1) No vegetation of any type shall be removed from lands outside the works boundary.

2) The Contractor shall preserve all trees within the works boundaries if they are outside the permanent works areas and do not interfere with construction or operation of the project. During site clearance the Contractor shall minimize loss of mature trees, particularly those on the downward slope of the road;

3) Site fencing shall be erected on the border of all construction sites, storage areas etc. to avoid unnecessary off-site damage to vegetation, trees and the landscape generally. Construction personnel, equipment, and vehicles shall be confined to the works areas as defined by site fences/hoardings erected at the works boundary.

4) Exposed slopes created during the works shall be stabilized by planting grass, trees to minimize erosion.

All cut slopes, embankments and cleared areas shall be planting grass immediately after works to provide a greening effect to mitigate visual appearance of cuttings and shall be subsequently planted with trees; Native species shall be used in replanting schemes to increase potential ecological value of these restored areas; Cut and fill areas subject to erosion are to be covered with organic, biodegradable, erosion-control mats after planting.

G. CONSTRUCTION WORKFORCE

1) In order to minimize impacts of an influx of new people into the local community, wherever possible, suitable local companies and organizations should be involved. For unskilled manual labour, men and women from Dinh Vu and Cat Hai should be employed.

2) Should there be a large influx of new people, then they are likely to be housed on the site. Adequate living standards with suitable services (water supply, sanitation and power supplies) should be provided for these temporary housing areas. Effluents discharged from these premises should employ mitigation measures discussed under wastes and water quality above.

3) Opportunities to use local services (e.g. for food supplies etc) should also be encouraged so that the local population benefits from an influx of new people.

Appendix-10:
Updates in Accordance with Minutes of Discussion dated 18 June 2010

The JICA Follow-up Mission was carried out from 7 June to 18 June 2010. During said period, a discussion paper was prepared by the Study Team as guide for discussion between JICA and MOT. The discussion results were summarized in the M/D dated 18 June 2010.

This Appendix-10 contains updates of the Study in accordance with the M/D.

1. Items Updated during the Discussion between JICA and MOT

The following items were updated during the discussion between JICA and MOT.

Table 1 List of Items Updated in the JICA Mission in June 2010

No.	Items	**Updated in JICA Mission**	Study Team Proposed
1	Target Year of Traffic Forecast	**2035**	2030
2	Typical Cross Section 1st Stage of Bridge Section	**4-lanes, 3.5m/lane**	4-lanes, 3.0m/lane
3	Construction Period	**Aug 2012 – Mar 2015 (32 Months)**	Jun 2012 – Dec 2014 (30 Months)
4	Implementation Program	**Aug 2012 – Mar 2015 (32 Months)**	Jun 2012 – Dec 2014 (30 Months)

2. Traffic Demand Forecast

In accordance with the above updates realized during the discussion between JICA and MOT, the following were also updated concerning the target year of the traffic demand forecast.

2.1. Future Traffic Demands

The traffic in 2035 was calculated by extrapolation from traffic volume of 2020-2030 with 85% growth rate, which is 6%.

Table 2 Summary of Future Traffic Demands (Updated after JICA Mission)

Section	Peak Hour	Direction	Year			
			2015	2020	2030	**2035**
Tan Vu IC - Dinh Vu	AM	To Tan Vu IC	1,276	2,149	4,140	**5,337**
		From Tan Vu IC	745	1,451	3,967	**6,101**
	PM	To Tan Vu IC	550	1,098	2,490	**3,534**
		From Tan Vu IC	1,125	1,874	3,772	**5,086**
Dinh Vu - Cat Hai	AM	Cat Hai to Dinh Vu	927	1,494	2,002	**2,267**
		Dinh Vu to Cat Hai	351	745	1,350	**1,740**
	PM	Cat Hai to Dinh Vu	351	745	1,350	**1,740**
		Dinh Vu to Cat Hai	927	1,494	2,002	**2,267**

2.2. Forecast of Transport Growth

It was assumed that the growth rate of 2031-2035 is 6% which is 85% of the previous period.

