorandum of Understanding (MOU) signed between the Directorate General of Regional Infrastructure, the Ministry of Public Works and each of Provincial Government by November 12, 2004. Both sides confirmed the contents of the draft MOU conforms to the previous Minutes of Discussions signed on July 22, 2004.

(3) The Indonesian side should allocate the budget for improvement of the roads and bridges relevant and connecting to the requested bridges especially for section between Sejorong and Lunyuk in the West Nusa Tenggara(NTB), securing land(s),understandings to be done by the Indonesian side, which were shown in Annex-5 of the previous Minutes of Discussions signed by both sides on July 22, 2004, in the fiscal year 2005 by January 2005.

(4) The Indonesian side has already submitted the annual maintenance plan for the Bridge including staff assignment and budget allocation for the maintenance section/department of each province as shown in Annex-1.

(5) The Indonesian side explained the schedule of topographic survey for the road section between Tongoloka and Lunyuk in the West Nusa Tenggara (NTB) to the Team as follows.

Location	Surveying	Drawing
Road Section from Tongoloka to Lunyuk(90km)	by the end of Oct	by Mid. of Nov.
Land Slide Area(500m Corridor)	from Nov. 6–end of Nov	by Mid. of Dec.

(6) Both sides agreed that location of sites for office/stock yards will be decided and secured by taking into consideration the request on future use of those by the people and the Government of the provinces.

(7) Both sides confirmed the further schedule before the commencement of the project as in Annex-2 attached hereto.

Annex-1

Number of Staff and Budget for Road Maintenance Division

Province	Number of Staff		Budget (billion IDR)	
			2004 FY	2005 FY*
NTT	Engineer	7	29.013	40.400
	Administration	3		
	Others	4		
NTB	Engineer	5	27.343	25.742
	Administration	18		
	Others	11		

*: Proposed budget allocation

Annex-2

ACTION PLAN
JAPAN'S GRANT AID ON BRIDGE CONSTRUCTION IN NTB AND NTT

No	Action	Target Date		JICA	Directorate			Local Gov.		Memo
		Plan	Actual		Tech Aff.	Reg. Infrastructure	Road Network	Public Works	Environment Agency	
01	Grant preparation Scope: 9 bridges in NTB, 2 bridges in NTT									Completed
01.1	Discussion and Signing of Minutes of Discussion	21/07/04	21/07/04	○	○	○	○	△		Completed
01.2	Basic Design Study (11 bridges)	17/08/04	17/08/04	○		△		△		Completed
01.3	Basic Design Study Draft Report (11 bridges)	Oct 2004	O4/11/04	○		△				Completed
01.4	Basic design Study Final Report (11 bridges)	Jan 2005		○						
01.5	Public Consultation in NTB	26/07/04	26/07/04	△				○	△	Completed
	Public Consultation in NTT	17/07/04	17/07/04	△				○		Completed
01.6	Agreement on IEE	15/10/04				△	△	○	△	
01.7	UKL/UPL Preparation	28/01/05				△	△	○	△	
01.8	Land Acquisition & Resettlement Action Plan agreement (if any)	31/03/05				△	△	○		
01.9	Central Gov and Local Gov MOU	30/09/04			△	○		○		
	• Geometric and Gravel Road development Sejorong - Lunyuk	2005-2006								
	• Sejorong – Lunyuk asphalt development	2007- 2012								

資料６　事 業 事 前 計 画 表
（基本設計時）

６．事業事前計画表（基本設計時）

１．案件名

インドネシア国　東西ヌサトゥンガラ州橋梁建設計画基本設計調査

２．要請の背景(協力の必要性・位置付け)

「イ」国は、独立後長期計画の下に、経済の発展及び国土の開発に重点を置いた政策を実施している。ところが、上述の長期計画が都市部を中心としたものであったことから、却って国内経済の地域間格差の増大をもたらす結果となった。このため、「イ」国は、近年の国家開発計画において、貧困削減による地域間格差の解消に取り組んでおり、特に東部地域の開発は同国の重点政策の一つとなっている。

当該プロジェクトの対象地域である東及び西ヌサトゥンガラ州は、「イ」国の東端部に位置し、一人当たり地域総生産(GRDP)は全国平均の１/2～1/3 程度と、同国における最貧地域の一つである。

東ヌサトゥンガラ州は、チモール島の西半分を所掌（東半分は東ティモール国）しているが、同島内の道路網においては、州都クパンから同島中央部を抜け東ティモール国国境まで至る中央回廊が東西を結ぶ唯一の幹線道路となっている。この中央回廊の一部を成す国道からプロジェクトサイトにつながる道路は山岳道路となっているため、大型車の通行規制や雨季における土砂災害などの発生により、円滑な物流の支障となっている。要請対象橋梁（2 橋）は、同州の南回廊の幹線道路として海岸線沿いに整備されている州道 129 号線上に位置しており、この 2 橋が完成することによって、州道 129 号線が全面開通し、河川で分断されている主要町村（ワインベサック、ボキン、カルバノ、パニテ等)が完全に結ばれることとなり、南回廊の整備が促進される。しかし「イ」国側はこれまで対象橋梁前後の区間の道路・橋梁の整備は進めてきたものの、これら 2 橋については整備の目処が立っていない。

他方、西ヌサトゥンガラ州の要請対象橋梁（9 橋）は、いずれもスンバワ島スンバワ県の南リング道路（セジョロン～ルンユク間）の西寄りに位置しており、「イ」国側が現在積極的に移住を推進している地域である。現在、スンバワ県の物流は同島の北端を走る国道が担っているが、南リング道路（全線 80km）は、この国道の代替ルートとして整備が進められている。

当該リング道路は 2002 年に一旦全線開通したが、要請対象地区を中心に橋梁が未整備であるため雨季は通行不可であること（乾季は流量が少ないもしくは無いため渡河が可能)、更には一部山岳区間において土砂崩れや河川の洗掘等により道路も通行不可となるなど、環状道路としての機能を果たせていない。「イ」国側は道路の修復と整備は再度実施する予定であるが、橋梁の整備については一部対応中のものを除き目処が立っていない。

このように両州の要請対象橋梁は、すべて主要幹線道路として整備が進められている路線上に位置している。本プロジェクトは、「イ」国側の自助努力による道路整備に連携して橋梁を建設することにより、早期の物流改善を図るのみならず、これまで社会経済発展から取り残されてきた地域に直接的に裨益し、貧困削減に寄与する必要性の高いプロジェクトである。

３．プロジェクトの全体計画概要

（１）プロジェクト全体計画の目標

東西ヌサトゥンガラ州の要請対象地域に新たな橋梁が建設されることで、両州の幹線道路が整備され、通年交通の確保と人の移動・物流が改善される。結果として、要請対象地域を中心とした社会経済の発展が促され、貧困が削減される。

裨益対象：直接裨益人口：合計約 176 万人

（東ヌサトゥンガラ州：約 130 万人、西ヌサトゥンガラ州：約 46 万人）

（２）プロジェクト全体計画の成果

①プロジェクト運営体制が整備される。

②橋梁及び取付道路を建設する。

③供用後の維持管理体制が確保される。

（３）プロジェクト全体計画の主要活動

①橋梁及び取付道路が整備される。

②プロジェクト運営のための人員を配置する。

③橋梁及び取付道路を維持管理する。

（４）投入（インプット）

① 日本側（本案件）：無償資金協力 17.36 億円

② 相手国側：（ア）東西ヌサトゥンガラ州を含む実施体制・人員配置

（イ）ヤード及び建設用地等の確保に係る経費

（ウ）施設の運営・維持管理に係る経費

（５）実施体制

主管官庁：公共事業省

実施機関（責任機関）：公共事業省東部地域局

４．協力対象事業の内容等

（１）サイト

①東ヌサトゥンガラ州：チモール島南西部(州道 129 号線上)

②西ヌサトゥンガラ州：スンバワ島(南リング道路上)

（２）概要

当該無償資金協力により整備される主要な施設は以下のとおりである。

①東ヌサトゥンガラ州：メヌー橋(260m)、ファトゥアットゥ橋(129.7m)の建設

②西ヌサトゥンガラ州：タナマンⅠ橋(35m)、プナⅠ橋(11.2m)、プナ III 橋(23m)、
タビスⅠ橋(24m)、タビス III 橋(20m)、タビス IV 橋(22m)、タビス V 橋(22m)、
トンゴロカ橋(48m)の建設及びタビス II 橋(15m)の上部工架け替え

（３）相手国負担事項

建設資機材保管・施工ヤード及び事務所・建設用地の確保

（４）概算事業費

17.42 億円（無償資金協力 17.36 億円（東ヌサトゥンガラ州：9.45 億円、
西ヌサトゥンガラ州：7.91 億円)、インドネシア国側負担 0.06 億円）

（５）工期

詳細設計・入札期間を含めた両州の工期は以下のとおり。

①東ヌサトゥンガラ州(第一期)：36 ヶ月（予定）

②西ヌサトゥンガラ州(第二期)：32 ヶ月（予定）

（６）貧困、ジェンダー、環境及び社会面の配慮

プロジェクト用地確保のために収用する農地などに対し補償を実施する。

５．外部要因リスク

（１）為替（ルピア）が大幅に変動しない。

（２）対象地域で治安が悪化しない。

６．過去の類似案件からの教訓の活用

特になし。

７．今後の評価計画プロジェクトの成果

（１）プロジェクト全体計画の目標達成を示す指標

成果指標	東ヌサトゥンガラ州		西ヌサトゥンガラ州	
	実施前	実施後	実施前	実施後
通行遮断日数	90 日	0 日	60 日	0 日
当該地域から主要都市までの所要時間	190 分(乾季) ｶﾙﾊﾞﾉｰﾎﾞｷﾝ	160 分(乾季) ｶﾙﾊﾞﾉｰﾎﾞｷﾝ	110 分(乾季) ﾄﾝｺﾞ - ﾄﾝｺﾞﾛｶ	70 分(乾季) ﾄﾝｺﾞ - ﾄﾝｺﾞﾛｶ

（２）その他の成果指標

特になし。

（３）評価のタイミング

①東ヌサトゥンガラ州：2008 年（橋梁整備完了）以降とする。

②西ヌサトゥンガラ州：2009 年（橋梁整備完了）以降とする。

資料７　基 本 設 計 概 要 書

7．基本設計概要表

表-1　設計概要表

対象橋梁名	橋長 (m)	支間長または脚中心間距離 (m)	上部工橋梁形式	橋台 数	橋台 躯体	橋台 基礎	橋脚 数	橋脚 躯体	橋脚 基礎	取り付け道路 (m)
東ヌサトゥンガラ州										
メヌ	260.0	32.410＋6×32.375＋32.410	8径間連結 合成PC-T桁橋	2	逆T式	場所打ち杭 (Φ1.0m) 橋台A：6本×L8.0m 直接基礎　橋台B	7	ラーメン式	場所打ち杭 (Φ1.0m) P1：6本×L 8.0m P2：6本×L 9.0m P3：6本×L10.0m P4,P5,P6,P7 ：8本×L10.0m	614.5
ファトゥアットゥ	129.7	25.850＋3×26.000＋25.850	5径間連結 合成PC-I桁橋	2	逆T式	直接基礎　橋台A,B	4	パイルベント式	場所打ち杭 (Φ1.0m) P1,P2,P3,P4: 2本×L20.0m	420.3
西ヌサトゥンガラ州										
タナマンⅠ	35.0	34.000	単純合成PC-T桁橋	2	逆T式	直接基礎　橋台A,B	なし			145.0
プナⅠ	11.2	10.000	単純RC床版橋	2	逆T式	直接基礎　橋台A,B	なし			88.0
プナⅢ	23.0	22.000	単純合成PC-I桁橋	2	逆T式	直接基礎　橋台A,B	なし			77.0
タビスⅠ	24.0	23.000	単純合成PC-I桁橋	2	逆T式	直接基礎　橋台A,B	なし			116.0
タビスⅢ	20.0	19.000	単純RC-T桁橋	2	逆T式	直接基礎　橋台A,B	なし			130.0
タビスⅣ	22.0	21.000	単純RC-T桁橋	2	逆T式	直接基礎　橋台A,B	なし			98.0
タビスⅤ	22.0	21.000	単純RC-T桁橋	2	逆T式	直接基礎　橋台A,B	なし			88.0
トンゴロカ	48.0	2×23.650	2径間連結 合成PC-I桁橋	2	逆T式	直接基礎　橋台A,B	1	ラーメン式	場所打ち杭 (Φ1.0m) P1：6本×L10.0m	147.0
上部工架け替え										
タビスⅡ	15.6	15.000	単純RC-T桁橋	2	既設構造物適用		なし			350.0

(1) 準拠基準

1) 橋　梁

- 「イ」国設計基準：BSM (Bridge Management System)
- Bridge Design Manual (Indonesia)
- Standard Specification for Highway Bridges (AASHTO, 2002)
- (社)日本道路協会：道路橋示方書(2002 年 3 月)

2) 道　路　(取付道路)

- 「イ」国設計基準：Tata Cara Perencanaan Geometrik Jalan Antar Kata (1999 年 9 月)
- A Policy on Geometric Design of Highways and Street (AASHTO, 2001)
- (社)日本道路協会：道路構造令の解説と運用(2004 年 2 月)

(2) 設計条件

1) 橋　梁

i) 標準断面

幅　員：「イ」国州道 Type B 規格
(道路幅 6.0m)に準拠する。

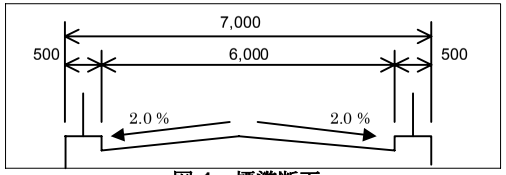


図-1　標準断面

ii) 設計荷重

- 活　荷　重　：MS 18 (HS 20-44)
- 地域別地震係数：0.18
- 温　度　変　化：15℃～40℃（コンクリート桁の場合）

iii) 使用材料

表-2　使用材料一覧表

名称 I		仕様・設計基準強度（Mpa）
コンクリート	PC 桁	40
	RC 桁	25
	床版	25
	橋台・橋脚	25
	場所打ち杭	30
	無筋コンクリート	20
鉄筋	丸鋼	SR-235 (降伏点 240 Mpa)
	異形鉄筋	SD-345 (降伏点 390 Mpa)
PC 鋼材	PC 鋼より線(7 本×12.4mm)	引張強度 165 KN

iv) 設計洪水確率年

- 50m年

2) 取付道路

- 設計速度：　50　km／hr　（標準区間）
- 縦断勾配：　10.0 ％ 以下　（ただし、メヌ橋の取付道路は 12%以下とする。）
- 道路幅員：　7.0 m
- 舗　　装：　浸透式マカダム舗装（橋台前面から 50.0 m までの区間）
  タビスⅡ橋のみ：トンゴロカ方向200.0m、トンゴ方向 150.0m
  砂　利　舗　装　　（橋台前面から 50.0 m 以降の区間＜標準区間＞）

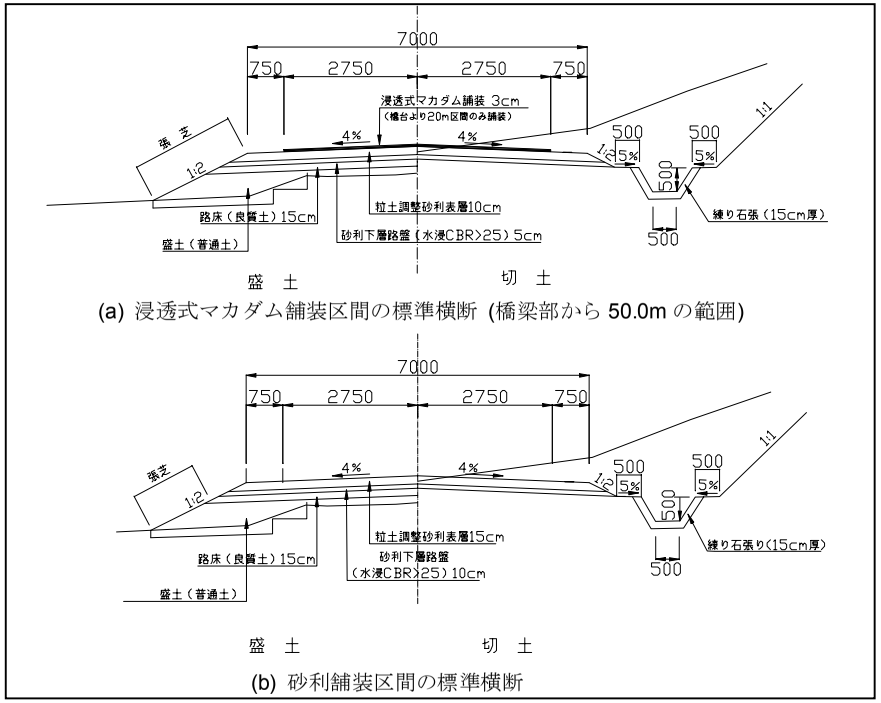


図-2　橋梁取付道路の標準横断図

資料８　参考資料／入手資料リスト

８．参考資料／入手資料リスト

	タイトル	発行者
1	RENCANA STRATEGIS PROGRAM PENANGANAN JALAN NASIONAL DAN JALAN PROPINSI DI NUSA TENGGARA BARAT TAHUN 2003-2007	西ヌサトゥンガラ州
2	PROPOSAL OF BRIDGES CONSTRUCTION AT SOUTH RINGROAD OF SUMBAWA ISLAND, SUPPORT TO ECONOMIC DEVELOPMENT AND TRANSMIGRATION PROGRAMMED	西ヌサトゥンガラ州
3	MATERI RAKORBANGPUS	労働省移民局
4	USULAN PEMBANGUNAN JEMBATAN AKSES EKONOMI DI NUSA TENGGARA TIMUR	東ヌサトゥンガラ州
5	FEASIBILITY STUDY ON SINTANG-PUTUSSIBAU ROAD BETTERMENT IN WEST KALIMANTAN PROVINCE, FINAL REPORT	PT. Mitrabuana Rekanindo
6	STUDI PENGEMBANGAN SISTEM JARINGAN JALAN NASIONAL DAN PROPINSI DI PROPINSI NUSA TENGGARA TIMUR FINAL REPORT	東ヌサトゥンガラ州
7	STATISTICAL YEAR BOOK OF INDONESIA	インドネシア統計局
8	USULAN PRIORITAS PENANGANAN JALAN DAN JEMBATAN TAHUN ANGGARAN 2005	西ヌサトゥンガラ州
9	RENCANA STRATEGIS DAERAH (RENNTRADA) PROPINSI NUSA TENGGARA TIMUR TAHUN 2004 - 2008	東ヌサトゥンガラ州
10	GOVERNMENT REGULATION OF THE REPUBLIC INDONESIA WATER RESOURCES LAW NO.7 / 2004	インドネシア政府
11	GOVERNMENT REGULATION OF REPUBLIC INDONESIA RIVER LAW NO.35 / 1991	インドネシア政府
12	GUIDANCE FOR ERECTION AND INSTALLATION PERMANENT STEEL STRUCTURE BRIDGE CLASS A 40M UP TO 60M SPAN	居住･地域インフラ省
13	GUIDANCE FOR ERECTION AND INSTALLATION PERMANENT STEEL STRUCTURE BRIDGE CLASS B 40M UP TO 60M SPAN	居住･地域インフラ省
14	GUIDANCE FOR ERECTION AND INSTALLATION PERMANENT STEEL STRUCTURE BRIDGE COMPOSITE 20M UP TO 30M SPAN	居住･地域インフラ省

資料９　その他の資料・情報

９．その他の資料・情報

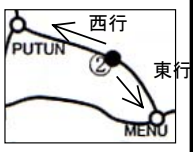
(1) 交通量データ

1) 東ヌサトゥンガラ州

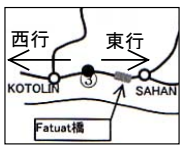
調査月日：2004年7月13日

ロケーション ①	通過時刻		車種別通行車両数															
			歩行者		自転車		馬・牛車		バイク		乗用車		バス		小型貨物車		トラック	
			北行	南行	北行	南行	北行	南行	北行	南行	北行	南行	北行	南行	北行	南行	北行	南行
	時	6:00 - 7:00	5	2	0	0	0	0	21	12	2	1	1	0	0	0	0	0
		7:00 - 8:00	9	6	0	0	0	0	25	15	3	1	2	1	0	0	0	0
		8:00 - 9:00	22	8	0	0	0	0	20	13	3	2	3	4	2	0	0	0
		9:00 - 10:00	26	13	0	0	0	0	15	11	6	3	4	2	2	2	0	0
		10:00 - 11:00	27	18	0	0	0	0	30	21	2	0	5	2	1	3	0	0
		11:00 - 12:00	22	10	0	0	0	0	10	5	0	0	3	2	2	3	0	0
		12:00 - 13:00	36	19	2	1	0	0	13	7	0	0	4	2	3	2	1	1
		13:00 - 14:00	35	25	0	0	0	0	30	28	0	0	0	3	1	1	0	0
		14:00 - 15:00	19	28	0	0	0	0	9	11	0	0	0	1	1	1	0	0
		15:00 - 16:00	11	30	0	0	0	0	27	35	0	0	2	3	1	1	1	0
		16:00 - 17:00	8	34	1	1	0	0	18	25	0	0	1	3	1	2	0	1
		17:00 - 18:00	9	27	0	1	0	0	21	34	0	0	0	1	1	0	0	0
Oinlasi - Putun 北行 ← 南行 →	小計		229	220	3	3	0	0	239	217	16	7	25	24	15	15	2	2
	合計		449		6		0		456		23		49		30		4	

調査月日： 2004年7月14日

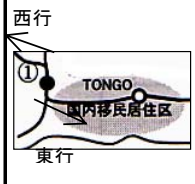
ロケーション ②	通過時刻		車種別通行車両数															
			歩行者		自転車		馬・牛車		バイク		乗用車		バス		小型貨物車		トラック	
			西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行
	時	6:00 - 7:00	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
		7:00 - 8:00	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8:00 - 9:00	15	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		9:00 - 10:00	21	13	0	0	0	0	2	1	0	0	0	0	0	0	0	0
		10:00 - 11:00	24	11	0	0	0	0	1	0	0	0	0	0	0	0	0	0
		11:00 - 12:00	30	18	0	0	0	0	2	1	1	0	0	0	0	0	0	0
		12:00 - 13:00	11	15	0	0	0	0	3	1	0	0	0	0	0	0	0	0
		13:00 - 14:00	4	17	0	0	0	0	3	3	0	0	0	0	1	0	0	0
		14:00 - 15:00	5	20	0	0	0	0	2	3	0	1	0	0	1	0	0	0
		15:00 - 16:00	7	11	0	0	0	0	2	4	0	0	0	0	0	1	0	0
		16:00 - 17:00	2	12	0	0	0	0	0	2	0	0	0	0	0	1	0	0
		17:00 - 18:00	0	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Putun - Menu 西行 ← 東行 →	小計		131	130	0	0	0	0	17	17	1	1	0	0	2	2	0	0
	合計		261		0		0		34		2		0		4		0	

調査月日： 2004年7月15日

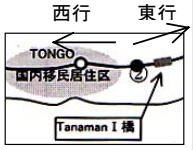
ロケーション ②	通過時刻		車種別通行車両数															
			歩行者		自転車		馬・牛車		バイク		乗用車		バス		小型貨物車		トラック	
			西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行
	時	6:00 - 7:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7:00 - 8:00	8	4	0	0	0	0	3	1	0	0	0	0	1	0	0	0
		8:00 - 9:00	11	8	0	0	0	0	3	2	0	0	0	0	0	0	0	0
		9:00 - 10:00	18	9	0	0	0	0	4	3	0	0	0	0	1	0	0	0
		10:00 - 11:00	12	9	0	0	0	0	2	2	1	0	0	0	0	0	0	0
		11:00 - 12:00	8	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		12:00 - 13:00	6	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
		13:00 - 14:00	4	8	0	0	0	0	3	5	0	0	0	0	0	0	0	0
		14:00 - 15:00	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		15:00 - 16:00	3	10	0	0	0	0	0	1	0	0	0	0	0	1	0	0
		16:00 - 17:00	5	12	0	0	0	0	0	2	0	0	0	0	0	2	0	0
		17:00 - 18:00	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Kotolin - Sahan 西行 ← 東行 →	小計		81	72	0	0	0	0	15	16	1	1	0	0	3	3	0	0
	合計		153		0		0		31		2		0		6		0	

2) 西ヌサトゥンガラ州

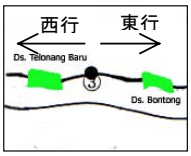
調査月日：2004年7月29日

ロケーション ①	通過時刻		車種別通行車両数															
			歩行者		自転車		馬・牛車		バイク		乗用車		バス		小型貨物車		トラック	
			西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行
	時	6:00 - 7:00	7	5	0	1	2	1	4	0	2	3	1	0	0	1	0	0
		7:00 - 8:00	10	11	1	3	1	2	8	1	2	1	0	0	0	0	1	2
		8:00 - 9:00	25	5	2	0	2	0	5	1	4	3	0	0	1	1	1	1
		9:00 - 10:00	17	3	0	0	1	2	4	1	3	2	0	0	1	1	1	2
		10:00 - 11:00	10	6	1	0	0	0	2	2	2	0	0	0	0	1	2	0
		11:00 - 12:00	14	10	1	0	1	0	1	1	2	1	0	0	2	0	1	1
		12:00 - 13:00	8	5	0	1	1	0	0	0	0	1	0	0	0	1	1	0
Tongo村入口		13:00 - 14:00	12	8	0	0	0	0	0	1	1	0	0	0	1	1	0	2
Maluk - Tongo		14:00 - 15:00	7	11	0	0	1	1	1	4	0	0	0	0	2	2	2	1
西行 ←		15:00 - 16:00	5	18	0	0	1	2	0	6	0	3	0	0	1	1	1	1
東行 →		16:00 - 17:00	10	25	1	0	0	1	2	8	2	0	0	0	1	0	1	1
		17:00 - 18:00	2	18	0	1	0	2	0	3	3	2	0	1	0	0	0	1
	小計		127	125	6	6	10	11	27	28	21	16	1	1	9	9	11	12
	合計		252		12		21		55		37		2		18		23	

調査月日：2004年7月29日

ロケーション ②	通過時刻		車種別通行車両数															
			歩行者		自転車		馬・牛車		バイク		乗用車		バス		小型貨物車		トラック	
			西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行
	時	6:00 - 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		7:00 - 8:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		8:00 - 9:00	0	6	0	0	0	1	0	2	0	0	0	0	0	0	0	0
		9:00 - 10:00	0	4	0	0	0	0	0	3	0	0	0	0	0	0	0	0
		10:00 - 11:00	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
		11:00 - 12:00	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
		12:00 - 13:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
Tanaman I 橋手前		13:00 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tongo - Tongoloka		14:00 - 15:00	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0
西行 ←		15:00 - 16:00	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
東行 →		16:00 - 17:00	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
		17:00 - 18:00	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	小計		12	12	0	0	2	2	6	6	0	0	0	0	1	1	0	0
	合計		24		0		4		12		0		0		2		0	

調査月日：2004年7月29日

ロケーション ③	通過時刻		車種別通行車両数															
			歩行者		自転車		馬・牛車		バイク		乗用車		バス		小型貨物車		トラック	
			西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行	西行	東行
	時	6:00 - 7:00	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
		7:00 - 8:00	2	0	0	1	0	1	0	1	0	0	0	0	0	0	0	0
		8:00 - 9:00	5	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0
		9:00 - 10:00	4	0	1	2	0	0	0	0	1	0	0	0	0	0	1	0
		10:00 - 11:00	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
		11:00 - 12:00	0	2	2	0	0	0	1	0	0	0	0	0	0	0	0	0
		12:00 - 13:00	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
		13:00 - 14:00	0	0	1	0	0	0	0	2	0	1	0	0	0	0	0	0
Telonang Baru 村		14:00 - 15:00	0	2	0	0	2	0	1	0	0	0	0	0	0	1	0	1
- Bontong 村		15:00 - 16:00	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
西行 ←		16:00 - 17:00	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0
東行 →		17:00 - 18:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	小計		11	9	6	6	2	2	4	6	1	1	0	0	1	1	1	1
	合計		20		12		4		10		2		0		2		2	

(2) IEE レベルの環境社会配慮調査結果

表(1) Screening of Environmental Impact due to Bridge Construction in NTT

	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
Evaluation Items	During Construction	After Construction	Rank	Reasons	Rank	Reason
Impact on Human Health and Safety, and Natural Environment						
Air quality	Deterioration of air quality due to emission from construction machines.	Deterioration of air quality due to the increased traffic	B	・The level of pollution is not significant because the number of construction machines working at the same time is limited. ・The traffic volume may not be expected to be so significant as in the city centre after construction because the bridge is constructed as a part of lifeline.	B	・The level of pollution is not significant because the number of construction machines working at the same time is limited. ・The traffic volume may not be expected to be significant as in the city centre after construction because the bridge is constructed as a part of lifeline.
Water quality	Deterioration of water quality due to muddy water		D	Muddy water will be discharged almost during 3 months from November to January in rainy season and the concentration can be diluted in large volume of river water.	D	Muddy water will be discharged almost during 3 months from November to January in rainy season and the concentration can be diluted in large volume of river water.
Soil	Increase in soil erosion due to land preparation and/or deforestation.		D	The change of land use is minimum and preventive measures of soil erosion will be considered.	D	The change of land use is minimum and preventive measures of soil erosion will be considered.
Waste (from the project)	Generation of construction wastes and debris		D	There is minimal construction waste generated.	D	There is minimal construction waste generated.
Noise and vibration	Noise and vibration due to construction machines	Noise and vibration due to increased traffic	D	There are little houses near the project site.	D	There are little houses near the project site.
Accidents	Casualty of employees and local people	Increase in traffic accident	D B	・Japanese contractor usually conducts safety education for workers every day during construction and open the information of work schedule to local people on notice board to call attention. ・The classroom of traffic safety should be carried out at school.	D B	・Japanese contractor usually conducts safety education for workers every day during construction and open the information of work schedule to local people on notice board to call attention. ・The classroom of traffic safety should be carried out at school.

	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
Evaluation Items	During Construction	After Construction	Rank	Reasons	Rank	Reason
Water usage	Change in quality, quantity and resources of water		D	There is no impact on water usage because the project site is located at estuary and no usage of the river water downstream of the site.	D	There is no impact on water usage because the project site is located at estuary and no usage of the river water downstream of the site.
Climate change	Changes in temperature, wind direction and/or intensity, etc.	Changes in temperature, wind direction and/or intensity, etc.	D	The scale of the project is not large enough to cause any change in meteorology.	D	The scale of the project is not large enough to cause any change in meteorology.
Ecosystem and biodiversity	Obstruction of breeding of natural species and /or extinction of them due to interruption or loss of their habitats.		C	Although the project site is a small area, it should be examined whether there are any important species of fauna and/or flora to be protected, what the level of their importance is and what the distance is between the site and their habitat.	C	Although the project site is a small area, it should be examined whether there are any important species of fauna and/or flora to be protected, what the level of their importance is and what the distance is between the site and their habitat.
Social Impact						
Migration of populations (involuntary resettlement)	Resettlement of people living in the proposed site or along the access road.		B	There is no need to resettle any residents in the proposed site. Some residents may lose a part of their land due to widening and/or replacement of access road.	B	There is no need to resettle any residents in the proposed site. The land owner already agreed to offering his land for the project.
Local economy (employment and livelihood)	・Disturbance of economic activities ・Creation of employment	Distribution of goods to the villages.	E	・No disturbance of local economy ・Local people can have an opportunity for working as construction workers. ・Even in the rainy season local products and living necessaries can be transported through the new bridge.	E	・No disturbance of local economy ・Local people can have an opportunity for working as construction workers. ・Even in the rainy season local products and living necessaries can be transported through the new bridge.
Utilization of land and local resources	Change in utilization of land and local resources	Access to local resources	D	・Small cultivated land is lost. ・No change of local resources.	D	・No cultivated land is lost. ・No change of local resources.

	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
Evaluation Items	During Construction	After Construction	Rank	Reasons	Rank	Reason
Social infrastructure		Main line uniting one village to another is secured through whole year.	E	Taking advantage of this bridge construction project, local government may commence the project of existing road improvement earlier.	E	Taking advantage of this bridge construction project, local government may commence the project of existing road improvement earlier.
Social organization like local decision-making institutions		Adverse impact on social organization	D	There is no impact on social organization.	D	There is no impact on social organization.
Existing local services	Local peoples cannot use access road during bridge construction.	Impact on existing local service	E	・During construction works substitute road will be secured. ・Nunkolo villagers can reach the public facilities like markets, schools and hospitals in Boking even in the rainy season.	E	・During construction works substitute road will be secured. ・People in a village can reach the public facilities like markets, schools and hospitals in another village on the other side of the river even in the rainy season.
Vulnerable social groups (poverty level and indigenous peoples)	Adverse impact on vulnerable social groups	Adverse impact on vulnerable social groups	D	Benefits due to bridge construction will be distributed equally to every social group.	D	Benefits due to bridge construction will be distributed equally to every social group.
Equality of benefits and losses	Unfair distribution of benefits and losses	Unfair distribution of benefits and losses	D	The Governor of the District secured at the stakeholder meeting that there could be no unfair distribution of benefits and losses.	D	The Governor of the district secured at the stakeholder meeting that there could be no unfair distribution of benefits and losses.
Equality in development process	Unfair treatment in development process		D	The Governor of the District secured at the stakeholder meeting that there could be no unfair treatment in development process.	D	The Governor of the District secured at the stakeholder meeting that there could be no unfair treatment in development process.
Gender		Increase/decrease of opportunity for gender discrimination	D	Although one of women's burdens is to carry water every day, it may not be lightened directly by construction of the new bridge.	D	Although one of women's burdens is to carry water every day, it may not be lightened directly by construction of the new bridge.
Children's rights		Increase/decrease of opportunity for children's right disturbance	D	Although some of children cannot go to school because they have to support their family, it may not be changed directly by construction of the new bridge.	D	Although some of children cannot go to school because they have to support their family, it may not be changed directly by construction of the new bridge.

	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
Evaluation Items	During Construction	After Construction	Rank	Reasons	Rank	Reason
Cultural heritage	Loss and/or devaluation of historical heritage or cultural properties such as archaeological remains and historical assets.		C	・It should be understood whether there are historical heritage and/or cultural properties near the site. ・‘Sacred Stone’ in the mountain on the right side of the river needs to be reserved.	C	It should be understood whether there are historical heritage and/or cultural properties near the site.
Local conflict of interests	Conflict of interests	Conflict of interests	D	The Governor of the District secured at the stakeholder meeting that there could be no conflict of interest.	D	The Governor of the District secured at the stakeholder meeting that there could be no conflict of interest.
Infectious diseases (HIV/AIDS)	Increase of opportunity of infectious diseases	Increase/decrease of opportunity of infectious diseases	D	・The temporary workers from outside should be guaranteed to be free from AIDS and not to spread AIDS to the local area. ・Opportunity suffering from infectious diseases will not always increase due to a new bridge.	D	・The temporary workers from outside should be guaranteed to be free from AIDS and not to spread AIDS to the local area. ・Opportunity suffering from infectious diseases will not always increase due to a new bridge.

Rank A: Serious adverse impacts might be caused. Rank B: Some adverse impacts might be caused.

Rank C: Extent of impact is unknown because sufficient information is lacking, and/or it depends on the project location.

Rank D: There will be no impact. Rank E: Positive impact might be expected.

表(2)　Screening of Environmental Impact due to Bridge Construction in NTB

	Possible Cause and Effect		Bridge Construction Project	
Evaluation Items	During Construction	After Construction	Rank	Reasons
Impact on Human Health and Safety, and Natural Environment				
Air quality	Deterioration of air quality due to emission from construction machines.	Deterioration of air quality due to the increased traffic	B	・The level of pollution is not significant because the number of construction machines working at the same time is limited. ・The traffic volume may not be expected to be so significant as in the city centre after construction because the bridge is constructed as a part of lifeline.
Water quality	Deterioration of water quality due to muddy water		D	Muddy water will be discharged almost during 3 months from November to January in rainy season and the concentration can be diluted in large volume of river water.
Soil	Increase in soil erosion due to land preparation and/or deforestation.		D	The change of land use is minimum and preventive measures of soil erosion will be considered while designing.
Waste (from the project)	Generation of construction wastes and debris		D	There is minimal construction waste generated.
Noise and vibration	Noise and vibration due to construction machines	Noise and vibration due to the increased traffic	D	There is no house near the project site.
Accidents	Casualty of employees and local people	Increase in traffic accident	D B	・Japanese contractor usually conducts safety education for workers every day during construction and open the information of work schedule to local people on notice board to call attention. ・The classroom of traffic safety should be carried out at school.
Water usage	Change in quality, quantity and resources of water		D	There is no impact on water usage because the project site is located at estuary and no usage of the river water downstream of the site.
Climate change	Changes in temperature, wind direction and/or intensity, etc.	Changes in temperature, wind direction and/or intensity, etc.	D	The scale of the project is not large enough to cause any change in meteorology.

Evaluation Items	Possible Cause and Effect		Bridge Construction Project	
	During Construction	After Construction	Rank	Reasons
Ecosystem and biodiversity	Obstruction of breeding of natural species and /or extinction of them due to interruption or loss of their habitats.		C	Although the project site is a small area, it should be examined whether there are any important species of fauna and/or flora to be protected, what the level of their importance is and what the distance is between the site and their habitat.
Social Impact				
Migration of populations (involuntary resettlement)	Resettlement of people living in the proposed site or along the access road.		B	There is no need to resettle any residents in the proposed site.
Local economy (employment and livelihood)	・Disturbance of economic activities ・Creation of employment	Distribution of goods to the villages.	E	・No disturbance of local economy ・Local people can have an opportunity for working as construction workers. ・Even in the rainy season local products can be transported through the new bridges if the access road is improved and connected to Lunyuk.
Utilization of land and local resources	Change in utilization of land and local resources	Access to local resources	D	・No cultivated land is located near the project site. ・No change of local resources.
Social infrastructure		Line uniting villages to Lunyuk is secured through whole year in the future.	E	Taking advantage of this bridge construction project, local government may resume bridge construction of Puna II and commence the project of existing road improvement earlier.
Social organization like local decision-making institutions		Adverse impact on social organization	D	There is no impact on social organization.
Existing local services	Local peoples cannot use access road during bridge construction.	Impact on existing local service	E	・During construction works substitute road will be secured. ・People in the villages can reach the public facilities like markets, schools and hospitals in Lunyuk even in the rainy season if the access road is improved and connected to the town.
Vulnerable social groups (poverty level and indigenous peoples)	Adverse impact on vulnerable social groups	Adverse impact on vulnerable social groups	D	Benefits due to bridge construction will be distributed equally to every social group.

	Possible Cause and Effect		Bridge Construction Project	
Evaluation Items	During Construction	After Construction	Rank	Reasons
Equality of benefits and losses	Unfair distribution of benefits and losses	Unfair distribution of benefits and losses	D	There is no unfair distribution of benefits and losses.
Equality in development process	Unfair treatment in development process		D	There is no unfair treatment in development process.
Gender		Increase/decrease of opportunity for gender discrimination	D	Opportunity for gender discrimination may not be increased by construction of the new bridges.
Children's rights		Increase/decrease of opportunity for children's right disturbance	D	Opportunity for children's right disturbance may not be increased by construction of the new bridges.
Cultural heritage	Loss and/or devaluation of historical heritage or cultural properties such as archaeological remains and historical assets.		C	・It should be understood whether there are historical heritage and/or cultural properties near the site.
Local conflict of interests	Conflict of interests	Conflict of interests	D	There is no conflict of interests.
Infectious diseases (HIV/AIDS)	Increase of opportunity of infectious diseases	Increase/decrease of opportunity of infectious diseases	D	・The temporary workers from outside should be guaranteed to be free from AIDS and not to spread AIDS to the local area. ・Opportunity suffering from infectious diseases will not always increase due to a new bridge.

Rank A: Serious adverse impacts might be caused.、Rank B: Some adverse impacts might be caused.

Rank C: Extent of impact is unknown because sufficient information is lacking, and/or it depends on the project location.

Rank D: There will be no impact. 、Rank E: Positive impact might be expected.

