

APPENDIXES

1. Member's Name of Project

(1) Basic Design Study

Name	Assignment	Affiliation
Kazutoshi ONUKI	Team Leader	JICA Mongolia Office
Hidetaka SAKABE	Project Coordinator	JICA Transportation and Electric power Team / Project Management Group I / Grant Aid Management Department
Kenji MARUOKA	Chief Consultant / Road Network Plan	CTI Engineering International Co., Ltd.
Yuzo MIZOTA	Bridge Design I / Construction Plan	CTI Engineering International Co., Ltd.
Yasuyuki SUZUKI	Bridge Design II	CTI Engineering Co., Ltd.
Akio OKAZAKI	Road Design/ Underground Utilities Survey	CTI Engineering International Co., Ltd.
Hitoshi SHIMOKOCHI	Natural Condition Survey (Topographic / Geologic)	CTI Engineering International Co., Ltd.
Takehiko OGAWA	Environmental and Social Consideration / Economic Analysis II	RAND
Fumio KOSAKA	Procurement Plan / Cost Estimate	CTI Engineering International Co., Ltd.
Isamu KOIKE	Economic Analysis I	ALMEC Corporation
Toshiyuki HANDA	Interpreter I	Japan International Cooperation Center (JICE)
Sanae ABIKO	Interpreter II	Japan International Cooperation Center (JICE)
Madoka AIZAWA	Consultant Coordinator	CTI Engineering International Co., Ltd.

(2) Explanation of Draft Report

Name	Assignment	Affiliation
Kazutoshi ONUKI	Team Leader	JICA Mongolia Office
Hidetaka SAKABE	Project Coordinator	JICA Economic Infrastructure Department, Transportation and ICT Div. III
Kenji MARUOKA	Chief Consultant / Road Network Plan	CTI Engineering International Co., Ltd.
Yuzo MIZOTA	Bridge Design I / Construction Plan	CTI Engineering International Co., Ltd.
Akio OKAZAKI	Road Design / Underground Utilities Survey	CTI Engineering International Co., Ltd.
Takehiko OGAWA	Environmental and Social Consideration / Economic Analysis II	RAND
Toshiyuki HANDA	Interpreter I	Japan International Cooperation Center (JICE)

2. Schedule

(1) Basic Design Study

Date		Team Leader	Project Coordinator	Chief Consultant / Road Network Plan	Bridge Design I / Construction Plan	Bridge Design II	Road Design / Underground Utilities Survey
No.	Date	Mr.Kazutoshi ONUKI	Mr.Hidetaka SAKABE	Mr.Kenji MARUOKA	Mr.Yuzo MIZOTA	Mr.Yasuyuki SUZUKI	Mr.Akio OKAZAKI
1	19 Wed			PM: Tokyo => Beijing			
2	20 Thu			AM: Beijing => UB PM: Site briefing			
3	21 Fri			AM: Meeting with JICA Office PM: Explanation of IC/R and Discussion with MRTT			
4	22 Sat			Site survey			
5	23 Sun			Interim meeting / Document Arrangement			
6	24 Mon			Discussion with MRTT			
7	25 Tue	Mar.		AM: Discussion with MRTT on Technical Matter PM: Discussion with MRTT on M/D			
8	26 Wed		AM: Finalization of M/D. Signing of M/D PM: Report to MOF, JICA office and EOJ				
9	27 Thu		UB => Tokyo		Collection of Information Discussion with MRTT and Ulaanbaatar City		
10	28 Fri						
11	29 Sat						
12	30 Sun						
13	31 Mon						
						~	
22	Apr. 9 Wed			Continue the Site Survey			PM: Tokyo => Beijing
				~			AM: Beijing => UB PM: Site briefing
31	18 Fri			Continue the Site Survey		Site survey	
32	19 Sat	Apr.		~	PM: Tokyo => Beijing	~	
33	20 Sun		Internal meeting				
34	21 Mon		Site survey				
			~				
44	1 Thu	May.		Discussion with MRTT and Ulaanbaatar City			
45	2 Fri		Report to EOJ, JICA Office				
46	3 Sat		Document Arrangement				
47	4 Sun		Internal meeting				
48	5 Mon		Report to JICA office				
49	6 Tue		UB => Tokyo				