Table 3 Forecast of Transport Growth Rate (Updated after JICA Mission)

Stage	2010-2015	2016-2020	2021-2025	2026-2030	**2031-2035**
Nationwide	7.0%	6.5%	6.5%	6.0%	---
Hanoi-Haiphong Expressway	7.67%	7.67%	6.67%	6.67%	---
Preparatory survey on Lach Huyen Port (Road and Bridge portion)	8.00%	8.00%	7.00%	7.00%	**6.00%**

2.3. Traffic Demand Forecast for Comparison of Updated Traffic

It was assumed that the growth rate of 2031-2035 is 6% which is 85% of the previous period.

Table 4 Traffic Demand Forecast Based on Socio-economic Data (Updated after JICA Mission)

Year	Dinh Vu-Cat Hai Ferry and Ninh Tiep Ferry terminal			Cat Hai Roa			Ben Got Ferry Terminal and Cat Hai-Cat Ba Ferry		
	Total (pcu/day-night)	To Tan Vu IC Direction (pcu/peak hr)	To Cat Ba Direction (pcu/peak hr)	Total (pcu/day-night)	To Tan Vu IC Direction (pcu/peak hr)	To Cat Ba Direction (pcu/peak hr)	Total (pcu/day-night)	To Tan Vu IC Direction (pcu/peak hr)	To Cat Ba Direction (pcu/peak hr)
2010	506	28	23	607	33	27	439	24	20
2011	547	30	25	655	36	29	474	26	21
2012	591	33	27	706	39	32	511	28	23
2013	638	35	29	763	42	34	551	30	25
2014	688	38	31	824	45	37	596	33	27
2015	3,913	215	176	4,060	223	183	643	35	29
2016	6,462	355	291	6,619	364	298	695	38	31
2017	9,026	496	406	9,196	506	414	751	41	34
2018	11,615	639	523	11,800	649	531	811	45	36
2019	14,216	782	640	14,417	793	649	875	48	39
2020	16,841	926	758	17,057	938	768	945	52	43
2021	23,032	1,267	1,036	23,263	1,279	1,047	1,011	56	45
2022	27,286	1,501	1,228	27,534	1,514	1,239	1,081	59	49
2023	31,852	1,752	1,433	32,116	1,766	1,445	1,156	64	52
2024	36,747	2,021	1,654	37,030	2,037	1,666	1,237	68	56
2025	41,965	2,308	1,888	42,268	2,325	1,902	1,323	73	60
2026*	33,743	1,856	1,518	34,066	1,874	1,533	1,416	78	64
2027*	37,885	2,084	1,705	38,231	2,103	1,720	1,515	83	68
2028*	42,254	2,324	1,901	42,626	2,344	1,918	1,622	89	73
2029*	46,851	2,577	2,108	47,248	2,599	2,126	1,735	95	78
2030*	51,703	2,844	2,327	52,128	2,867	2,346	1,857	102	84
2031	**55,963**	**3,078**	**2,518**	**56,413**	**3,103**	**2,539**	**1,968**	**108**	**89**
2032	**60,463**	**3,325**	**2,721**	**60,941**	**3,352**	**2,742**	**2,086**	**115**	**94**
2033	**64,970**	**3,573**	**2,924**	**65,476**	**3,601**	**2,946**	**2,211**	**122**	**99**
2034	**69,482**	**3,822**	**3,127**	**70,018**	**3,851**	**3,151**	**2,343**	**129**	**105**
2035	**74,007**	**4,070**	**3,330**	**74,574**	**4,102**	**3,356**	**2,484**	**137**	**112**

Source: Study Team
2026*-2030*: Railway transportation is taken into consideration.
The traffic in 2031-2035 was calculated based on 85% of the growth rate for 2020-2030, which is 6%.