(3) 計画高水流量算定

計画高水流量算定の手順

今回の架橋予定の全ての河川には測水所がないため、各プロジェクトサイトに近く、且つデータが長期に亘って取られている測水所の資料を使って確率降雨量を算定し、計画雨量の設定、高水位流量及び高水位の算定を下記の手順で行った。

A) 計画日雨量の算定

① 雨量記録の整理

入手した雨量データの中から各年の最大雨量を取り出し水文統計処理の準備を行う。

② 超過確率の算定

対数確率紙（トーマス法）を使って確率雨量の算定を行う。

③ 計画日雨量の算定

計画確率雨量を決める（50 年確率雨量を使用）。

B) 計画高水流量の算定

④ 架橋地点の確認と地形図への図示。

西ヌサトゥンガラの場合、25,000 分の 1 の地形図では道路が Tongo までしか示されておらず、また各架橋地点が地図上明確でないため、GPS と 25,000 分の 1 の地形図を使って各架橋予定地点を地形図に落とした。

⑤ 流域面積の算定

⑥ 流出係数の設定

⑦ 洪水到達時間の算定

クラーフェン、マンニング、ルチーハの公式を使って流速、洪水到達時間を算出し、その中から適当と判断される算定値を選ぶ。

⑧ 洪水到達時間内の平均雨量の算定

伊藤 A 曲線、物部式を使って到達時間内の平均雨量を算定し、妥当と判断される算定値を選ぶ。

⑧ 高水位流量の算定

ラショナル式を使って高水位流量を算定し、比流量による高水位流量の妥当性を検討。

⑥ 高水位の算定

マンニング式、その他を使って高水位を算定する。また聞き取り調査から得た洪水時の水位とを比較しながら高水位、及び高水位流量を決める。

前述に基づき算出した、各プロジェクトサイトの 50 年確率の河川流量を下記に示す。地域的に東・西ヌサトゥンガラの 2 グループに分かれており、そのグループ内においては観測データが限られているため、雨量・降雨パターンともに同グループでは同じと仮定して確率降雨量、流出量を算定した。また資料として 24 時間雨量のデータしかないため、24 時間の確率降雨量を算出し、それ基づき伊藤 A 曲線を使って洪水時の降雨強度を算出した。

構造物の重要度から 50 年確率を用いる。東・西ヌサトゥンガラの 24 時間降雨強度が下記の通り。

（東ヌサトゥンガラ）

確率雨量 (mm)

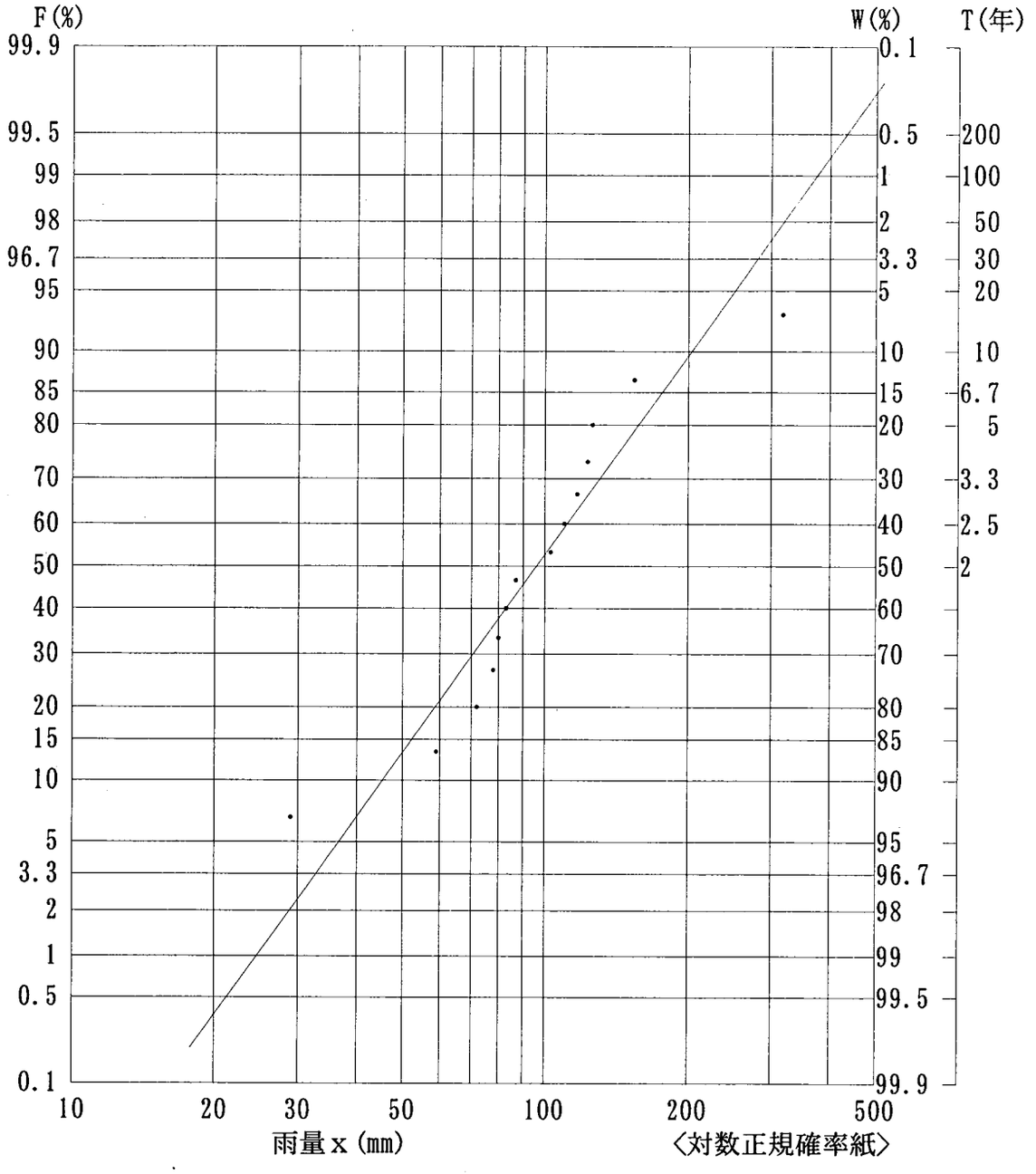
確率年	100 年	**50 年**	30 年	10 年	5 年	3 年	2 年
24 時間雨量	374.2	**319.00**	280.5	203.00	157.00	123.40	95.90

（西ヌサトゥンガラ）

確率雨量 (mm)

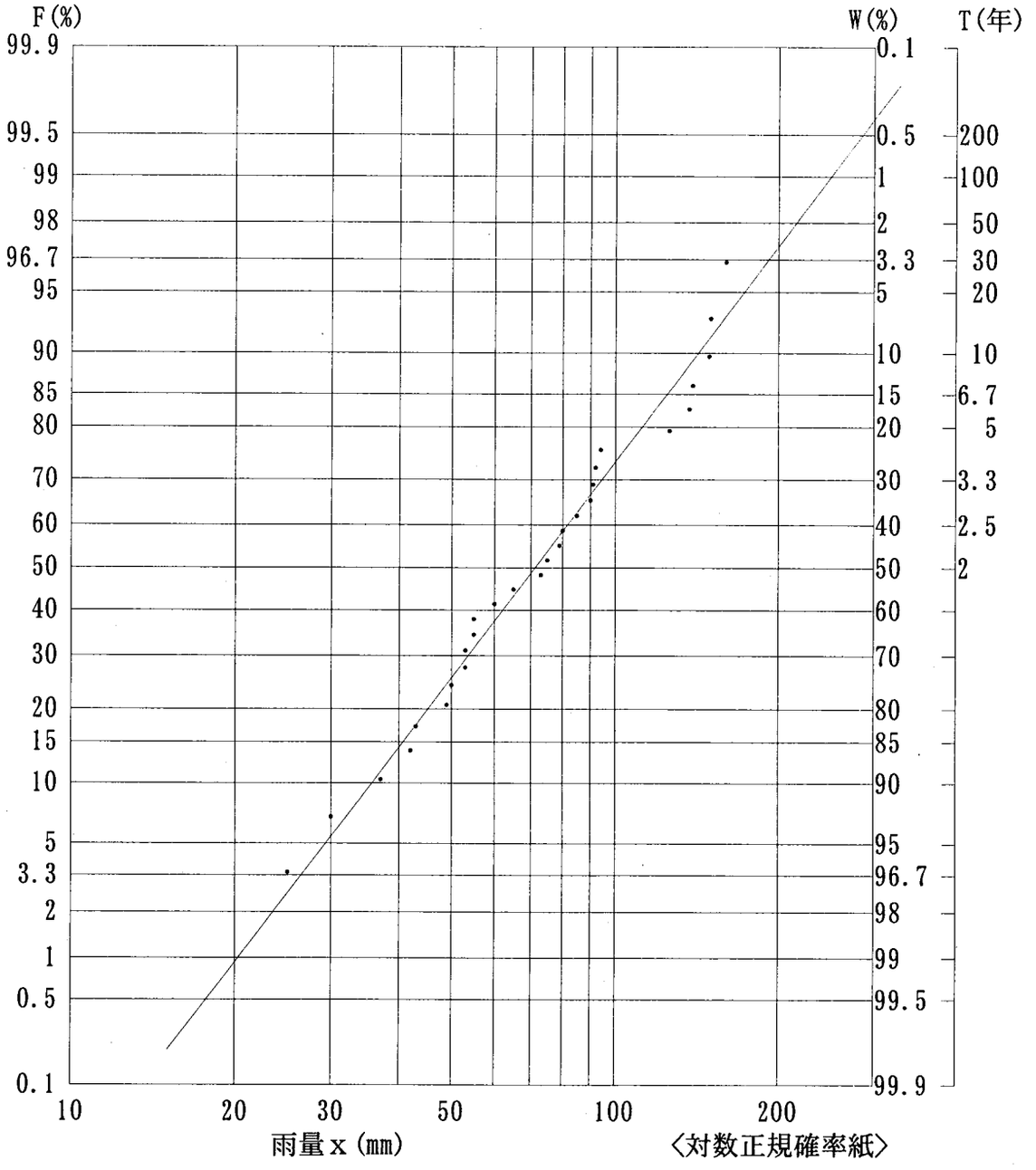
確率年	100 年	**50 年**	30 年	10 年	5 年	3 年	2 年
24 時間雨量	249.6	**215.50**	191.4	142.1	112.0	89.8	71.2

件名：ヌンコロ 確率雨量の算定　　24時間雨量



注）ﾄｰﾏｽ(ﾜｲﾌﾞﾙ)ﾌﾟﾛｯﾄによる。

件名：ルンユク 確率雨量強度　　24時間雨量



注）ﾄｰﾏｽ(ﾜｲﾌﾞﾙ)ﾌﾟﾛｯﾄによる。

超過確率の算定　（トーマス法）

対象地域名：東ヌサトゥンガラ州
気象観測所名：ヌンコロ

各年の最大雨量データ

生起年月日	年最大雨量(mm)
87/06	103.0
88/03	117.0
89/07	318.0
90/05	154.0
91/12	87.0
92/02	72.0
93/12	59.0
94/03	80.0
95/04	83.0
96/04	96.0
97/02/8	78.0
98/02/6	110.0
02/04/29	29.0
03/03/30	123.0

確率降雨強度

継続時間（分）	100年	**50年**	30年	10年	5年	3年	2年
10分							
20分							
30分							
1時間							
2時間							
10時間							
24時間	374.2	**319.0**	280.5	203.0	157.0	123.4	95.9

対象地域名：西ヌサトゥンガラ州
気象観測所名：ルンユク

各年の最大雨量データ

生起年月日	年最大雨量(mm)
67/03/21	60.0
68/10/10	150.0
69/11/03	160.0
70/01/30	53.0
71/10/17	80.0
72/03/13	25.0
73/02/09	50.0
74/01/11	53.0
75/01/10	92.0
76/11/13	94.0
82/12/05	55.0
83/11/27	79.0
84/12/12	73.0
85/03/10	91.0
86/06/22	126.0
87/05/09	137.0
88/11/08	149.0
89/01/27	139.0
90/03/06	90.0
91/07/24	30.0
92/09/27	43.0
93/01/28	55.0
94/03/16	49.0
95/10/12	65.0
96/02/16	85.0
97/02/20	42.0
98/03/24	37.0
99/01/16	75.0

確率降雨強度

継続時間	100年	**50年**	30年	10年	5年	3年	2年
10（分）							
20（分）							
30（分）							
1時間							
2時間							
10時間							
24時間	219.6	**215.5**	191.4	142.1	112.0	89.8	71.2

UAI YSY YY33 PELTIN,
DARI P3JJ-NTT

(4) IEEレポート

BUPATI TIMOR TENGAH SELATAN

Nomor : BPDLD.660.2/78/1/2004

Perihal : Rekomendasi Kelayakan Lingkungan

SoE, 4 Nopember 2004

Kepada

Yth. Japan International Corporation Agency
Indonesia Office
Plaza BII Tower II 27 th Floor
Jl.M.H. Thamrin 51
Jakarta Pusat

Berdasarkan hasil evaluasi Lingkungan pembangunan jembatan Kecamatan Kot'olin (Jembatan Fatuat) dan di Kecamatan Boking (Jembatan Menu) oleh Japan Aid Phased, dapat kami rekomendasikan bahwa kegiatan pembangunan jembatan dimaksud tidak mempunyai dampak negatif terhadap lingkungan dan kehidupan sosial masyarakat sekitar lokasi kegiatan.

Demikian untuk maklum dan atas kerja sama yang baik disampaikan terima kasih

BUPATI TIMOR TENGAH SELATAN,

Drs. DANIEL A. BANUNAEK

Tembusan :

1. Director General of Regional Infrastructure, Jakarta
2. Director of Eastern Regional Infrastructure, Jakarta
3. Gubernur Nusa Tenggara Timur di Kupang
4. Files

IEE is a process aiming to determine (i) whether detailed EIA (Environmental Impact Assessment) is required and (ii) if so, what types of impacts should be further studied. The former is often called "screening" and the latter "scoping". Generally, screening was done by the authority of Indonesian side according to relevant laws and regulations.

Notes:

- Activities "During Construction" include land acquisition, land occupation, use of construction equipment and traffic of construction tracks.
- Activities "After Construction" include traffic of vehicles
- Evaluation of possible environmental impact is expressed by ranks from A to E.

  Rank A: Serious adverse impacts might be caused.

  Rank B: Some adverse impacts might be caused.

  Rank C: Extent of impact is unknown because sufficient information is lacking, and/or it depends on the project location.

  Rank D: There will be no impact.

  Rank E: Positive impact might be expected.

Screening of Environmental Impact by Bridge Construction in NTT

Evaluation Items	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
	During Construction	After Construction	Rank	Reasons	Rank	Reason
Impact on Human Health and Safety, and Natural Environment						
Air quality	Deterioration of air quality due to emission from construction machines.	Deterioration of air quality due to the increased traffic	B	・The level of pollution is not significant because the number of construction machines working at the same time is limited. ・The traffic volume may not be expected to be so significant as in the city centre after construction because the bridge is constructed as a part of lifeline.	B	・The level of pollution is not significant because the number of construction machines working at the same time is limited. ・The traffic volume may not be expected to be significant as in the city centre after construction because the bridge is constructed as a part of lifeline.
Water quality	Deterioration of water quality due to muddy water		D	Muddy water will be discharged almost during 3 months from November to January in rainy season and the concentration can be diluted in large volume of river water.	D	Muddy water will be discharged almost during 3 months from November to January in rainy season and the concentration can be diluted in large volume of river water.
Soil	Increase in soil erosion due to land preparation and/or deforestation.		D	The change of land use is minimum and preventive measures of soil erosion will be considered.	D	The change of land use is minimum and preventive measures of soil erosion will be considered.
Waste (from the project)	Generation of construction wastes and debris		D	There is minimal construction waste generated.	D	There is minimal construction waste generated.
Noise and vibration	Noise and vibration due to construction machines	Noise and vibration due to increased traffic	D	There are little houses near the project site.	D	There are little houses near the project site.
Accidents	Casualty of employees and local people	Increase in traffic accident	D B	・Japanese contractor usually conducts safety education for workers every day during construction and open the information of work schedule to local people on notice board to call attention. ・The classroom of traffic safety should be carried out at school.	D B	・Japanese contractor usually conducts safety education for workers every day during construction and open the information of work schedule to local people on notice board to call attention. ・The classroom of traffic safety should be carried out at school.
Water usage	Change in quality, quantity and resources of water		D	There is no impact on water usage because the project site is located at estuary and no usage of the river water downstream of the site.	D	There is no impact on water usage because the project site is located at estuary and no usage of the river water downstream of the site.
Climate change	Changes in temperature, wind direction and/or intensity, etc.	Changes in temperature, wind direction and/or intensity, etc.	D	The scale of the project is not large enough to cause any change in meteorology.	D	The scale of the project is not large enough to cause any change in meteorology.

	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
Evaluation Items	During Construction	After Construction	Rank	Reasons	Rank	Reason
Ecosystem and biodiversity	Obstruction of breeding of natural species and /or extinction of them due to interruption or loss of their habitats.		C	Although the project site is a small area, it should be examined whether there are any important species of fauna and/or flora to be protected, what the level of their importance is and what the distance is between the site and their habitat.	C	Although the project site is a small area, it should be examined whether there are any important species of fauna and/or flora to be protected, what the level of their importance is and what the distance is between the site and their habitat.
Social Impact						
Migration of populations (involuntary resettlement)	Resettlement of people living in the proposed site or along the access road.		B	There is no need to resettle any residents in the proposed site. Some residents may lose a part of their land due to widening and/or replacement of access road.	B	There is no need to resettle any residents in the proposed site. The land owner already agreed to offering his land for the project.
Local economy (employment and livelihood)	・Disturbance of economic activities ・Creation of employment	Distribution of goods to the villages.	E	・No disturbance of local economy ・Local people can have an opportunity for working as construction workers. ・Even in the rainy season local products and living necessaries can be transported through the new bridge.	E	・No disturbance of local economy ・Local people can have an opportunity for working as construction workers. ・Even in the rainy season local products and living necessaries can be transported through the new bridge.
Utilization of land and local resources	Change in utilization of land and local resources	Access to local resources	D	・Small cultivated land is lost. ・No change of local resources.	D	・No cultivated land is lost. ・No change of local resources.
Social infrastructure		Main line uniting one village to another is secured through whole year.	E	Taking advantage of this bridge construction project, local government may commence the project of existing road improvement earlier.	E	Taking advantage of this bridge construction project, local government may commence the project of existing road improvement earlier.
Social organization like local decision-making institutions		Adverse impact on social organization	D	There is no impact on social organization.	D	There is no impact on social organization.
Existing local services	Local peoples cannot use access road during bridge construction.	Impact on existing local service	E	・During construction works substitute road will be secured. ・Nunkolo villagers can reach the public facilities like markets, schools and hospitals in Boking even in the rainy season.	E	・During construction works substitute road will be secured. ・People in a village can reach the public facilities like markets, schools and hospitals in another village on the other side of the river even in the rainy season.

	Possible Cause and Effect		Menu Bridge		Fatuat Bridge	
Evaluation Items	During Construction	After Construction	Rank	Reasons	Rank	Reason
Vulnerable social groups (poverty level and indigenous peoples)	Adverse impact on vulnerable social groups	Adverse impact on vulnerable social groups	D	Benefits due to bridge construction will be distributed equally to every social group.	D	Benefits due to bridge construction will be distributed equally to every social group.
Equality of benefits and losses	Unfair distribution of benefits and losses	Unfair distribution of benefits and losses	D	The Governor of the District secured at the stakeholder meeting that there could be no unfair distribution of benefits and losses.	D	The Governor of the district secured at the stakeholder meeting that there could be no unfair distribution of benefits and losses.
Equality in development process	Unfair treatment in development process		D	The Governor of the District secured at the stakeholder meeting that there could be no unfair treatment in development process.	D	The Governor of the District secured at the stakeholder meeting that there could be no unfair treatment in development process.
Gender		Increase/decrease of opportunity for gender discrimination	D	Although one of women's burdens is to carry water every day, it may not be lightened directly by construction of the new bridge.	D	Although one of women's burdens is to carry water every day, it may not be lightened directly by construction of the new bridge.
Children's rights		Increase/decrease of opportunity for children's right disturbance	D	Although some of children cannot go to school because they have to support their family, it may not be changed directly by construction of the new bridge.	D	Although some of children cannot go to school because they have to support their family, it may not be changed directly by construction of the new bridge.
Cultural heritage	Loss and/or devaluation of historical heritage or cultural properties such as archaeological remains and historical assets.		C	・It should be understood whether there are historical heritage and/or cultural properties near the site. ・'Sacred Stone' in the mountain on the right side of the river needs to be reserved.	C	It should be understood whether there are historical heritage and/or cultural properties near the site.
Local conflict of interests	Conflict of interests	Conflict of interests	D	The Governor of the District secured at the stakeholder meeting that there could be no conflict of interests.	D	The Governor of the District secured at the stakeholder meeting that there could be no conflict of interests.
Infectious diseases (HIV/AIDS)	Increase of opportunity of infectious diseases	Increase/decrease of opportunity of infectious diseases	D	・The temporary workers from outside should be guaranteed to be free from AIDS and not to spread AIDS to the local area. ・Opportunity suffering from infectious diseases will not always increase due to a new bridge.	D	・The temporary workers from outside should be guaranteed to be free from AIDS and not to spread AIDS to the local area. ・Opportunity suffering from infectious diseases will not always increase due to a new bridge.

(NTB-HI IEE 承認レター)

PEMERINTAH PROPINSI NUSA TENGGARA BARAT

DINAS PERMUKIMAN DAN PRASARANA WILAYAH

Jalan Majapahit Nomor : 08 Telepon (0370) 636227–643229 Mataram

No : 680 /PJ . 83/KPW/04
Dated : 4th October 2004.

Re : Recommendation of Initial Environment Examination (IEE).

To:
Japan International Corporation Agency
Indonesia Office
Plaza BII Tower II 27th Floor
Jalan MH. Thamrin 51
Jakarta Pusat

We have evaluated the environment aspect of the bridges construction program in Sejorong – Lunyuk by Japan Grant Aid Phase-I as described in Annex-1 - 3 and recommended the program has no significant adverse impacts on the environment and society.
Thank you for your attention and good cooperation.

Seen and approved by:
Head of Bapedalda - NTB

BAPEDALDA

(Ir. H. Mahdi Said, MBA)

Your Sincerely,
Head of Kimpraswil – NTB
On behalf

DINAS KIMPRASWIL

(Ir. H. Jalal, MSc)

CC :

1. Director General of Regional Infrastructure , Jakarta.
2. Director of Eastern Regional Infrastructure , Jakarta
3. Files.

MOHON DISAMPAIKAN
KEPADA : Ir. DJOKO, MSc
SEKSI JEMBATAN
SUBDIT PPT.

021 - 7268995

Initial Environmental Examination (IEE) for Bridge Construction Project in NTB

IEE is a process aiming to determine (i) whether detailed EIA (Environmental Impact Assessment) is required and (ii) if so, what types of impacts should be further studied. The former is often called "screening" and the latter "scoping". Generally, Screening was done by the authority of Indonesian side according to relevant laws and regulations.

Notes:

- Activities "During Construction" include land acquisition, land occupation, use of construction equipment and traffic of construction tracks.
- Activities "After Construction" include traffic of vehicles
- Evaluation of possible environmental impact is expressed by ranks from A to E.

  Rank A: Serious adverse impacts might be caused.
  Rank B: Some adverse impacts might be caused.
  Rank C: Extent of impact is unknown because sufficient information is lacking, and/or it depends on the project location.
  Rank D: There will be no impact.
  Rank E: Positive impact might be expected.

Screening of Environmental Impact for Bridge construction in NTB

Evaluation Items	Possible Cause and Effect		Bridge Construction Project	
	During Construction	After Construction	Rank	Reasons
Impact on Human Health and Safety, and Natural Environment				
Air quality	Deterioration of air quality due to emission from construction machines.	Deterioration of air quality due to the increased traffic	B	・The level of pollution is not significant because the number of construction machines working at the same time is limited. ・The traffic volume may not be expected to be so significant as in the city centre after construction because the bridge is constructed as a part of lifeline.
Water quality	Deterioration of water quality due to muddy water		D	Muddy water will be discharged almost during 3 months from November to January in rainy season and the concentration can be diluted in large volume of river water.
Soil	Increase in soil erosion due to land preparation and/or deforestation.		D	The change of land use is minimum and preventive measures of soil erosion will be considered while designing.
Waste (from the project)	Generation of construction wastes and debris		D	There is minimal construction waste generated.
Noise and vibration	Noise and vibration due to construction machines	Noise and vibration due to increased traffic	D	There are little houses near the project site.
Accidents	Casualty of employees and local people	Increase in traffic accident	D B	・Japanese contractor usually conducts safety education for workers every day during construction and open the information of work schedule to local people on notice board to call attention. ・The classroom of traffic safety should be carried out at school.
Water usage	Change in quality, quantity and resources of water		D	There is no impact on water usage because the project site is located at estuary and no usage of the river water downstream of the site.
Climate change	Changes in temperature, wind direction and/or intensity, etc.	Changes in temperature, wind direction and/or intensity, etc.	D	The scale of the project is not large enough to cause any change in meteorology.
Ecosystem and biodiversity	Obstruction of breeding of natural species and /or extinction of them due to interruption or loss of their habitats.		C	Although the project site is a small area, it should be examined whether there are any important species of fauna and/or flora to be protected, what the level of their importance is and what the distance is between the site and their habitat.
Social Impact				
Migration of populations (involuntary resettlement)	Resettlement of people living in the proposed site or along the access road.		B	There is no need to resettle any residents in the proposed site. Some residents may lose a part of their land due to widening and/or replacement of access road.
Local economy (employment and livelihood)	・Disturbance of economic activities ・Creation of employment	Distribution of goods to the villages.	E	・No disturbance of local economy ・Local people can have an opportunity for working as construction workers. ・Even in the rainy season local products can be transported through the new bridge if the access road is improved and connected to Lunyul.

	Possible Cause and Effect		Bridge Construction Project	
Evaluation Items	During Construction	After Construction	Rank	Reasons
Utilization of land and local resources	Change in utilization of land and local resources	Access to local resources	D	・No cultivated land is located near the project site. ・No change of local resources.
Social infrastructure		Line uniting villages to Lunyuk is secured through whole year in the future.	E	Taking advantage of this bridge construction project, local government may resume bridge construction of Puna II and commence the project of existing road improvement earlier.
Social organization like local decision-making institutions		Adverse impact on social organization	D	There is no impact on social organization.
Existing local services	Local peoples cannot use access road during bridge construction.	Impact on existing local service	E	・During construction works substitute road will be secured. ・People in the villagers can reach the public facilities like markets, schools and hospitals in Lunyuk even in the rainy season if the access road is improved and connected to the town.
Vulnerable social groups (poverty level and indigenous peoples)	Adverse impact on vulnerable social groups	Adverse impact on vulnerable social groups	D	Benefits due to bridge construction will be distributed equally to every social group.
Equality of benefits and losses	Unfair distribution of benefits and losses	Unfair distribution of benefits and losses	D	There is no unfair distribution of benefits and losses.
Equality in development process	Unfair treatment in development process		D	There is no unfair treatment in development process.
Gender		Increase/decrease of opportunity for gender discrimination	D	Opportunity for gender discrimination may not be increased by construction of the new bridges.
Children's rights		Increase/decrease of opportunity for children's right disturbance	D	Opportunity for children's right disturbance may not be increased by construction of the new bridges.
Cultural heritage	Loss and/or devaluation of historical heritage or cultural properties such as archaeological remains and historical assets.		C	・It should be understood whether there are historical heritage and/or cultural properties near the site.
Local conflict of interests	Conflict of interests	Conflict of interests	D	There is no conflict of interests.
Infectious diseases (HIV/AIDS)	Increase of opportunity of infectious diseases	Increase/decrease of opportunity of infectious diseases	D	・The temporary workers from outside should be guaranteed to be free from AIDS and not to spread AIDS to the local area. ・Opportunity suffering from infectious diseases will not always increase due to a new bridge.

(5) 公共事業省と両州政府との覚書 (中央政府・州政府との合意文書)

DEPARTEMEN PEKERJAAN UMUM
DIREKTORAT JENDERAL PRASARANA WILAYAH
Jalan Pattimura Nomor 20, Kebayoran Baru, Jakarta 12110 Telp. (021) 7221950

Nomor : UM.0103-Dp/678 Jakarta, 2 November 2004
Lampiran :

Kepada Yth
1. Bapak Gubernur NusaTenggara Barat
2. Bapak Gubernur Nusa Tenggara Timur

di

Tempat

Perihal : Penyampaian Minutes of Discussions Project for Bridge Construction in The East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB).

Sebagai tindak lanjut kunjungan Misi JICA ke Jakarta, NTB dan NTT, telah ditandatangani Minutes of Discussions Project for Bridges Construction in The East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB), sebagai hasil sementara Misi tersebut.

Selanjutnya kami sampaikan copy Minutes of Discussions dimaksud sebagai dasar persiapan pelaksanaan Grant Aid JICA, sebagaimana tersebut dalam para 6.2. dari Minutes of Discussions tersebut.

Hal-hal yang perlu mendapat perhatian kita bersama adalah,
Penyusunan dan Penandatangan Nota Kesepahaman (Minutes of Understanding), para 10(3), yang harus ditandatangani antara Departemen Pekerjaan Umum dan Pemerintah Daerah Propinsi yang bersangkutan yang konsepnya terlampir/versi bahasa Indonesia dan Inggris untuk dipelajari dan kami harap dapat ditandatangani paling lambat pada tanggal 12 November 2004.

Demikian dan atas kerjasamanya diucapkan terima kasih

Direktur Jenderal Prasarana Wilayah

HENDRIANTO N
NIP : 110016212

Tembusan Kepada Yth:
1. Bapak Menteri Pekerjaan Umum (sebagai laporan)
2. Kepala Biro Perencanaan dan KLN Departemen PU.
3. Direktur Prasarana Wilayah Timur, Ditjen Praswil
4. Direktur Bintek, Ditjen Praswil
5. Direktur Kerjasama Luar Negeri Bilateral Bappenas
6. Direktur Transportasi,Pos,Telekomunikasi dan Informatika, Bappenas
7. Direktur Dana Luar Negeri Departemen Keuangan
8. JICA, Resident Representative Jakarta A9－24
9. Mr Kaminaga JICA Expert Ditjen Praswil

MEMORANDUM OF UNDERSTANDING

NTB

Between

THE DIRECTORATE GENERAL OF REGIONAL INFRASTRUCTURE
THE MINISTRY OF PUBLIC WORKS

And

THE PROVINCIAL GOVERNMENT OF WEST NUSA TENGGARA

ON

Project for Bridges Constructions
in The West Nusa Tenggara (NTB) Province
under Japan's Grant Aid

1. GENERAL

1.1. This memorandum of understanding is made between the Central Government trough the Ministry of Public Works, Directorate General of Regional Infrastructure with the Provincial Government of **West Nusa Tenggara (NTB)** in conjunction with Grant Aid from Government of Japan to Government of Indonesia that described in Project for Bridge Construction in East Nusa Tengara (NTT) and West Nusa Tenggara (NTB).

1.2. The Grant Aid program from Government of Japan covers bridge construction on provincial road links in East Nusa Tenggara (NTT) Province.

2. OBJECTIVE

2.1. This memorandum of understanding is made to reach mutual understanding between Central Government and Provincial Government of **West Nusa Tenggara (NTB)** in accordance with the sharing of role and authority based on relevant regulations.

2.2. To make sufficient preparation on agreed matters respectively in order to accomplish this Grant Aid program.

3. REFERENCE

This memorandum of understanding is made referring to related provisions and regulations in Republic of Indonesia, such as :

a. Road Law no. 13 / 1980.

b. Government Regulation No. 26 / 1985 concerning Roads.

c. Law no. 22 / 1999 concerning Provincial Government.

d. Government Regulation No. 25 / 2000 concerning Financial Balancing between Central and Province.

e. Government Regulation No. 39 / 2000 concerning De concentration.

f. Government Regulation No. 52 / 2001 concerning Assistance Principle.

g. KEPPRES (Presidential Decree) No. 165 /2000 Concerning Development Implementation.

4. SHARING OF ROLES AND RESPONSIBILITIES

In order to ensure the smooth implementation of the Project for Bridge Construction in the **West Nusa Tenggara (NTB)** under the Japan's Grant Aid, and considering The Minutes of Discussion on the Basic Design Study on the Project for Bridge Construction in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB) signed in Jakarta on July 22nd, 2004 between the Japan International Cooperation Agency (JICA) and the Directorate General of Regional Infrastructure, it is necessary to reach agreement on providing supporting activities which are not covered under the Japan's Grant Aid. The Central Government and/or Provincial Government shall be responsible in preparing and conducting supporting activities as follows:

4.1. Provincial Government shall secure or provide land for the bridge construction, land for access road to the bridge location and the location of quarry, and to demolish the existing bridge(s) if necessary.

4.2. Provincial Government shall be able to clear and prepare the area before the commencement of bridge construction.

4.3. Provincial Government, if necessary, shall build gate and fence around the area.

4.4. Provincial Government shall complete the Initial Environment Examination (IEE) and Environment Management Plan (UKL/UPL)

4.5. Central Government and Provincial Government shall provide support in the process of construction including supporting documents for payment,

4.6. Central government and provincial government shall establish a Project Team lead by a Project Manager,

4.7. Central government and provincial government bear all expenses for advising commission to a bank authorized for payment by the Government of Japan.

4.8. Central Government and Provincial Government shall ensure the compliance with relevant taxation.

4.9. Central Government and Provincial Government shall assist in obtaining working permits for expatriates (Contractors or Consultants) working for the bridge construction in the said province.

4.10. Central Government and Provincial Government shall utilize and maintain carefully the construction and supporting facilities.

4.11. Central Government and Provincial Government shall maintain and improve the access road as follows :

4.11.1. Road Rehabilitation of Sijorong – Tetar – Lunyuk (2005-2006), covers road geometric improvement, gravel road, drainage, culverts or bridges with span less than 15 meter.

4.11.2. Road Rehabilitation Sijorong – Tetar – Lunyuk (2007-2012) with asphalt pavement.

4.11.3. 5 Bridges construction (Nagene II, Mone III, Telonang III, Bon Jati dan Momil I) from year 2005 until 2006.

4.11.4. Puna II Bridge Construction from year 2002 until 2005.

Hereby, the Memorandum of understanding is made as a guide in supporting construction activities under the Japan's Grant Aid to the Government of Indonesia on the Project for Bridge Construction in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB).

Signed in : Jakarta

Date : November 8th, 2004

Director General of Regional Infrastructure Ministry of Public Works	Provincial Government of West Nusa Tenggara The Governor
Ir. Hendrianto. N	**Drs. H. Lalu Serinata**

MEMORANDUM OF UNDERSTANDING

NTT

Between

THE DIRECTORATE GENERAL OF REGIONAL INFRASTRUCTURE
THE MINISTRY OF PUBLIC WORKS

And

THE PROVINCIAL GOVERNMENT OF EAST NUSA TENGGARA

ON

Project for Bridges Constructions
in The East Nusa Tenggara (NTT) Province
under Japan's Grant Aid

1. GENERAL

1.1. This memorandum of understanding is made between the Central Government trough the Ministry of Public Works, Directorate General of Regional Infrastructure with the Provincial Government of East Nusa Tenggara (NTT) in conjunction with Grant Aid from Government of Japan to Government of Indonesia that described in Project for Bridge Construction in East Nusa Tengara (NTT) and West Nusa Tenggara (NTB).

1.2. The Grant Aid program from Government of Japan covers bridge construction on provincial road links in East Nusa Tenggara (NTT) Province.

2. OBJECTIVE

2.1. This memorandum of understanding is made to reach mutual understanding between Central Government and Provincial Government of East Nusa Tenggara in accordance with the sharing of role and authority based on relevant regulations.

2.2. To make sufficient preparation on agreed matters respectively in order to accomplish this Grant Aid program.

3. REFERENCE

This memorandum of understanding is made referring to related provisions and regulations in Republic of Indonesia, such as :

a. Road Law no. 13 / 1980.

b. Government Regulation No. 26 / 1985 concerning Roads.

c. Law no. 22 / 1999 concerning Provincial Government.

d. Government Regulation No. 25 / 2000 concerning Financial Balancing between Central and Province.

e. Government Regulation No. 39 / 2000 concerning De concentration.

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g. KEPPRES (Presidential Decree) No. 165 /2000 Concerning Development Implementation.

4. SHARING OF ROLES AND RESPONSIBILITIES

In order to ensure the smooth implementation of the Project for Bridge Construction in the East Nusa Tenggara (NTT) under the Japan's Grant Aid, and considering The Minutes of Discussion on the Basic Design Study on the Project for Bridge Construction in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB) signed in Jakarta on July 22nd, 2004 between the Japan International Cooperation Agency (JICA) and the Directorate General of Regional Infrastructure, it is necessary to reach agreement on providing supporting activities which are not covered under the Japan's Grant Aid. The Central Government and/or Provincial Government shall be responsible in preparing and conducting supporting activities as follows:

4.1. Provincial Government shall secure or provide land for the bridge construction, land for access road to the bridge location and the location of quarry, and to demolish the existing bridge(s) if necessary.

4.2. Provincial Government shall be able to clear and prepare the area before the commencement of bridge construction.

4.3. Provincial Government, if necessary, shall build gate and fence around the area.

4.4. Provincial Government shall complete the Initial Environment Examination (IEE) and Environment Management Plan (UKL/UPL)

4.5. Central Government and Provincial Government shall provide support in the process of construction including supporting documents for payment,

4.6. Central government and provincial government shall establish a Project Team lead by a Project Manager,

4.7. Central government and provincial government bear all expenses for advising commission to a bank authorized for payment by the Government of Japan.

4.8. Central Government and Provincial Government shall ensure the compliance with relevant taxation.

4.9. Central Government and Provincial Government shall assist in obtaining working permits for expatriates (Contractors or Consultants) working for the bridge construction in the said province.

4.10. Central Government and Provincial Government shall utilize and maintain carefully the construction and supporting facilities.

4.11. Central Government and Provincial Government shall maintain and improve the access road as follows :

4.11.1. Road Maintenance of Wanibesak-Boking	(2005 – 2008)
4.11.2. Road Rehabilitation Boking-Kolbano	(2005 – 2008)
4.11.3. Road Rehabilitation Kolbano-Panite	(2005 – 2008)
4.11.4. Road Maintenance Panite-Batu Putih	(2005 – 2008)
4.11.5. Boking Bridge Construction	(2001 - 2004)

Hereby, the Memorandum of understanding is made as a guide in supporting construction activities under the Japan's Grant Aid to the Government of Indonesia on the Project for Bridge Construction in the East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB).

Signed in : Jakarta

Date :

Director General of Regional Infrastructure
Ministry of Public Works

Ir. Hendrianto. N

Provincial Government of
East Nusa Tenggara
The Governor

Ir. Piet Alexander Tallo, SH

(6) NTB 2004 年分追加予算申請書

2004年分予算申請書

DEPARTEMEN PEKERJAAN UMUM
DIREKTORAT JENDERAL PRASARANA WILAYAH
DIREKTORAT PRASARANA WILAYAH TIMUR
Jl. Pattimura 20 Kebayoran Baru – Telp./Fax 021-7394433 – Jakarta 12110

MEMO DINAS

No.: 334/MD/Pe/2004

To	: Director of Technical Affair Directorate General of Regional Infrastructure
From	: Director of Eastern Region Infrastructure Directorate General of Regional Infrastructure
Cc.	: 1. Director General of Regional Infrastructure (as report) 2. Chief of Provincial Kimpraswil in West Nusa Tenggara Province 3. file
Subject	: Proposal for Revision I DIP/PO for Project of Road and Bridge Construction in West Nusa Tenggara for Fiscal Year 2004.
Date	: 14 September 2004.
Enclosure	: 1 (one) sheet

Refering to the letter of Project Manager for Roads and Bridges Construction in West Nusa Tenggara province ref.: KU.06.08/Rev.I/PPJJ-NTB/558 dated September 10, 2004 concerning proposal for revision I DIP/PO for Project of Road and Bridge Construction in West Nusa Tenggara province, and to follow up the letter of Director General of Regional Infrastructure ref.: KU.06.08-Dp/481 dated September 6, 2004 concerning : Reallocation budget among provinces/project in order for national saving to implement emergency program in Ministry of Public Works, herewith submitted the information as follows :

1. Remaining budget from tender allocation for the project amount Rp. 2.721.808.000,- will be funded for :
   A. Needed to conduct the emergency project caused of natural disaster in link: Sejorong-Tetar-Lunyuk for about 2,75 km cost amount Rp. 2.049.552.000,- and also contributed by JICA.
   B. For emergency implementation to expand the bridges in National road link and damaged bridges caused by natural disaster in link Sejorong-Tetar-Lunyuk, as follows :
      a) Jompong bridge target 7,00 M cost amount Rp. 100.000.000,-
      b) Mantang bridge target 7,00 M cost amount Rp. 100.000.000,-
      c) Bertong bridge target 7,00 M cost amount Rp. 230.256.000,-

2. Remaining budget of DIP amount Rp. 242.000.000,- will funded to conduct emergency program in Directorate General of Regional Infrastructure according to the letter of Secretary General of Ministry of Public Works ref. KU.06.08-Sj/408 dated September 3, 2004.

The proposal for revision I DIP/PO effect the DIP summary and target, from original Rp. 27.585.203.000,- with target 308,16 km, effective 18,00 km and 97,00 m revised to Rp. 27.343.203.000,- with target 60,65 km, effective 20.75 km and 118.00 m.

Such was the case, thank you for the attention.

Director of Eastern Region Infrastructure

Ir. Frankie Tayu
NIP. 110016522

NUMBER :
DATE :

Project Code	Project	Source of Budget	Original				Mutation		Revise 1				Memo
			TARGET			Budget	Increase	Decrease	TARGET			Budget	
			Road		Bridge	Rp.	Rp.	Rp.	Road		Bridge	Rp.	
			FUNG KM	EFF KM	EFF M'				FUNG KM	EFF KM	EFF M'		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
01	**Road and Bridge Development PROVINCEI NTB**												
01.0101	Project Administration	National Budget				272,838,000						272,838,000	Constant
01.2101.5920	Building budget	National Budget				8,000,000						8,000,000	Constant
01.2234.5920	Communication & studio equipments	National Budget				31,500,000						31,500,000	Constant
01.3401.A.5940	DASAN CERMEN-RUMAK road development	National Budget	3.70	2.00		1,700,000,000		107,348,000	3.70	2.00		1,592,652,000	Changed
01.4101.5930	Office building maintenance	National Budget				7,941,000						7,941,000	Constant
01.7203.5960	Monitoring and Evaluasion	National Budget				125,721,000						125,721,000	Constant
	SUB TOTAL	National Budget				2,146,000,000		107,348,000				2,038,652,000	Changed
		IBRD 4643 IND	3.70	2.00		0		0	3.70	2.00		0	Constant
		Total				2,146,000,000		107,348,000				2,038,652,000	Changed
02	**Ring Road development of Sumbawa Island**												
02.0101	Project Administration	National Budget				163,194,000						163,194,000	Constant
02.2234.5920	Communication & studio equipments	National Budget				1,500,000						1,500,000	Constant
02.3401.A.5940	SIMPANG ROPANG - SEKOKAT road development	National Budget	35.00	3.50		2,072,000,000		973,738,000	3.50	3.50		1,098,262,000	Changed
02.3401.B.5940	SEJORONG-TETAR-LUNYUK road development	National Budget					2,049,552,000		11.90	2.75		2,049,552,000	Increased
	SUB TOTAL	National Budget				2,236,694,000	2,049,552,000	973,738,000				3,312,508,000	Changed
		IBRD 4643 IND	35.00	3.50		0	0	0	15.40	6.25		0	Constant
		Total				2,236,694,000	2,049,552,000	973,738,000				3,312,508,000	Changed
03	**REMPUNG-LABUHAN LOMBOK road development**												
03.0101	Project Administration	National Budget				152,788,000						152,788,000	Constant
03.2234.5920	Communication & studio equipments	National Budget				5,000,000						5,000,000	Constant
03.3401.A.5940	LABUHAN LOMBOK - KAYANGAN road development	National Budget	3.00	2.00		1,600,000,000		34,502,000	2.00	2.00		1,565,498,000	Changed
03.3401.B.5940	MANTANG - KOPANG road development	National Budget	4.11	2.00		1,700,000,000		68,452,000	2.00	2.00		1,631,548,000	Changed
	SUB TOTAL	National Budget				3,457,788,000		102,954,000				3,354,834,000	Changed
		IBRD 4643 IND	7.11	4.00		0		0	4.00	4.00		0	Constant
		Total				3,457,788,000		102,954,000				3,354,834,000	Changed
04	**PAL.IV - KM.70 road development**												
04.0101	Project Administration	National Budget				158,000,000						158,000,000	Constant
04.2234.5920	Communication & studio equipments	National Budget				5,000,000						5,000,000	Constant
04.3401.A.5940	PAL.IV - KM.70 road development	National Budget	65.29	2.00		1,600,000,000		40,723,000	2.00	2.00		1,559,277,000	Changed
	SUB TOTAL	National Budget				1,763,000,000		40,723,000				1,722,277,000	Changed
		IBRD 4643 IND	65.29	2.00		0		0	2.00	2.00		0	Constant
		Total				1,763,000,000		40,723,000				1,722,277,000	Changed

Project Code	Project	Source of Budget	Original				Mutation		REVISI 1				Memo
			TARGET			Budget Rp.	Increase Rp.	Decrease Rp.	TARGET			Budget Rp.	
			Road		Bridge				Road		Bridge		
			FUNG KM	EFF KM	EFF M'				FUNG KM	EFF KM	EFF M'		
1	2	3	4	5	6	7	8	9	10	11	12	13	14
05	**SUMBAWA BESAR-SIMPANG NEGARA road development**												
05.0101	Project Administration	National Budget				157,971,000						157,971,000	Constant
05.2234.5920	Communication & studio equipments	National Budget				5,000,000						5,000,000	Constant
05.3401.A.5940	SUMBAWA BESAR-SIMPANG NEGARA - LABUHAN TANO road development	National Budget	92.38	2.50		2,000,000,000		200,574,000	2.50	2.50		1,799,426,000	Changed
05.3401.B.5940	SUMBAWA BESAR-SIMPANG NEGARA (EIB-29), ESKALAS road development	National Budget	82.11	0.00		450,000,000		312,327,000	18.50	0.00		137,673,000	Changed
		IBRD 4643 IND				2,030,000,000						2,030,000,000	Constant
	SUB TOTAL	National Budget				2,612,971,000		512,901,000				2,100,070,000	Changed
		IBRD 4643 IND	174.49	2.50		2,030,000,000		0	21.00	2.50		2,030,000,000	Constant
		Total				4,642,971,000		512,901,000				4,130,070,000	Changed
06	**Sub Project PROV. NTB bridge development**												
06.0101	Project Administration	National Budget				156,262,000						156,262,000	Constant
06.2234.5920	Communication & studio equipments	National Budget				6,500,000						6,500,000	Constant
06.3402.A.5940	KETUJIR bridge development	National Budget			7.00	400,000,000		95,111,000			7.00	304,889,000	Changed
06.3402.B.5940	PUNA II bridge development	National Budget			90.00	1,800,000,000		177,978,000			90.00	1,622,022,000	Changed
06.3402.C.5940	JOMPONG bridge development	National Budget					100,000,000				7.00	100,000,000	Increased
06.3402.D.5940	BERTONG bridge development	National Budget					230,256,000				7.00	230,256,000	Increased
	SUB TOTAL	National Budget				2,362,762,000	330,256,000	273,089,000				2,419,929,000	Changed
		IBRD 4643 IND			97.00	0	0	0			111.00	0	Constant
		Total				2,362,762,000	330,256,000	273,089,000				2,419,929,000	Changed
07	Sub Project CAKRA NEGARA - MANTANG road development												
07.0101	Project Administration	National Budget				164,988,000						164,988,000	Constant
07.2234.5920	Communication & studio equipments	National Budget				5,000,000						5,000,000	Constant
07.3401.A.5940	CAKRA NEGARA - MANTANG road development (EIB-28)	National Budget	22.57	4.00		1,962,000,000		711,055,000	14.55	4.00		1,250,945,000	Changed
		IBRD 4643 IND				8,844,000,000						8,844,000,000	Constant
07.3401.B.5940	MANTANG bridge development	National Budget					100,000,000				7.00	100,000,000	Increased
	SUB TOTAL	National Budget				2,131,988,000	100,000,000	711,055,000				1,520,933,000	Changed
		IBRD 4643 IND	22.57	4.00		8,844,000,000	0	0	14.55	4.00	7.00	8,844,000,000	Constant
		Total				10,975,988,000	100,000,000	711,055,000				10,364,933,000	Changed
	TOTAL PROYEK	National Budget				16,711,203,000	2,479,808,000	2,721,808,000				16,469,203,000	Changed
		IBRD 4643 IND	308.16	18.00	97.00	10,874,000,000	0	0	60.65	20.75	118.00	10,874,000,000	Changed
		Total				27,585,203,000	2,479,808,000	2,721,808,000				27,343,203,000	Changed

c:\mut-bang104ntb

JAKARTA, 2004

Directorate of Eastern Regional Infrastructure

資料10　図　　面　　集

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR BRIDGE CONSTRUCTION IN
THE EAST NUSA TENGGARA (NTT)
AND WEST NUSATENGGARA (NTB)
IN
THE REPUBLIC OF INDONESIA
FINAL REPORT