IC/R: Inception Report
 JICA: Japan International Cooperation Agency
 EOJ: Embassy of Japan

Natural Condition Survey (Topographic / Geologic)	Environmental and Social Consideration / Economic Analysis II	Procurement Plan / Cost Estimate	Economic Analysis I	Interpreter I	Interpreter II	Consultant Coordinator
Mr.Hitoshi SHIMOKOCHI	Mr.Takehiko OGAWA	Mr.Fumio KOSAKA	Mr.Isamu KOIKE	Mr.Toshiyuki HANDA	Ms.Sanae ABIKO	Ms.Madoka AIZAWA
					PM: Tokyo => Beijing	
					AM: Beijing => UB PM: Site briefing	
					Interpreting service	
					Site survey	
PM: Tokyo => Beijing		PM: Tokyo => Beijing		PM: Tokyo => Beijing	Interim meeting	PM: Tokyo => Beijing
AM: Beijing => UB PM: Site briefing		AM: Beijing => UB PM: Site briefing		AM: Beijing => UB PM: Site briefing	Discussion with MRTT	AM: Beijing => UB PM: Site briefing
Site survey Topographical and soil survey Facilities survey		Site survey Procurement situation investigation Discussion with contractor		Interpreting service	Discussion about M/D	Operational coordination
			Signing of M/D, Report			
			UB => Tokyo			
	PM: Tokyo => Beijing					
	AM: Beijing => UB PM: Site briefing					
~						
Continue the Site Survey						
~						
Continue the Site Survey			Tokyo => UB			
~			AM: Beijing => UB PM: Site briefing			
Internal meeting						Internal meeting
Site survey				Interpreting service		Site survey
~						~
Discussion with MRTT and Ulaanbaatar City						Discussion with MRTT and UB City
Report to EOJ, JICA Office						Report to EOJ, JICA Office
Document Arrangement						Document Arrangement
Internal meeting						Internal meeting
Report to JICA office						Report to JICA office
UB => Tokyo						UB => Tokyo

(2) Explanation of Draft Report

Date		Team Leader	Project Coordinator	Chief Consultant / Road Network Plan	Bridge Design I / Construction Plan	Road Design / Underground Utilities Survey	Environmental and Social Consideration / Economic Analysis II	Interpreter I	
No.	Date	Mr.Kazutoshi ONUKI	Mr.Hidetaka SAKABE	Mr.Kenji MARUOKA	Mr.Yuzo MIZOTA	Mr.Akio OKAZAKI	Mr.Takehiko OGAWA	Mr.Toshiyuki HANDA	
1	Oct.	30	Thu			Tokyo => Seoul => UB			
2		31	Fri	Discussion with MRTCUD and UB City		Courtesy Call on JICA Office, Discussion with MRTCUD and UB City			
3	Nov.	1	Sat			Internal meeting			
4		2	Sun		Tokyo => Beijing	Internal meeting			
5		3	Mon	Beijing => UB		Discussion with MRTCUD, UB City, and JICA Office			
6		4	Tue	Discussion about M/D with MRTCUD					
7		5	Wed	Signing of M/D, Report to JICA office and EOJ					
8		6	Thu		UB => Beijing => Tokyo				