Table 5 Estimated Cargo Volume and Container Vehicles (Updated after JICA Mission)

	Cargo	TEU	Truck of more than 3 axles			
	1000ton/Year	1000TEU	Vehicle/Year	Vehicle/day	pcu/day	pcu/peak hr
2015	5,394	463	463,000	1,268	3,170	317
2016	9,607	826	826,000	2,263	5,658	566
2017	14,962	1,191	1,191,000	3,263	8,158	816
2018	19,816	1,559	1,559,000	4,271	10,678	1,068
2019	24,671	1,928	1,928,000	5,282	13,205	1,321
2020	29,525	2,299	2,299,000	6,299	15,748	1,575
2021	37,061	3,192	3,192,000	8,745	21,863	2,186
2022	44,126	3,801	3,801,000	10,414	26,035	2,604
2023	51,726	4,455	4,455,000	12,205	30,513	3,051
2024	59,863	5,156	5,156,000	14,126	35,315	3,532
2025	68,536	5,903	5,903,000	16,173	40,433	4,043
2026	54,421	4,687	4,687,000	12,841	32,103	3,210
2027	61,243	5,275	5,275,000	14,452	36,130	3,613
2028	68,439	5,895	5,895,000	16,151	40,378	4,038
2029	76,011	6,547	6,547,000	17,937	44,843	4,484
2030	84,000	7,235	7,235,000	19,822	49,555	4,956
2031	**91,001**	**7,838**	**7,838,000**	**21,474**	**53,685**	**5,369**
2032	**98,393**	**8,475**	**8,475,000**	**23,219**	**58,048**	**5,805**
2033	**105,786**	**9,112**	**9,112,000**	**24,964**	**62,410**	**6,241**
2034	**113,178**	**9,748**	**9,748,000**	**26,707**	**66,768**	**6,677**
2035	**120,571**	**10,385**	**10,385,000**	**28,452**	**71,130**	**7,113**

Source: Study Team
2026*-2030*: Railway transportation is taken into consideration.
The traffic of 2031-2035 was calculated based on 85% of the growth rate of 2020-2030, which is 6%.

Table 6 Traffic Forecast between Revised F/S and Traffic Survey Basis (Updated after JICA Mission)

Forecast Method	Peak Hour	Direction	Year				
			2015	2020	2025	2030	**2035**
Revised FS Traffic Forecast	AM	Cat Hai to Dinh Vu	927	1,494	1,748	2,002*	**2,267**
		Dinh Vu to Cat Hai	351	745	1,047	1,350*	**1,740**
	PM	Cat Hai to Dinh Vu	351	745	1,047	1,350*	**1,740**
		Dinh Vu to Cat Hai	927	1,494	1,748	2,002*	**2,267**
Based on Traffic Survey in Cat Hai	AM	Cat Hai to Dinh Vu	215	926	2,308	2,844*	**4,070**
		Dinh Vu to Cat Hai	176	758	1,888	2,327*	**3,330**
	PM	Cat Hai to Dinh Vu	176	758	1,888	2,327*	**3,330**
		Dinh Vu to Cat Hai	215	926	2,308	2,844*	**4,070**