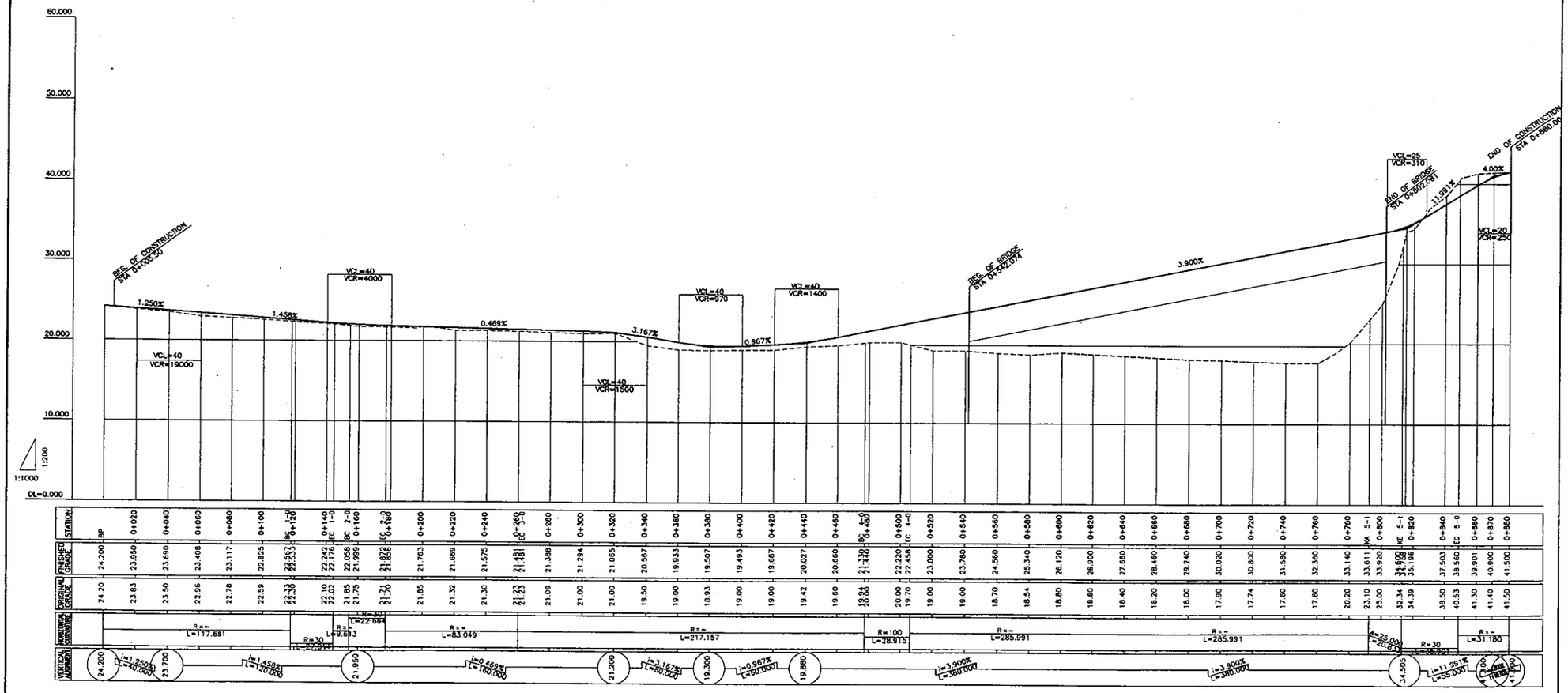
A10－1

BASIC DESIGN DRAWINGS

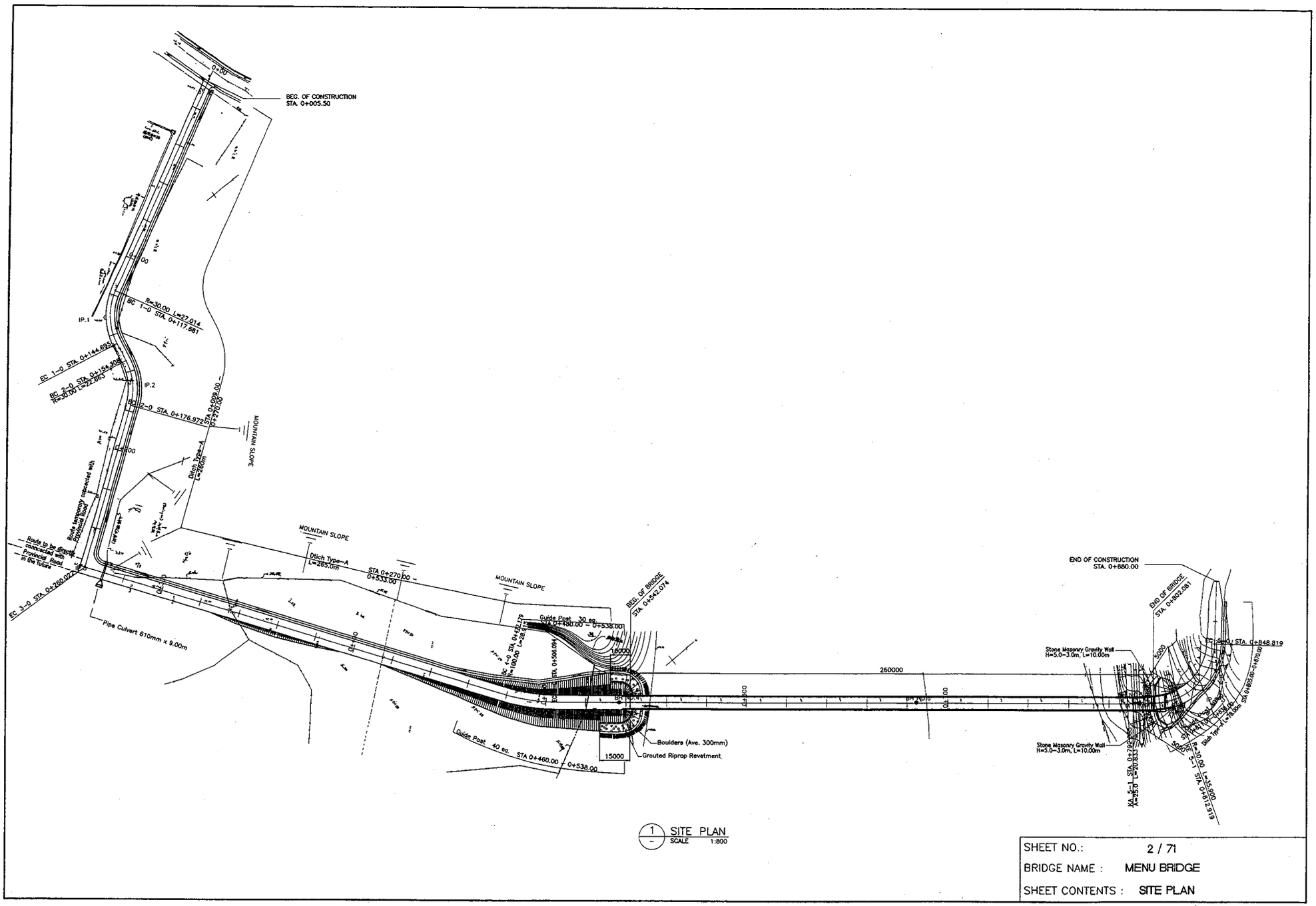
JANUARY 2005

JAPAN INTERNATIONAL COOPERATION AGENCY
GRANT AID MANAGEMENT DEPARTMENT

DRAWING INDEX

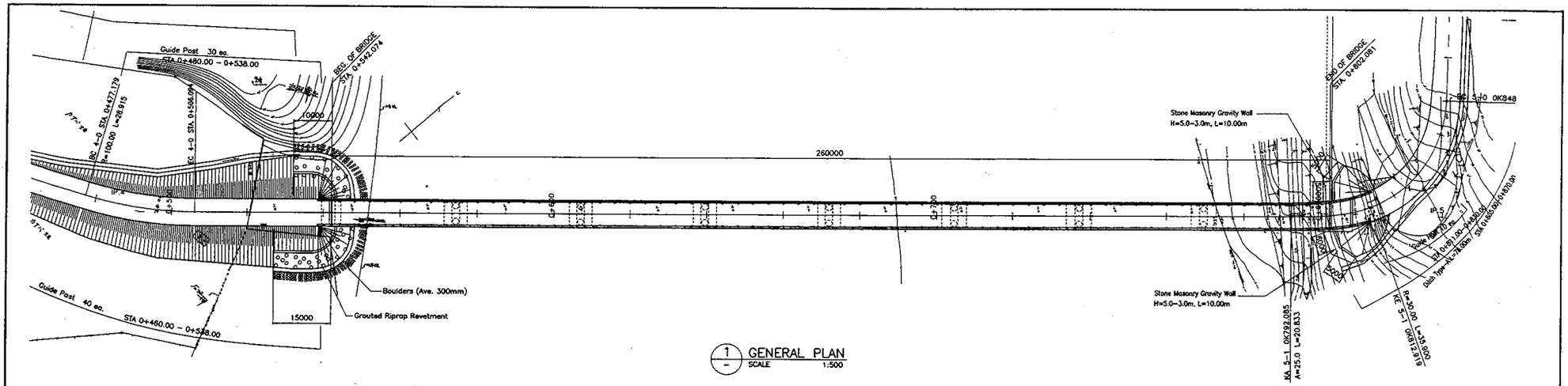


SHEET NO.:	1 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	PROFILE



1 SITE PLAN
SCALE 1:800

SHEET NO.:	2 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	SITE PLAN



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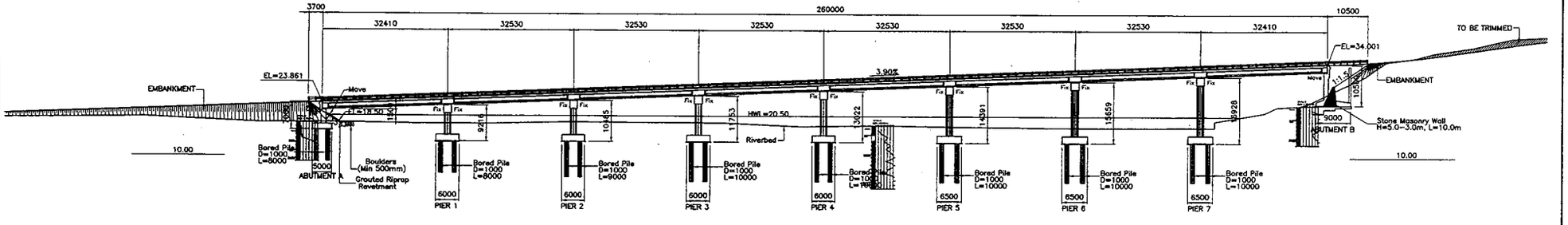
SCALE 1:500



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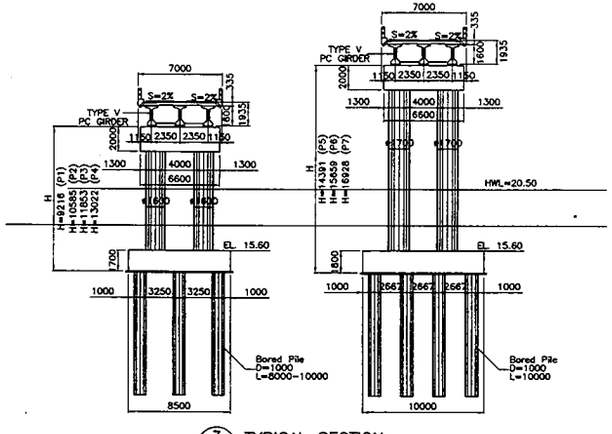
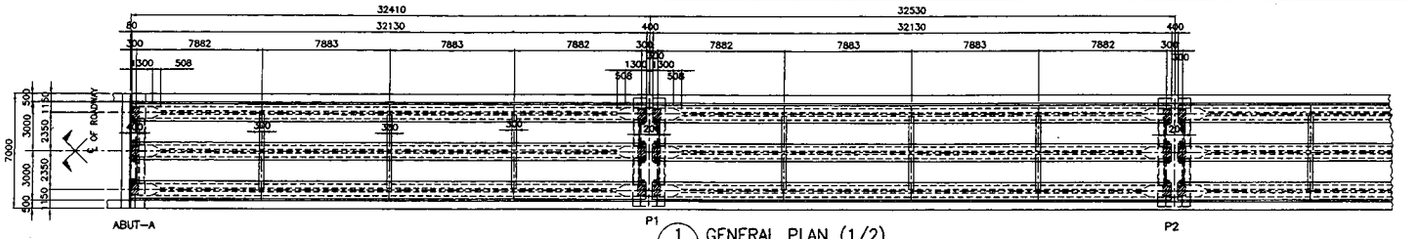
SCALE 1:500



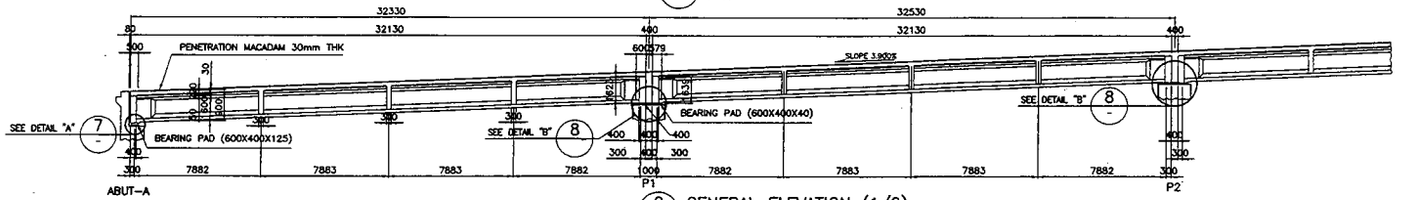
3 TYPICAL SECTION
SCALE 1:200

SHEET NO.:	3 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW

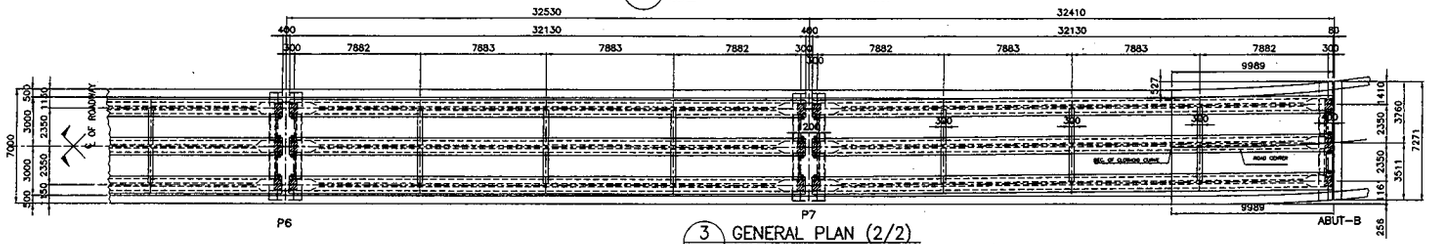
A10-5



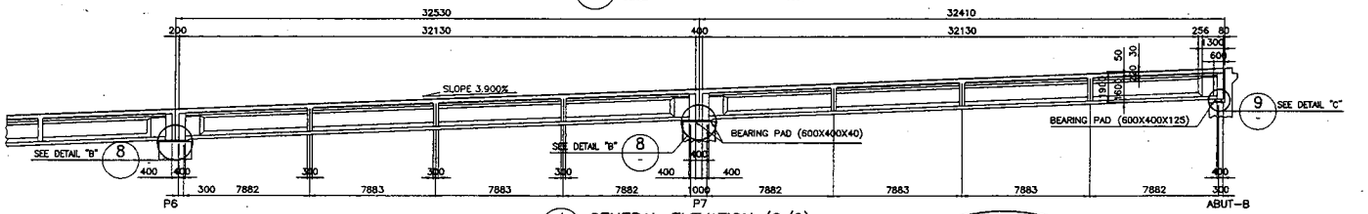
1 GENERAL PLAN (1/2)
SCALE 150



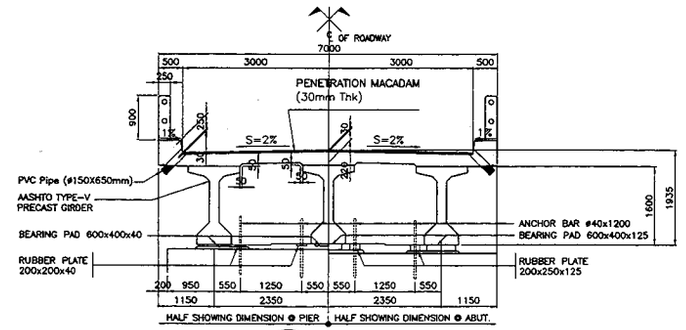
2 GENERAL ELEVATION (1/2)
SCALE 1:150



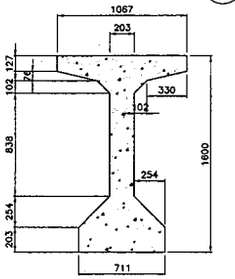
3 GENERAL PLAN (2/2)
SCALE 150



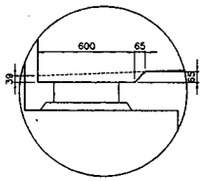
4 GENERAL ELEVATION (2/2)
SCALE 1:150



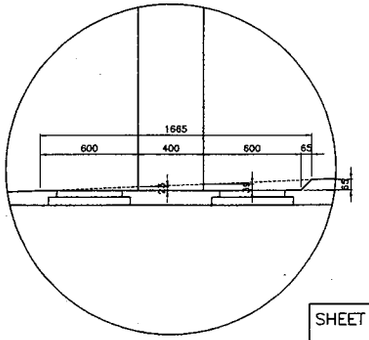
5 SECTION
SCALE 1:50



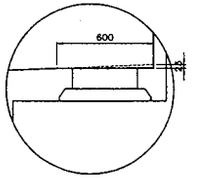
6 AASHTO TYPE V PRECAST GIRDER
SCALE 1:20



7 DETAIL "A"
SCALE 1:15



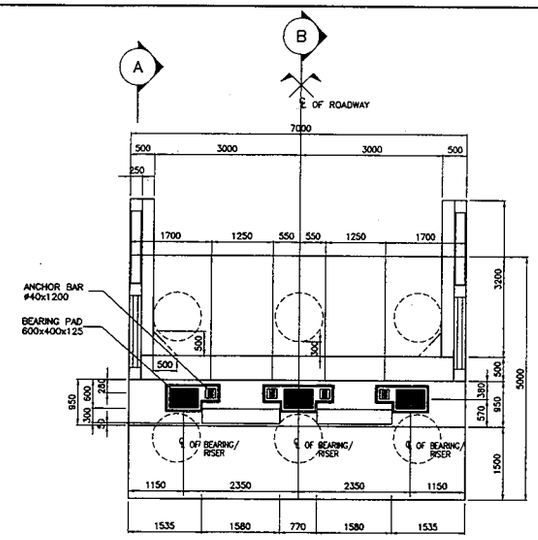
8 DETAIL "B"
SCALE 1:15



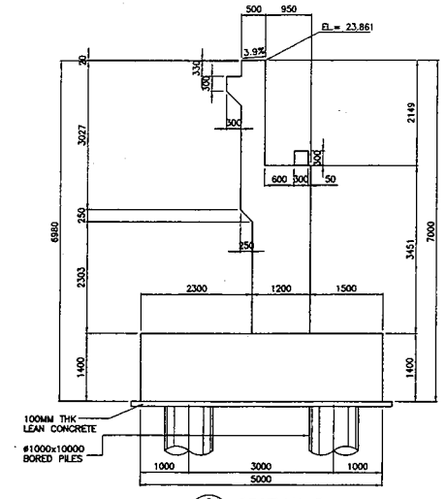
9 DETAIL "C"
SCALE 1:15

SHEET NO.:	4 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE

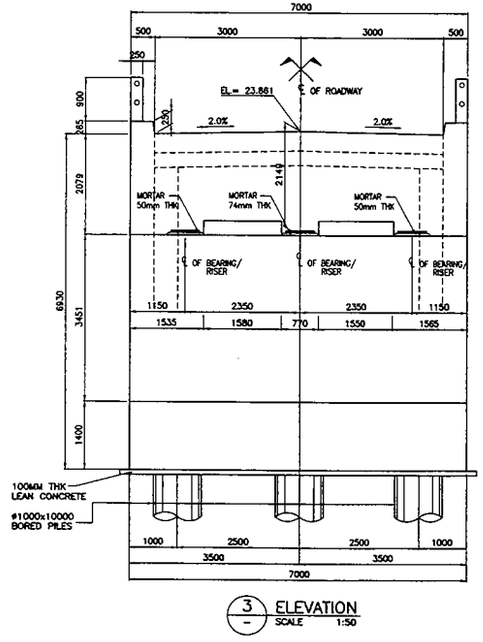
A10-6



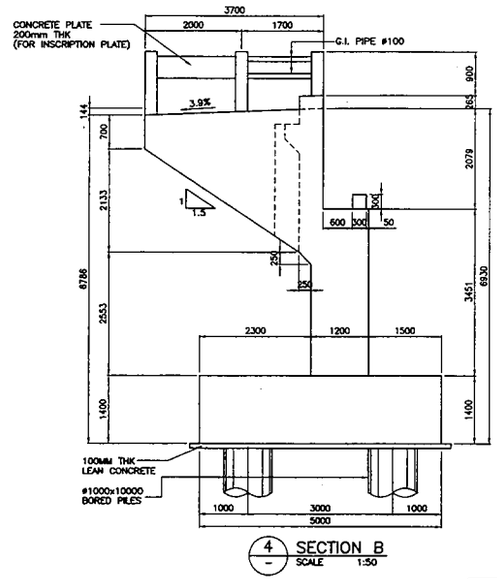
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50

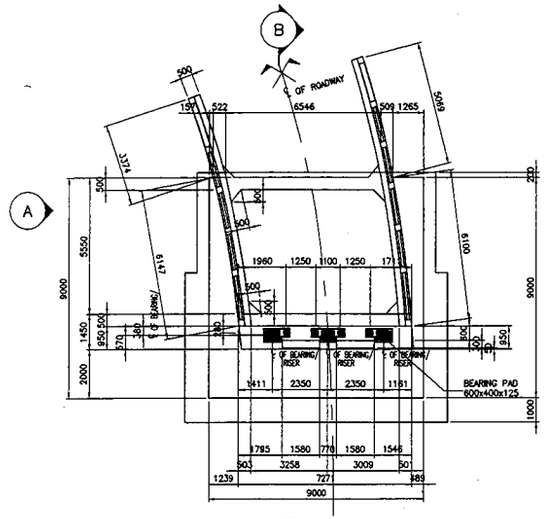


3 ELEVATION
SCALE 1:50

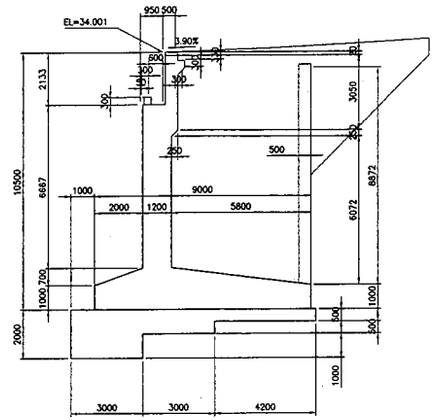


4 SECTION B
SCALE 1:50

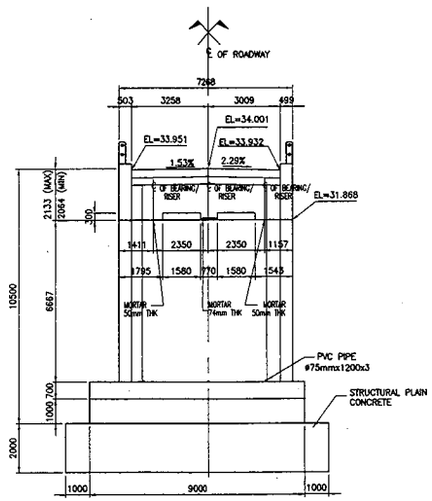
SHEET NO.:	5 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	ABUTMENT A



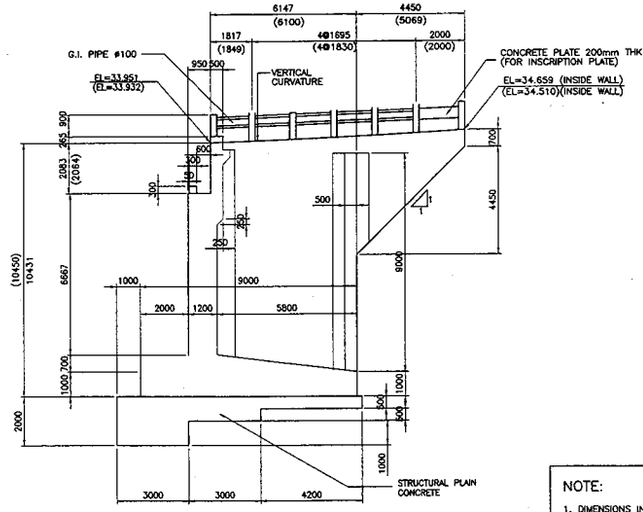
1 PLAN
SCALE 1:100



2 SECTION B
SCALE 1:100



3 ELEVATION
SCALE 1:100

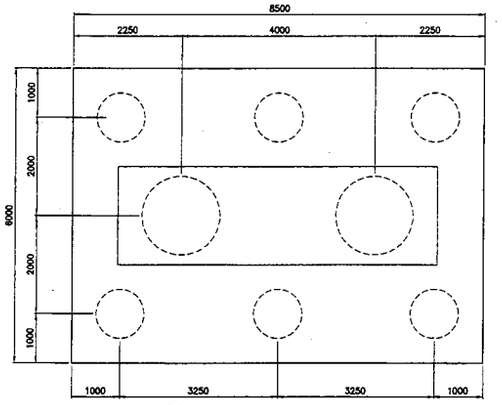


4 SECTION A
SCALE 1:100

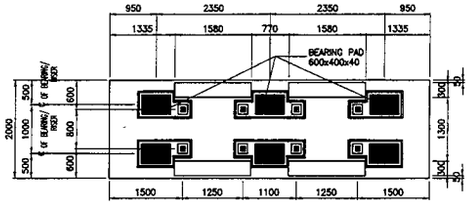
NOTE:
1. DIMENSIONS IN ( ) SHOWS DOWNSTREAM SIDE WINGWALL
2. BACKFILL INSIDE THE BACKWALL SHALL BE GRAVELLY SOIL.

SHEET NO.: 6 / 71
BRIDGE NAME : MENU BRIDGE
SHEET CONTENTS : ABUTMENT B

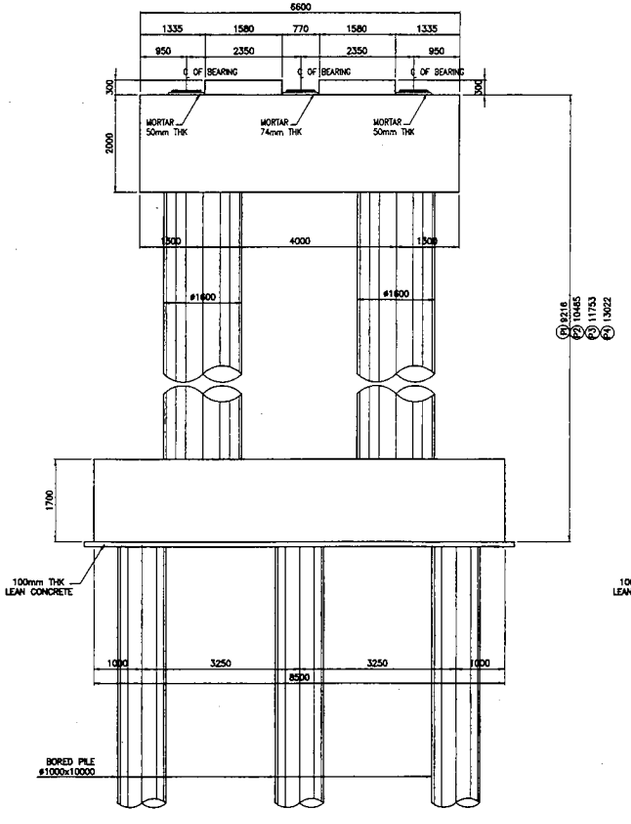
A10-8



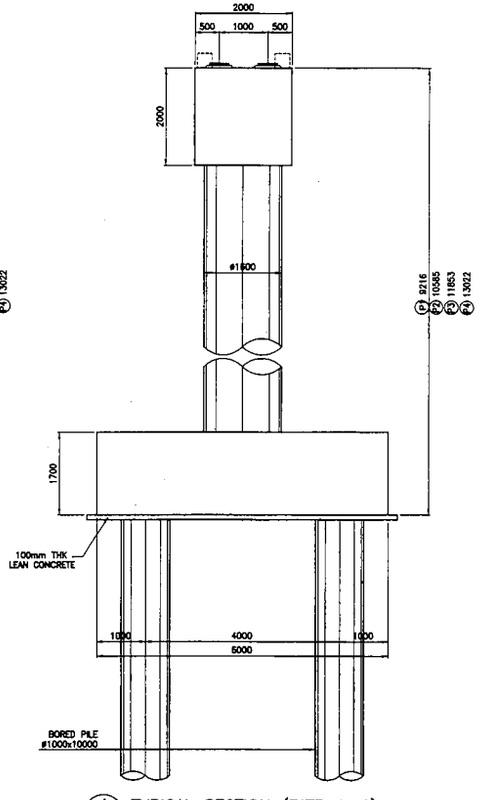
1 PIER FOOTING PLAN
SCALE 1:50



2 PIER COPING PLAN
SCALE 1:50

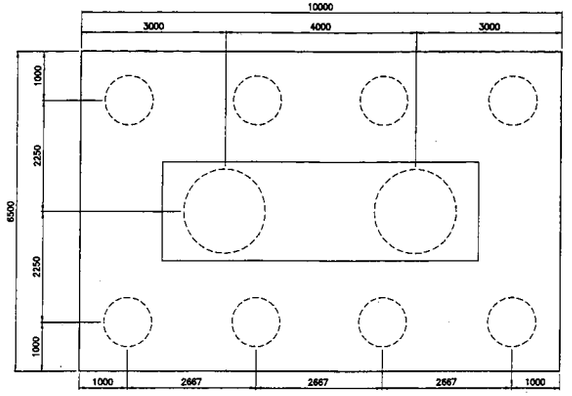


3 PIER ELEVATION
SCALE 1:50

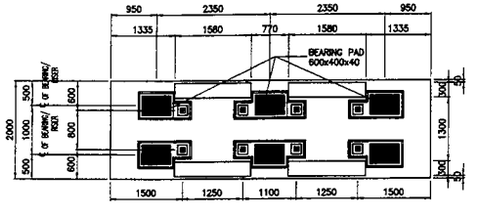


4 TYPICAL SECTION (PIER 1-4)
SCALE 1:50

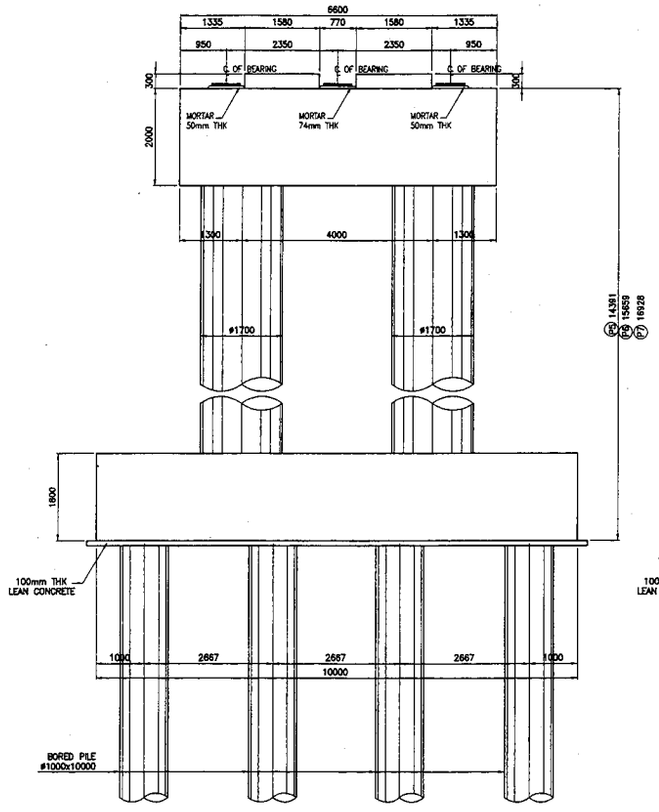
SHEET NO.:	7 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	PIER (1-4)



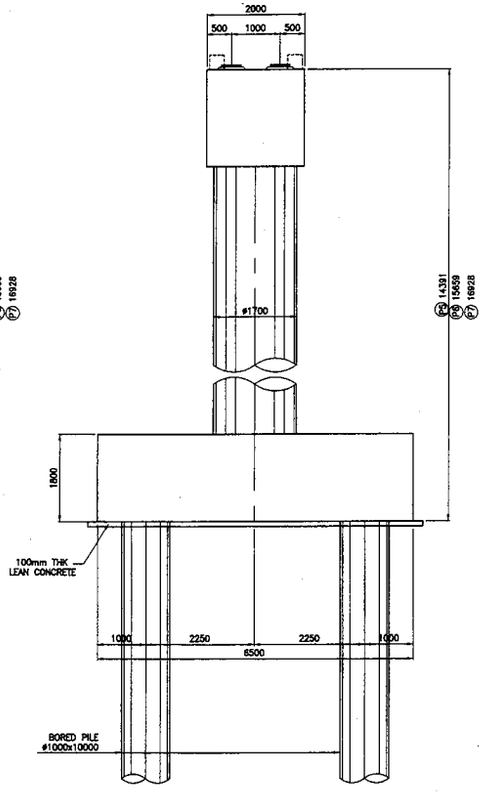
1 PIER FOOTING PLAN
SCALE 1:50



2 PIER COPING PLAN
SCALE 1:50

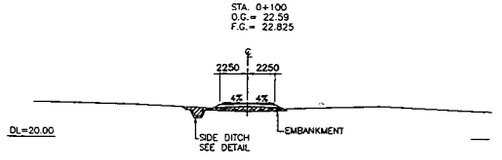


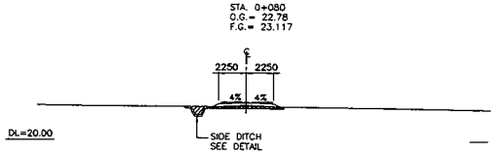
3 PIER ELEVATION
SCALE 1:50

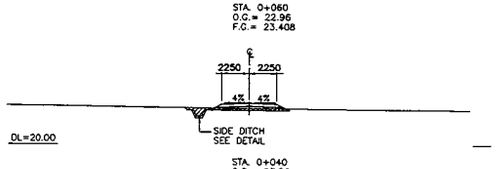


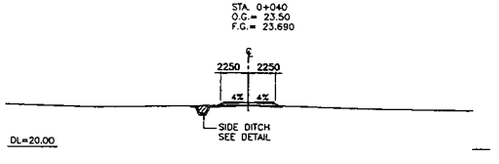
4 TYPICAL SECTION (PIER 5-7)
SCALE 1:50

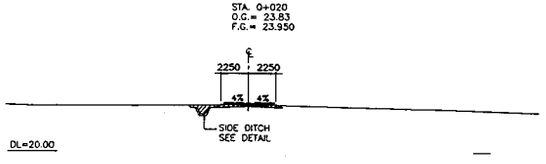
SHEET NO.:	8 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	PIER (5-7)

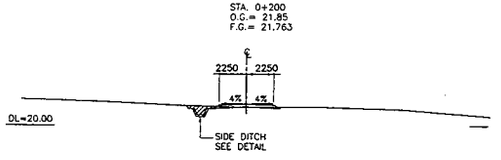


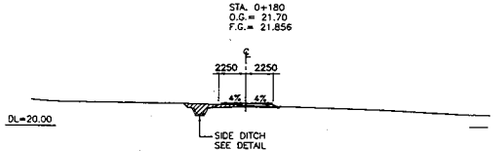


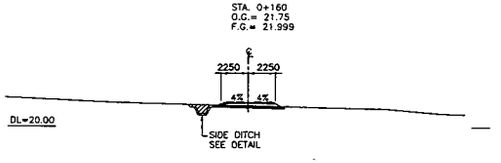


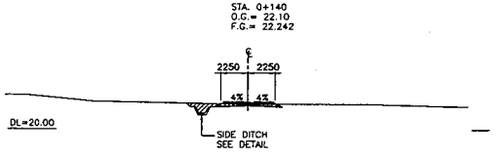


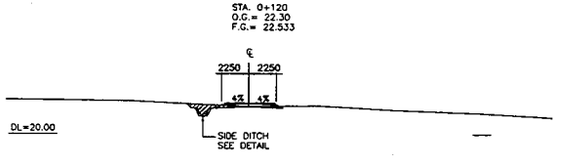


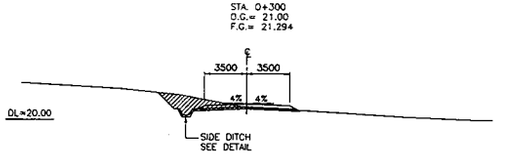


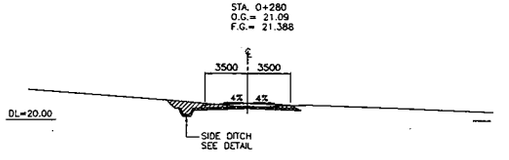


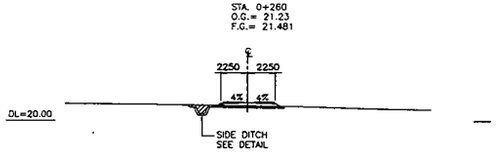


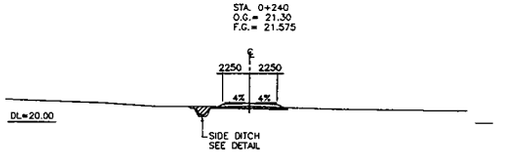


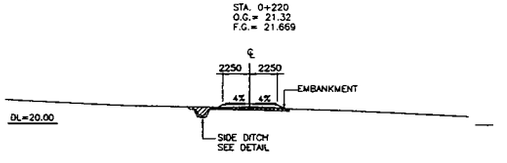




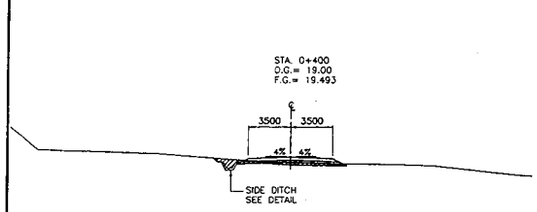








SHEET NO.:	9 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS 1 (1:200)



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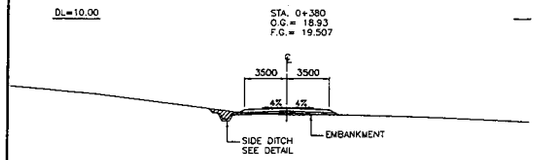

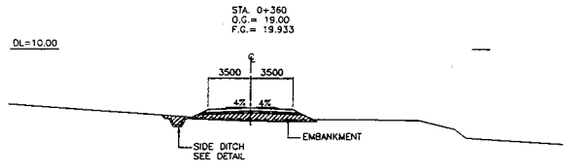

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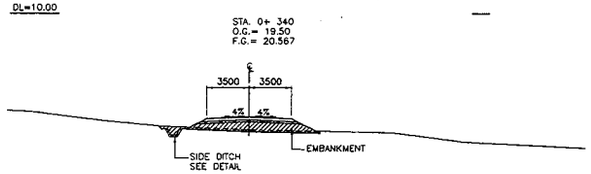
DL=10.00



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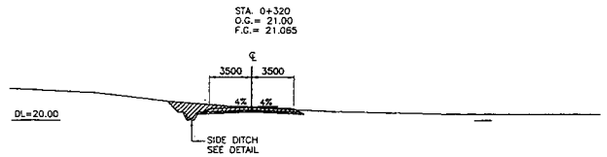

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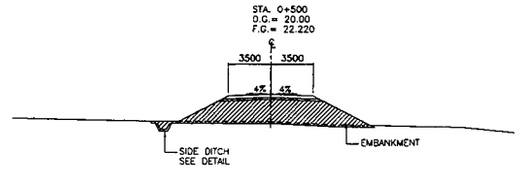

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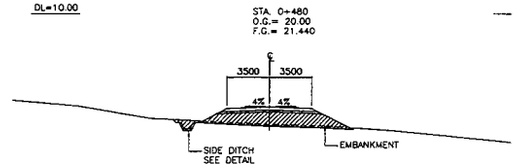
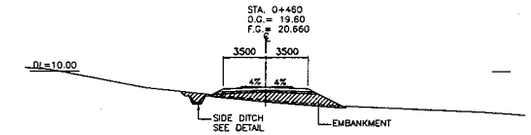
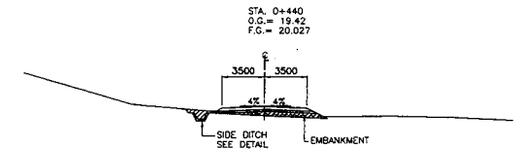




DL=10.00

DL=10.00



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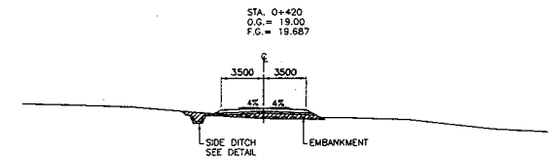

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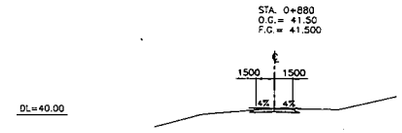

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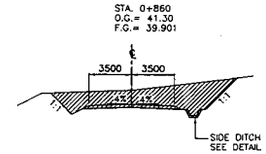

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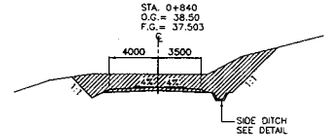

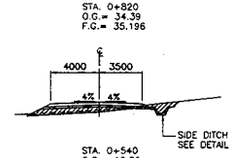

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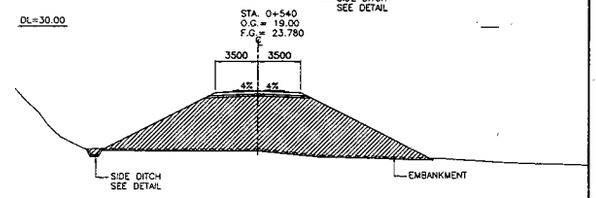
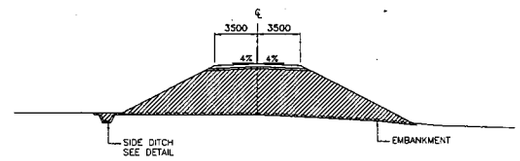
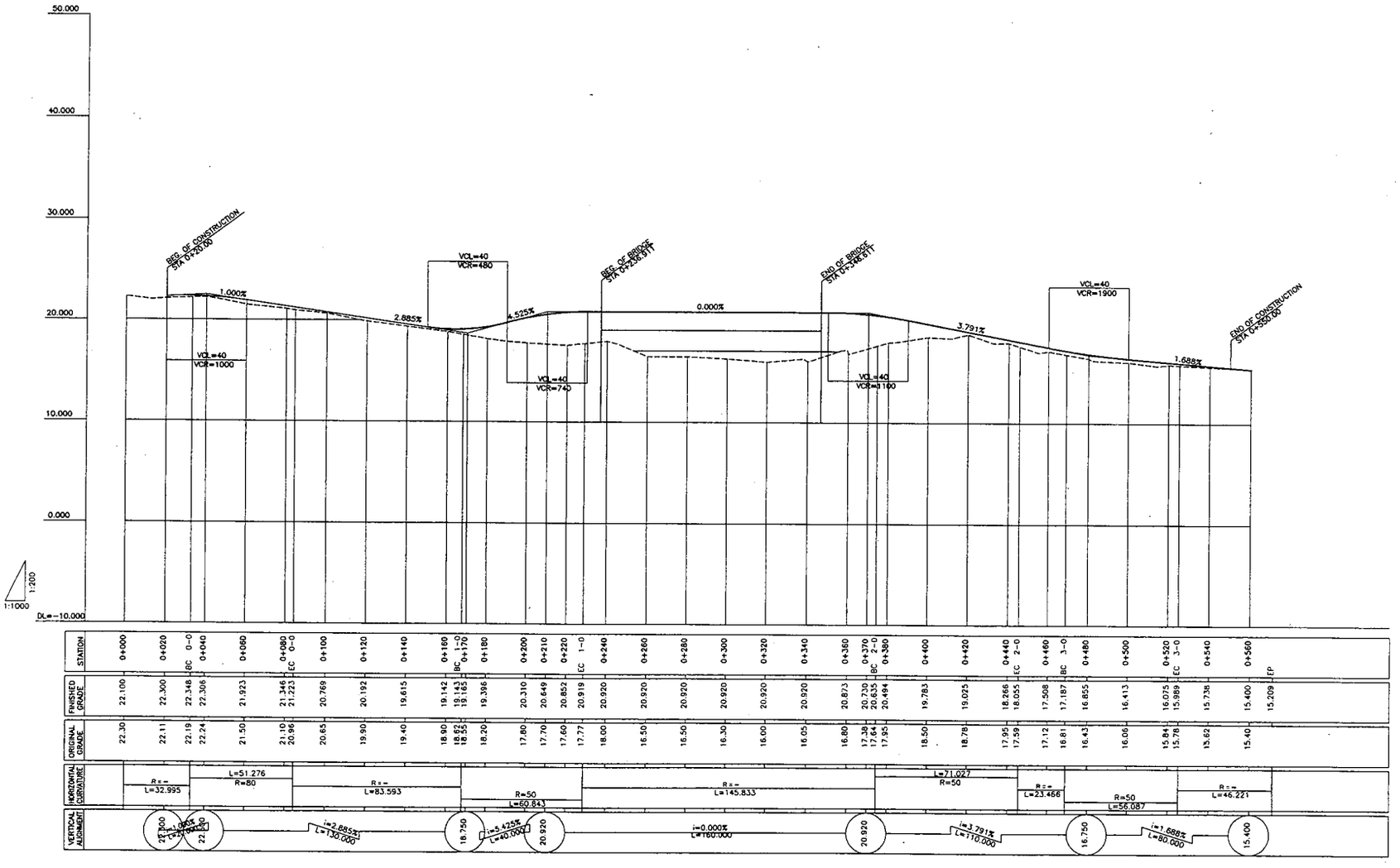