3. List of Parties Concerned

Name	Position	Affiliation
1) Ministry of Road Transport Construction and Urban Development (MRTCUD) (Former Ministry of Road, Transport and Tourism)		
Mr. Jadamba BAT-ERDENE	State Secretary	
Mr. BAASANKHUU Dorjtseveen	Director	Department of Road
Mr. Khuushaan GANTUMUR	Deputy Director	
Mr. Dolgorsuren ZAGDRADNAA	Counterpart	
2) Ministry of Finance		
Mr. Baavgai KHUREBAATAR	Director General	Department of policy and Coordination of Loans and Aid
3) Ulaanbaatar City		
Mr. Enebish MUNKH-OCHIR	General Manager / Chief	Ulaanbaatar City / Mayor's Office
Mr. Choimpog BAT	General Manager / Chief	Ulaanbaatar City / Mayor's Office
Mr. D. Janchivdorj	Road and Bridge Dept director	Department of Road
Mr. Daraasuren	Design Department Director	Department of Road
Mr. L. Battsooj	Deputy Director	Department of Road
Ms. Ts. Khorloo	Architect	Department of Urban Development
Mr. A. Enkhpureu	Engineer	Department of Facility
Mr. S. Tedsuren	Deputy Director	Land Administration Department
Mr. M. Zoljargal	Chief	Environmental Protection Agency
4) Ulaanbaatar Railway		
Mr. L. Baasandorj	Chairman	Zamyn-Uud
Mr. Erdenebulgan	Chief Engineer	
Mr. D. Chinzorig	Engineer	
5) Traffic Police Department Mongolia		
Mr. O. Batjargal	Chief	Transport Planning
Mr. L. Guntevsuren	Police lieutenant colonel	
6) Private Company		
Mr. D. Jargalsaikhan	President	Electric Transport Company
Mr. Erdenetouch	Chief Engineer	Electric Transport Company
Mr. B. Erkhembayar	Department director	GBET Co., Ltd Consulting Engineers
Mr. M. Davaasuren	Director	Gan Khiits
Mr. Adiyasuren Ts. Borjigdkhan	President	Eco Asia
Mr. MASARU. Kubota	President	Sar Shine International
Mr. T. Bayaraa	Sales Representative	Wagner Asia Equipment LLC

Name	Position	Affiliation
Ms. Ts.Chinbat	Rental Representative	Wagner Asia Equipment LLC
Mr.G.Tselmuun	Rental Manager	Wagner Asia Equipment LLC
Mr.G.Bayaraa	Major Accounts Sales Manager	Wagner Asia Equipment LLC
Mr.D.Enkhbat	Chief Executive Officer	Mongolian Express Co.,LTD
Mr.kh.Davaanyam	Vice-Director	Mongolian Express Co.,LTD
Mr.Kazuaki NOTAKE	Vice Director / Architect Engineer	Bridge Construction LLC
Mr.O.GANBOLD	Director	Ikh Sairiin Khundii
Mr.B.Tushigbat	Director	EREL
Mr.Ch.Jargalsaikhan	Director	Dayarkh LLC
Mr. M.Ulziisaikhan	Executive Director	AJ TRADE LLC (Just Group)
Mr.T.Ariunbold	Sales Department director	Komit
Mr.O.Chuluunbaatar	Executive Director	Road Construction, leasing of Machine and Equipment.Co.,Ltd
Mr.M.Mandakhbayar	General manager	MKI Co.,Ltd
Mr.Kh.Chinbold	General manager	SUURI Co.,Ltd
Mr.L.Sanjaadprj	Director	Yalguusan
Mr.J.Bayarsaikhan	Engineer	UB-AZZA Co.,
7) Others		
Mr.D.Boldbaatar	Director	The Bank of Mongolia/Monetary Policy and Research Department
Prof. Ts.Tsendeehuu	Research Professor	National University Of Mongolia
Dr. BAATAR Ravjaa	Senior Research Scientist	Mongolian Academy of Sciences
Dr. JANCHIVDORJ Luntan	Head of Water resources	Mongolian Academy of Sciences
8) Japanese Embassy and JICA		
Mr. Masaru HIRAHARA	Ambassador	Japanese Embassy
Mr. Tsutomu MORIYA	General manager	JICA Mongolia Office

4. 討議議事録 (M/D)

(1) M/D (基本設計時)

**Minutes of Discussions
on the Basic Design Study
on the Project for Construction of Railway Fly-over
in Ulaanbaatar City
in Mongolia**

Based on the results of the Preliminary Study, the Government of Japan decided to conduct a Basic Design Study on the Project for Construction of Railway Fly-over in Ulaanbaatar City (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Mongolia the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Kazutoshi ONUKI, Deputy Resident Representative of JICA Mongolia Office, and is scheduled to stay in the country from March 20, 2008 to May 6, 2008.