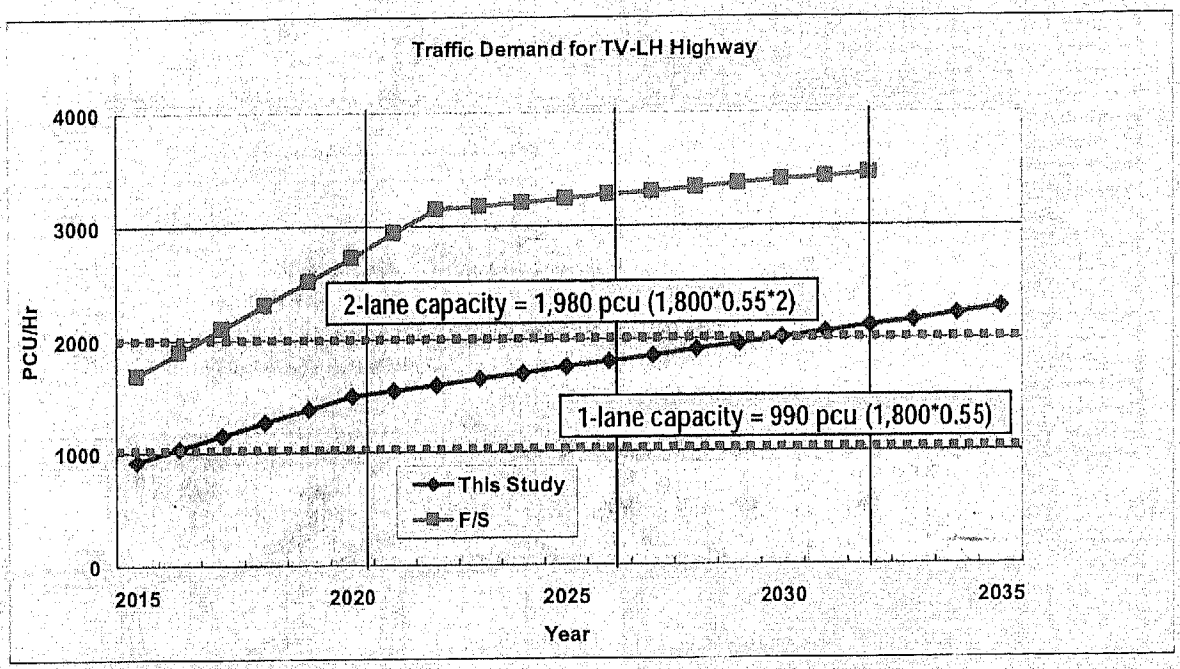
Source: Study Team
2030: Railway transportation is taken into consideration.

3. Typical Cross Section of Bridge Section

In accordance with the above updates, the typical cross section for the bridge section was updated during the discussion between JICA and MOT, as follows:

3.1. Updated Traffic Demand Forecast

In accordance with the updated traffic forecast, the required traffic lane is revised as follows:



Source: Study Team

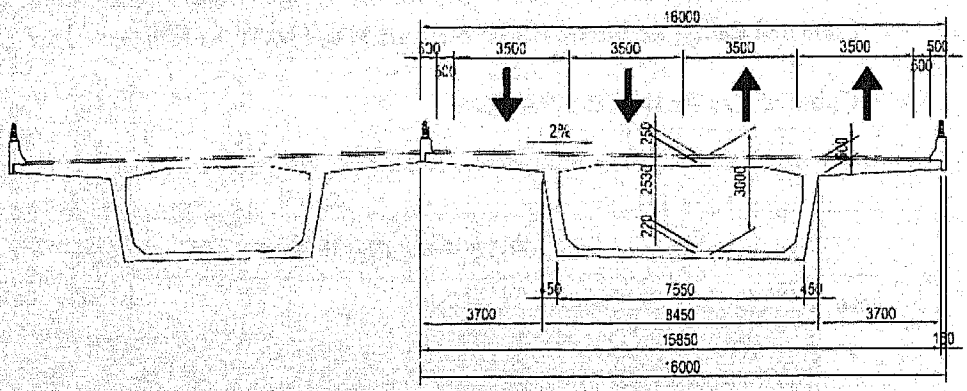
Figure 1 Updated Traffic Demand and Future Lane Requirement

- Traffic demand forecast is updated by extending the target year to 2035, which is 20 years after the highway is opened to the public.
- In this Study, it is concluded that two lanes per direction could sufficiently accommodate traffic capacity until 2027.