DL=10.00

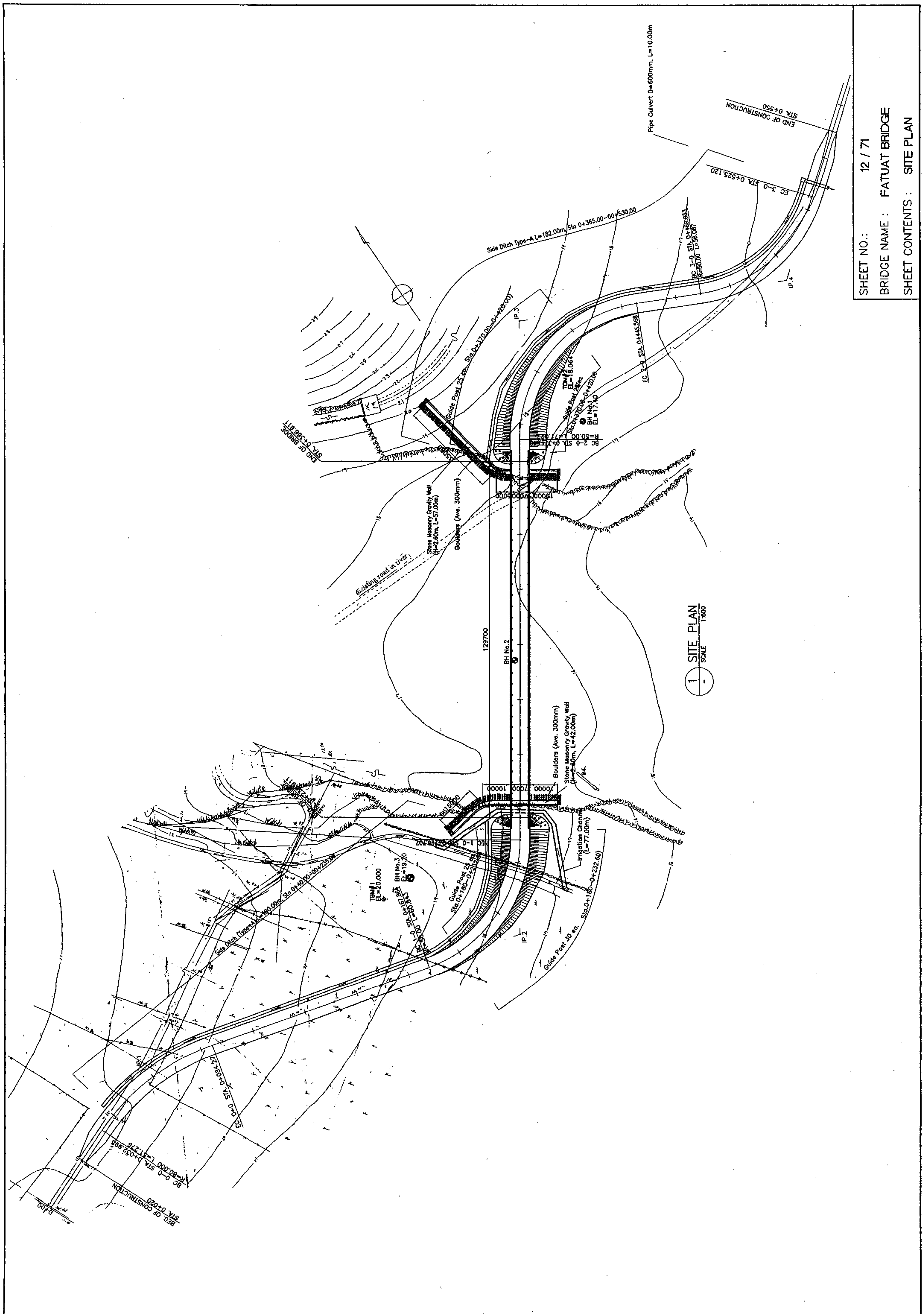


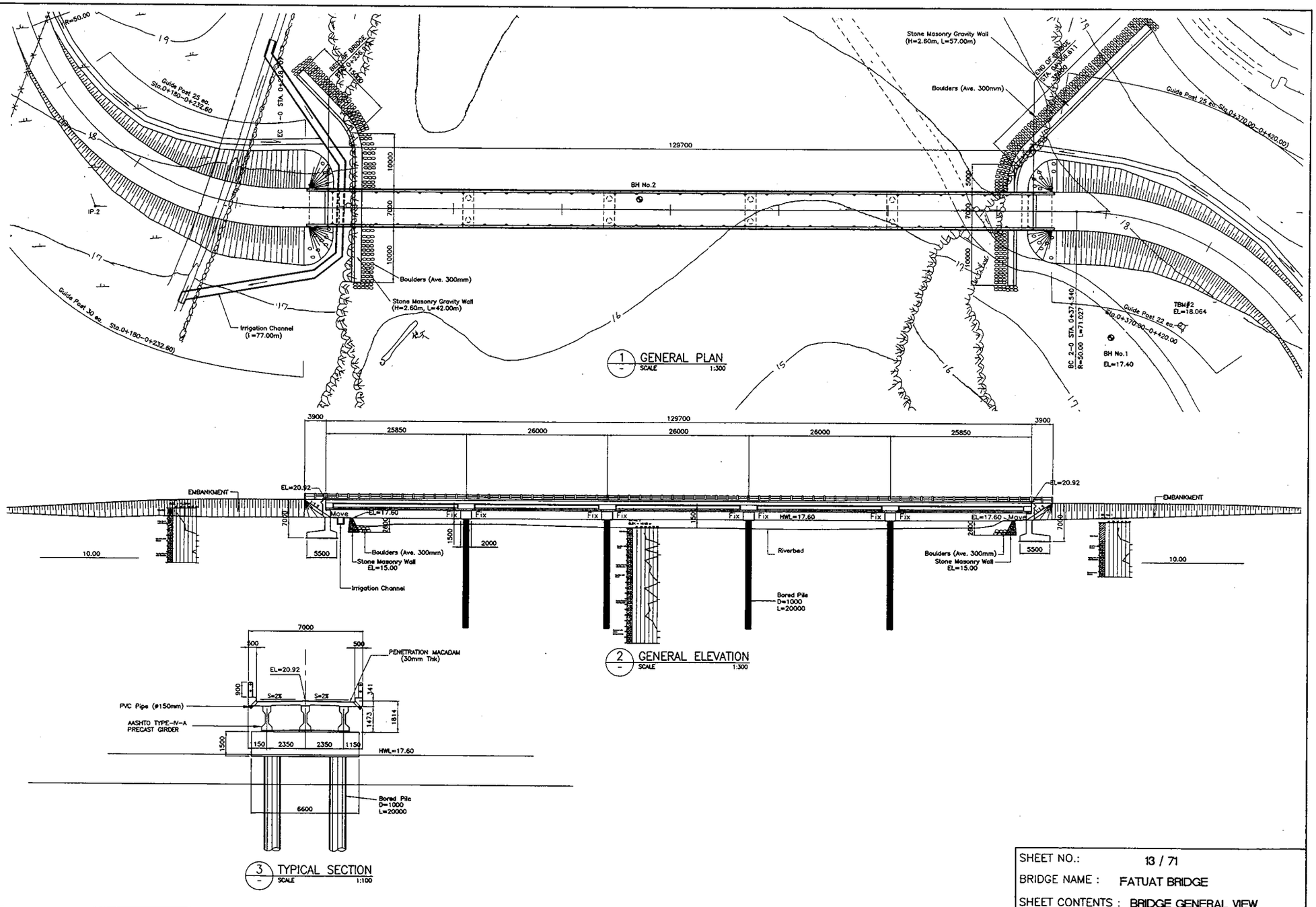
DL=10.00

SHEET NO.:	10 / 71
BRIDGE NAME :	MENU BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS 2 (1:200)

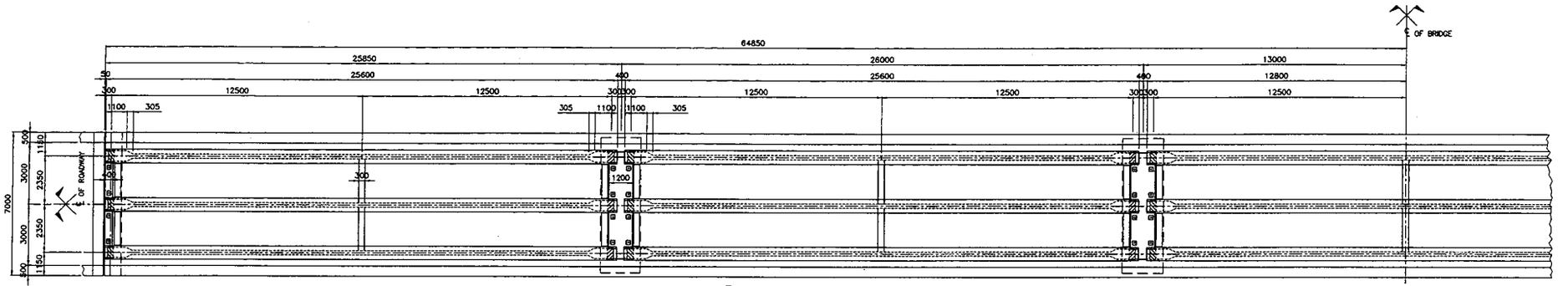


SHEET NO.:	11 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	PROFILE

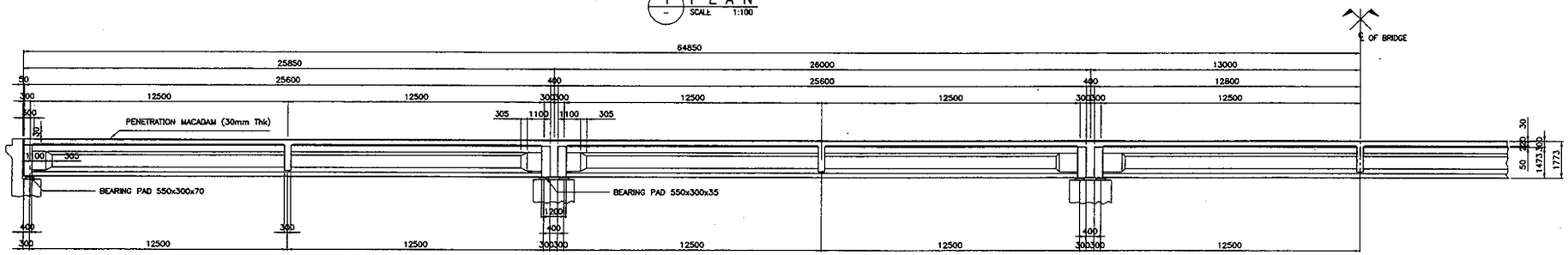

SHEET NO.: 12 / 71
BRIDGE NAME : FATUAT BRIDGE
SHEET CONTENTS : SITE PLAN
SITE PLAN
SCALE 1:600



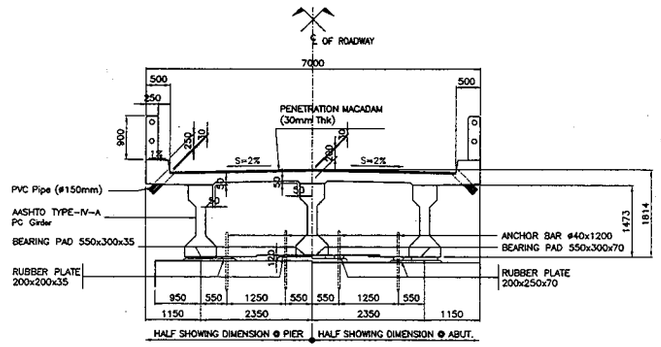
SHEET NO.:	13 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



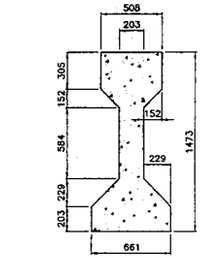
1 PLAN
SCALE 1:100



2 ELEVATION
SCALE 1:100

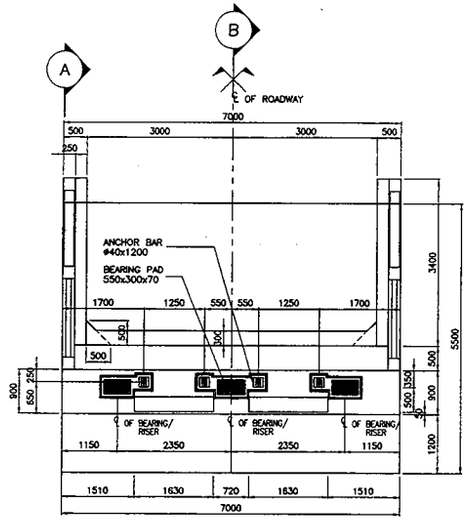


3 SECTION
SCALE 1:50

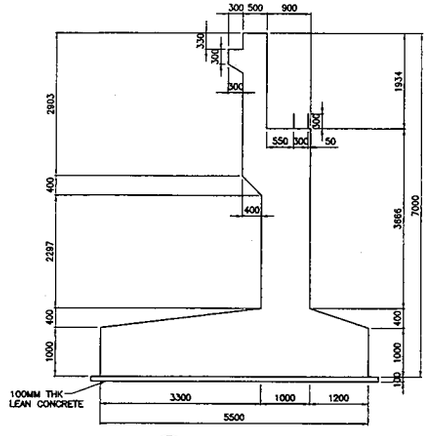


4 AASHTO TYPE IV-A PRECAST GIRDER
SCALE 1:20

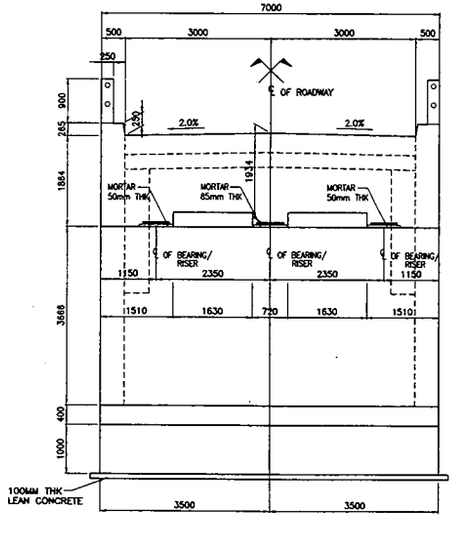
SHEET NO.:	14 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE



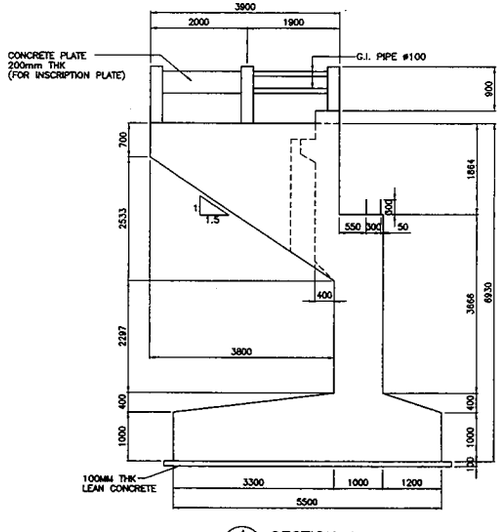
1 — PLAN
SCALE 1:50



2 — SECTION B
SCALE 1:50

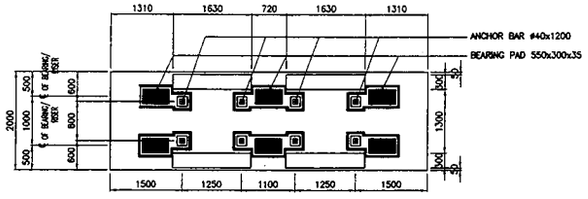


3 — ELEVATION
SCALE 1:50

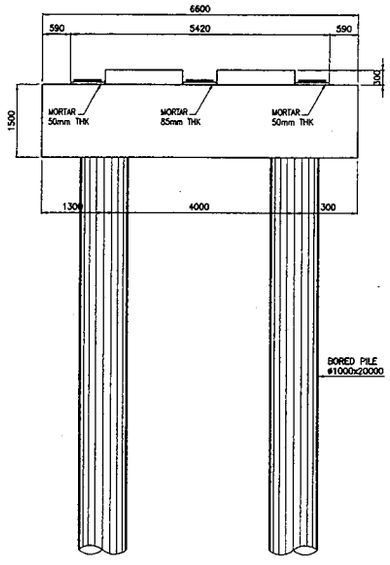


4 — SECTION A
SCALE 1:50

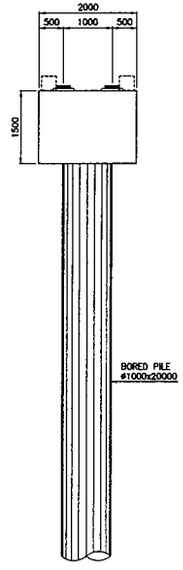
SHEET NO.:	15 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	ABUTMENT "A", "B"



1 PIER COPING PLAN
SCALE 1:50

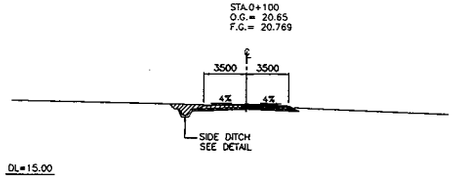


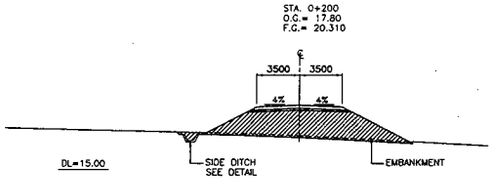
2 PIER ELEVATION
SCALE 1:50

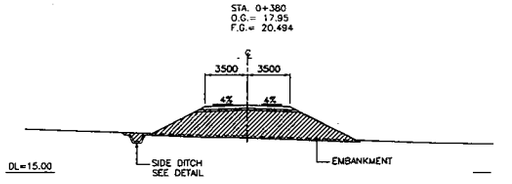


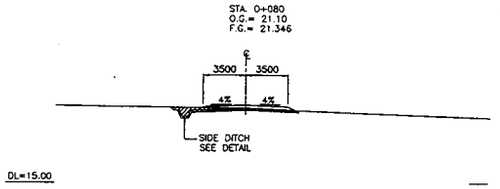
3 TYPICAL SECTION
SCALE 1:50

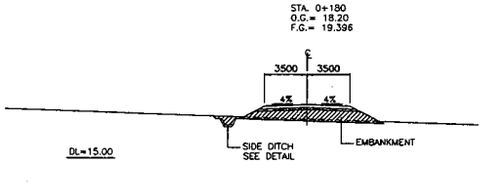
SHEET NO.:	16 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	PIER 1-4

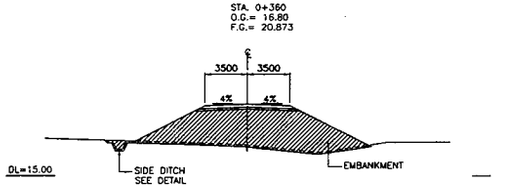


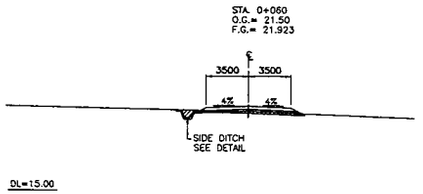


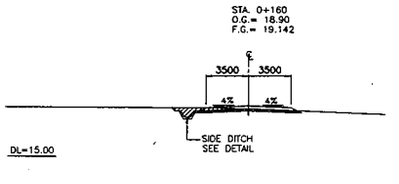


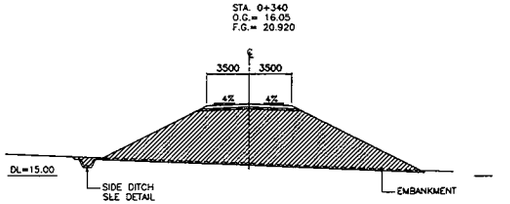


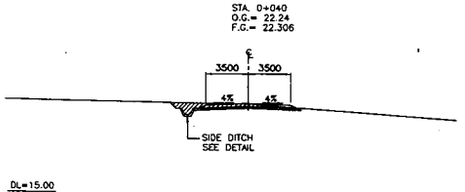


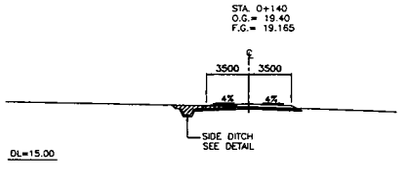


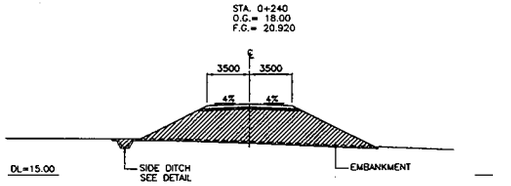


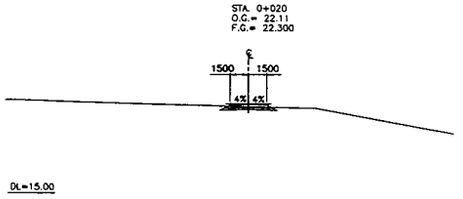


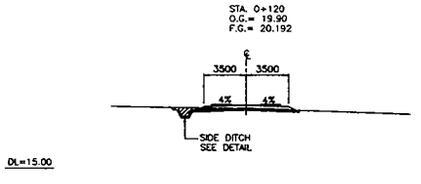


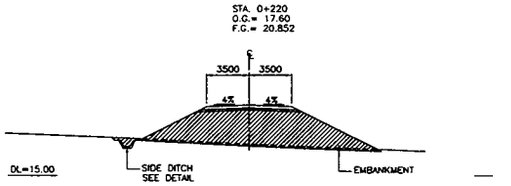




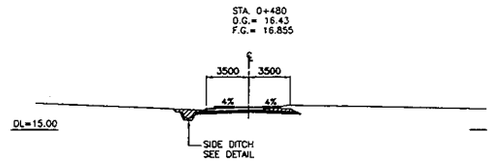


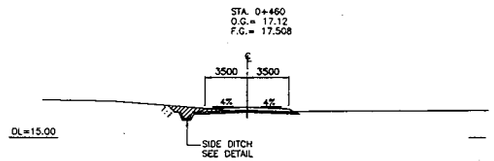


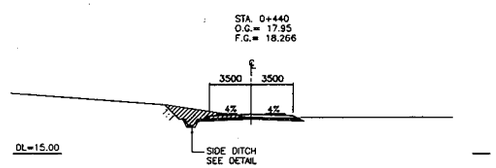


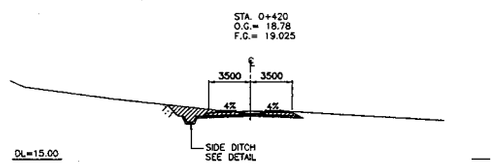


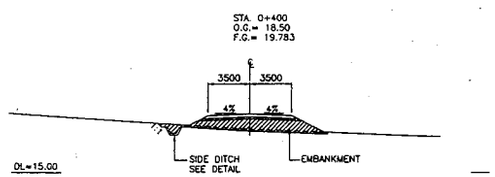
SHEET NO.:	17 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS 1 (1:200)

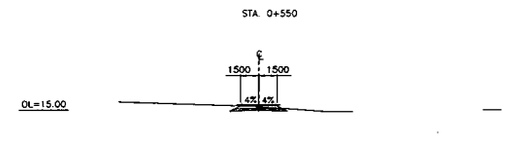


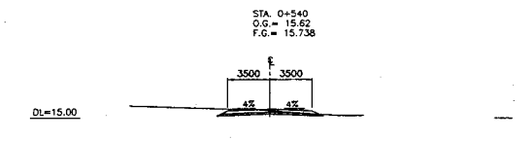


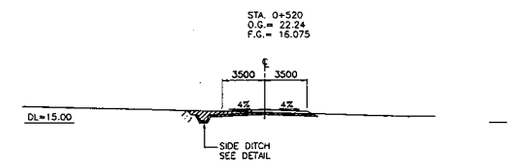


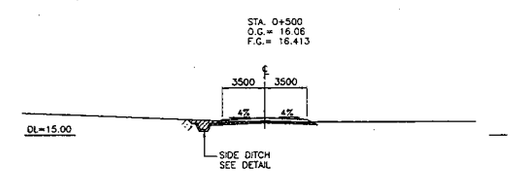




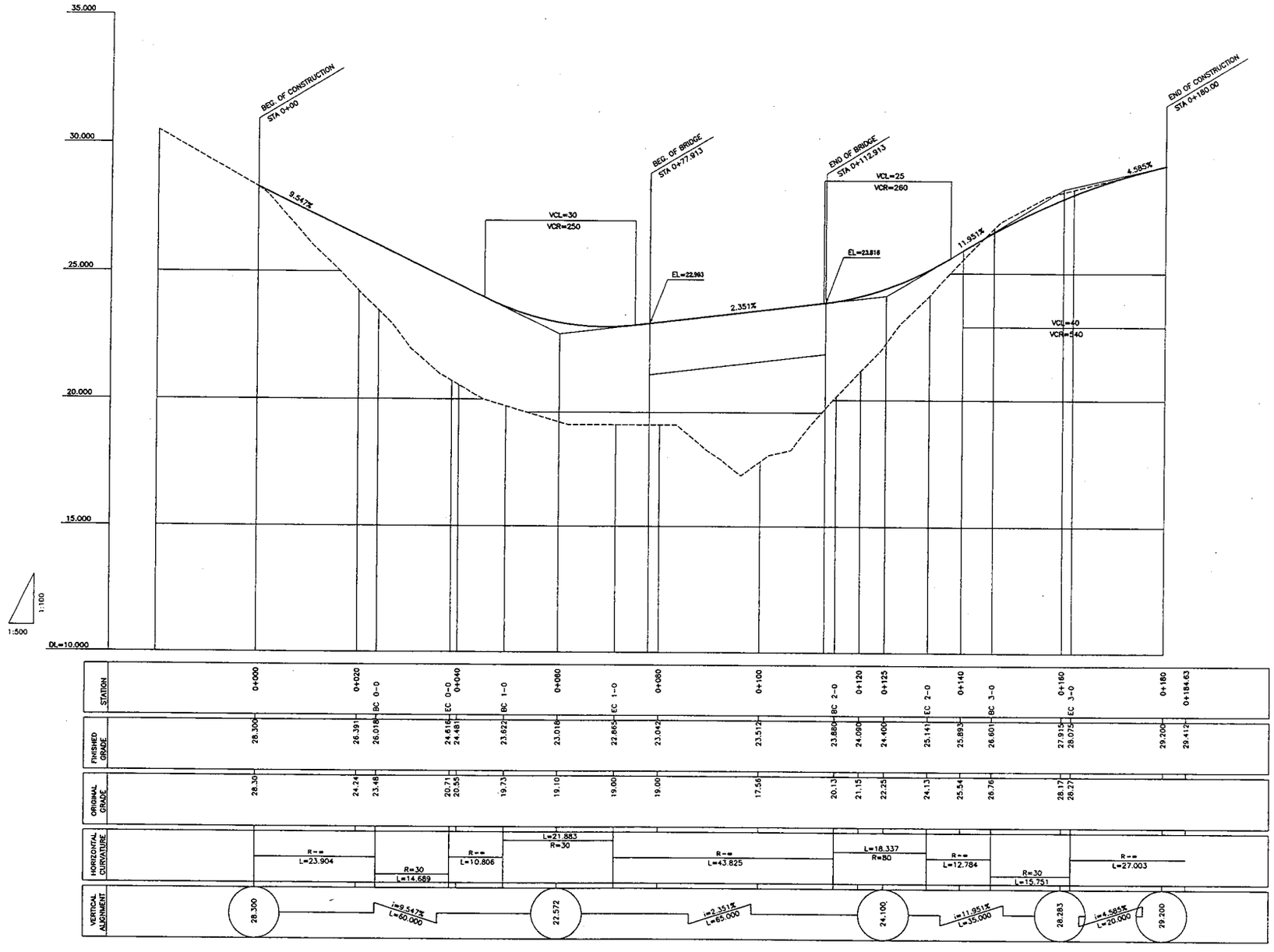




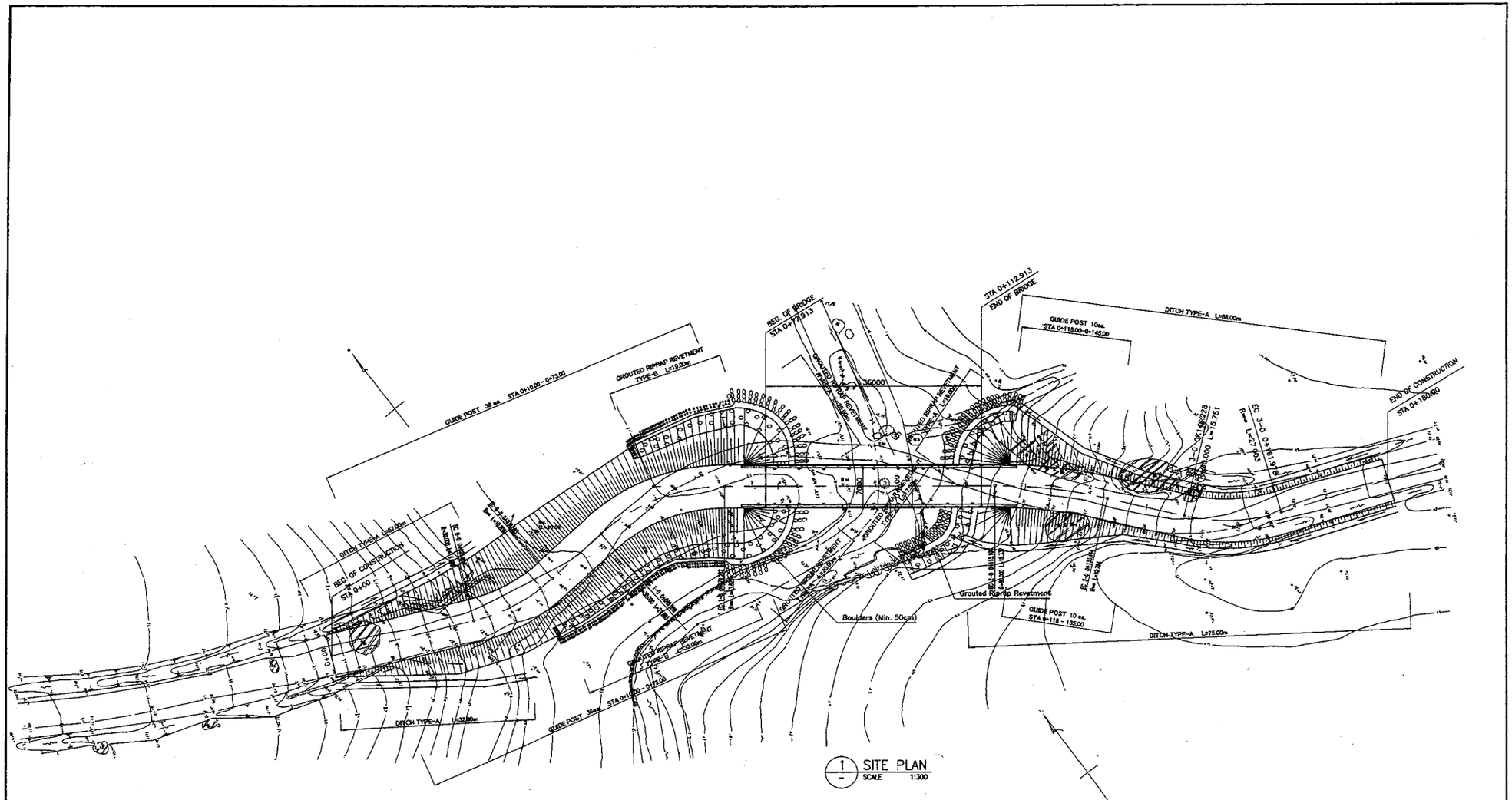




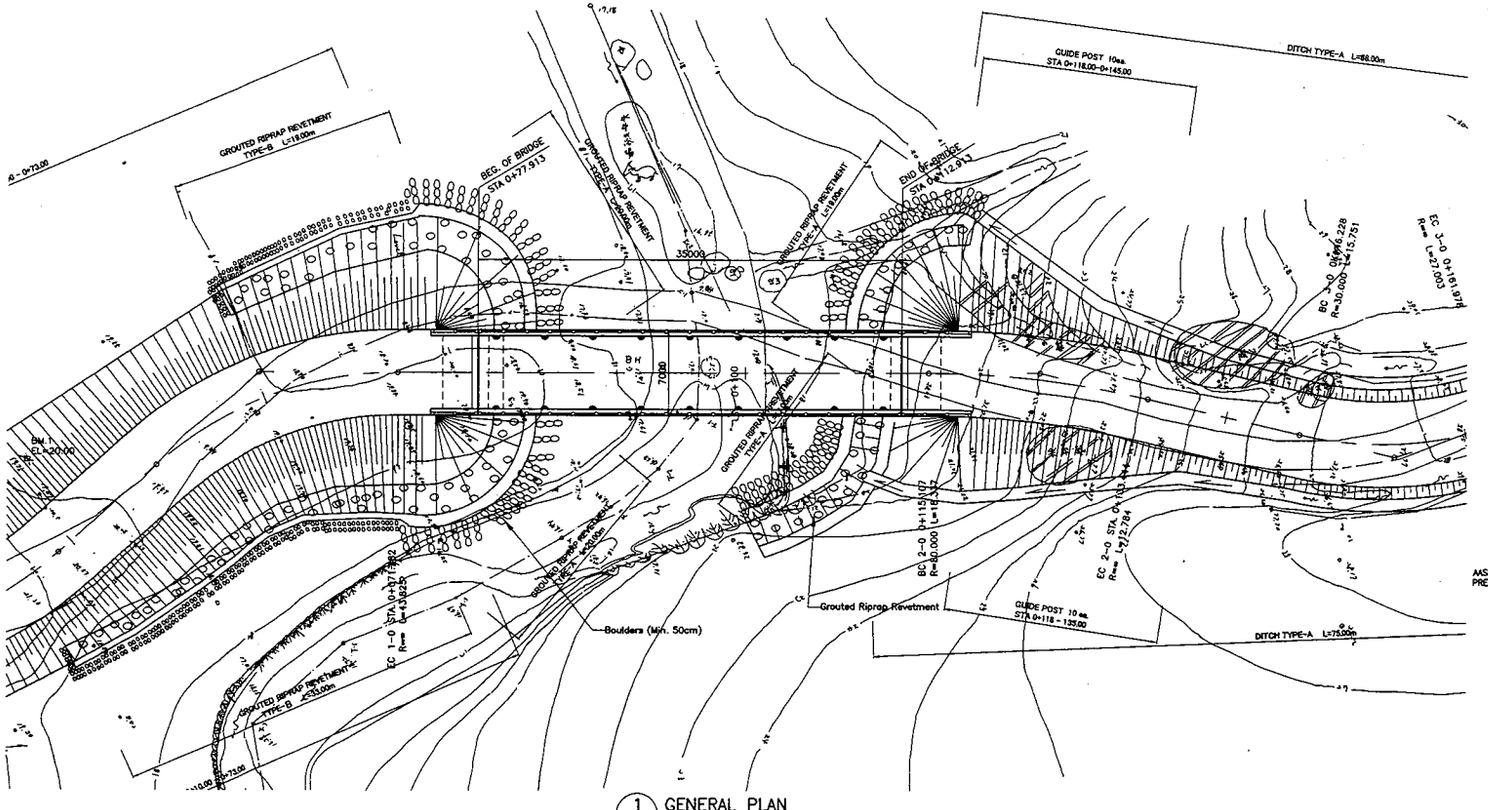
SHEET NO.:	18 / 71
BRIDGE NAME :	FATUAT BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS 2 (1:200)



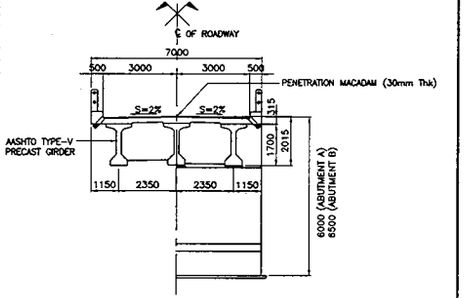
SHEET NO.:	19 / 71
BRIDGE NAME :	TANAMAN I BRIDGE
SHEET CONTENTS :	PROFILE



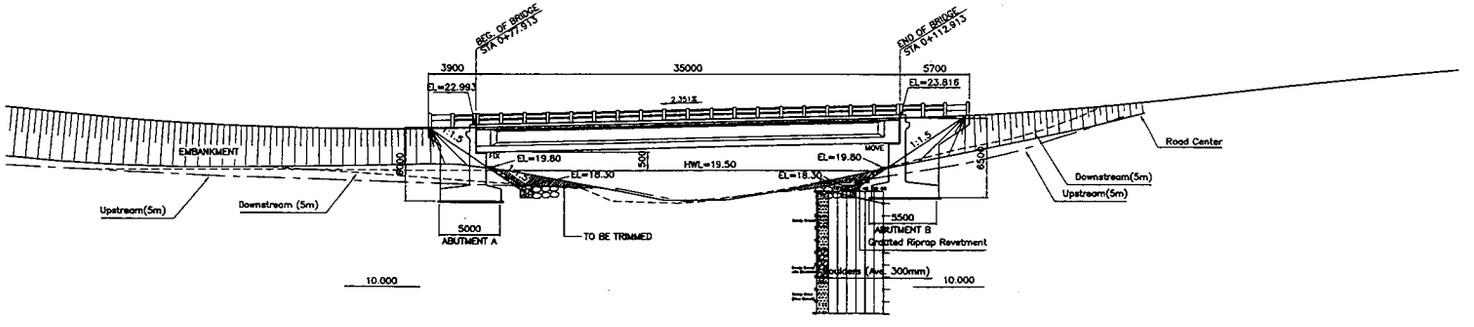
SHEET NO.:	20 / 71
BRIDGE NAME :	TANAMAN I BRIDGE
SHEET CONTENTS :	SITE PLAN



1 GENERAL PLAN
SCALE 1:200

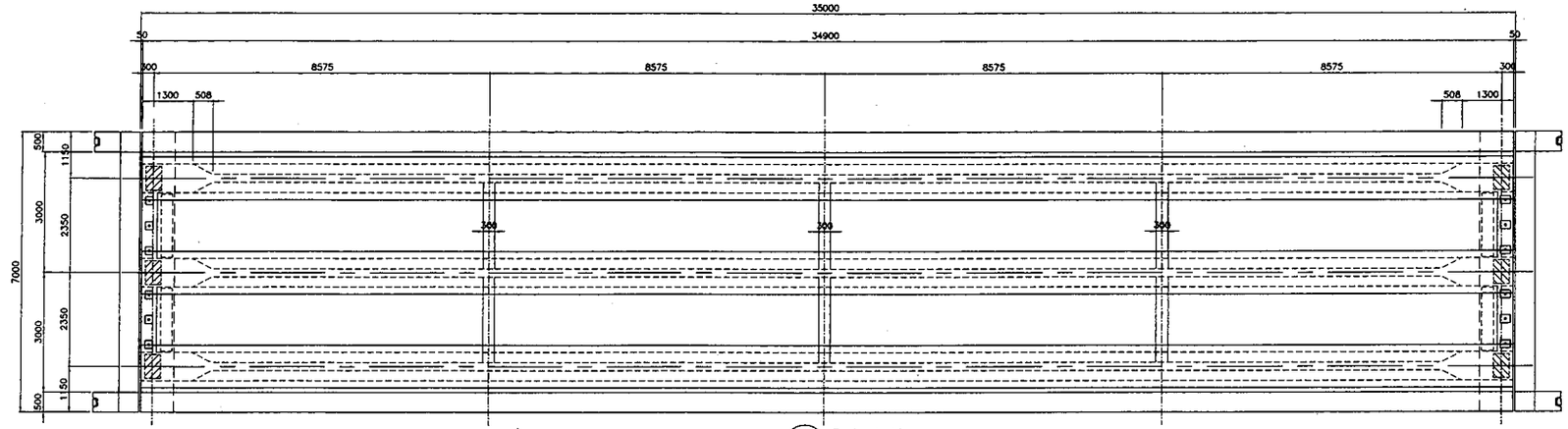


3 TYPICAL SECTION
SCALE 1:100

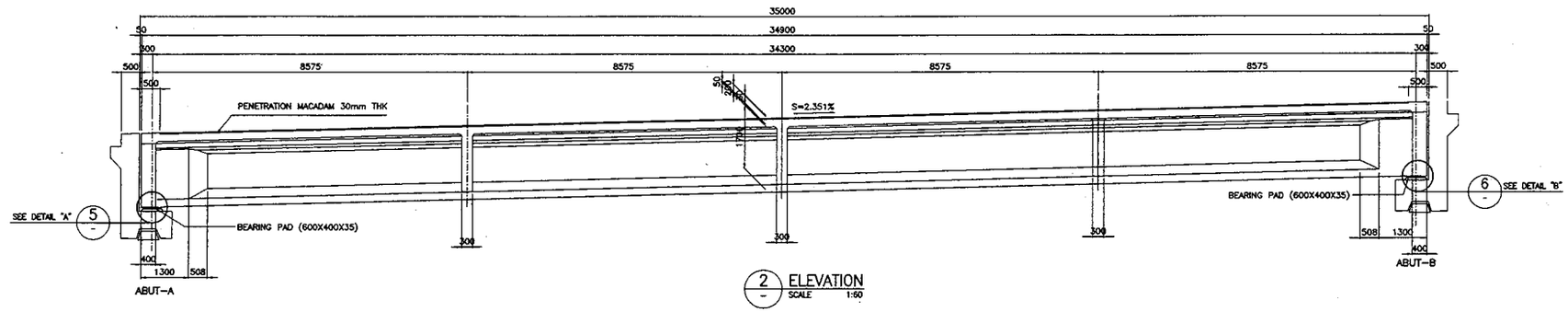


2 GENERAL ELEVATION
SCALE 1:200

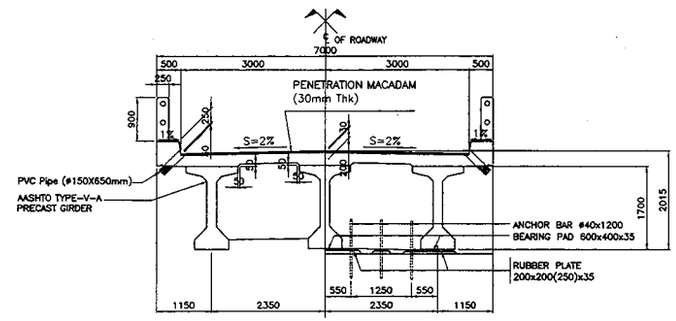
SHEET NO.:	21 / 71
BRIDGE NAME :	TANAMAN I BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



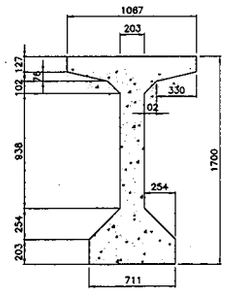
1 PLAN
SCALE 1:60



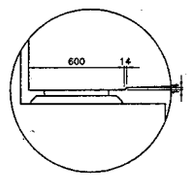
2 ELEVATION
SCALE 1:60



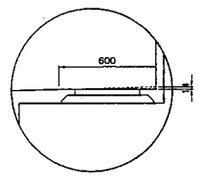
3 SECTION
SCALE 1:50



4 AASHTO TYPE V
PRECAST GIRDER
SCALE 1:20

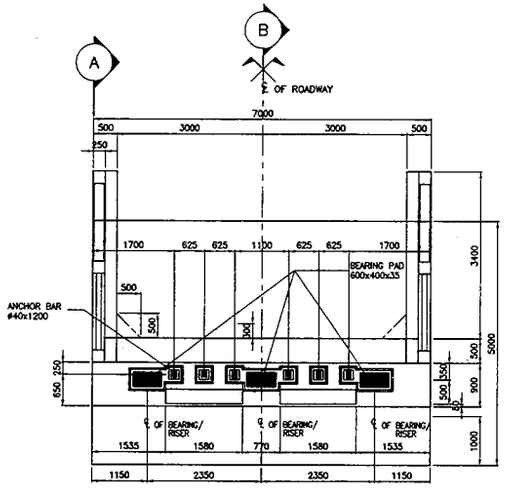


5 DETAIL "A"
SCALE 1:15

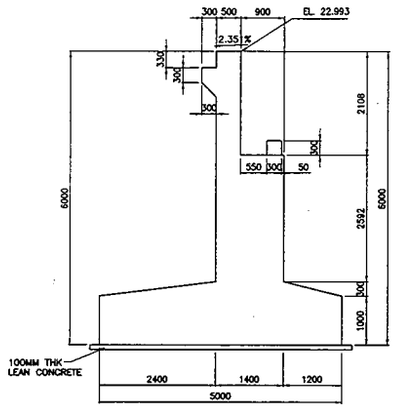


6 DETAIL "B"
SCALE 1:15

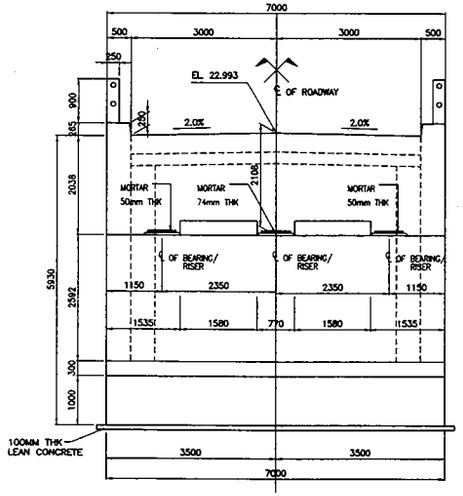
SHEET NO.:	22 / 71
BRIDGE NAME :	TANAMAN I BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE



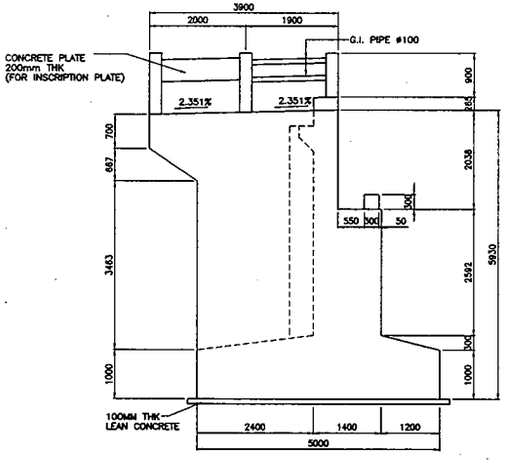
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50

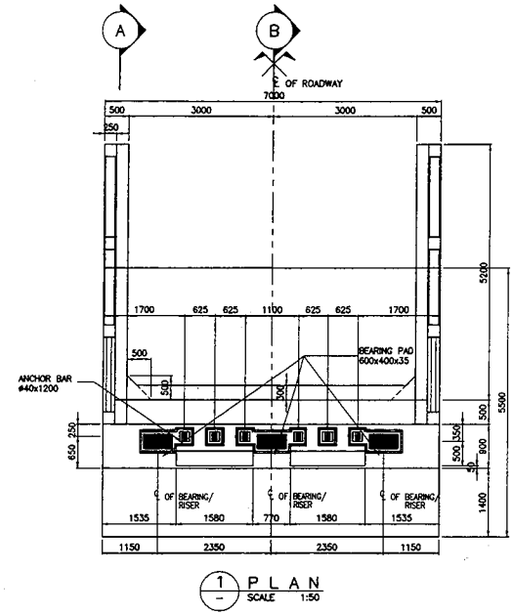


3 ELEVATION
SCALE 1:50

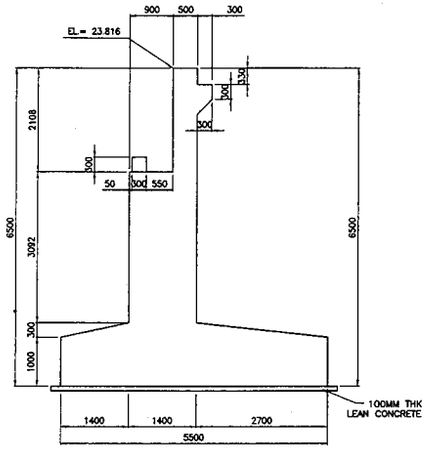


4 SECTION A
SCALE 1:50

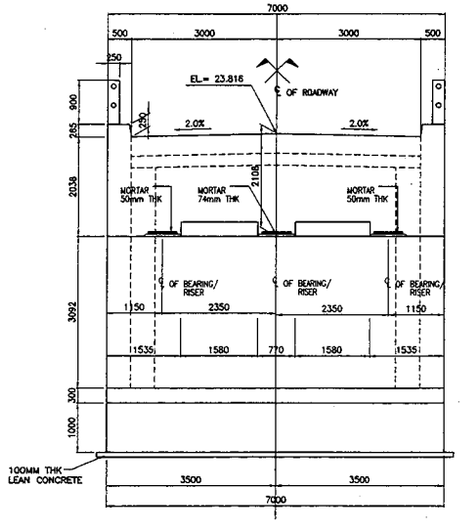
SHEET NO.:	23 / 71
BRIDGE NAME :	TANAMAN I BRIDGE
SHEET CONTENTS :	ABUTMENT A