The Team held discussions with the officials concerned of the Government of Mongolia and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Ulaanbaatar, March 26, 2008

小貫 和俊

Kazutoshi ONUKI
Leader
Basic Design Study Team
Japan International Cooperation Agency

Baavgai KHURENBAATAR
Director General
Department of Policy and Co-ordination
for Loans and Aid
Ministry of Finance
Mongolia

for Jadamba BAT-ERDENE
State Secretary
Ministry of Road, Transport and Tourism
Mongolia

Enebish MUNKH-OCHIR
General Manager of City
and Chief of the Mayor's Office
Ulaanbaatar City
Mongolia

ATTACHMENT

1. Objective of the Project

The objective of the Project is to construct a Railway Fly-over to ensure the safe and smooth traffic of roads between northern and southern areas of Ulaanbaatar city, which are divided by the railway tracks.

2. Project site

The site of the Project is shown in Annex-1.

3. Responsible Ministry and Implementing Agency

3-1. The responsible Ministry is the Ministry of Road, Transport and Tourism.

3-2. The implementing organization is the Ulaanbaatar City Government. Road Department of Ulaanbaatar City is responsible for the Project.

3-3. The organization chart of the responsible Ministry and the implementing organization is shown on the Minutes of Discussions signed by both sides on March 1, 2007.

4. Items requested by the Government of Mongolia

4-1. After discussions with the Team, the item described below was requested by the Mongolian side.

To construct a Railway Fly-over connecting between northern and southern areas of Ulaanbaatar city.

- Number of traffic lane: 4 lanes (2 lanes each way),
- Total width: 16.5m (dual carriage way $(3.25 \times 2 + 0.75) \times 2 = 14.5$ m, median strip 1.0m, parapet 0.5m $\times 2 = 1.0$ m),
- Sidewalk: 1.5m at each side,
- Construction of Approach Roads to Naryn Zam Road, Ikh-Toiruu Street and Engels Street

JICA will assess the appropriateness of the request and will recommend to the Government of Japan.

4-2. Both sides confirmed that the beginning and ending points of the approach road are the places where the elevation of the approach road is placed to the existing roads. These points will be confirmed through the further study and discussions of alignment design based on the topographic survey.

4-3. Both sides confirmed that the improvement and/or rehabilitation of the existing roads related to the Project (Ikh-Toiruu Street, Engels Street, etc.), including the bridges, is out of the scope of the Project, and the Mongolian side should implement them at its own expenses in a timely manner to ensure the effect of the Project.



K.O.




The Mongolian side shall prepare the implementation plan for the improvement of existing roads and bridges mentioned above, and submit it to JICA Study Team, before the explanation of Draft Report of Basic Design Study for the Project of October, 2008.

4-4. Both sides reconfirmed that the Japanese side will design the fly-over with the assumption that the piers can be constructed in the railway premises as indicated on Annex-2. The Mongolian side shall secure the necessary area of railway premises for the Project by the commencement of the Project.

4-5. Through the further study, both sides shall continue to discuss the possibility to remove or lower the existing roof of the platform for V.I.P. by the Mongolian side, which affects the design of the fly-over (especially for vertical alignment), and conclude it by the end of April, 2008.

5. Japan's Grant Aid Scheme

The Mongolian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Mongolia as explained by the Team and described in Annex-2 and Annex-3 of the Minutes of Discussions signed by both parties on July 5, 2007.

6. Schedule of the Study

6-1. The consultants will proceed to further studies in Mongolia until May 6, 2008.

6-2. JICA will prepare the draft report in Mongolian and dispatch a mission in order to explain its contents around October 2008.

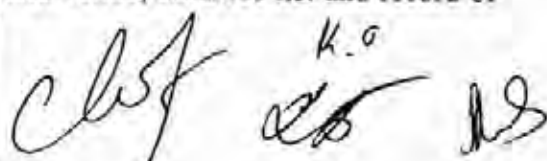
6-3. In case that the contents of the report is accepted in principle by the Government of Mongolia, JICA will complete the final report in English and send it to the Government of Mongolia by the end of January, 2009.