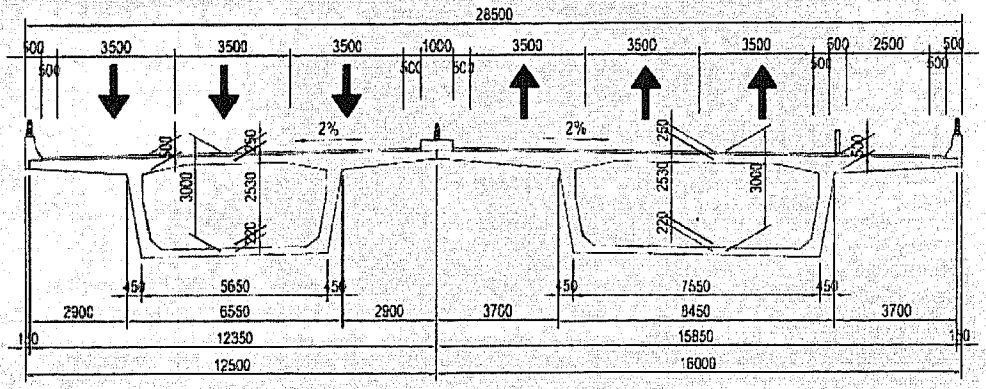
3.2. Updated Typical Cross Section of the Bridge

Typical cross section of the bridge during the first stage was updated as shown in figure below.

LIMITED 4-LANE, B_{bridge} = 16.00m
B_{lane} = 3.5m (DESIGN SPEED: 80km/h)
STAGE CONSTRUCTION: 1st stage - B_{lane} = 3.5m
2nd stage - B_{lane} = 3.5m



FULL SCALE 6-LANE, B_{bridge} = 28.5m
B_{lane} = 3.5m (DESIGN SPEED: 80km/h)
STAGE CONSTRUCTION: 1st stage - B_{lane} = 3.5m
2nd stage - B_{lane} = 3.5m



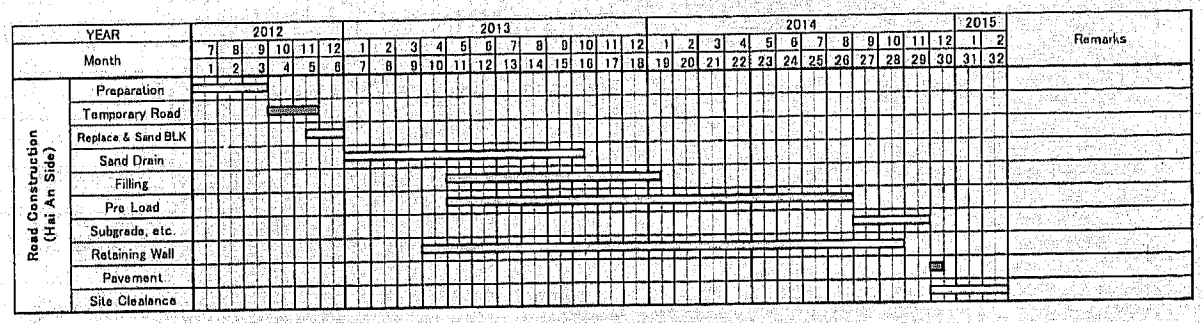
Source: Study Team

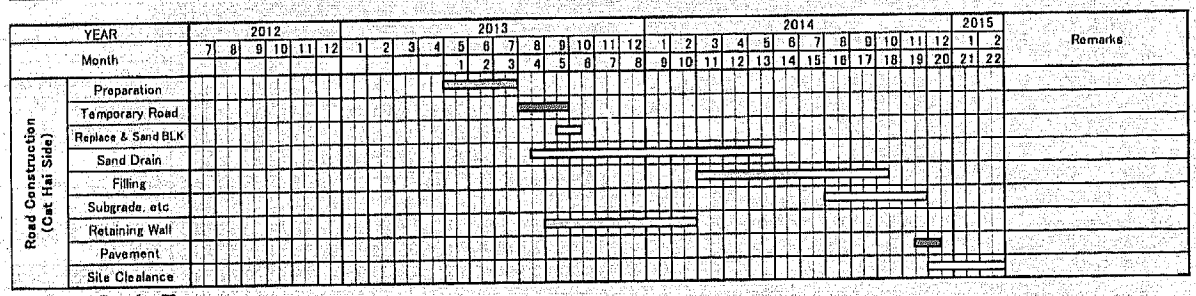
Figure 2 Updated Typical Cross Section of Bridge Section