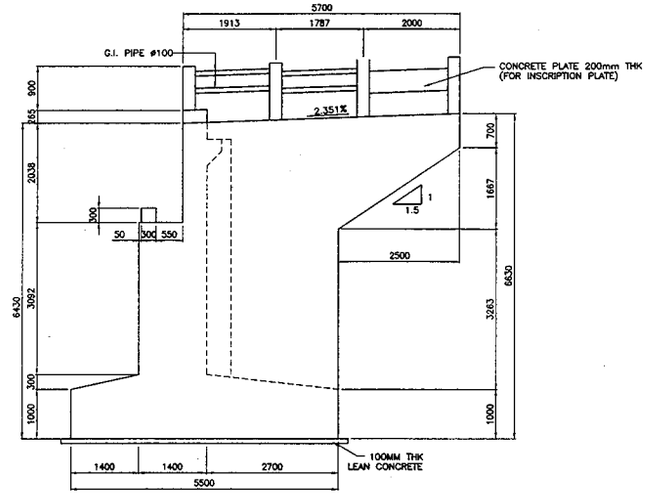
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50

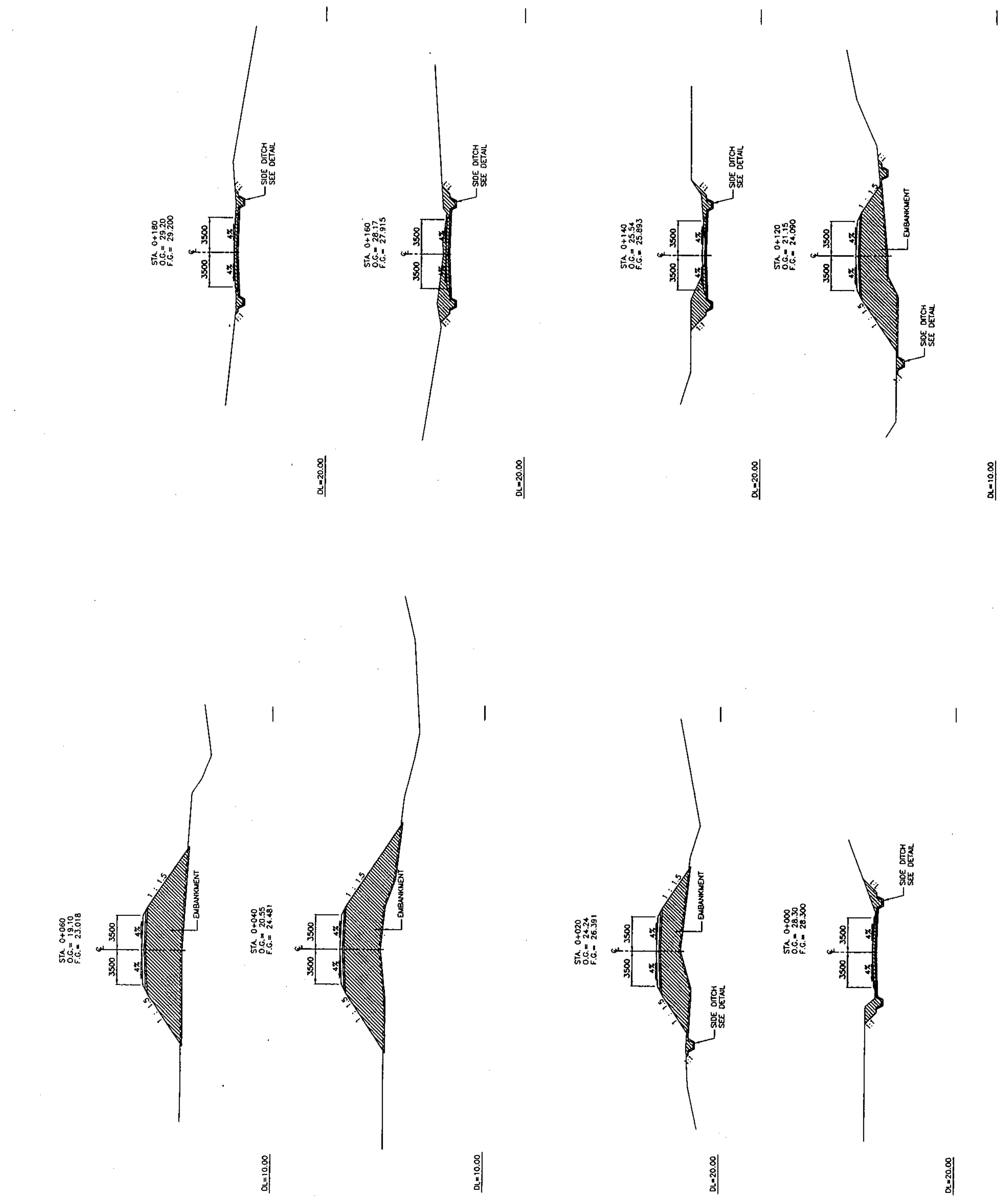


3 ELEVATION
SCALE 1:50



4 SECTION A
SCALE 1:50

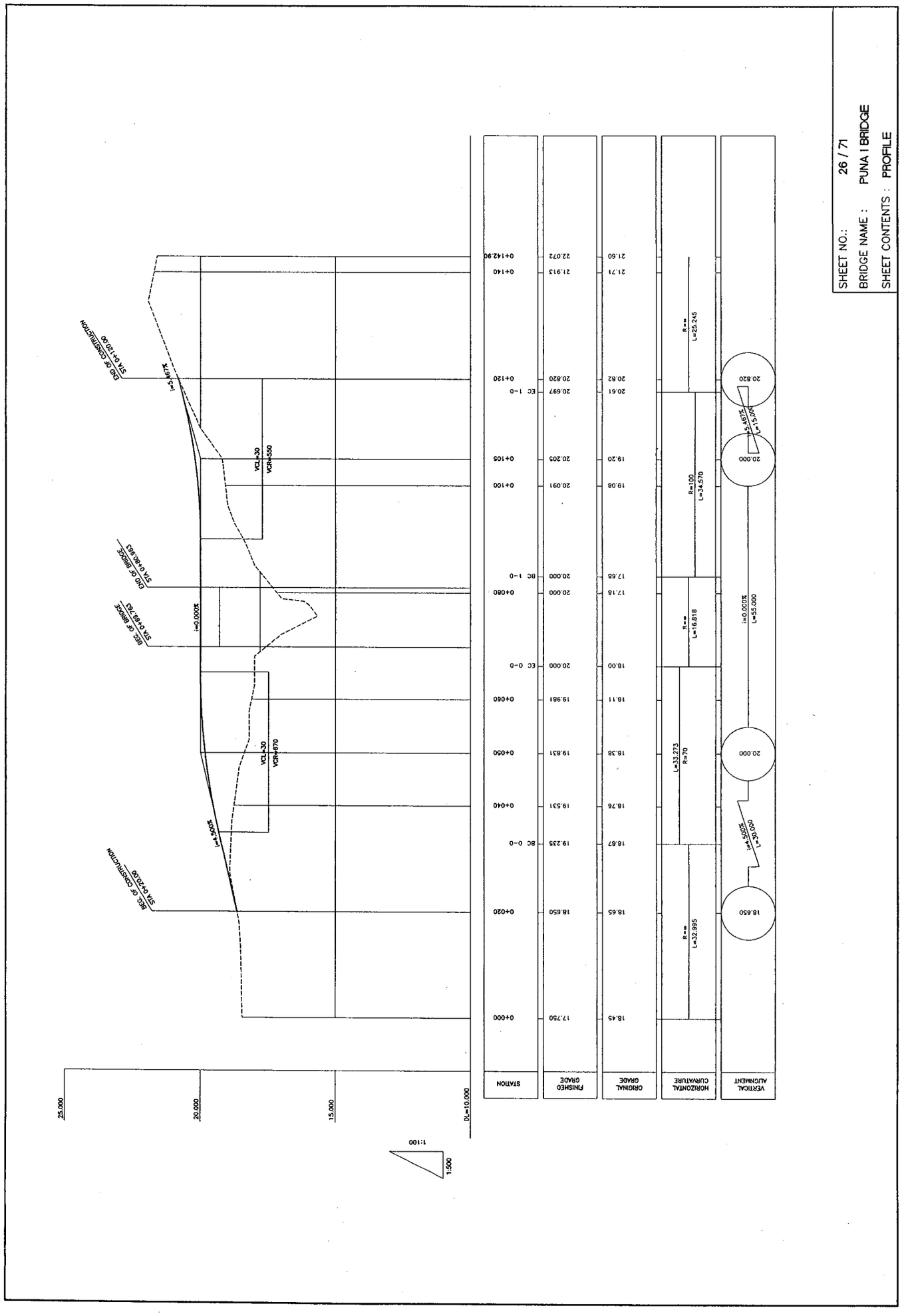
SHEET NO.:	24 / 71
BRIDGE NAME :	TANAMAN I BRIDGE
SHEET CONTENTS :	ABUTMENT B

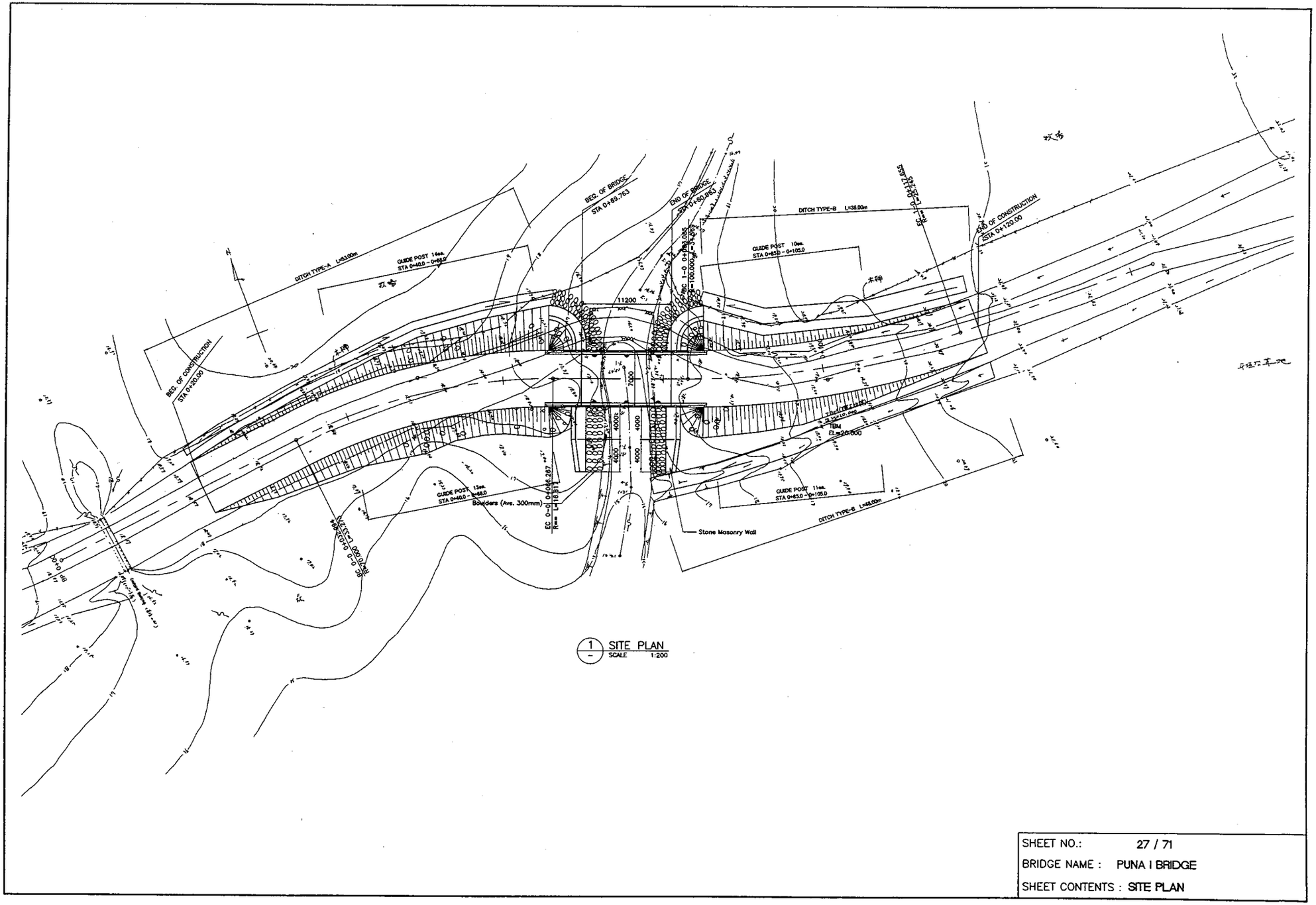


SHEET NO.: 25 / 71

BRIDGE NAME : TANAMAN I BRIDGE

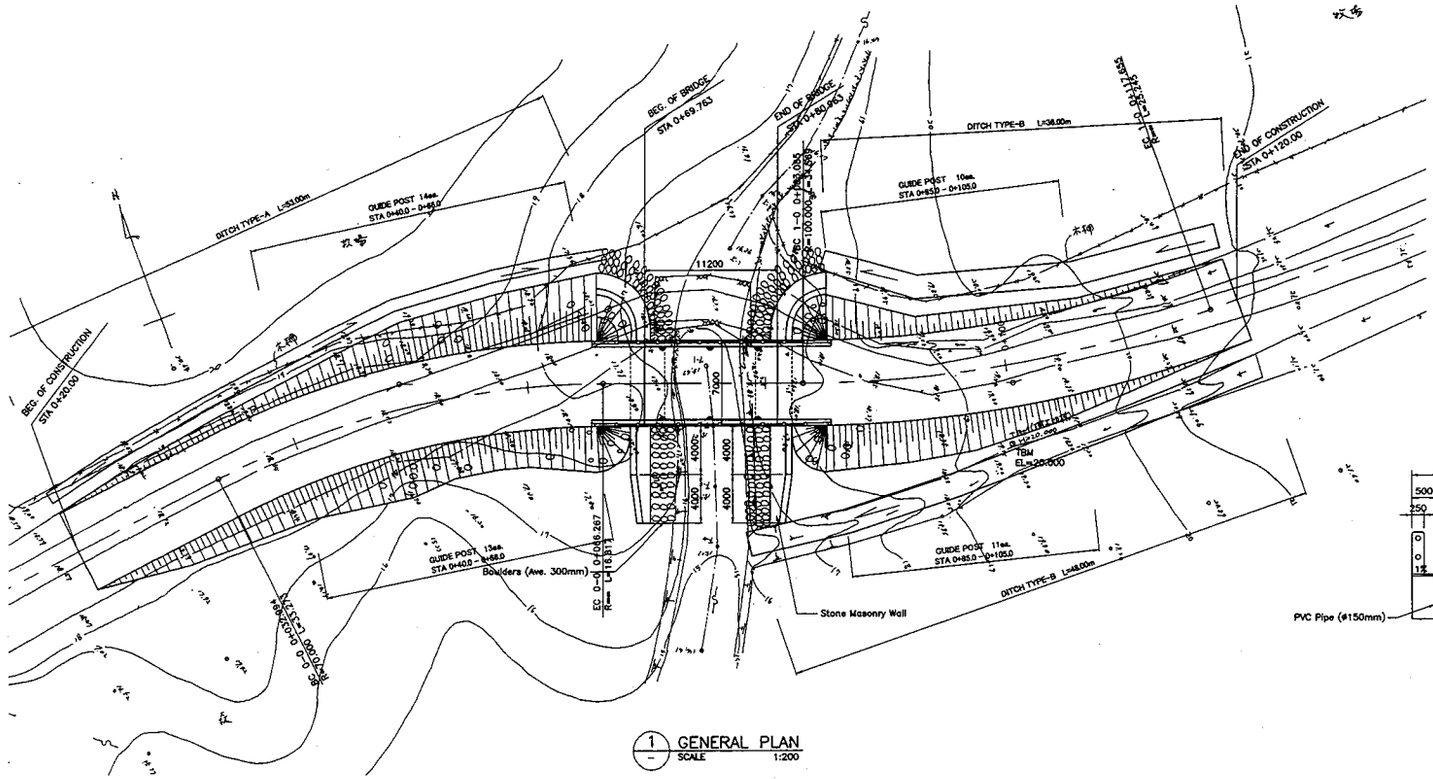
SHEET CONTENTS : CROSS-SECTIONS (1:200)


SHEET NO.: 26 / 71
BRIDGE NAME : PUNA I BRIDGE
SHEET CONTENTS : PROFILE
VERTICAL ALIGNMENT
HORIZONTAL CURVATURE
ORIGINAL GRADE
FINISHED GRADE
STATION
END OF CONSTRUCTION STA 0+120.00
BEG. OF BRIDGE STA 0+060.963
END OF BRIDGE STA 0+857.763
BEG. OF CONSTRUCTION STA 0+020.00
VCL=30
VCR=550
VCL=30
VCR=870
i=-5.673%
i=0.000%
i=5.500%
i=0.000%
i=-5.497%
i=-30.000%
L=15.000
L=55.000
L=30.000
R=∞
L=25.245
R=100
L=34.570
R=∞
L=16.818
L=33.273
R=70
R=∞
L=32.995
20.820
20.000
20.000
18.650
0+142.90
0+140
0+120
0+105
0+100
0+080
0+060
0+050
0+040
0+020
0+000
22.072
21.913
20.820
20.697
20.205
20.091
20.000
20.000
19.981
19.831
19.531
19.235
18.650
17.750
21.60
21.71
20.82
20.61
19.20
19.08
17.68
17.18
18.00
18.11
18.38
18.76
18.87
18.65
18.45
EC 1-0
BC 1-0
EC 0-0
BC 0-0
25.000
20.000
15.000
DL=10.000
1:100
1:500

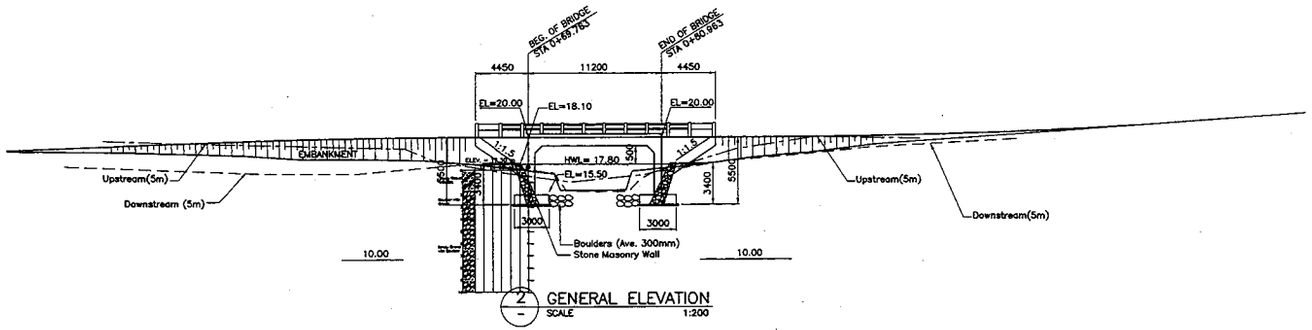


1 SITE PLAN
SCALE 1:200

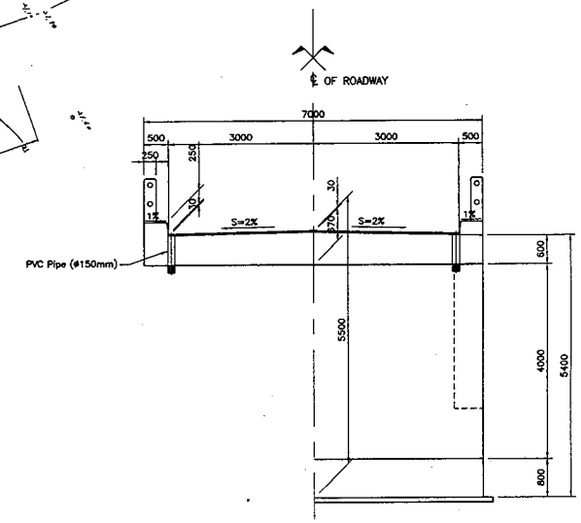
SHEET NO.:	27 / 71
BRIDGE NAME :	PUNA I BRIDGE
SHEET CONTENTS :	SITE PLAN



1 GENERAL PLAN
SCALE 1:200

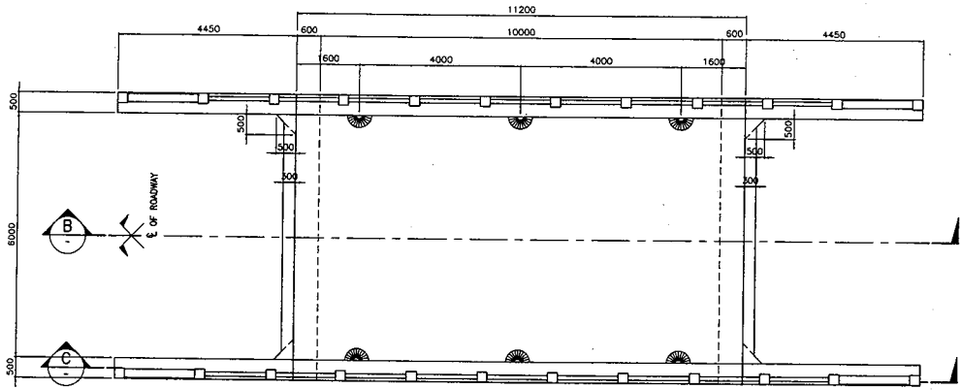


2 GENERAL ELEVATION
SCALE 1:200

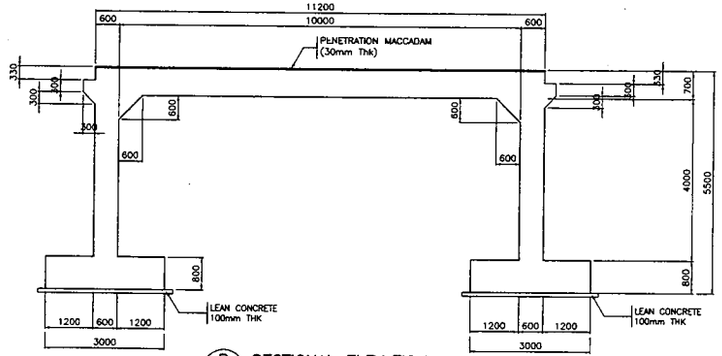


3 TYPICAL SECTION
SCALE 1:50

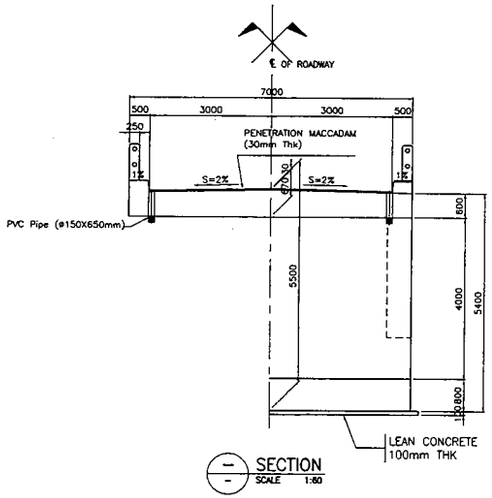
SHEET NO.:	28 / 71
BRIDGE NAME :	PUNA I BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



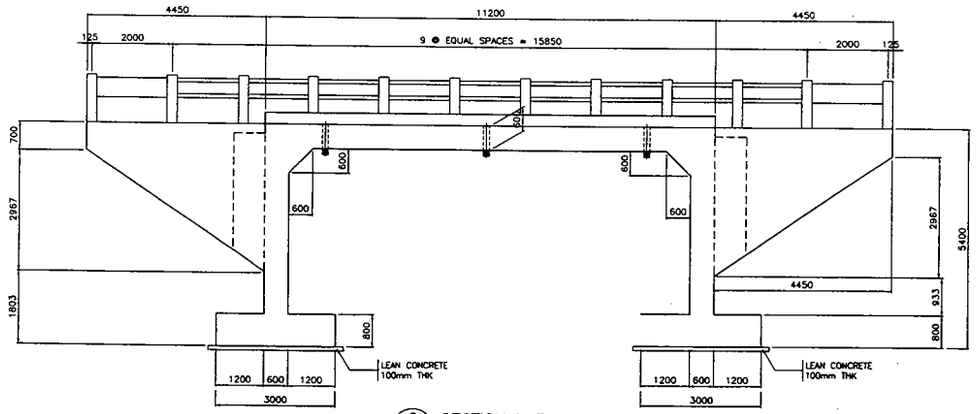
A PLAN
SCALE 1:80



B SECTIONAL ELEVATION
SCALE 1:60



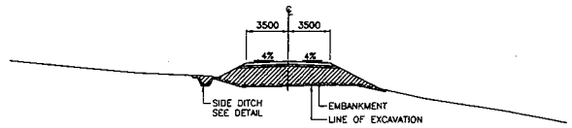
SECTION
SCALE 1:60



C SECTIONAL ELEVATION
SCALE 1:60

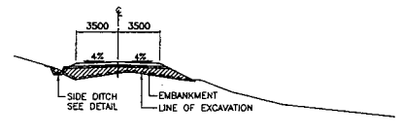
SHEET NO.:	29 / 71
BRIDGE NAME :	PUNA I BRIDGE
SHEET CONTENTS :	PLAN, ELEVATION, SECTION

STA. 0+060
O.G.=18.11
F.G.=19.981



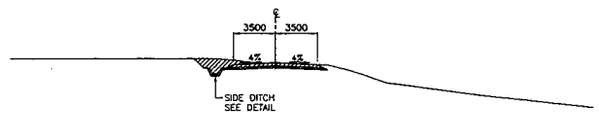
DL=10.00

STA. 0+040
O.G.=18.76
F.G.=19.531



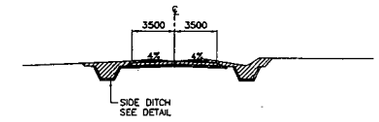
DL=10.00

STA. 0+020
O.G.=18.85
F.G.=18.650



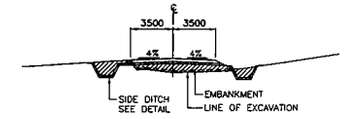
DL=10.00

STA. 0+120
O.G.=20.82
F.G.=20.820



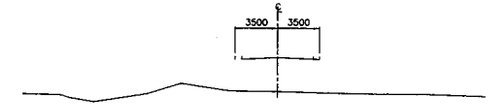
DL=20.00

STA. 0+100
O.G.=19.08
F.G.=20.091



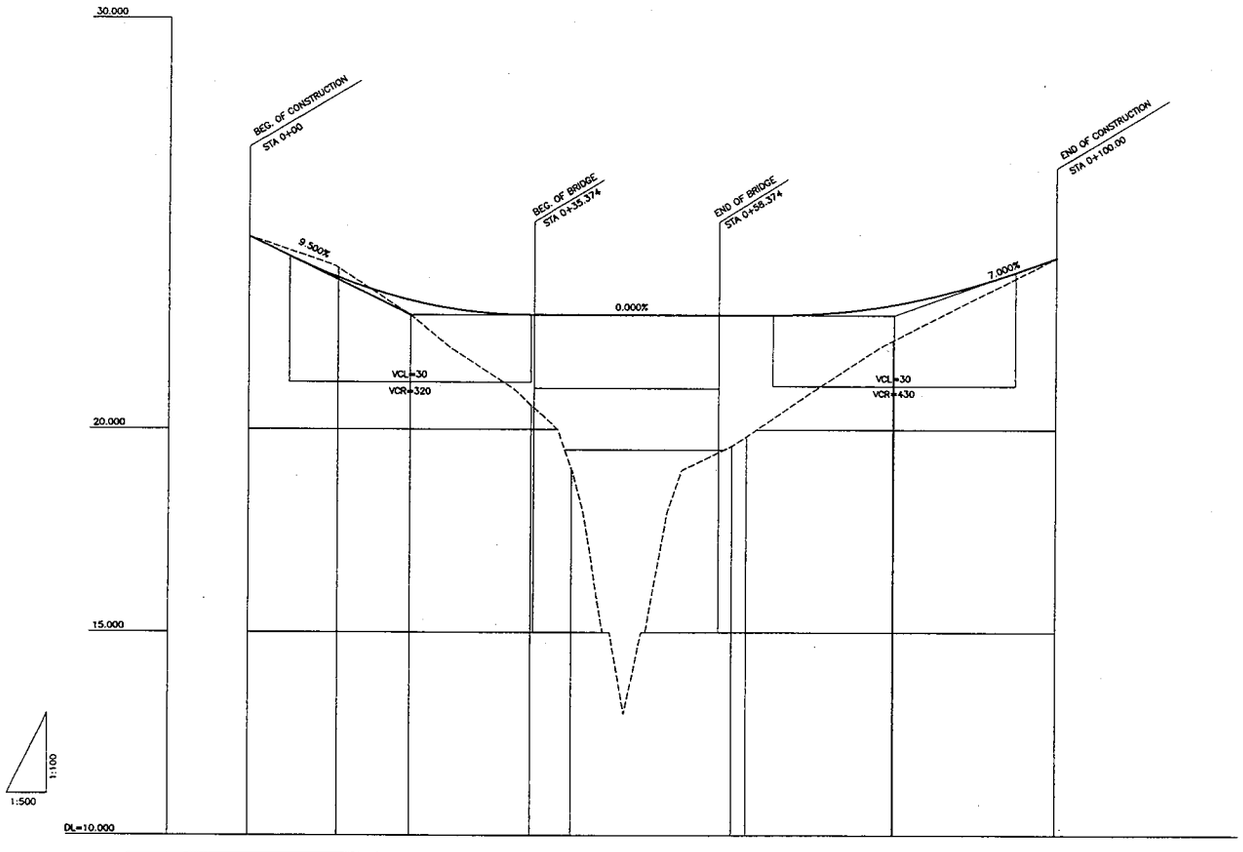
DL=10.00

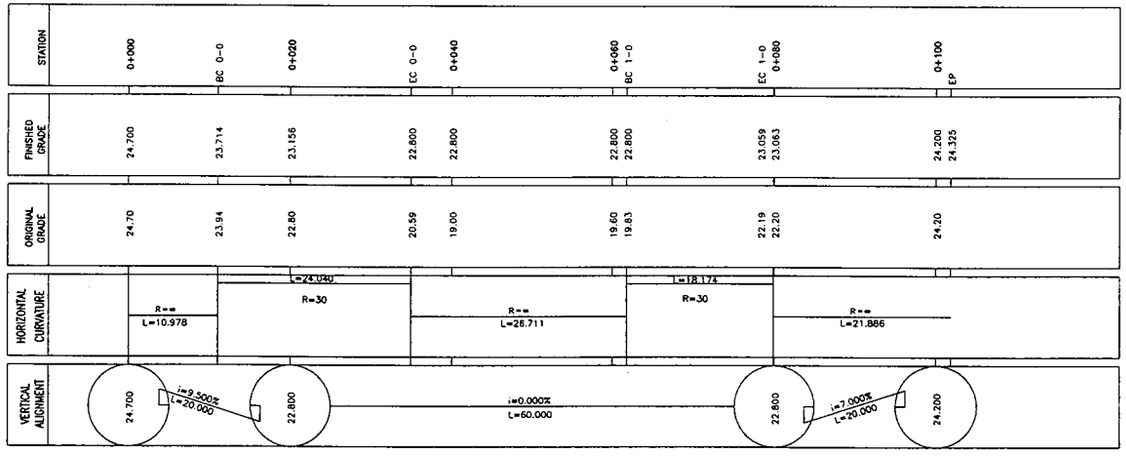
STA. 0+080
O.G.=17.18
F.G.=20.000



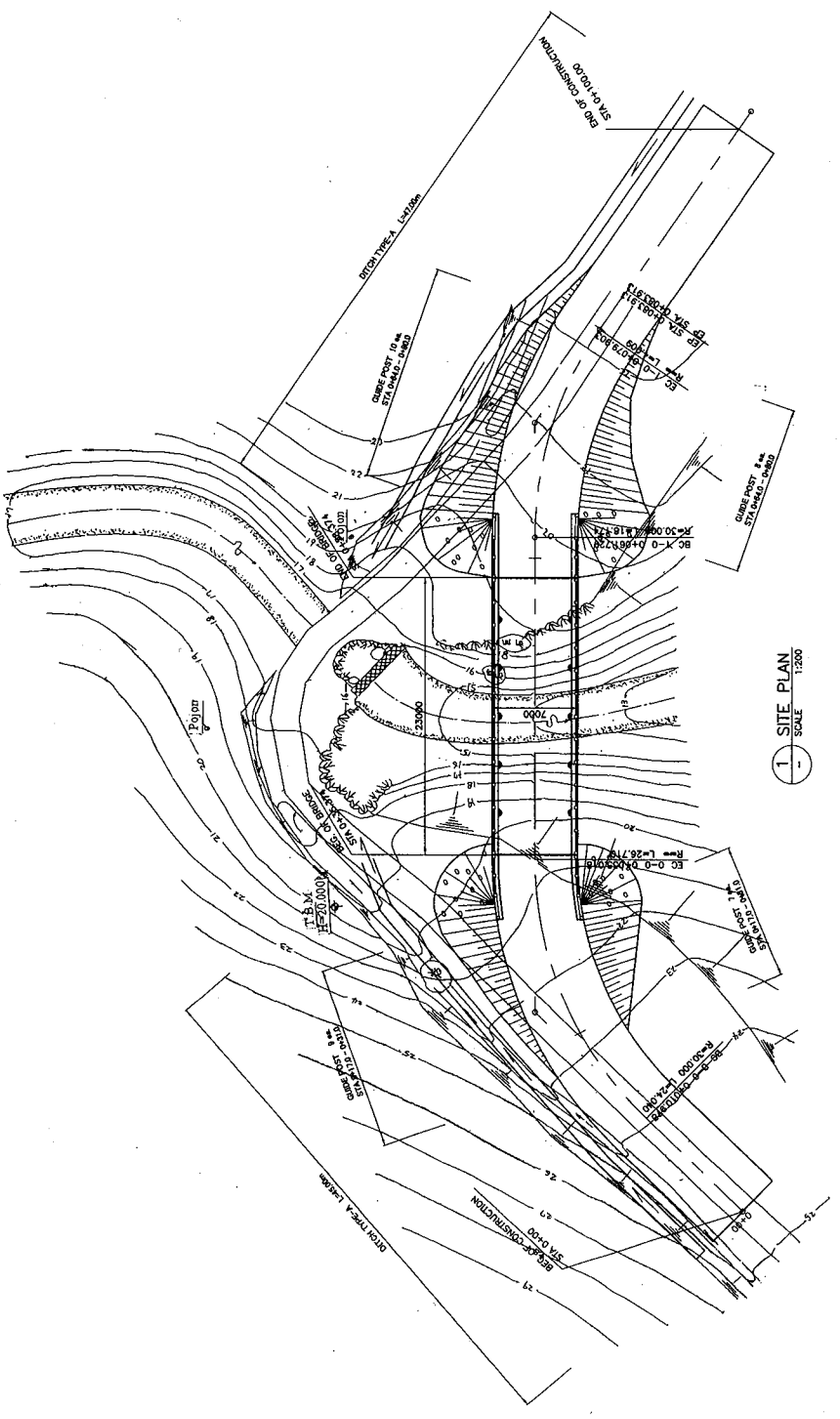
DL=10.00

SHEET NO.: 30 / 71
BRIDGE NAME : PUNA I BRIDGE
SHEET CONTENTS : CROSS-SECTIONS (1:200)

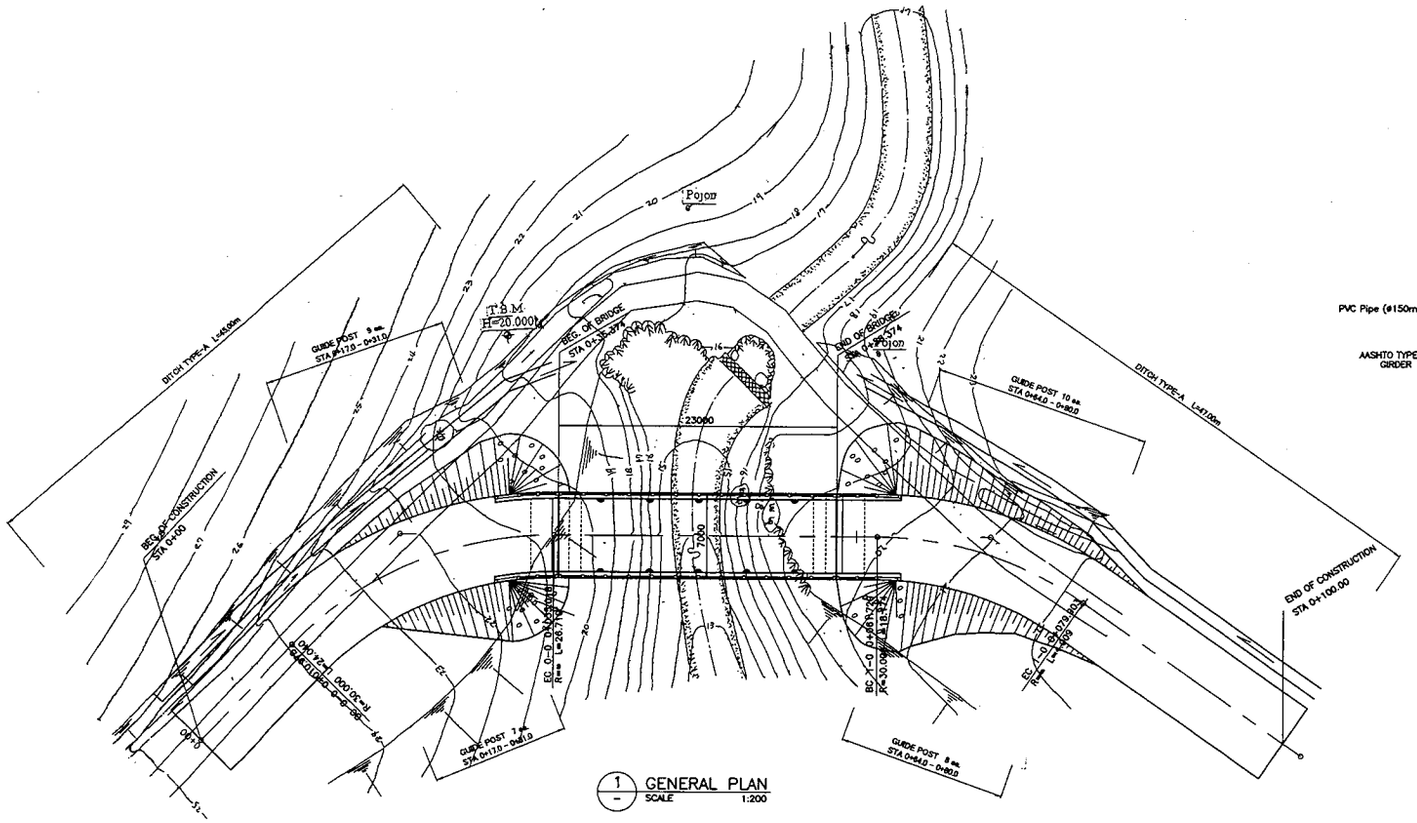




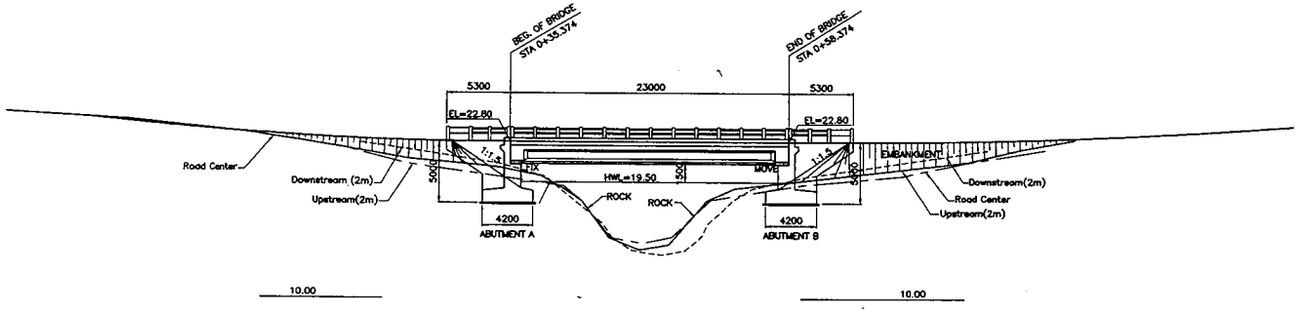
SHEET NO.:	31 / 71
BRIDGE NAME :	PUNA III BRIDGE
SHEET CONTENTS :	PROFILE



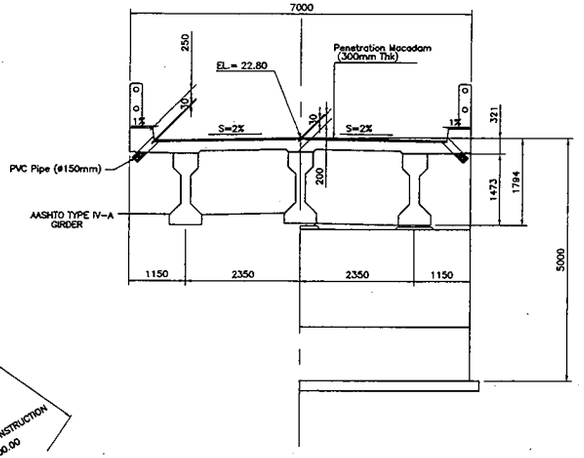
SHEET NO.: 32 / 71
BRIDGE NAME : PUNA III BRIDGE
SHEET CONTENTS : SITE PLAN



1 GENERAL PLAN
SCALE 1:200

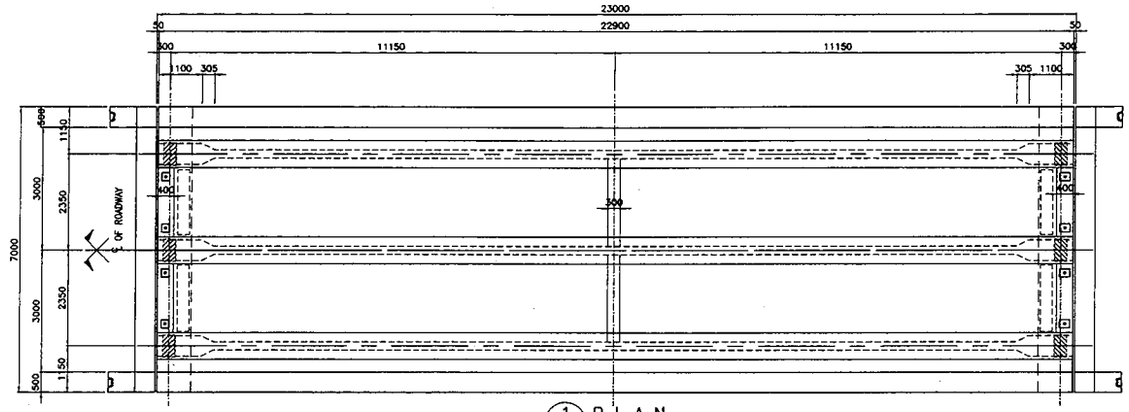


2 GENERAL ELEVATION
SCALE 1:200

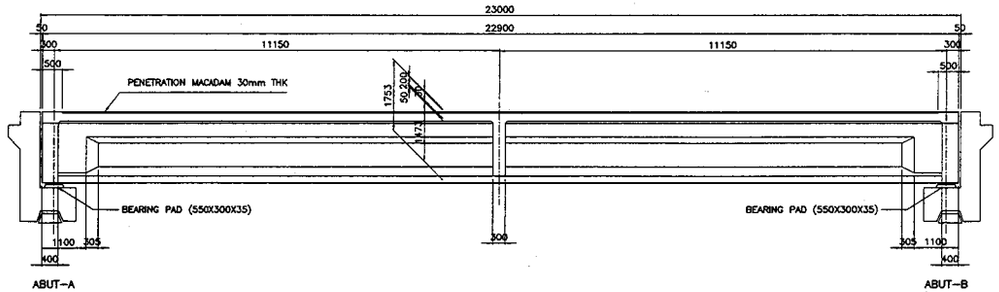


3 TYPICAL SECTION
SCALE 1:50

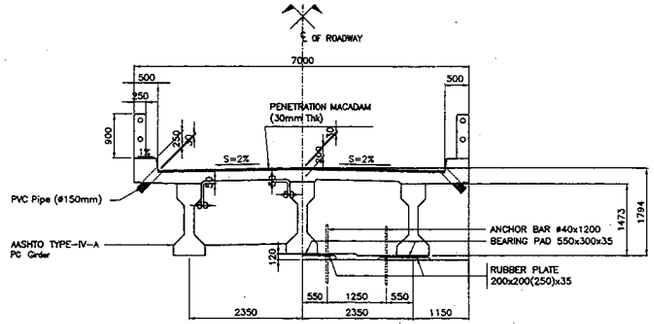
SHEET NO.:	33 / 71
BRIDGE NAME :	PUNA III BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