7. Environmental and Social Considerations

7-1. The Mongolian side explained to the Team that as a result of SIA (Screening Impact Assessment) conducted by the Ministry of Nature and Environment, the Ministry presented the view with the letter issued on February 18, 2008 that the execution of DEIA (Detailed Environment Impact Assessment) is required prior to the implementation of the Project.

The Mongolian side is in process to obtain the ECC (Environment Clearance Certificate) based on DEIA, and both sides confirmed that the Mongolian side shall prepare the flowchart of the procedures and submit it to JICA Mongolia Office by the end of March, 2008, and obtain the ECC by the end of September, 2008.

7-2. Both sides confirmed that the Mongolian side will hold stakeholders meetings on an appropriate occasion and report its results such as time and venue, attendee list and record of

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discussion to JICA Mongolia Office by the end of September, 2008.

7-3. Both sides confirmed that the Mongolian side shall prepare the flowchart of the procedures related to the land securing and submit it to JICA Mongolia Office by April 10, 2008, and shall conclude the necessary procedures to obtain basic agreements of affected land owners by the end of September, 2008. And the Mongolian side shall complete the securing of land necessary for the Project by the commencement of the Project.

8. Other relevant issues

8-1. Through the site survey conducted on March 22, 2008, both sides confirmed that there exist the following utilities that will be affected by the Project;

(1) Underground:

Hot water supply pipes for central heating, Water supply pipes, Sewage pipes, Telephone lines, Power lines, Drainage, etc.

(2) On and Above Ground:

Electric pole and its overhead wire, Advertising pillars, Trees, Street lightings and foundations, Fences, Entrance with staircase, Kiosks, etc.

(3) Overhead:

Power-supply catenaries of trolleybus, etc.

In case these utilities are required to be relocated and/or removed from the Project site, the Mongolian side shall undertake them in a timely manner at the Mongolian expenses, including the compensation for cease of trolleybus operations.

8-2. The Mongolian side confirmed that the following undertakings should be taken by the Mongolian side at the Mongolian expenses.

(1) Necessary arrangement for the Team, the Consultant and the Contractor to enter the railway premises for the Project (e.g. obtaining of the entry permit from the Railway Authority, etc.).

(2) Necessary arrangement for the Team, the Consultant and the Contractor to use the necessary area in the railway premises for the Project (e.g. obtaining of the work permit from the Railway Authority, etc.).

(3) Necessary arrangement for controlling railway operation for neighboring construction so-called "window time".

(4) Necessary arrangement for traffic control at necessary sections.

(5) Necessary arrangement for the tax exemption of imported equipment and materials.

(6) Securing and clearance of the temporary yard.

(7) Securing of site for disposal of waste.