6. Construction Schedule

The following tables were updated considering 1) revision of the typical cross section of the bridge and 2) construction period of 32 months.

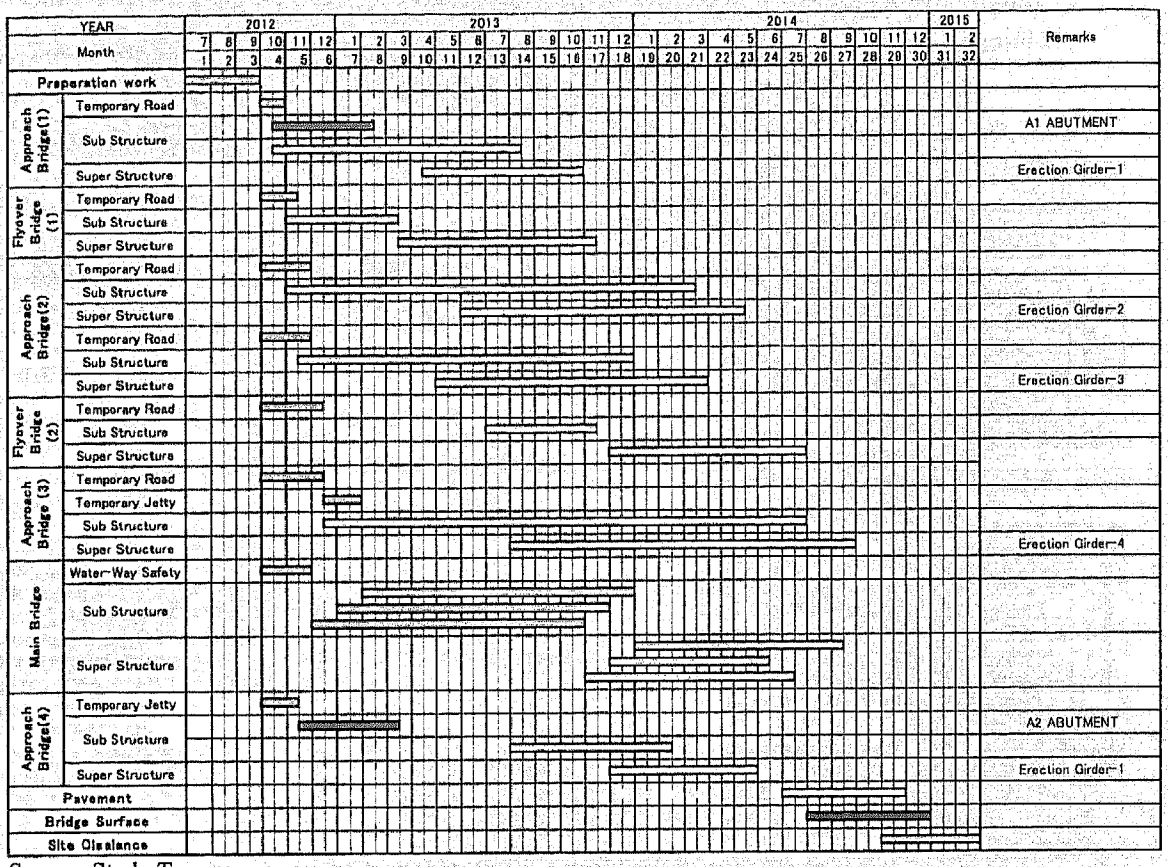
Table 20 Construction Schedule (Road Section)