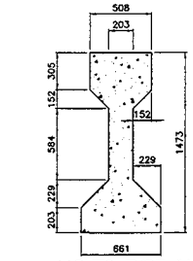
1 PLAN
SCALE 1:60



2 ELEVATION
SCALE 1:60

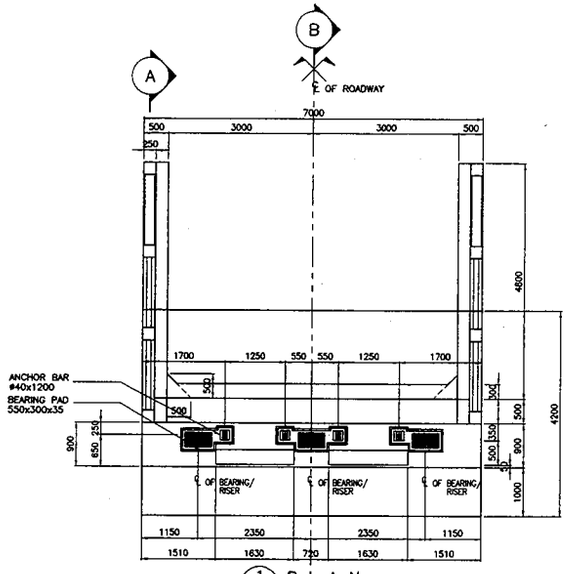


3 SECTION
SCALE 1:50

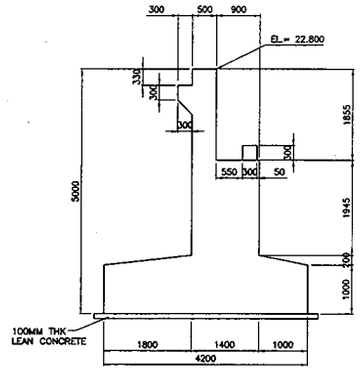


AASHTO TYPE IV-A
PRECAST GIRDER
SCALE 1:20

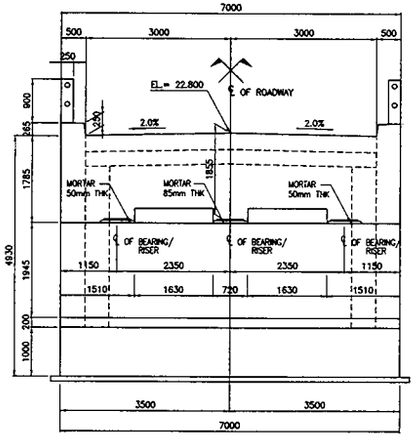
SHEET NO.: 34 / 71
BRIDGE NAME : PUNA III BRIDGE
SHEET CONTENTS : SUPERSTRUCTURE



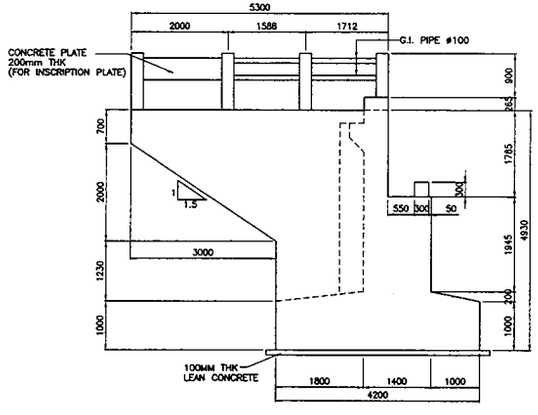
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50



3 ELEVATION
SCALE 1:50

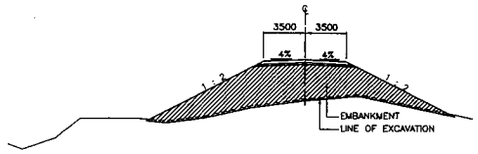


4 SECTION A
SCALE 1:50

A10 – 37

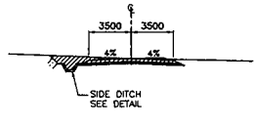
SHEET NO.:	35 / 71
BRIDGE NAME :	PUNA III BRIDGE
SHEET CONTENTS :	ABUTMENT "A", "B"

STA. 0+060
O.G.= 19.60
F.G.= 22.800



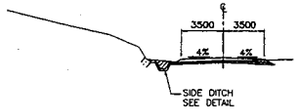
DL=10.00

STA. 0+100.0000
O.G.= 24.20
F.G.= 24.200



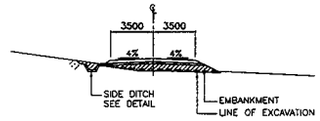
DL=20.00

STA. 0+020
O.G.= 22.80
F.G.= 23.156



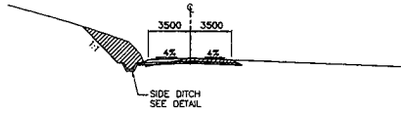
DL=20.00

STA. 0+080
O.G.= 22.20
F.G.= 23.063



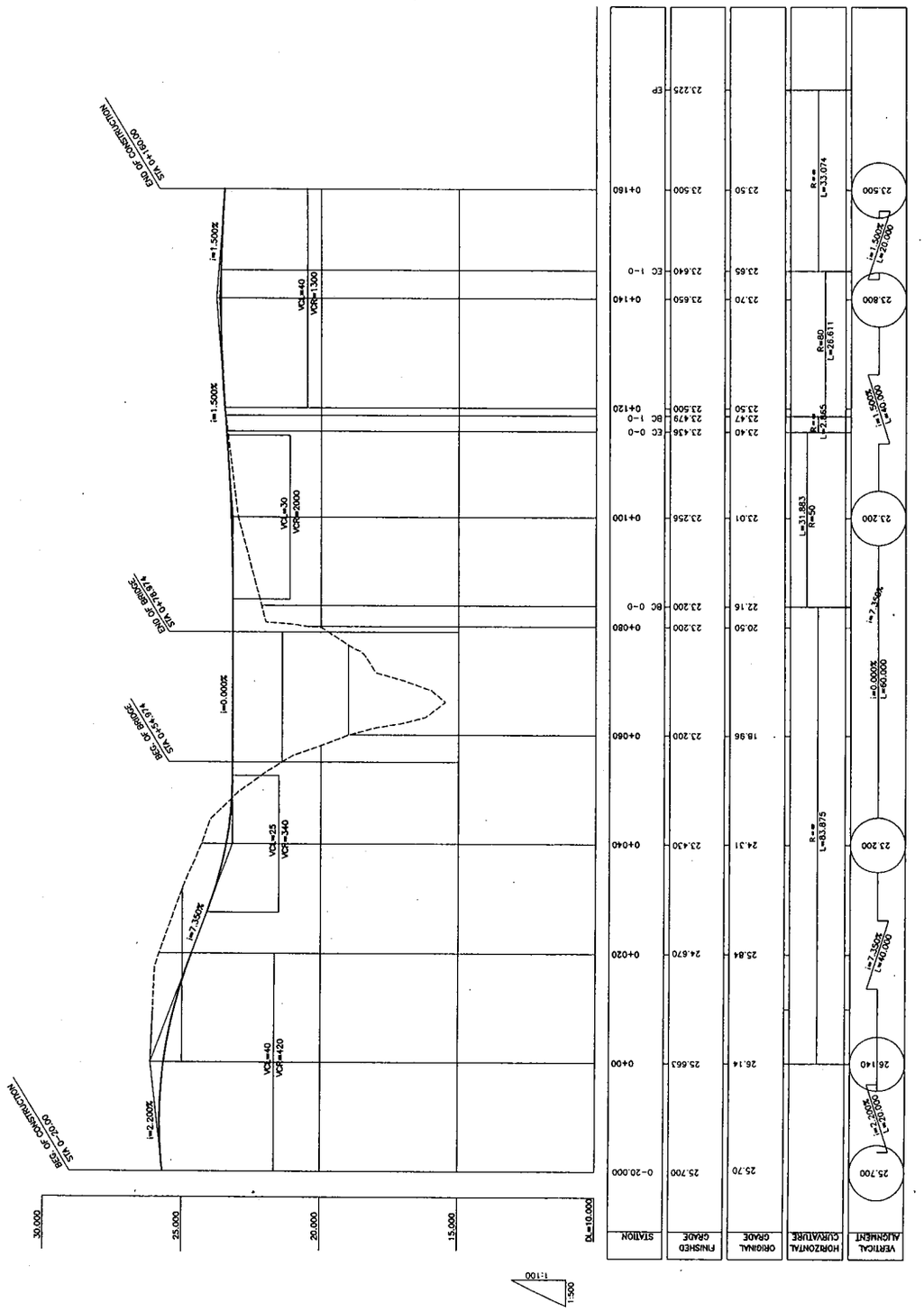
DL=20.00

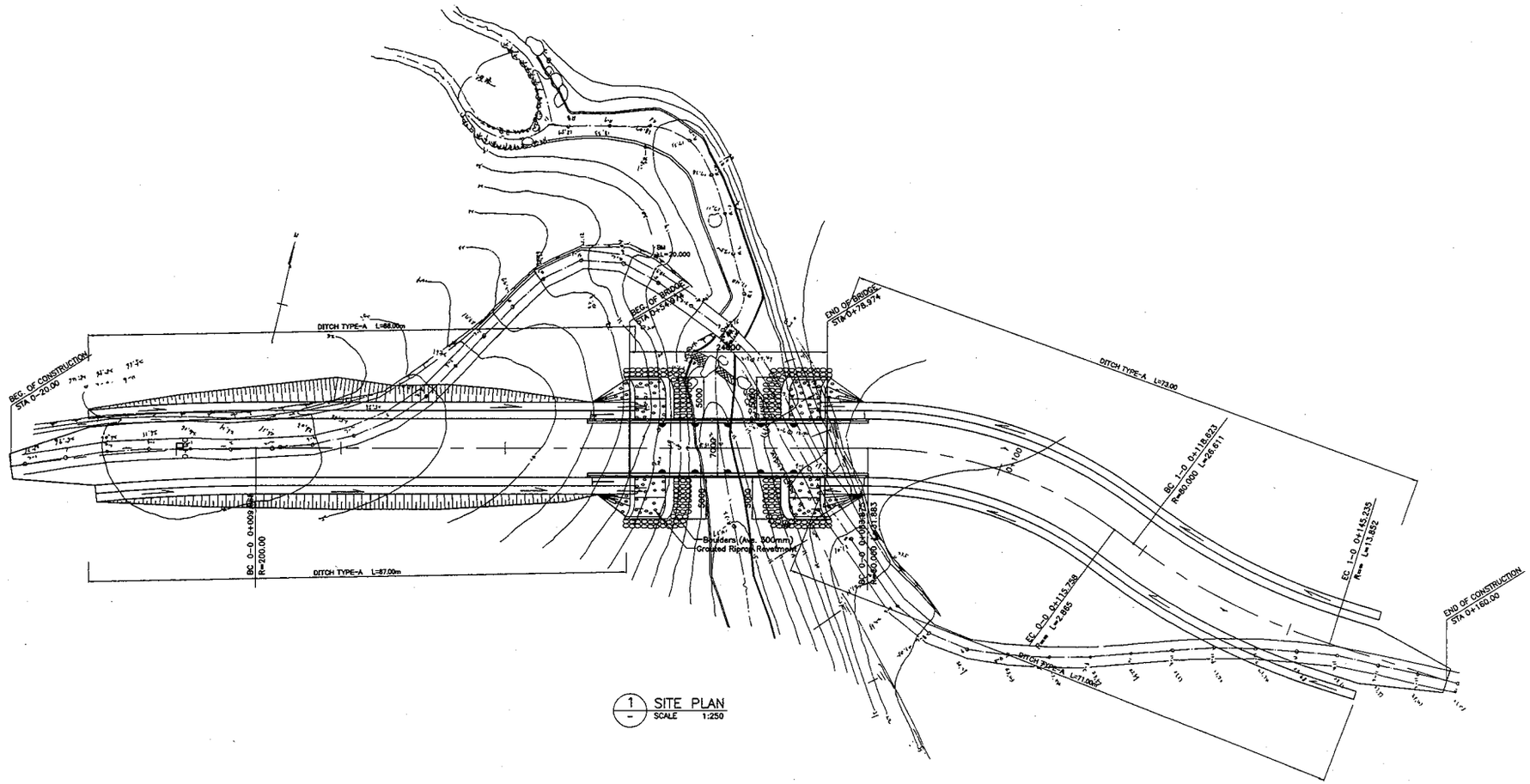
STA. 0+000
O.G.= 24.70
F.G.= 24.700



DL=20.00

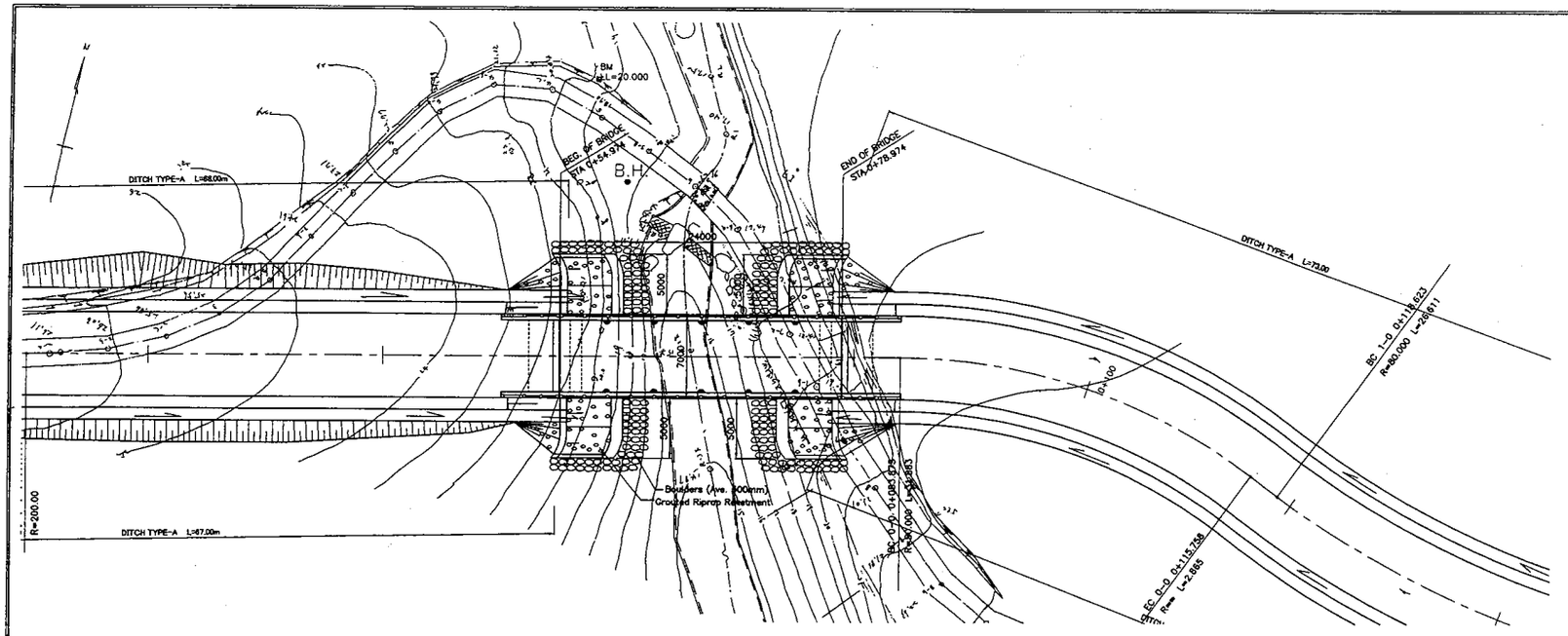
SHEET NO.:	36 / 71
BRIDGE NAME :	PUNA III BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS (1:200)


SHEET NO.: 37 / 71
BRIDGE NAME : TABASU I BRIDGE
SHEET CONTENTS : PROFILE
VERTICAL ALIGNMENT
HORIZONTAL CURVATURE
ORIGINAL GRADE
FINISHED GRADE
STATION
END OF CONSTRUCTION STA 0+160.00
BEG. OF BRIDGE STA 0+78.97
END OF BRIDGE STA 0+78.97
BEG. OF CONSTRUCTION STA 0-20.00
i=1.500%
i=0.000%
i=7.350%
i=2.000%
VCL=40 VCR=1300
VCL=30 VCR=2000
VCL=25 VCR=340
VCL=40 VCR=420
R=∞ L=33.074
R=80 L=28.611
R=∞ L=2.865
L=31.883 R=50
R=∞ L=83.875
i=1.500% L=20.000
i=0.000% L=60.000
i=7.350% L=40.000
i=2.000% L=20.000
30.000
25.000
20.000
15.000
D=10.000
1:100
1:500

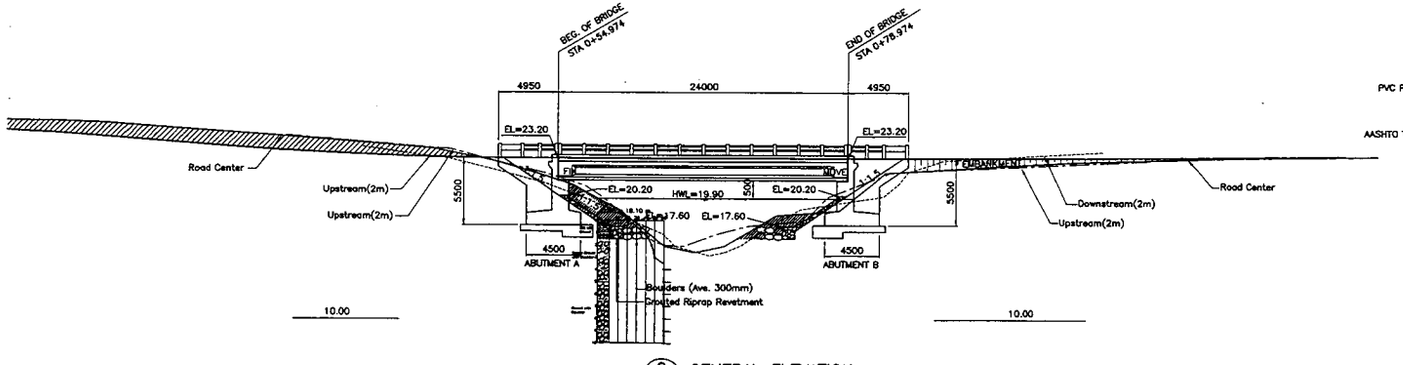


1 SITE PLAN
SCALE 1:250

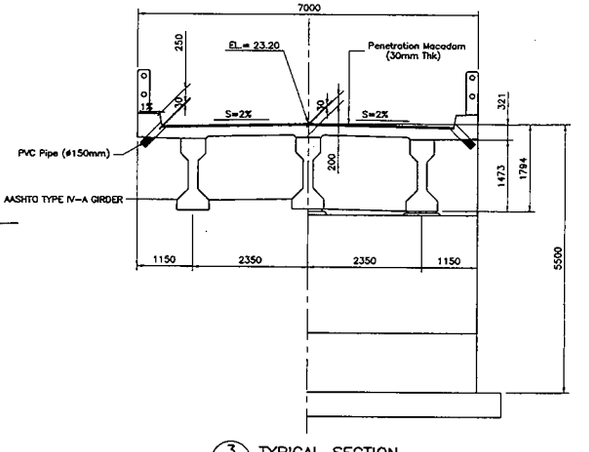
SHEET NO.:	38 / 71
BRIDGE NAME :	TABISU I BRIDGE
SHEET CONTENTS :	SITE PLAN



1 GENERAL PLAN
SCALE 1:200

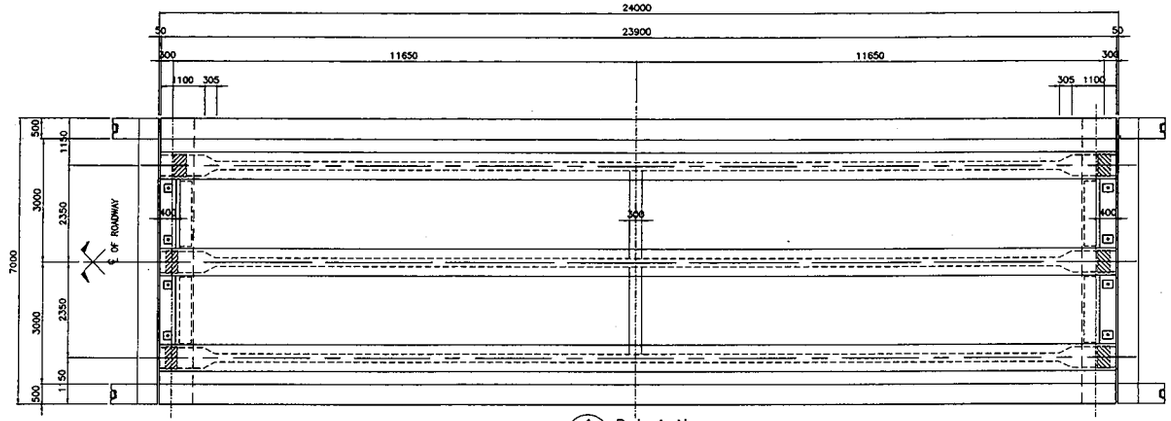


2 GENERAL ELEVATION
SCALE 1:200

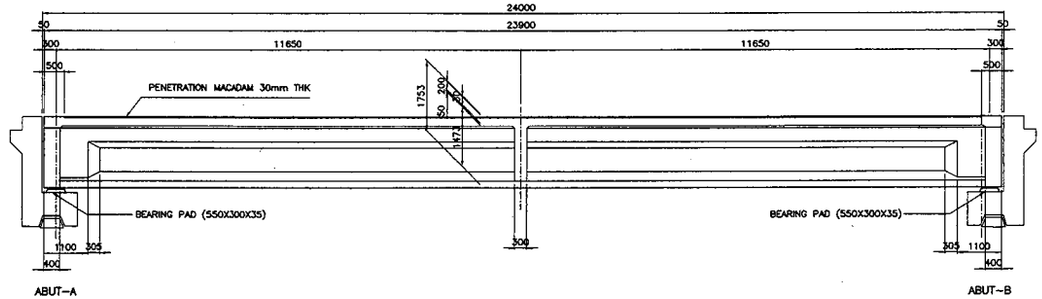


3 TYPICAL SECTION
SCALE 1:50

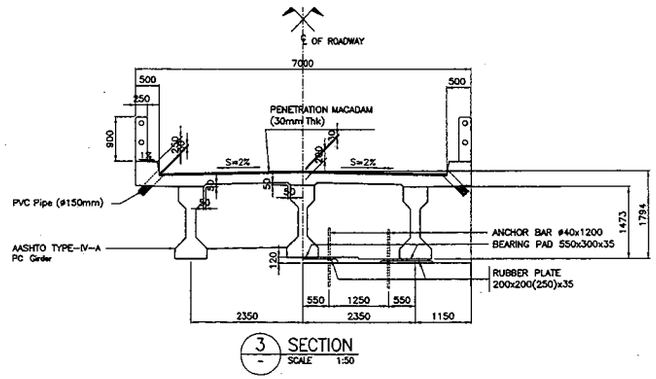
SHEET NUMBER : 39 / 71
BRIDGE NAME : TABISU I BRIDGE
SHEET CONTENTS : BRIDGE GENERAL VIEW



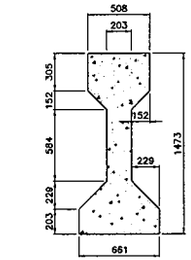
1 PLAN
SCALE 1:60



2 ELEVATION
SCALE 1:60

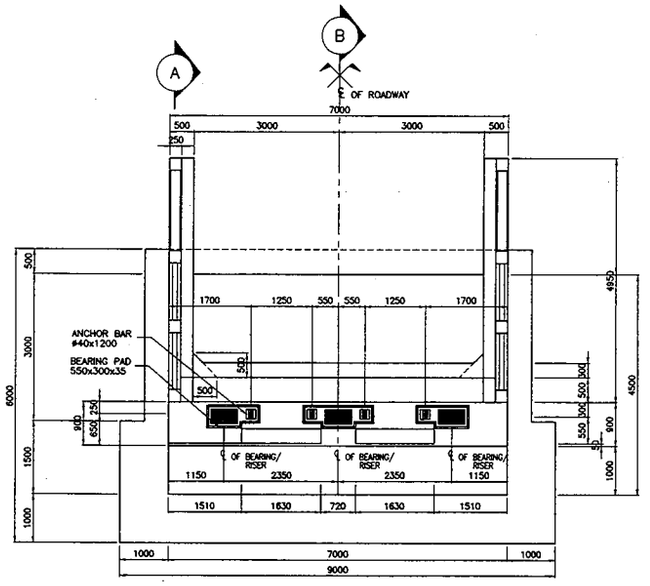


3 SECTION
SCALE 1:50

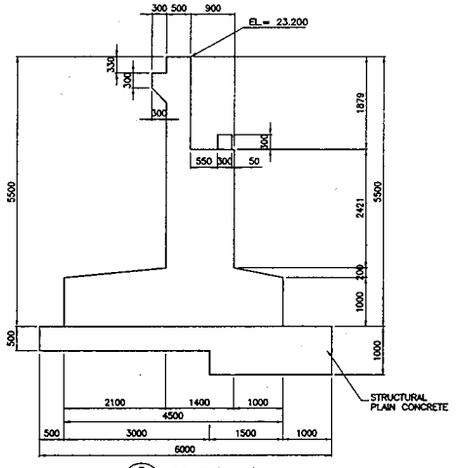


4 AASHTO TYPE IV-A PRECAST GIRDER
SCALE 1:20

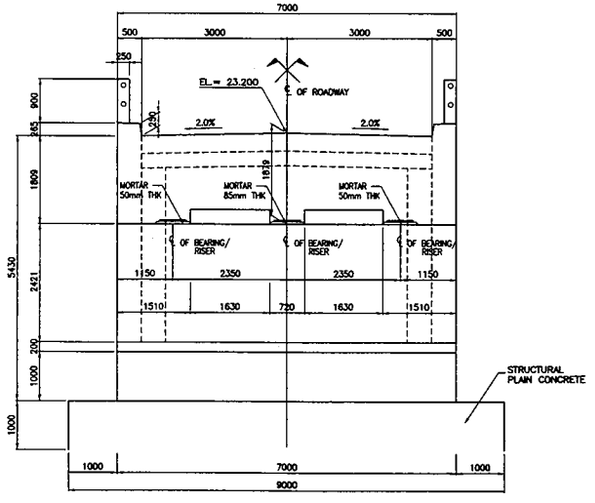
SHEET NO.: 40 / 71
BRIDGE NAME : TABISU I BRIDGE
SHEET CONTENTS : SUPERSTRUCTURE



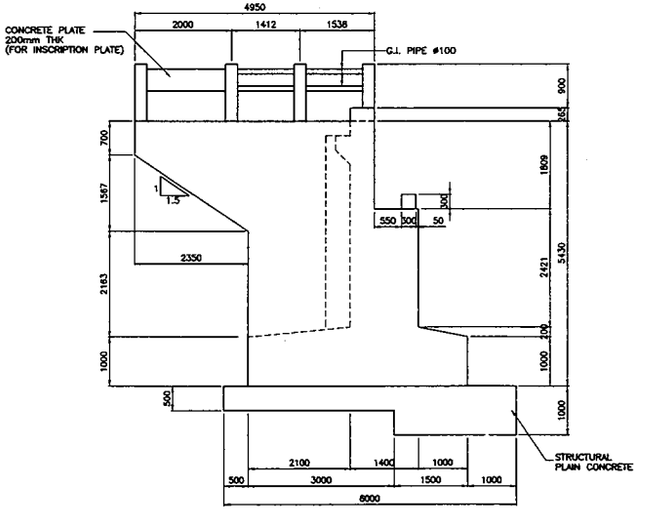
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50

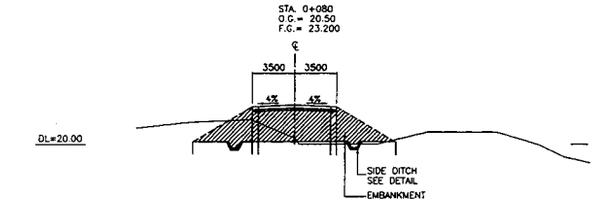


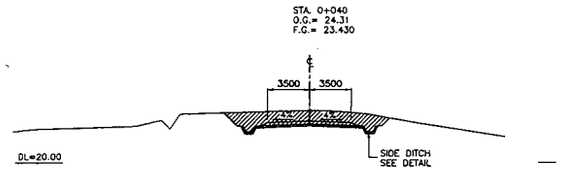
3 ELEVATION
SCALE 1:50

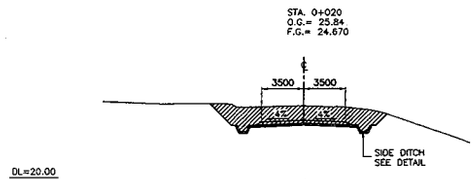


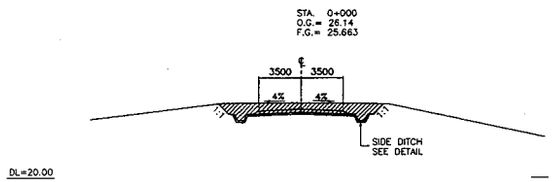
4 SECTION A
SCALE 1:50

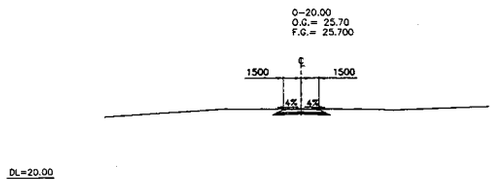
SHEET NO.: 41 / 71
BRIDGE NAME : TABISU I BRIDGE
SHEET CONTENTS : ABUTMENT "A", "B"

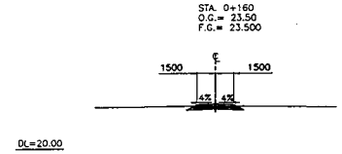


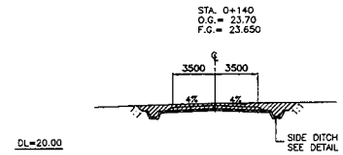


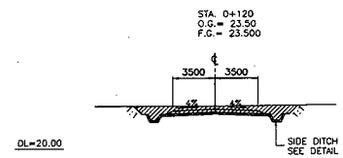


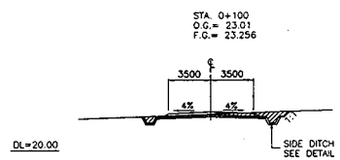








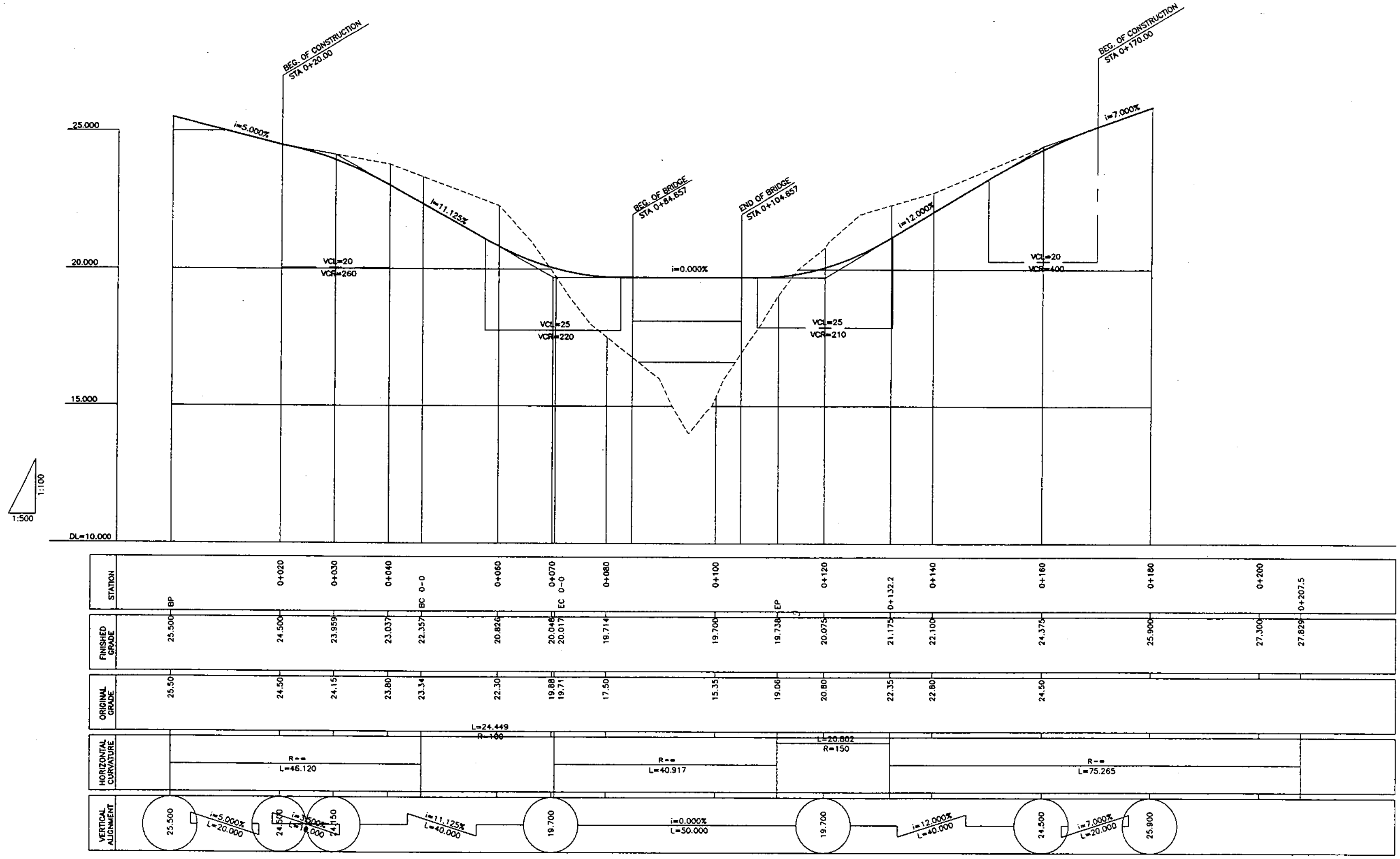




SHEET NO.: 42 / 71

BRIDGE NAME : TABISU I BRIDGE

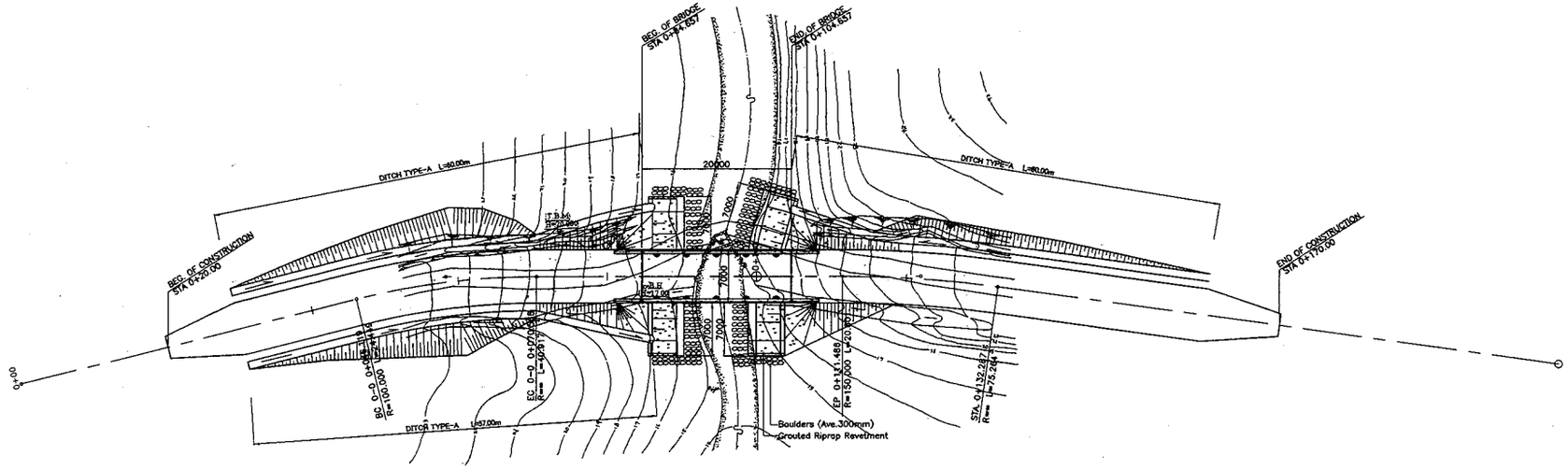
SHEET CONTENTS : CROSS-SECTIONS (1:200)



SHEET NO.: 43 / 71

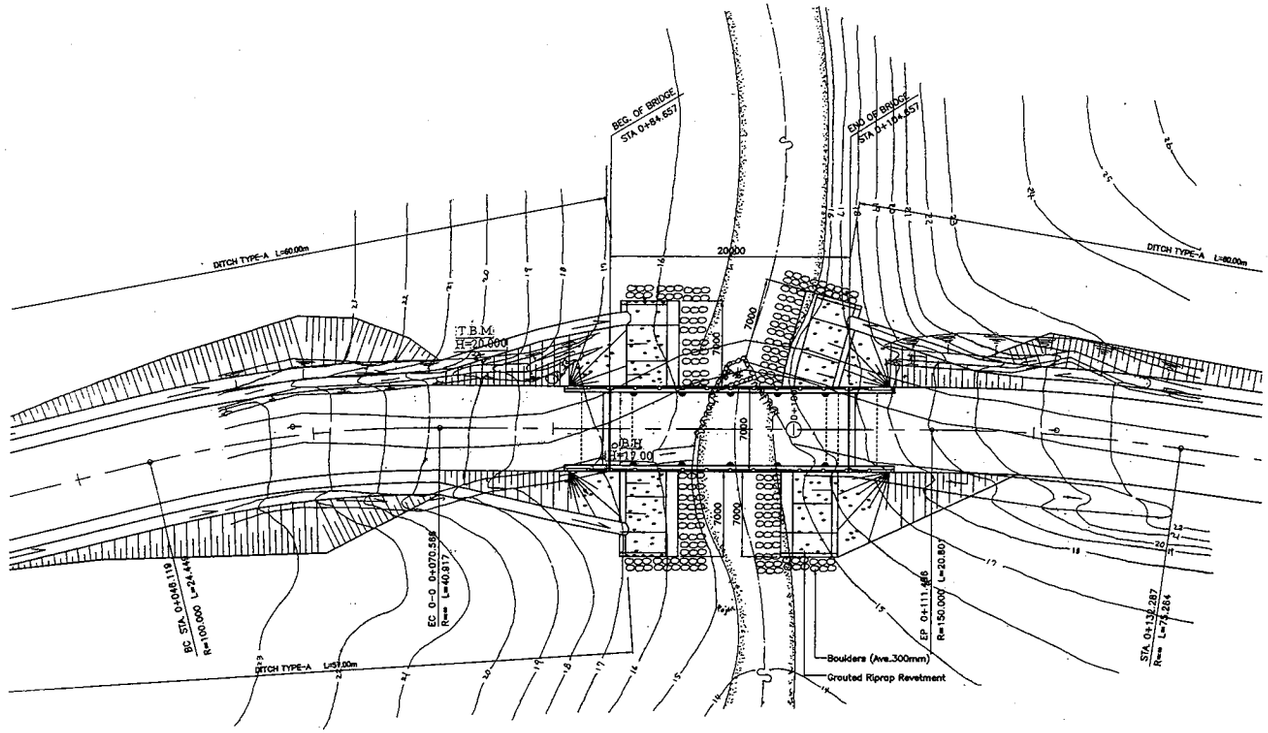
BRIDGE NAME : TABISU III BRIDGE

SHEET CONTENTS : PROFILE

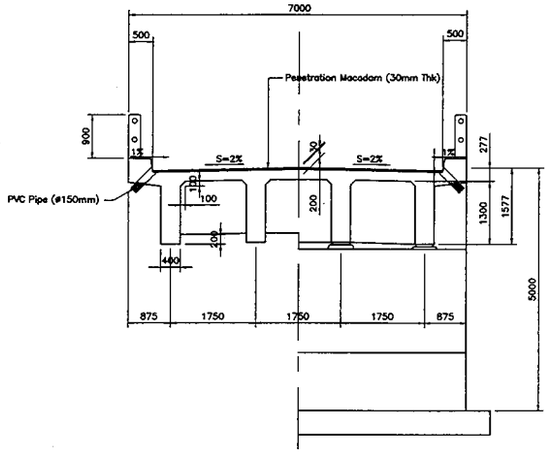


1 SITE PLAN
SCALE 1:300

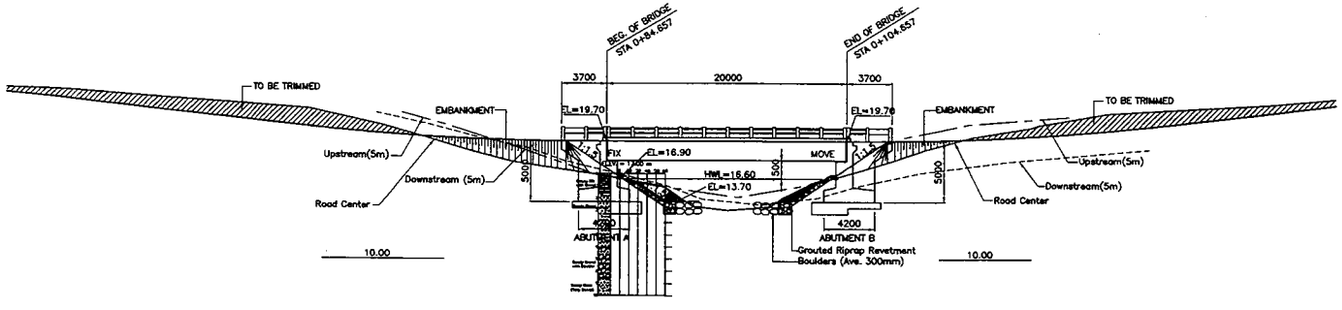
SHEET NO.:	44 / 71
BRIDGE NAME :	TABISU III BRIDGE
SHEET CONTENTS :	SITE PLAN



1 GENERAL PLAN
SCALE 1:200

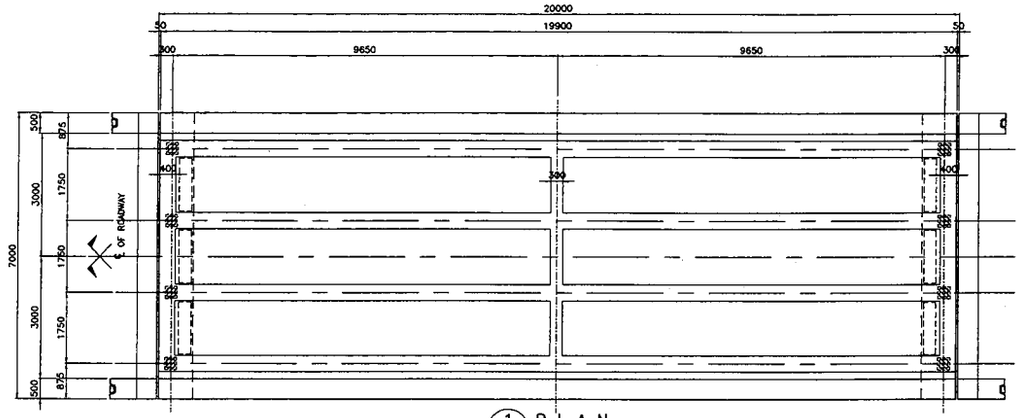


3 TYPICAL SECTION
SCALE 1:50

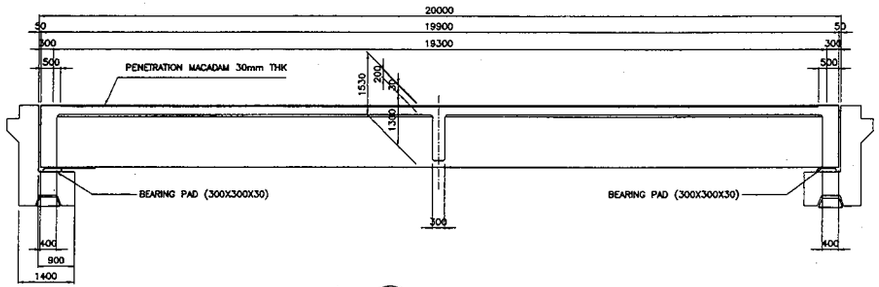


2 GENERAL ELEVATION
SCALE 1:200

SHEET NO.:	45 / 71
BRIDGE NAME :	TABISU III BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



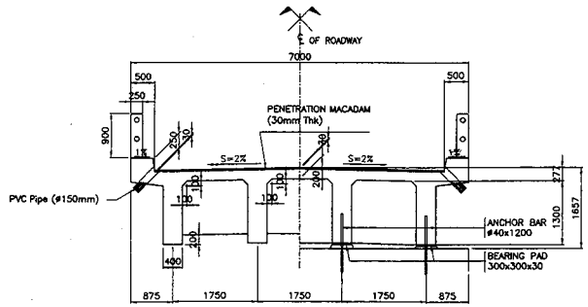
1 PLAN
SCALE 1:60



2 ELEVATION
SCALE 1:60

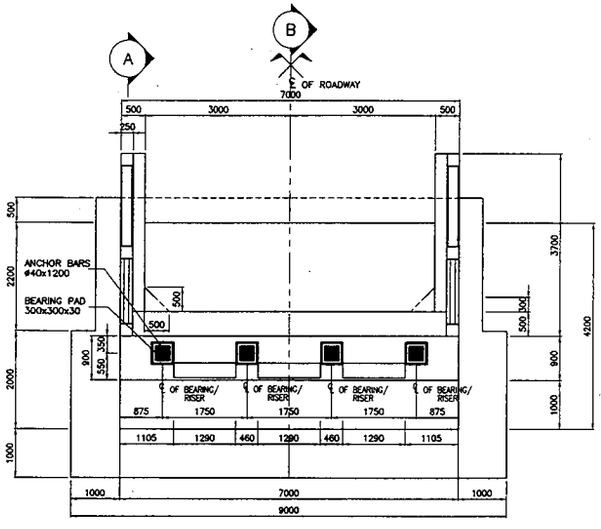
ABUT-A

ABUT-B

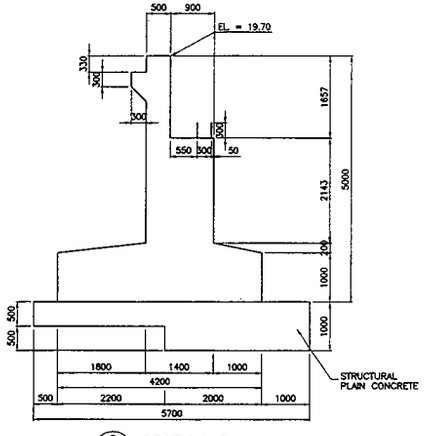


3 SECTION
SCALE 1:50

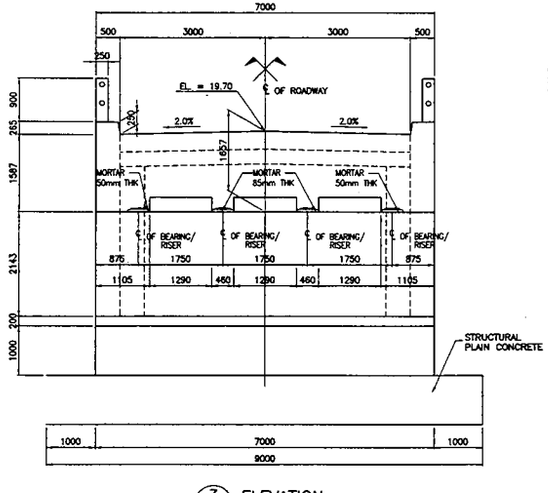
SHEET NO.:	46 / 71
BRIDGE NAME :	TABISU III BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE