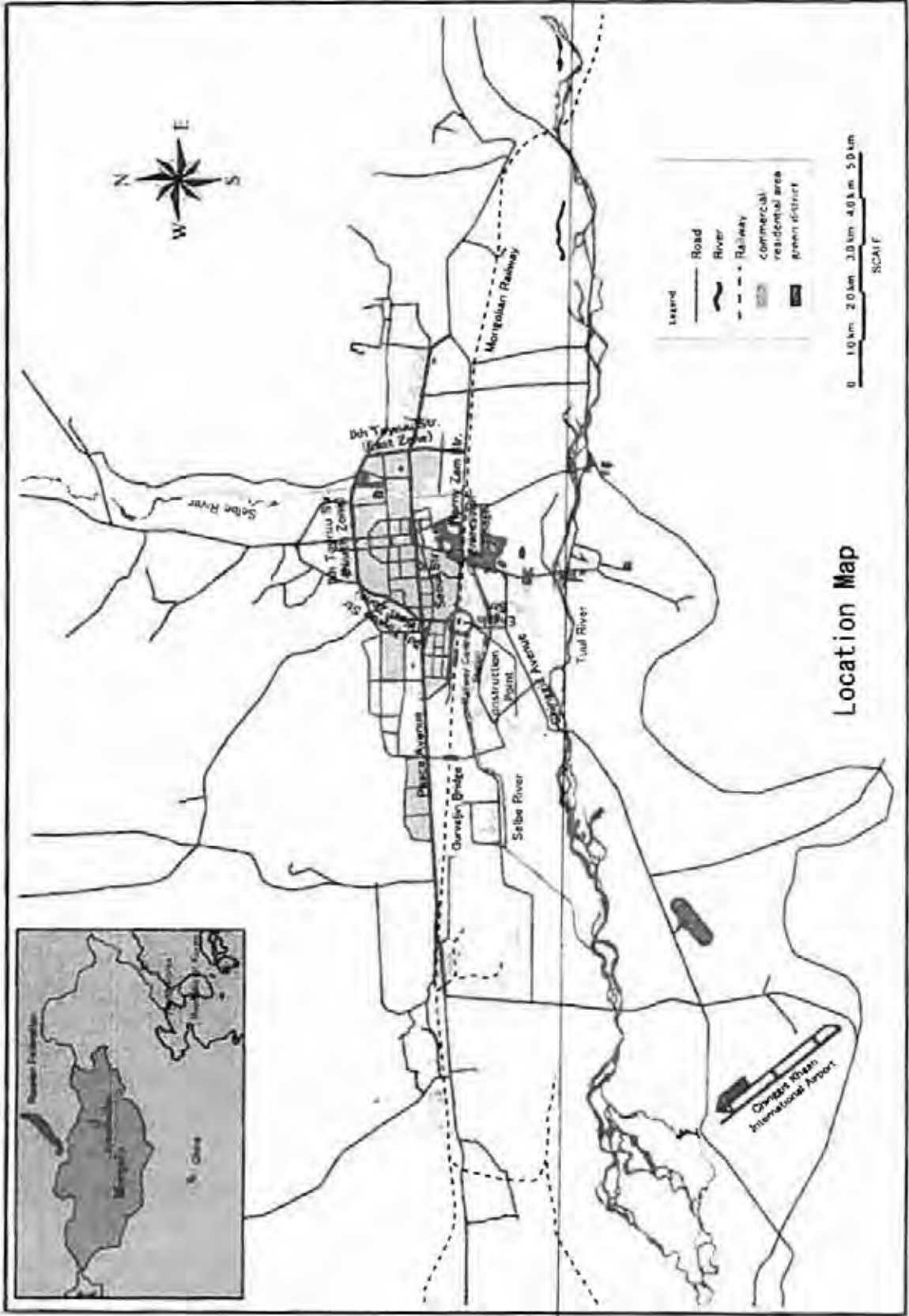
(8) Maintaining order at the sites and yards for the Project.