Source: Study Team

Table 20 Construction Schedule (Bridge Section, 32 months)



Source: Study Team

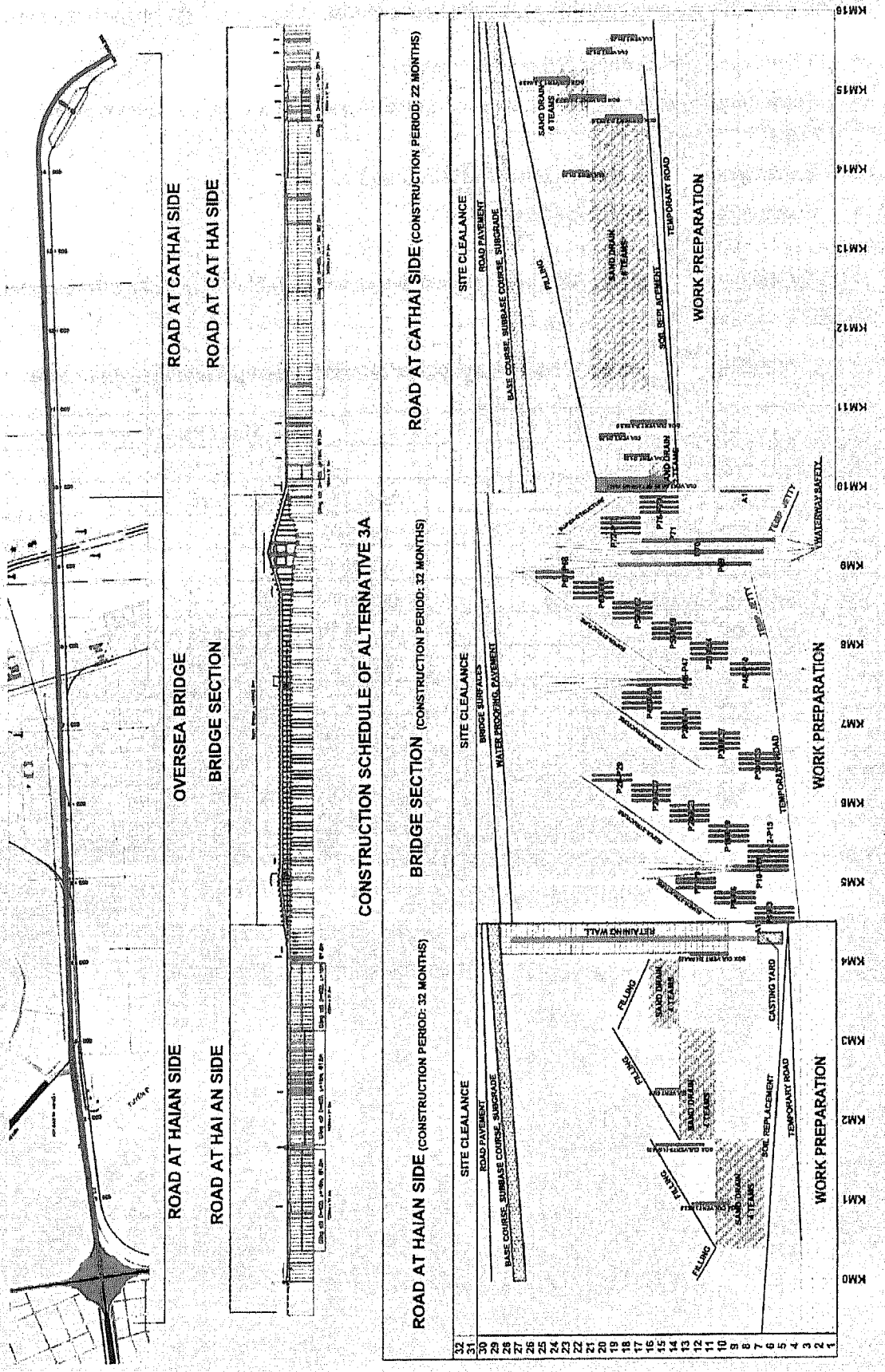


Figure 4 Construction Schedule (32 Months)