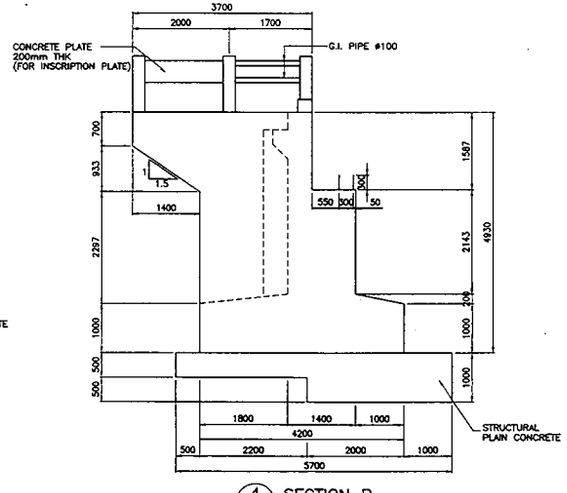
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50



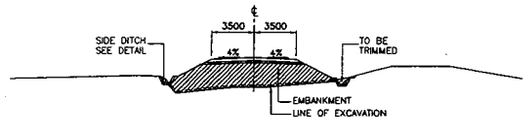
3 ELEVATION
SCALE 1:50



4 SECTION B
SCALE 1:50

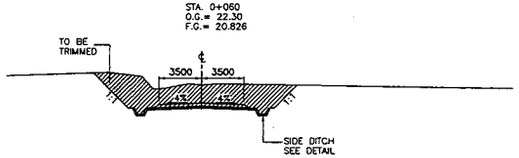
SHEET NO.: 47 / 71
BRIDGE NAME : TABISU III BRIDGE
SHEET CONTENTS : ABUTMENT "A", "B"

STA. 0+080
O.G.= 17.50
F.G.= 19.714



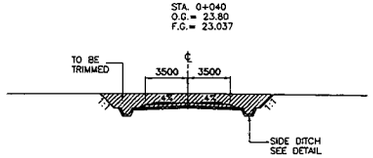
DL=10.00

STA. 0+060
O.G.= 22.30
F.G.= 20.826



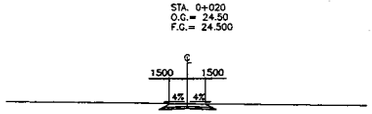
DL=10.00

STA. 0+040
O.G.= 23.80
F.G.= 23.037



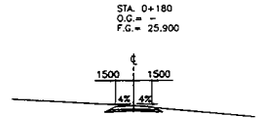
DL=10.00

STA. 0+020
O.G.= 24.50
F.G.= 24.500



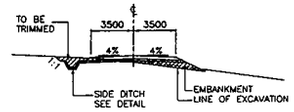
DL=10.00

STA. 0+180
O.G.= -
F.G.= 25.900



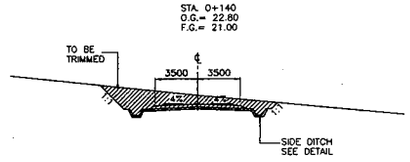
DL=20.00

STA. 0+160
O.G.= 24.50
F.G.= 24.375



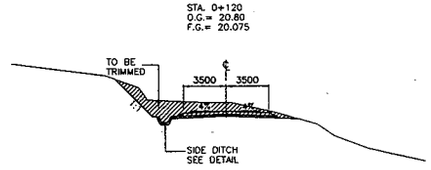
DL=10.00

STA. 0+140
O.G.= 22.80
F.G.= 21.00



DL=10.00

STA. 0+120
O.G.= 20.80
F.G.= 20.075



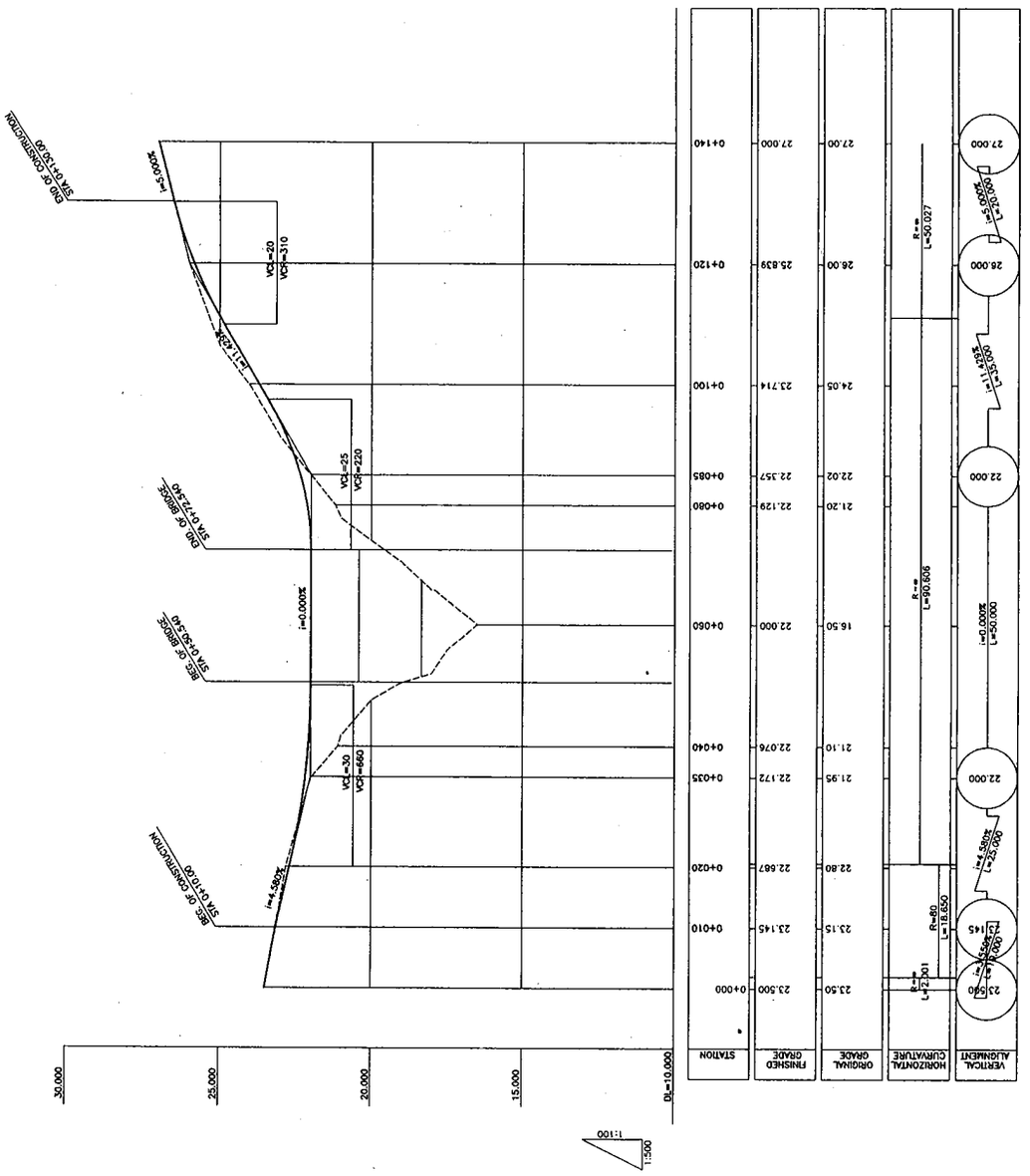
DL=10.00

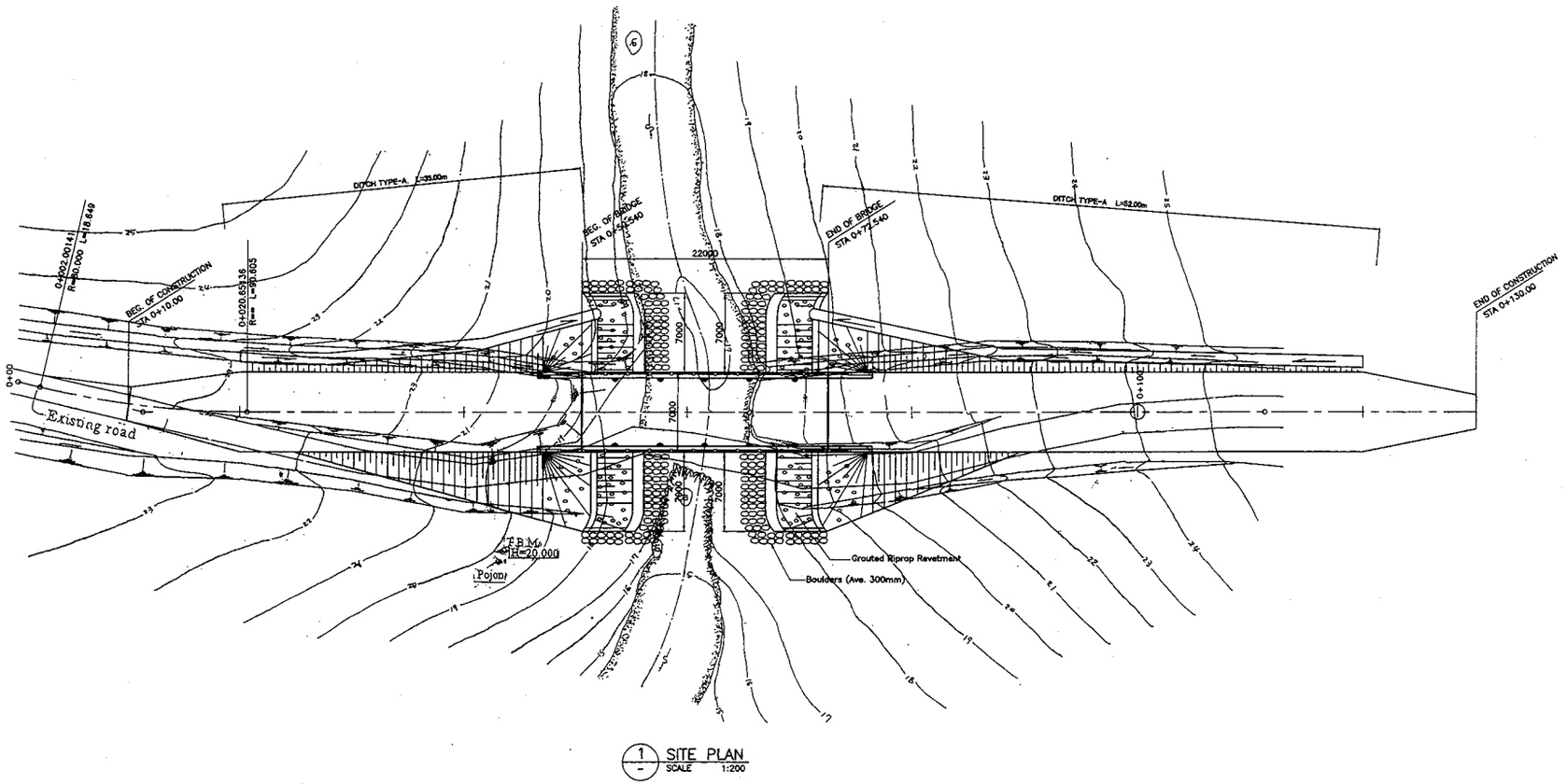
SHEET NO.: 48 / 71
BRIDGE NAME : TABISU III BRIDGE
SHEET CONTENTS : CROSS-SECTIONS (1:200)

SHEET NO.: 49 / 71

BRIDGE NAME : TABASU IV BRIDGE

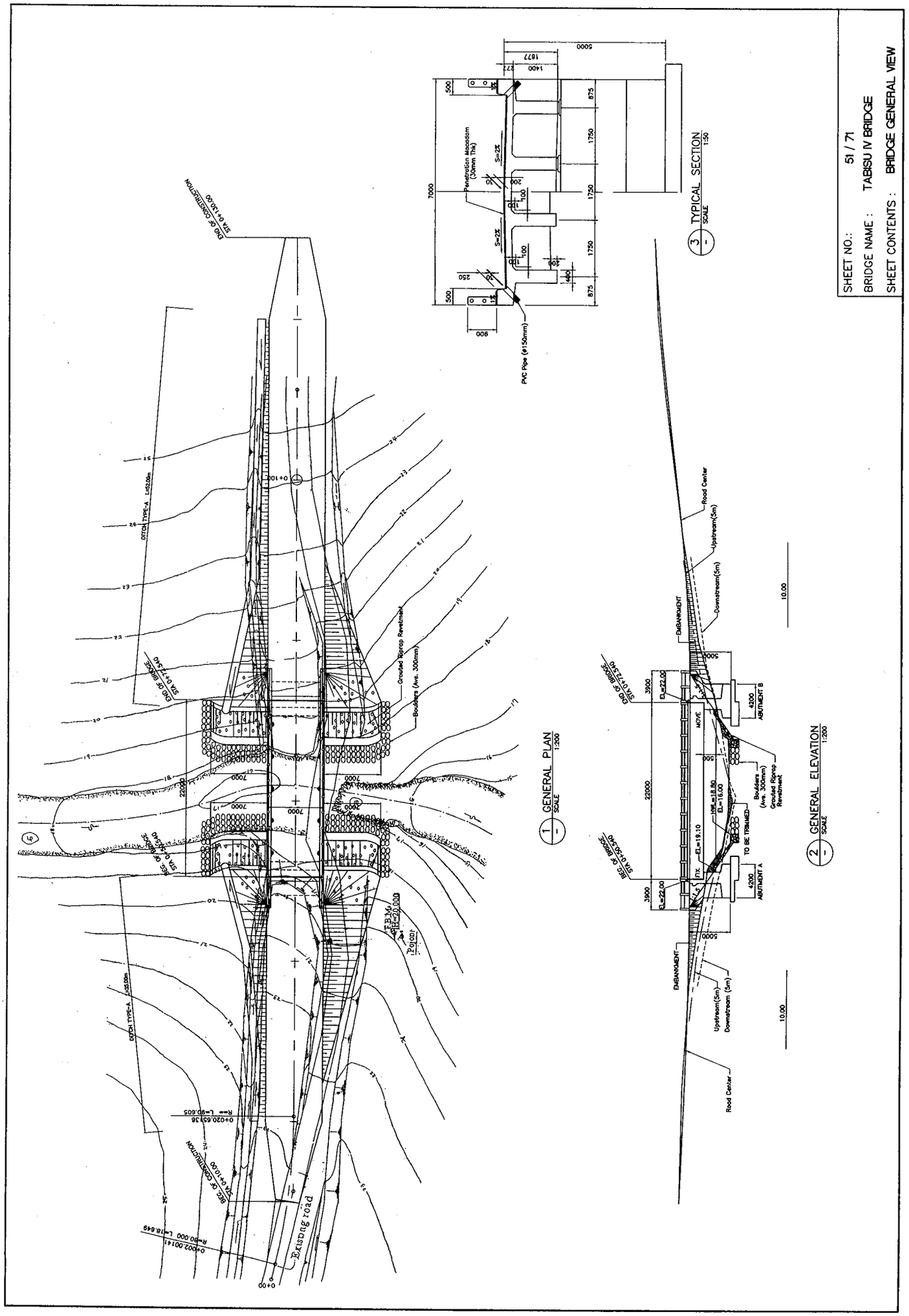
SHEET CONTENTS : PROFILE

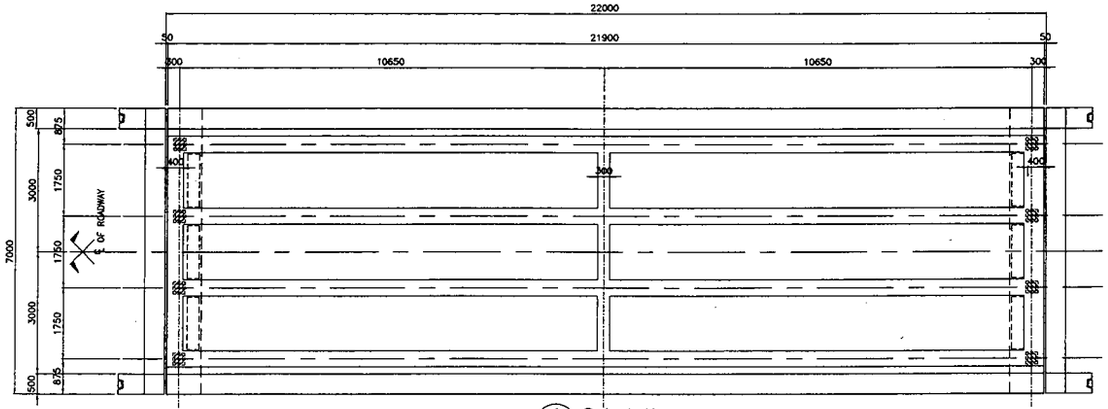




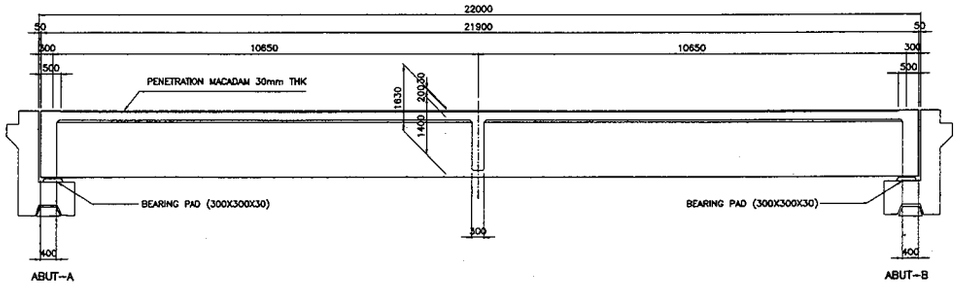
1 SITE PLAN
SCALE 1:200

SHEET NO.:	50 /71
BRIDGE NAME :	TABISU IV BRIDGE
SHEET CONTENTS :	SITE PLAN

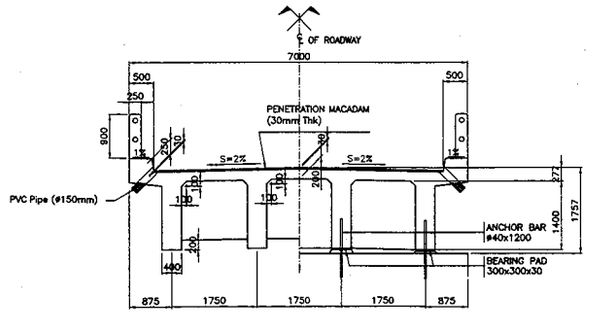

SHEET NO.: 51 / 71
BRIDGE NAME : TABISU IV BRIDGE
SHEET CONTENTS : BRIDGE GENERAL VIEW
1 GENERAL PLAN SCALE 1:200
2 GENERAL ELEVATION SCALE 1:200
3 TYPICAL SECTION SCALE 1:50
Existing road
Grouted Riprap Revetment
Boulders (Ave. 300mm)
Penetration Macadam (30mm Thk)
PVC Pipe (ø150mm)
Road Center
Upstream(5m)
Downstream(5m)
EMBANKMENT
ABUTMENT A
ABUTMENT B
TO BE TRIMMED
10.00



1 PLAN
SCALE 1:60

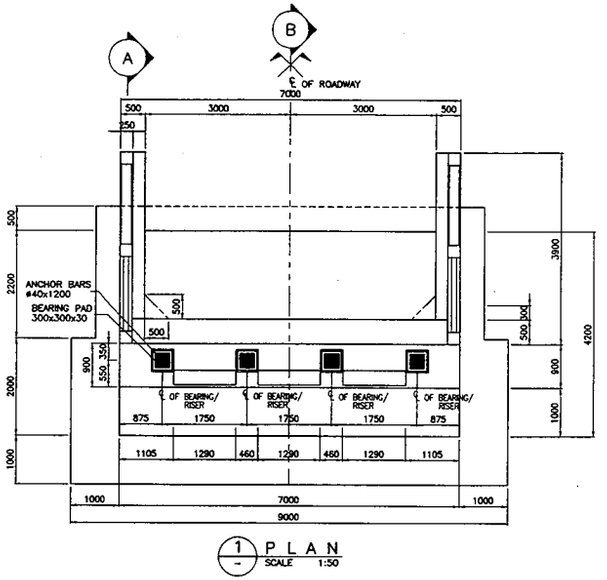


2 ELEVATION
SCALE 1:60

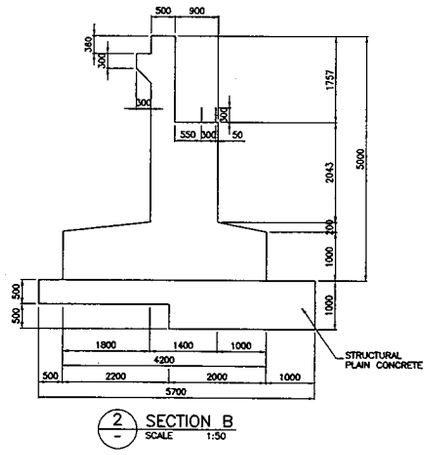


3 SECTION
SCALE 1:50

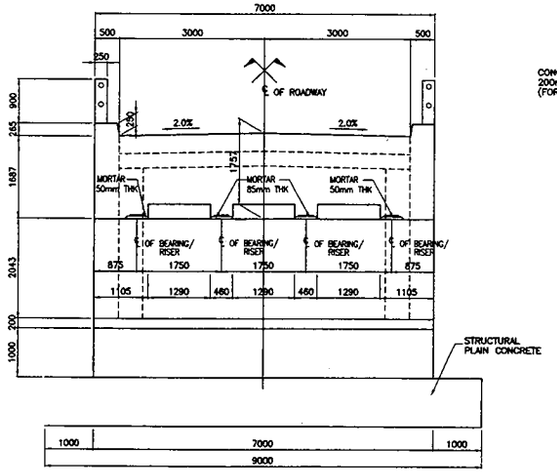
SHEET NO.:	52 / 71
BRIDGE NAME :	TABISU IV BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE



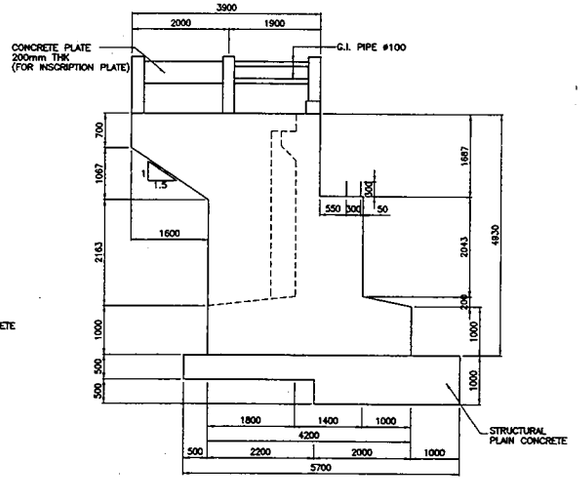
1 PLAN
SCALE 1:50



2 SECTION B
SCALE 1:50

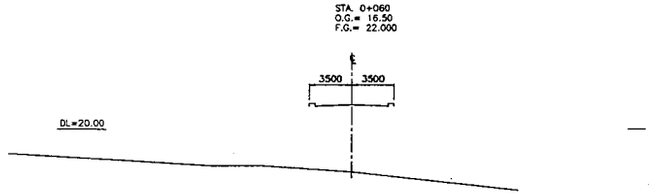


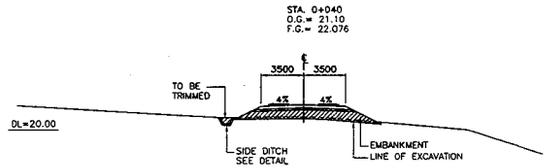
3 ELEVATION
SCALE 1:50

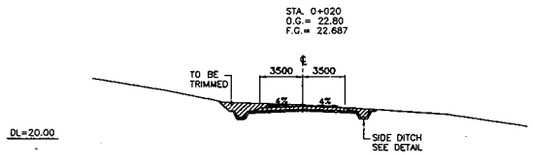


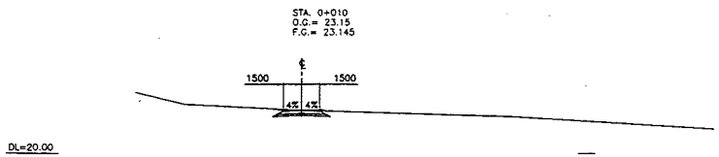
4 SECTION A
SCALE 1:50

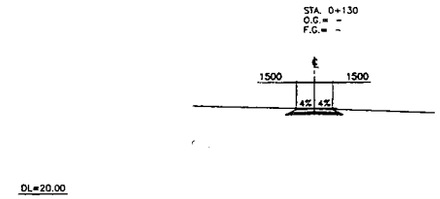
SHEET NO.:	53 / 71
BRIDGE NAME :	TABISU IV BRIDGE
SHEET CONTENTS :	ABUTMENT "A", "B"

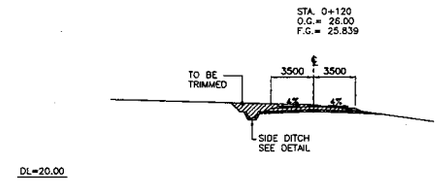


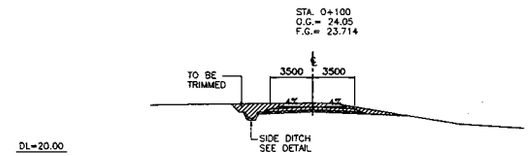


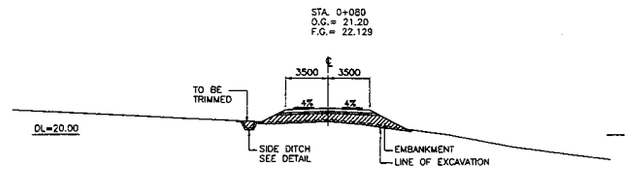










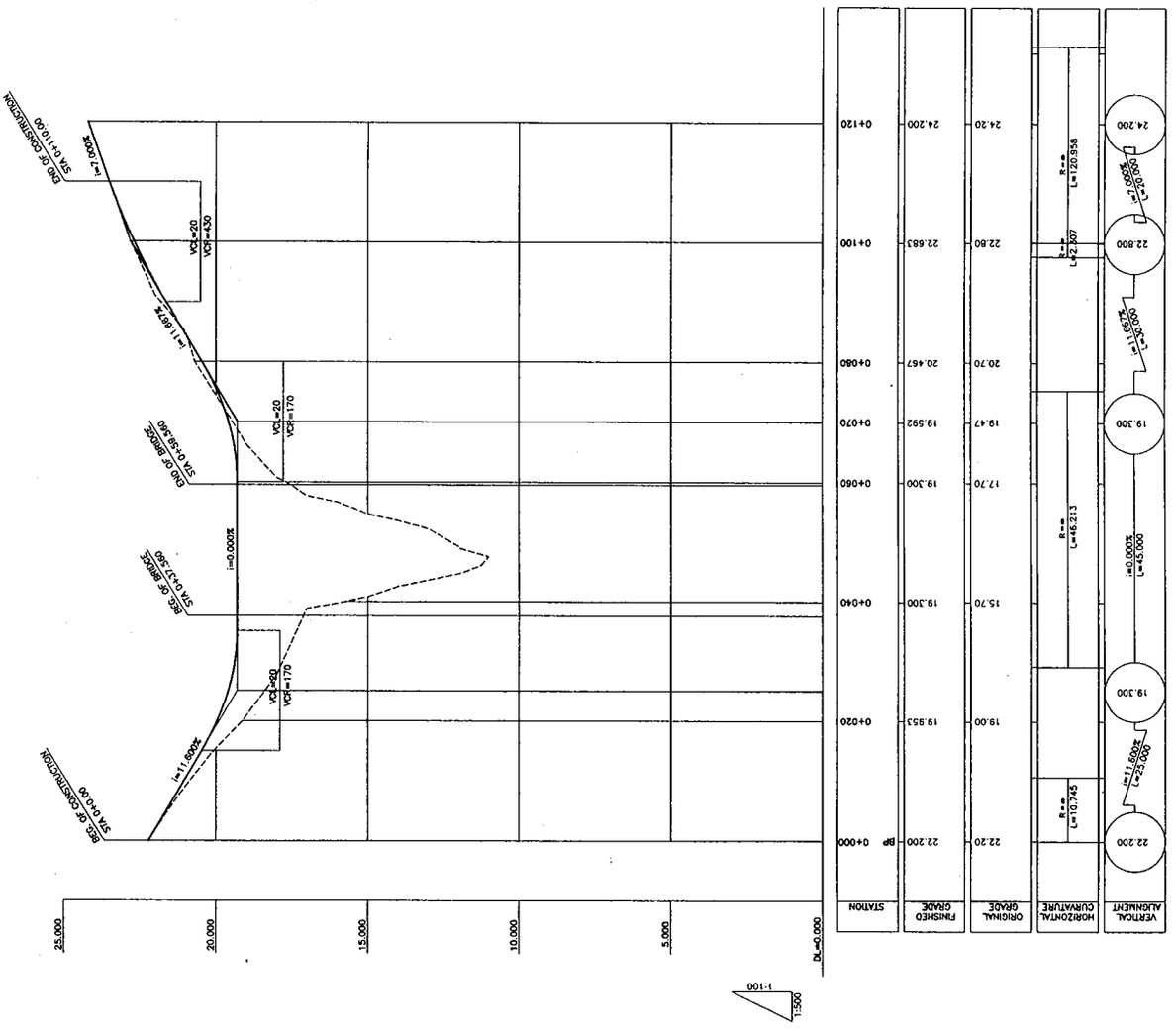


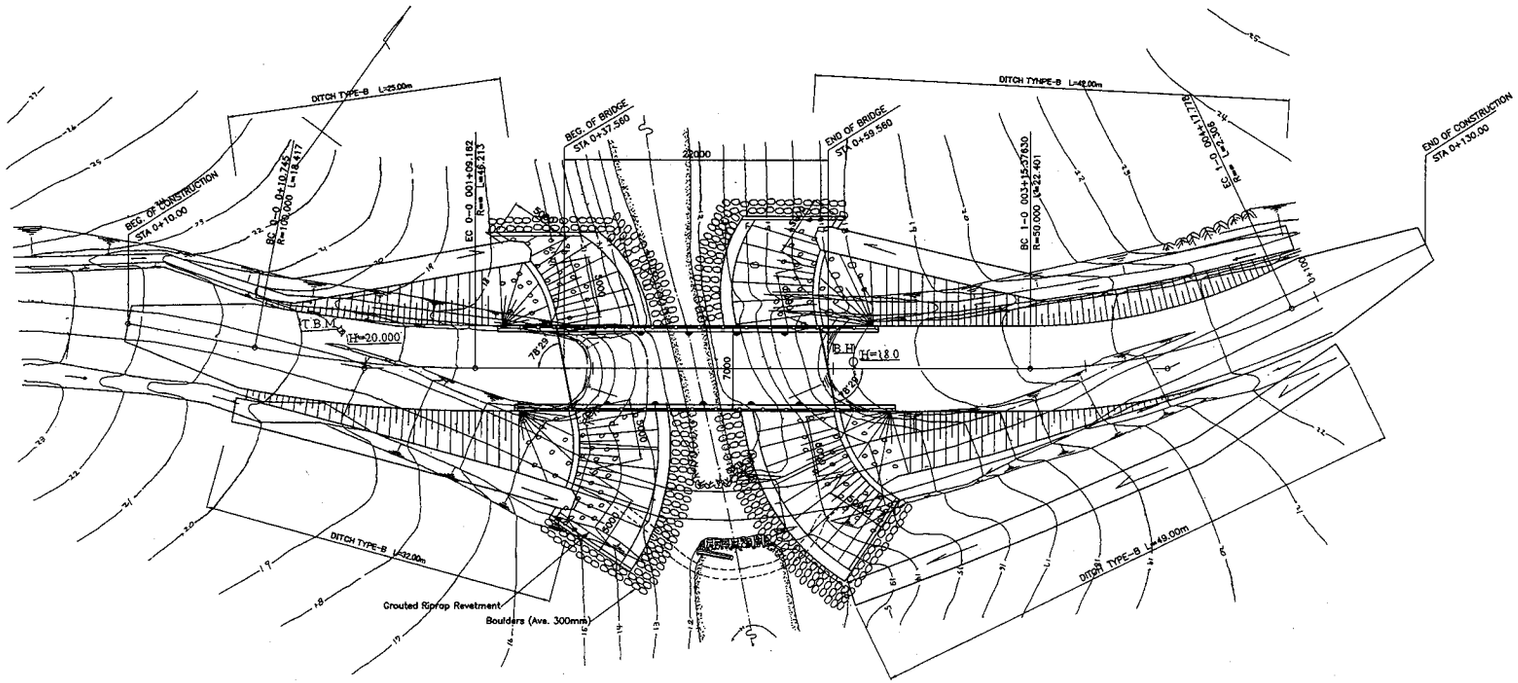
SHEET NO.:	54 / 71
BRIDGE NAME :	TABISU IV BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS (1:200)

SHEET NO.: 55 / 71

BRIDGE NAME : TABISU V BRIDGE

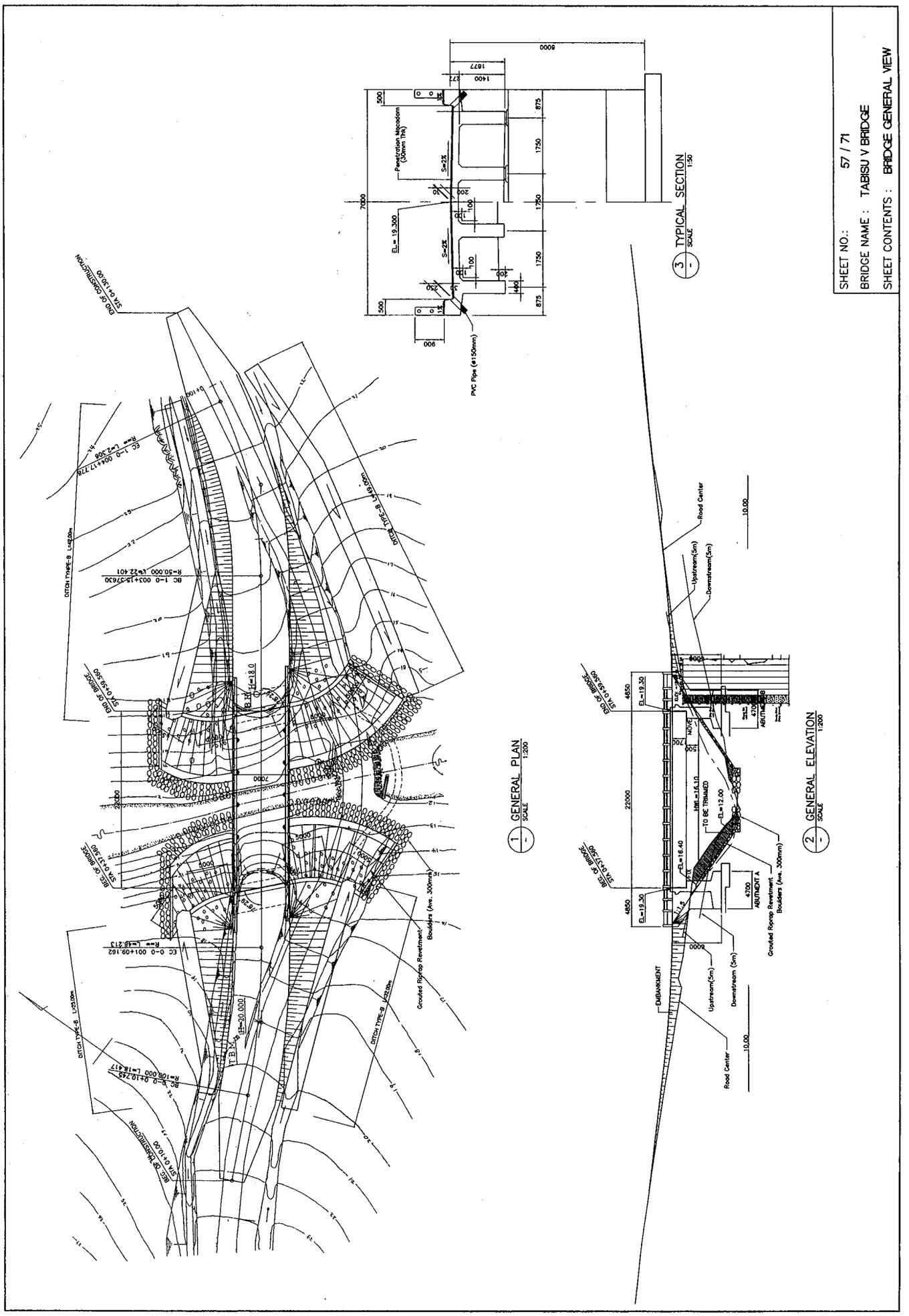
SHEET CONTENTS : PROFILE

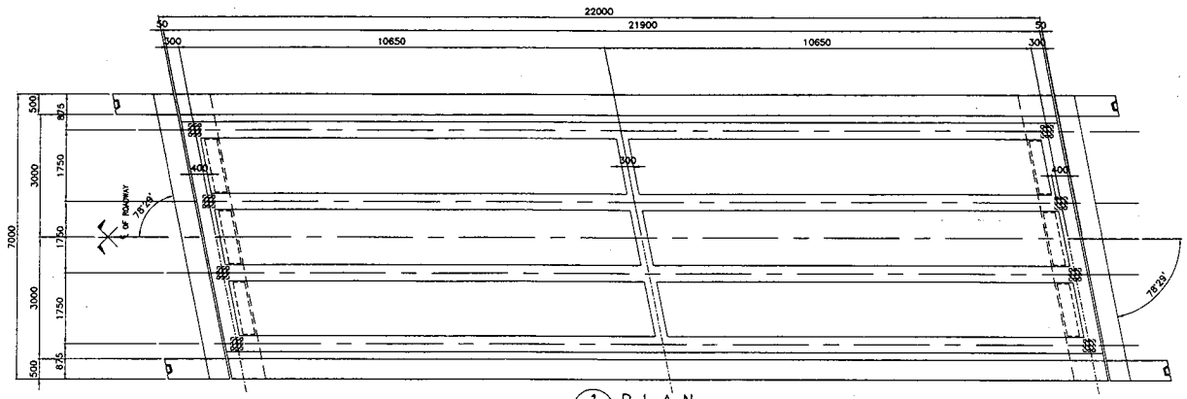




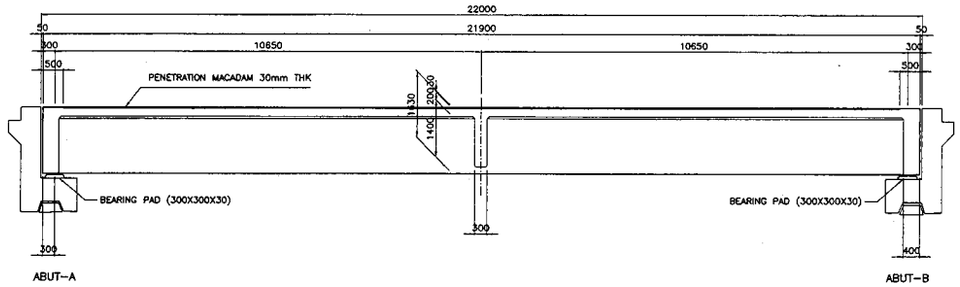
1 SITE PLAN
SCALE 1:200

SHEET NO.:	56 / 71
BRIDGE NAME :	TABISU V BRIDGE
SHEET CONTENTS :	SITE PLAN

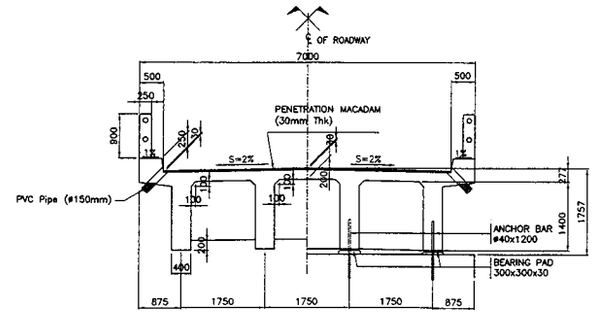

SHEET NO.: 57 / 71
BRIDGE NAME : TABISU V BRIDGE
SHEET CONTENTS : BRIDGE GENERAL VIEW
1 GENERAL PLAN SCALE 1:200
2 GENERAL ELEVATION SCALE 1:200
3 TYPICAL SECTION SCALE 1:50
Road Center
Upstream(5m)
Downstream(5m)
10.00
EMBANKMENT
ABUTMENT A
ABUTMENT B
Grouted Riprap Revetment
Boulders (Ave. 300mm)
TO BE TRIMMED
PVC Pipe (ø150mm)
Penetration Macadam (30mm Thk)
DITCH TYPE-B
END OF CONSTRUCTION
BEG. OF BRIDGE
END OF BRIDGE



1 PLAN
SCALE 1:60

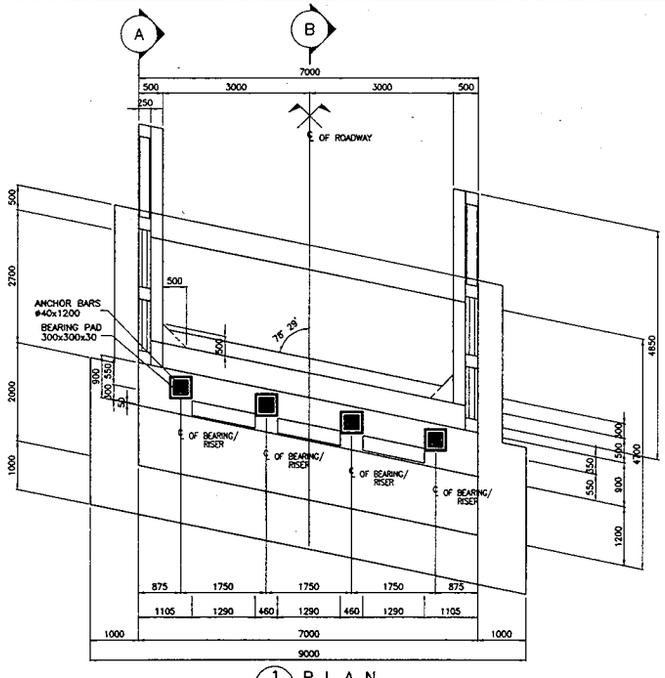


2 ELEVATION
SCALE 1:60

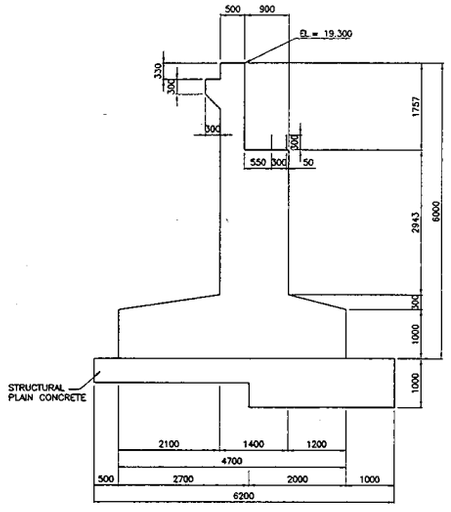


3 SECTION
SCALE 1:50

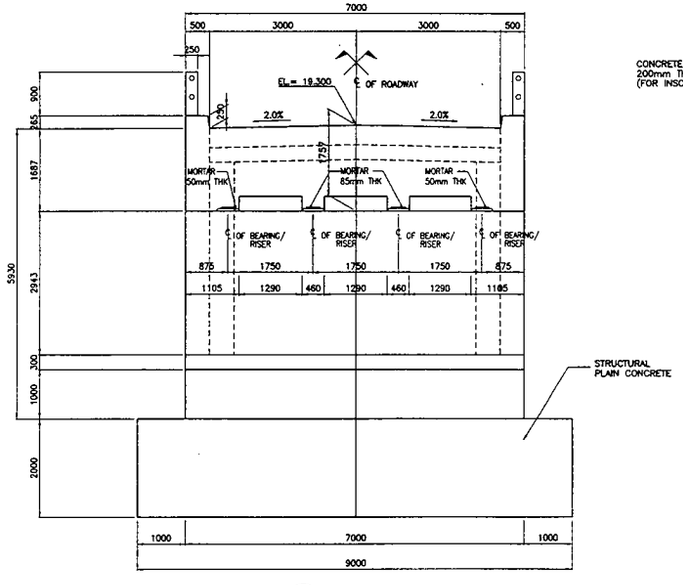
SHEET NO.:	58 / 71
BRIDGE NAME :	TABISU V BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE