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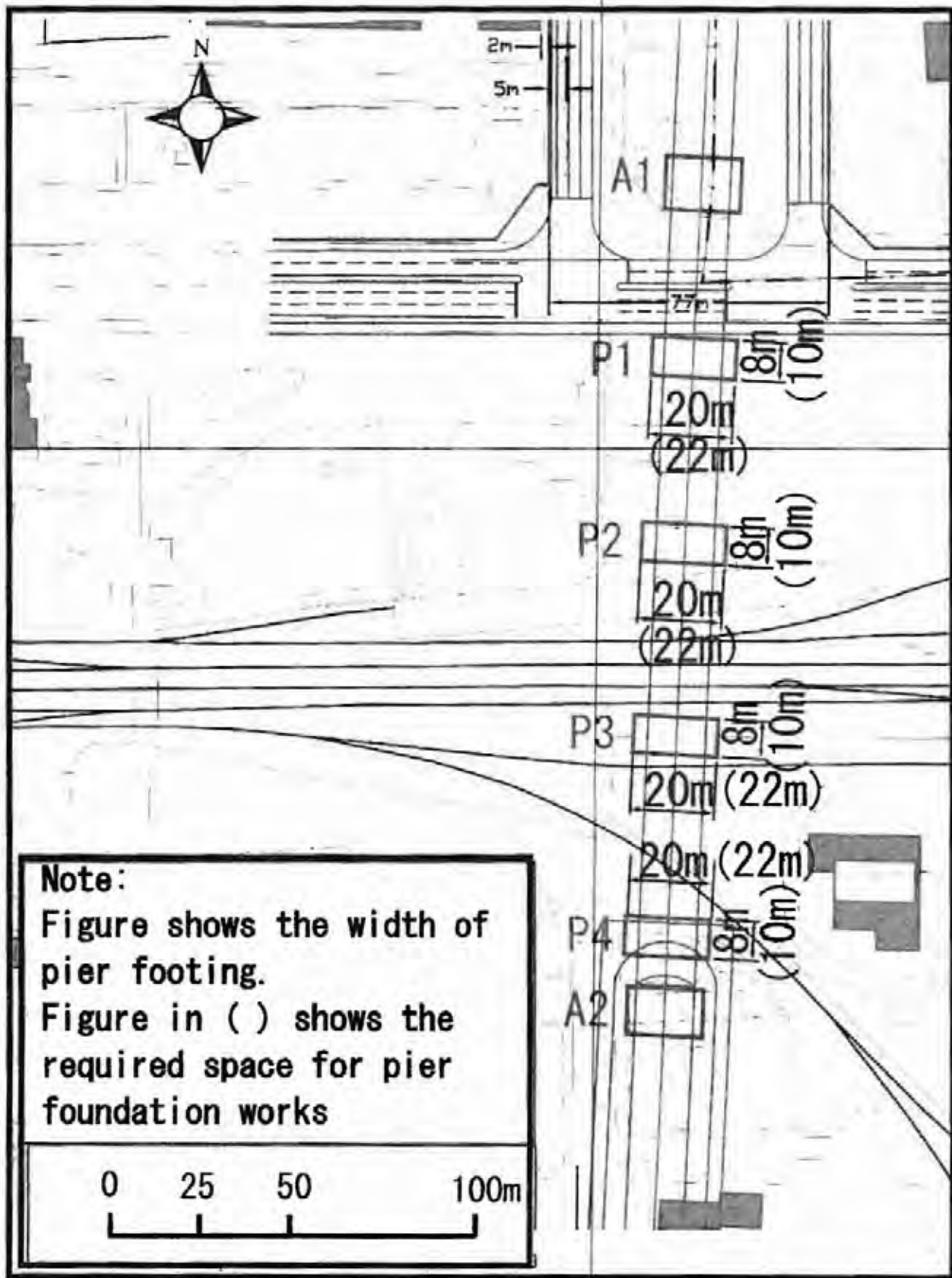
- 8-3. The Mongolian side shall secure enough budget and personnel necessary for the operation and maintenance of the fly-over constructed by the Project, including the periodical maintenance work after the completion of the Project.
- 8-4. The Mongolian side requested the Team to carry out the counterpart training in Japan on operation and maintenance for the Fly-over as a technical cooperation by JICA.
Both sides agreed that another official request will need to be submitted by the Mongolian side to the Government of Japan.
- 8-5. The Mongolian side shall provide necessary numbers of counterpart personnel to the Team during the period of their studies in Mongolia.
- 8-6. The Mongolian side shall submit answers to the Questionnaire, which the Team handed to the Mongolian side, by April 21, 2008.

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Annex-1



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Location of Piers (P1, P2 and P3)

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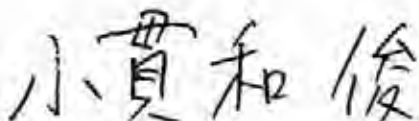
**Minutes of Discussions
on Basic Design Study
on the Project for Construction of Railway Fly-over
in Ulaanbaatar City
in Mongolia
(Explanation of Draft Report)**

In March 2008, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Construction of Railway Fly-over in Ulaanbaatar City (hereinafter referred to as "the Project") to Mongolia, and through discussions, field survey and technical examination of the results in Japan, JICA prepared a draft report of the study.


In order to explain and to consult with the concerned officials of the Government of Mongolia on the contents of the draft report, JICA sent to Mongolia the Basic Design Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Kazutoshi ONUKI, Deputy Resident Representative of JICA Mongolia Office, from October 30 to November 6, 2008.