7. Implementation Agency and Implementation Program

The implementation program (I/P) in this Study is established based on following assumptions,

- STEP scheme of Japanese ODA Loan is applied,
- Consulting services of Detail Design and Tender Assistance are supported by Japanese Grant,
- Loan Agreement is signed in September 2010, and,
- Construction period is 32 months.

The implementation program (I/P) is as follows and shown in Table 20, assuming the common practice.

Table 21 Implementation Milestones (After JICA Follow-up Mission in June 2010)

Event/ Milestone	Time/ Period
Preparatory Stage	
SAPROF Study	: April 2010 to July 2010
JICA Follow-up Mission	: Jun 2010
Pledge by Japanese Government	: August 2010
Exchange Note & Loan Agreement	: September 2010
Procurement of D/D consultant	: August 2010 to October 2010
Detail Design	: October 2010 to August 2011
Procurement of C/S Consultant	: November 2010 to August 2011
P/Q Period	: May 2011 to July 2011
Bidding Time	: August 2011 to July 2012
Land Acquisition	: January 2011 to July 2012
Construction	: August 2012 to March 2015
Defect Liability Period	: March 2015 to February 2017

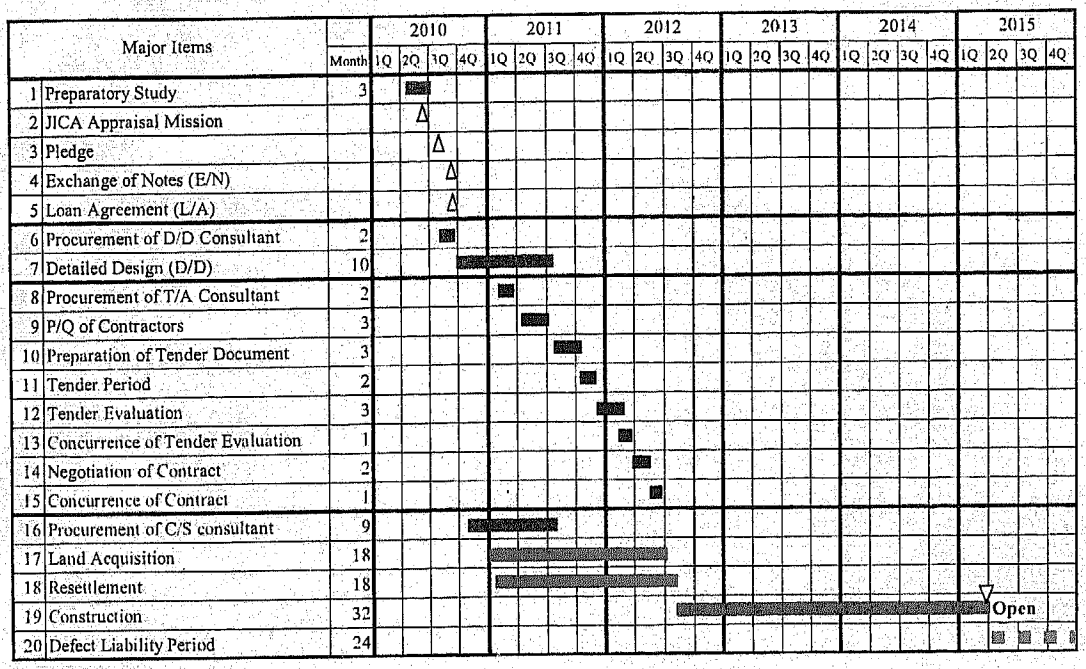


Figure 5 Proposed Implementation Program