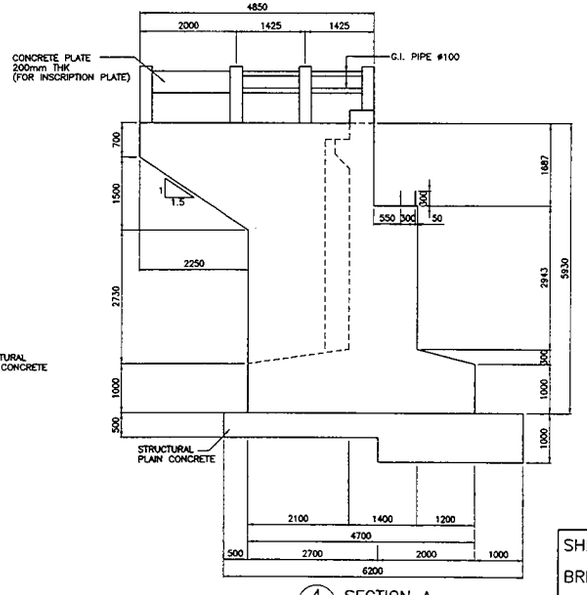
1 / - PLAN
SCALE 1:50



2 / - SECTION B
SCALE 1:50



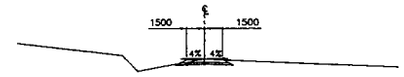
3 / - ELEVATION
SCALE 1:50



4 / - SECTION A
SCALE 1:50

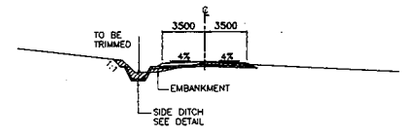
SHEET NO.: 59 / 71
BRIDGE NAME : TABISU V BRIDGE
SHEET CONTENTS : ABUTMENT "A", "B"

STA. 0+110
O.G.= –
F.G.= –



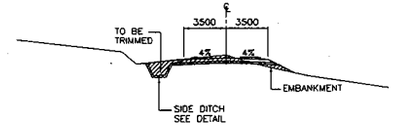
DL=20.00

STA. 0+100
O.G.= 22.80
F.G.= 22.683



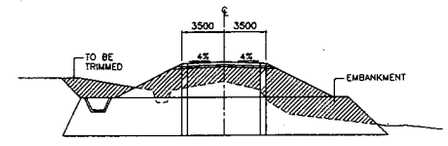
DL=20.00

STA. 0+080
O.G.= 20.70
F.G.= 20.467



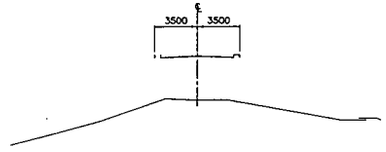
DL=10.00

STA. 0+060
O.G.= 17.70
F.G.= 19.300



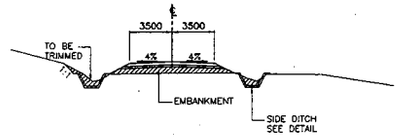
DL=10.00

STA. 0+040
O.G.= 15.70
F.G.= 19.300



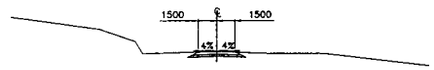
DL=10.00

STA. 0+020
O.G.= 19.00
F.G.= 19.953



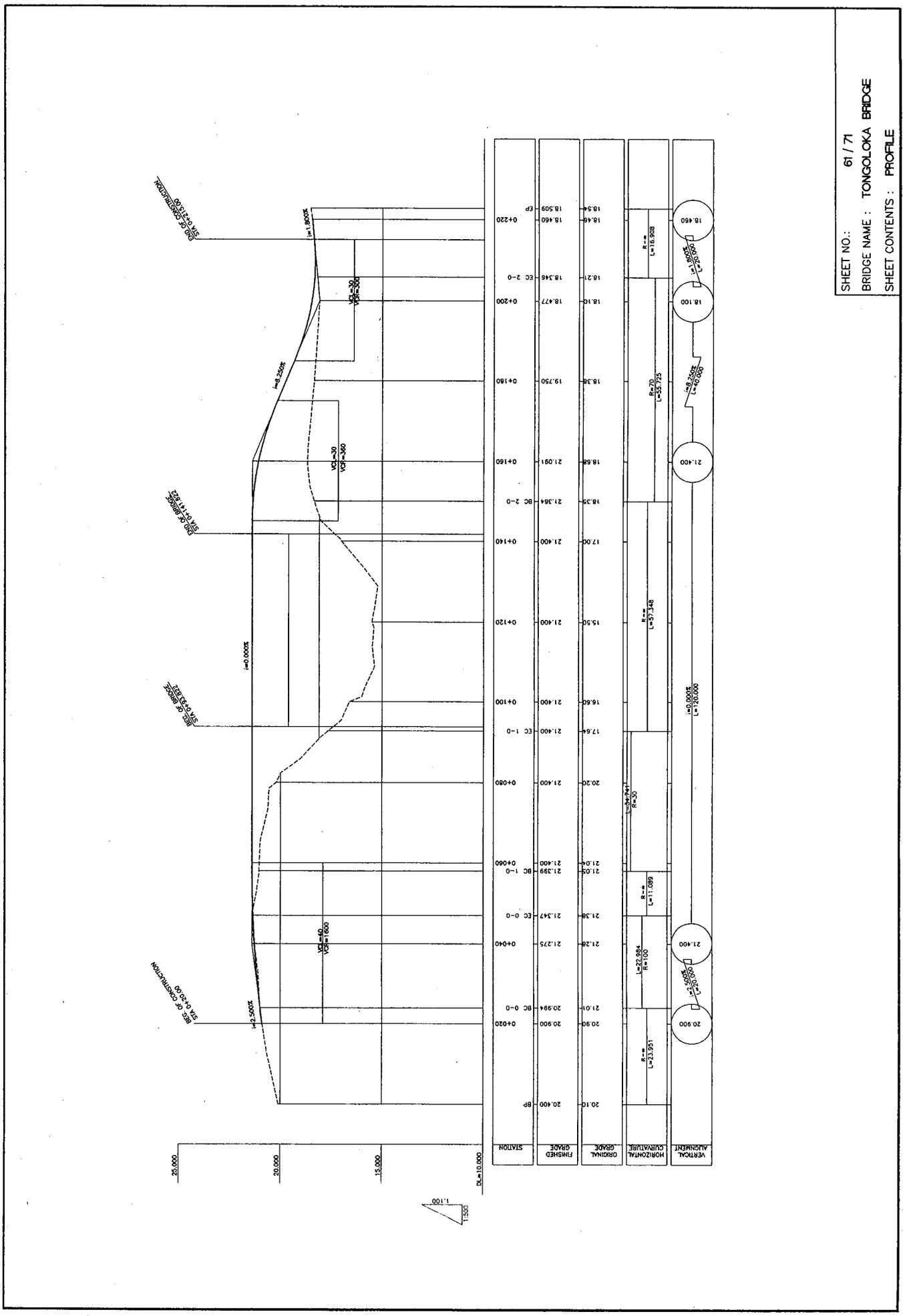
DL=10.00

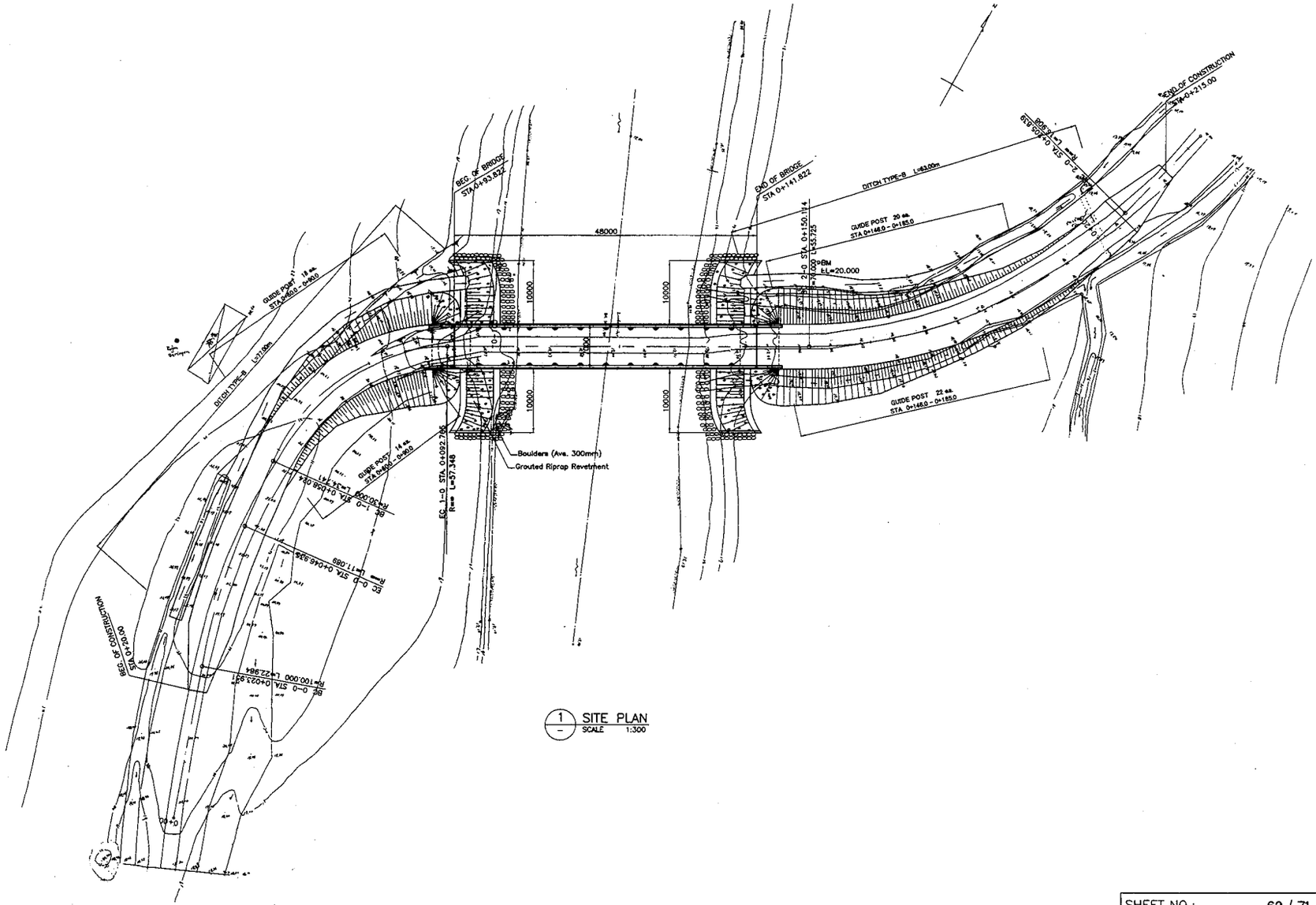
STA. 0+000
O.G.= 22.20
F.G.= 22.200



DL=20.00

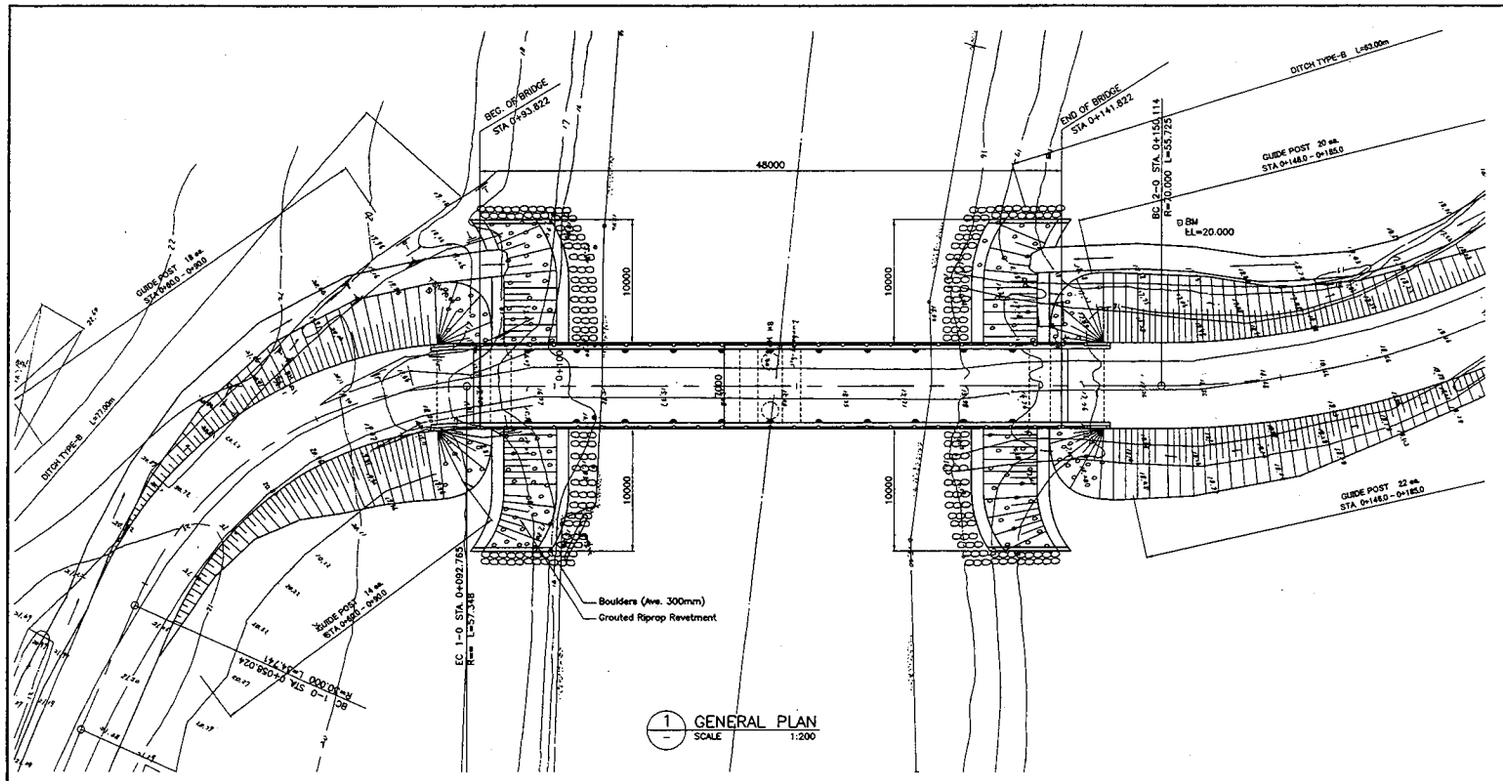
SHEET NO.:	60 / 71
BRIDGE NAME :	TABISU V BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS (1:200)


SHEET NO.: 61 / 71
BRIDGE NAME : TONGOLOKA BRIDGE
SHEET CONTENTS : PROFILE
STA 0+000.00 BEG. OF CONSTRUCTION
STA 0+021.821 END OF BRIDGE
STA 0+021.821 BEG. OF BRIDGE
STA 0+213.00 END OF CONSTRUCTION
i=2.500%
i=0.000%
i=8.250%
i=1.800%
VCL=40
VCR=160
VCL=30
VCR=360
VCL=30
VCR=300
1:1.100
1:1.500
25.000
20.000
15.000
DL=10.000
STATION
FINISHED GRADE
ORIGINAL GRADE
HORIZONTAL CURVATURE
VERTICAL ALIGNMENT
R=∞ L=23.951
R=100 L=22.984
R=∞ L=11.089
R=30 L=24.241
R=∞ L=57.348
R=70 L=55.725
R=∞ L=16.908
i=2.500% L=20.000
i=0.000% L=120.000
i=8.250% L=40.000
i=1.800% L=20.000

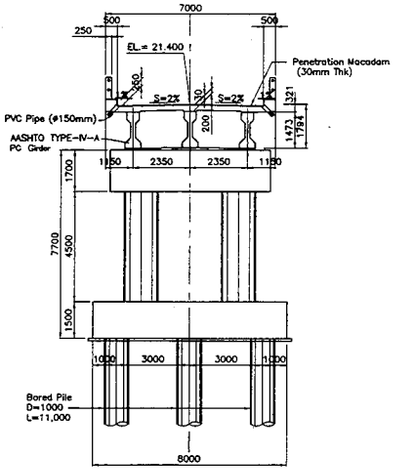


1 SITE PLAN
SCALE 1:300

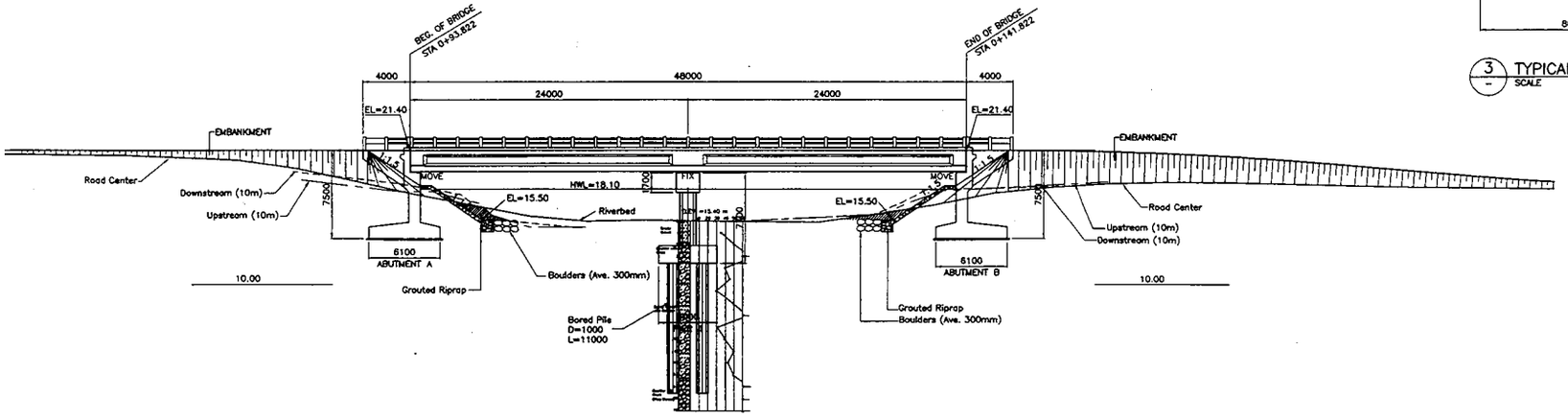
SHEET NO.:	62 / 71
BRIDGE NAME :	TONGOLOKA BRIDGE
SHEET CONTENTS :	SITE PLAN



1 GENERAL PLAN
SCALE 1:200

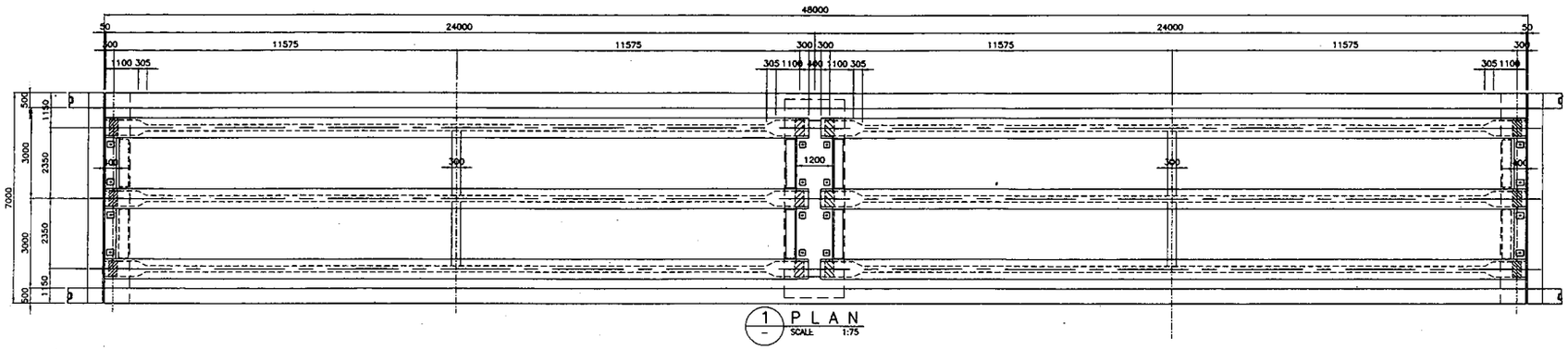


3 TYPICAL SECTION
SCALE 1:100

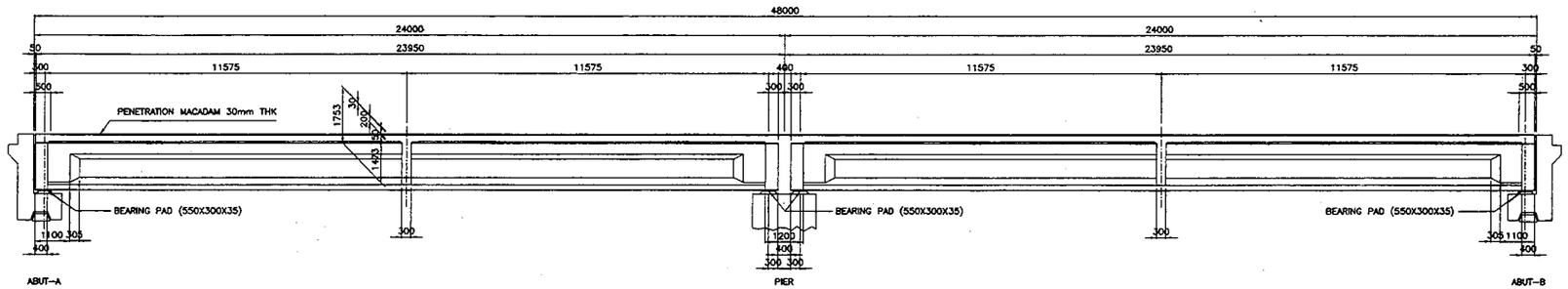


2 GENERAL ELEVATION
SCALE 1:200

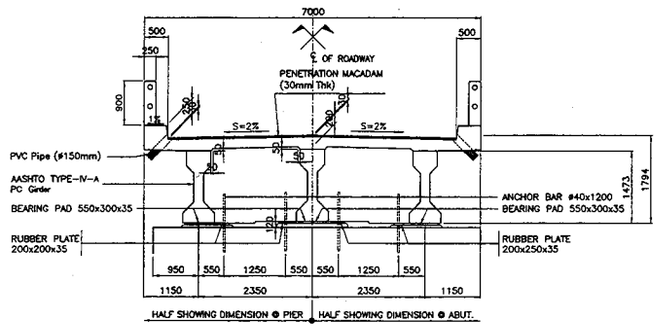
SHEET NO.:	63 / 71
BRIDGE NAME :	TONGOLOKA BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



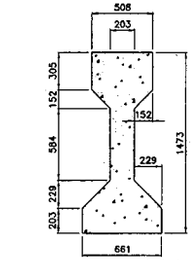
1 PLAN
SCALE 1:75



2 ELEVATION
SCALE 1:75

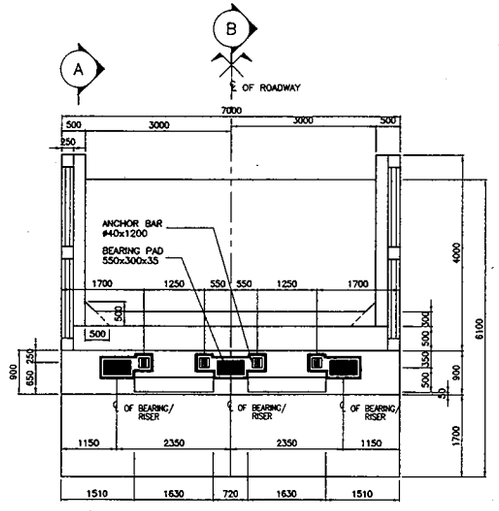


3 SECTION
SCALE 1:50

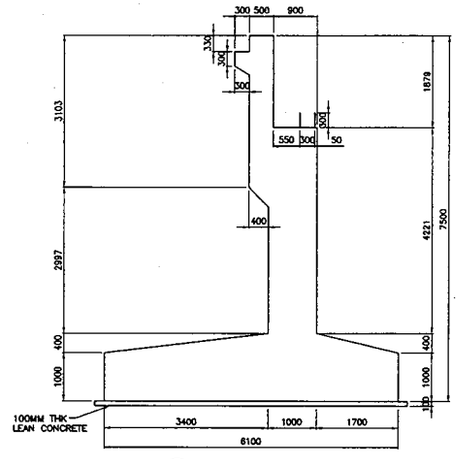


4 AASHTO TYPE IV-A
PRECAST GIRDER
SCALE 1:20

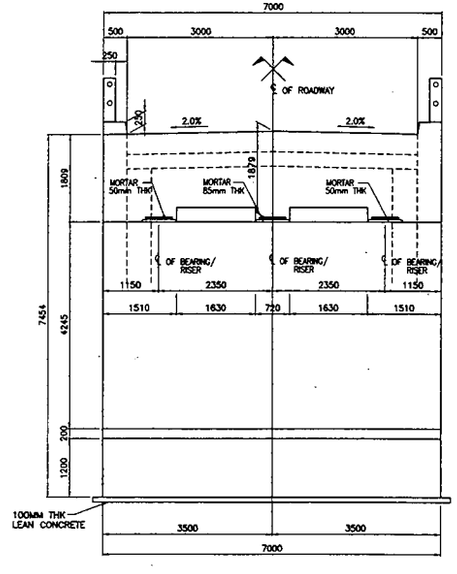
SHEET NO.:	64 / 71
BRIDGE NAME :	TONGOLOKA BRIDGE
SHEET CONTENTS :	SUPERSTRUCTURE



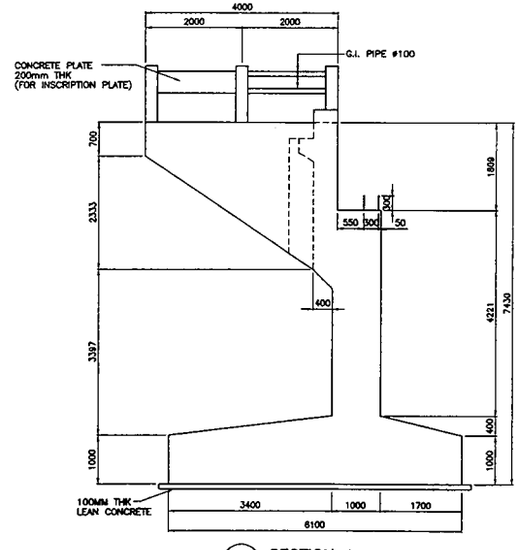
PLAN
SCALE 1:50



SECTION B
SCALE 1:50

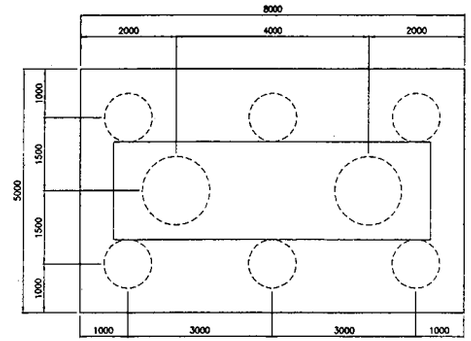


ELEVATION
SCALE 1:50

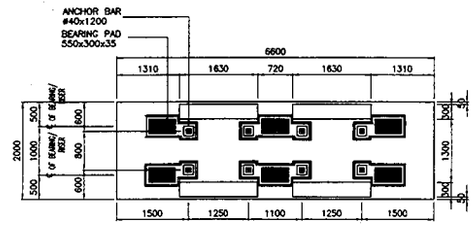


SECTION A
SCALE 1:50

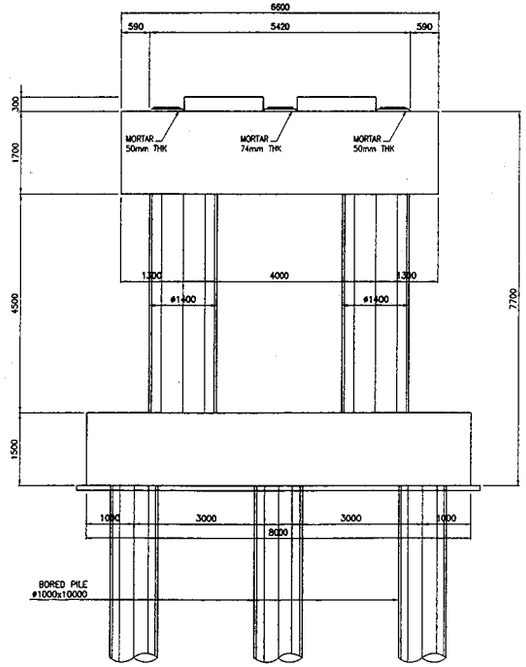
SHEET NO.:	65 / 71
BRIDGE NAME :	TONGOLOKA BRIDGE
SHEET CONTENTS :	ABUTMENT "A", "B"



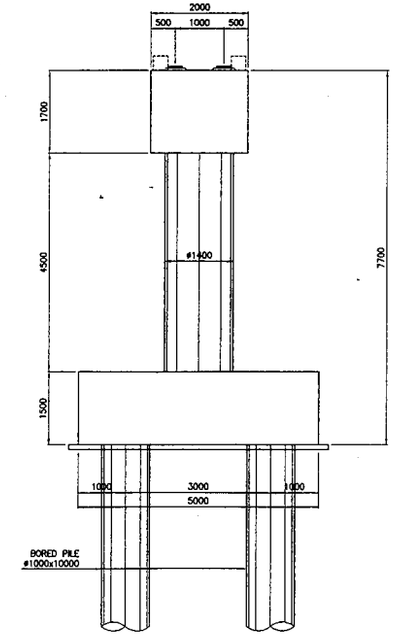
PIER FOOTING PLAN
SCALE 1:50



PIER COPING PLAN
SCALE 1:50



PIER ELEVATION
SCALE 1:50

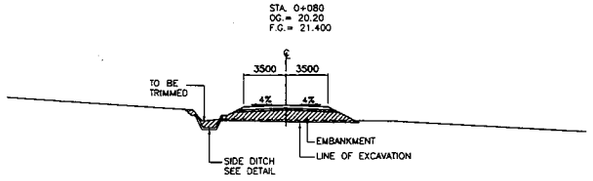


TYPICAL SECTION (PIER)
SCALE 1:50

SHEET NO.: 66 / 71
BRIDGE NAME : TONGOLOKA BRIDGE
SHEET CONTENTS : PIER

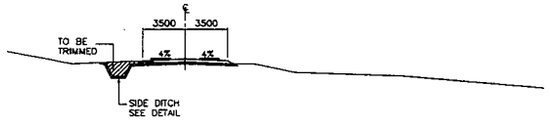
DL=10.00

STA. 0+080
OG.= 20.20
F.G.= 21.400



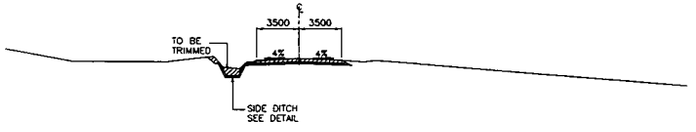
DL=10.00

STA. 0+060
OG.= 21.04
F.G.= 21.400



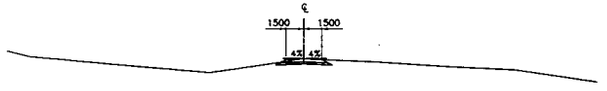
DL=10.00

STA. 0+040
OG.= 21.28
F.G.= 21.275



DL=10.00

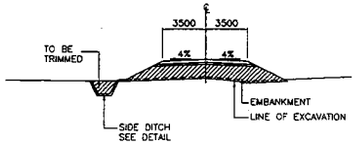
STA. 0+020
OG.= 20.10
F.G.= 20.400



DL=10.00

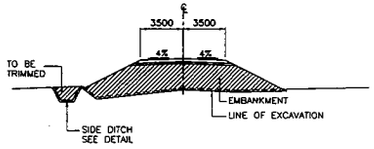
DL=10.00

STA. 0+180
OG.= 18.36
F.G.= 19.75



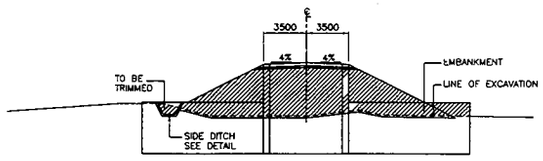
DL=10.00

STA. 0+160
OG.= 18.68
F.G.= 21.091



DL=10.00

STA. 0+140
OG.= 17.00
F.G.= 21.400

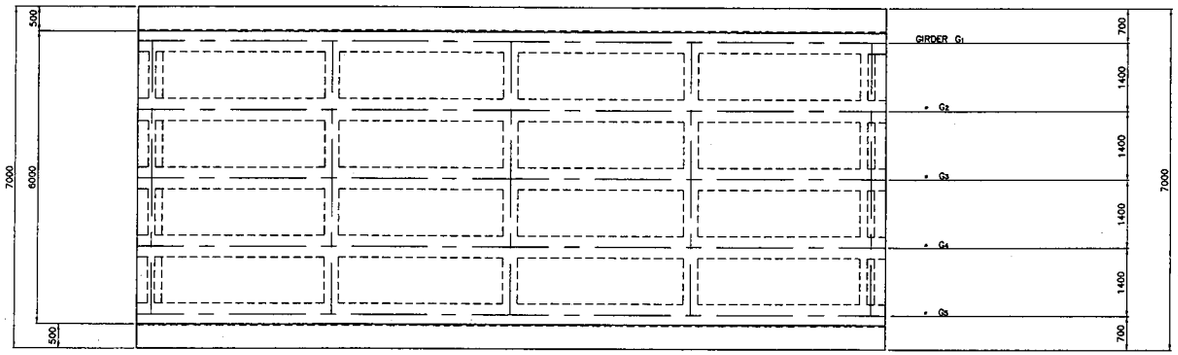


DL=10.00

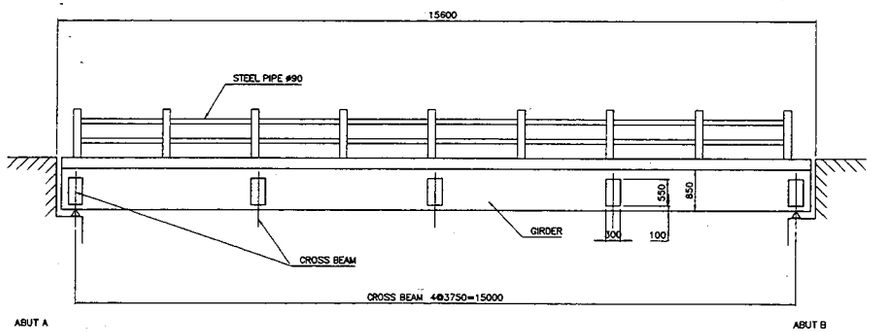
STA. 0+120
OG.= 15.50
F.G.= 21.400

DL=10.00

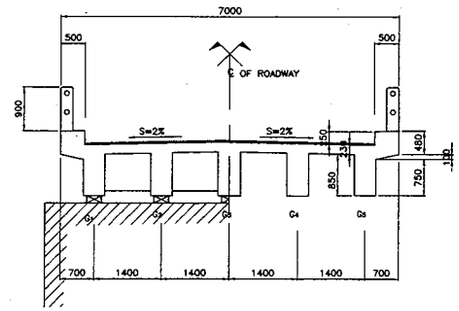
SHEET NO.:	67 / 71
BRIDGE NAME :	TONGOLOKA BRIDGE
SHEET CONTENTS :	CROSS-SECTIONS (1:200)



1 PLAN
SCALE 1:50

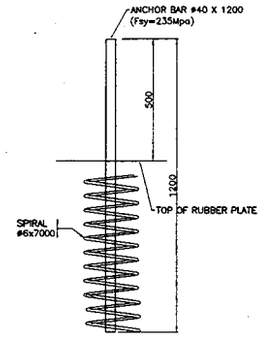


2 ELEVATION
SCALE 1:50

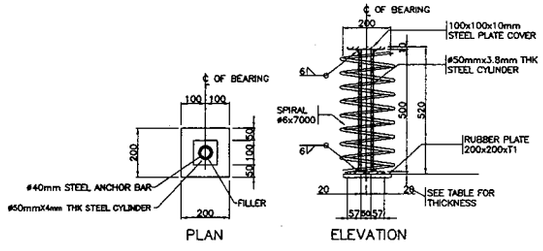


3 TYPICAL CROSS-SECTION
SCALE 1:50

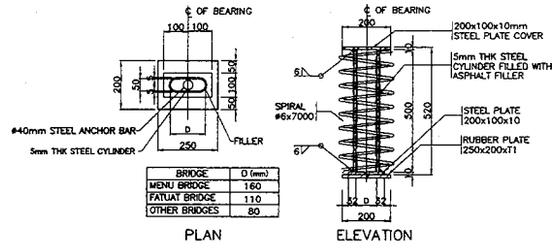
SHEET NO.:	68 / 71
BRIDGE NAME :	TABISU II BRIDGE
SHEET CONTENTS :	BRIDGE GENERAL VIEW



ANCHOR BAR



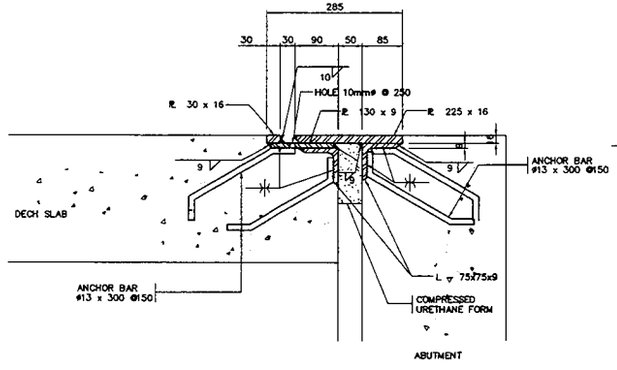
FIX. ANCHOR BAR SLEEVE



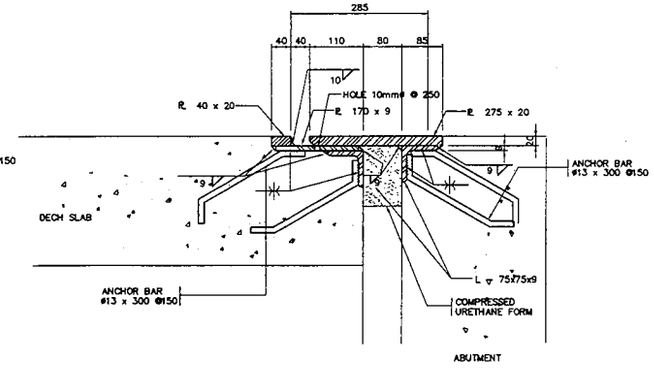
BRIDGE	D (mm)
MENU BRIDGE	160
FATUAT BRIDGE	110
OTHER BRIDGES	80

MOVABLE ANCHOR BAR SLEEVE

1 ANCHOR BAR DETAIL
SCALE 1:10

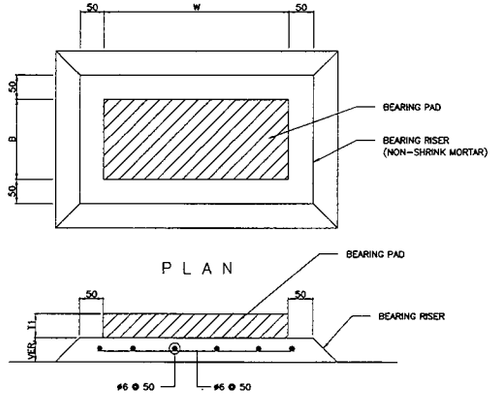


EXPANSION JOINT FOR PCDG DETAIL
(for Concrete Bridges L=20-150m)



EXPANSION JOINT FOR PCDG DETAIL
(for Menu Bridge L=260m)

2 EXPANSION JOINT DETAIL
SCALE 1:5



NOTE:
1.) BEARING PAD SIZED (W,B,T) AND THICKNESS ARE INDECATED IN THE DRAWING OF EACH SUBSTRUCTURE DETAILS
2.) NON-SHRINK MORTAL MATERIAL AND WORKMANSHIP SHALL BE REFERED IN THE TECHNICAL SPECIFICATION

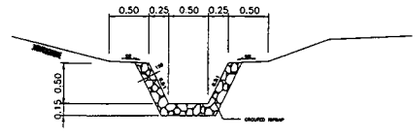
BEARING PAD SIZE (W x B x T1 mm)

BRIDGE	ABUTMENT	PIER
MENU BRIDGE	600X400X125	600X400X40
FATUAT BRIDGE	550X300X70	550X300X35
TANAMAN I BRIDGE	600X400X35	600X400X35
OTHER PC GIRDER	550X300X35	—
ALL RC GIRDER	300X300X30	—

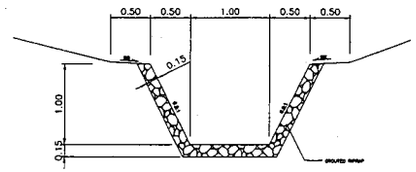
3 BEARING RISER DETAIL
SCALE 1:10

SHEET NO.:	69 / 71
BRIDGE NAME :	STANDARD STRUCTURE
SHEET CONTENTS :	BEARING, RISER, EXPANSION JOINT and ANCHOR BAR DETAILS

A10-71

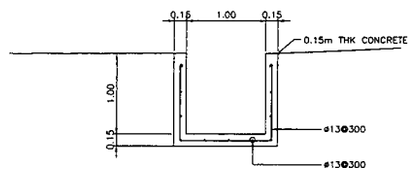


DITCH TYPE -A

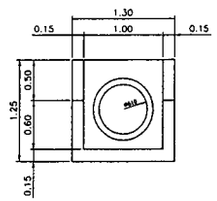


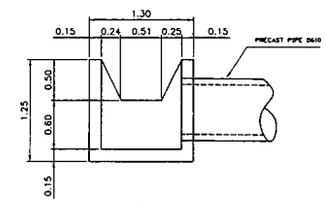
DITCH TYPE -B

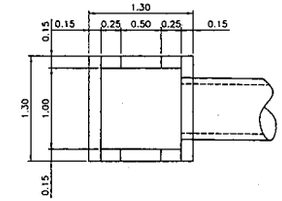
1 / - DITCH TYPE
SCALE 1:30



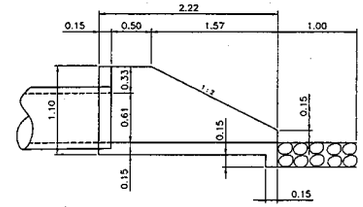
2 / - IRRIGATION CHANNEL
SCALE 1:30

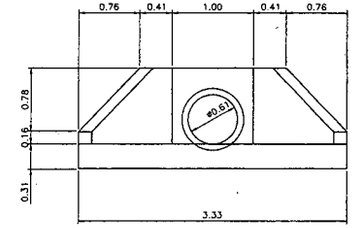


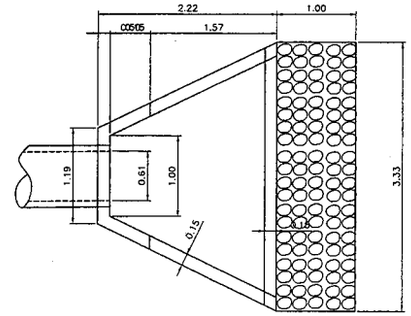




3A / - PIPE CULVERT INLET
SCALE 1:30



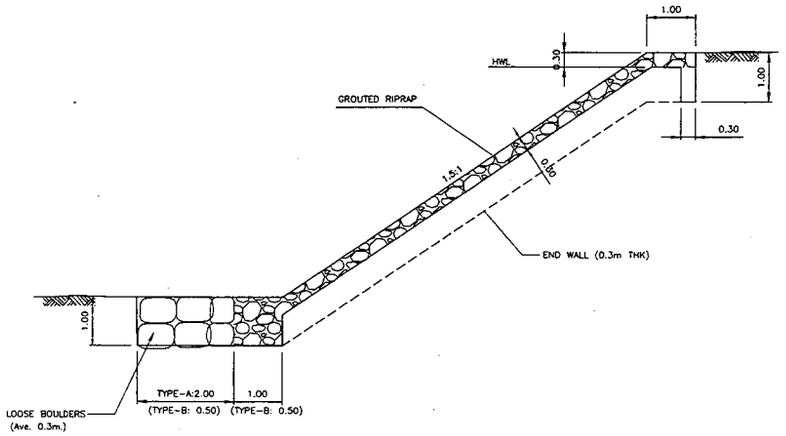




Note: 1. Concrete strength shall not be less than 25Mpa.
2. Concrete walls of Inlet & Outlet shall be reinforce with D13@300mm.

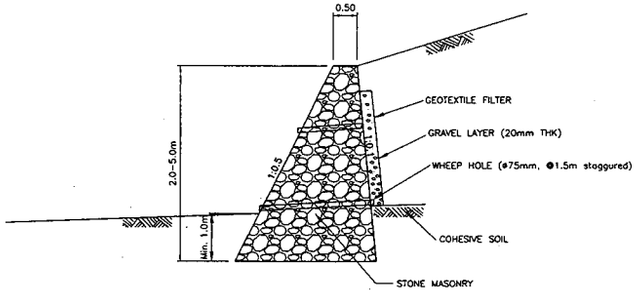
3B / - PIPE CULVERT OUTLET
SCALE 1:30

SHEET NO.:	70 / 71
BRIDGE NAME :	STANDARD STRUCTURE
SHEET CONTENTS :	DITCHES, PIPE CULVERT IN/OUTLET

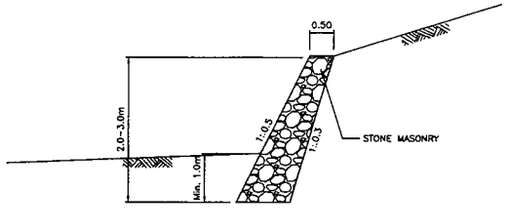


GROUTED RIPRAP RIVETMENT

LOOSE BOULDER SCOUR PROTECTION



STONE MASONRY GRAVITY WALL



STONE MASONRY WALL

1 STANDARD SLOPE PROTECTIONS
SCALE 1:50

SHEET NO.:	71 / 71
BRIDGE NAME :	STANDARD STRUCTURE
SHEET CONTENTS :	BOULDER SCOUR PROTECTION, RIVETMENT and WALLS