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

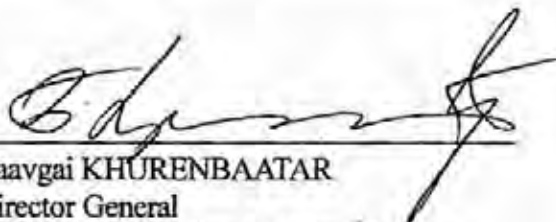
Ulaanbaatar November 4, 2008



Kazutoshi ONUKI
Leader
Basic Design Explanation Team
Japan International Cooperation Agency



Jadamba BAT-ERDENE
State Secretary
Ministry of Road, Transport, Construction
and Urban Development
Mongolia



Baavgai KHURENBAATAR
Director General
Department of Policy and Coordination
for Loans and Aid
Ministry of Finance
Mongolia



Choimpog BAT
General Manager of Ulaanbaatar City
and Chief of the Mayor's Office
Ulaanbaatar City
Mongolia

ATTACHMENT

1. Components of the Draft Report

The Mongolian side agreed and accepted in principle the contents of the draft report of Basic Design Study by the Team.

2. Cost Estimation

Both sides agreed that the Project Cost Estimation as attached in Annex-1 should never be duplicated or released to any third parties before the signing of all the Contract(s) for the Project.

3. Japan's Grant Aid Scheme

3-1. The Mongolian side understood the Japan's Grant Aid scheme explained by the Team.

3-2. The Mongolian side understands necessary measures to be taken by the Government of Mongolia as explained by the Preliminary Study Team and described in Annex-3 of the Minutes of Discussions signed by both sides on July 5, 2007.

4. Schedule of the Study

JICA will complete the Final Report in English, in accordance with the confirmed items and send it to the Mongolian side by the end of January, 2009.

5. Environmental and Social Considerations

5-1. Procedure for ECC (Environmental Clearance Certificate)

Both sides confirmed that the Mongolian side obtained the ECC for the Project attached as Annex-2.

5-2. Stakeholders' Meeting

The Mongolian side explained to the Team that the stakeholders' meeting for the Project was held on September 16, 2008, and reported its result to JICA Mongolia Office on October 2, 2008.

5-3. Basic Agreement from Land Possessors

Both sides confirmed that the Mongolian side completed the securing land of 3 affected land possessors and obtained basic agreements from 7 affected land possessors, while there is a negotiation process on the compensation for a building of one affected land possessor (No.9 in the attached list of the securing land issued by the land administrative department of the Ulaanbaatar City dated October 2, 2008.). Regarding the said land possessor, the Mongolian side shall obtain the basic agreement and report it to JICA Mongolia Office by the end of November, 2008.

6. Improvement of "Engels Street" and "Ikh-Toiruu Street"

Both sides confirmed that Improvement of "Engels Street" (widening from 2-lane to 4-lane, including the reconstruction of Dund Gol Bridge) and "Ikh-Toiruu Street" (Strengthening traffic management including intersection improvement) is very important to ensure the effect of the Project. And the Mongolian side explained to the Team that the Mongolian side should implement it with the schedule described as follows;

- (1) Completion of the Design and Preparation of Tendering : Year 2009,
(Funded by Road Fund of Ulaanbaatar City)
- (2) Commencement of the Works : Year 2010,
- (3) Completion of the Works : Year 2012.
(Appropriated by 2010-2011 budget based on the result of (1))

7. Other Relevant Issues

- 7-1. The Mongolian side explained to the Team that the responsible ministry for the Project had been changed from MRTT (Ministry of Road, Transport and Tourism) to MRTAUD (Ministry of Road, Transport, Construction and Urban Development) as the result of the restructuring of governmental ministries and agencies in September, 2008.
- 7-2. For smooth implementation of the Project, both sides confirmed that the Responsible Ministry, named MRTAUD should take every responsibility and measures, including coordination, in any matters arise between the Mongolian government body and entity.
- 7-3. The Mongolian side confirmed that the following undertakings should be taken by the Mongolian side at the Mongolian expenses.
- (1) Before commencement of construction work
 - (a) To secure the land for the Project,
 - (b) To relocate the existing utilities (electricity power, telecommunication, water, etc.),
 - (c) To Secure and clearance of the temporary yard,
 - (d) To distribute the electricity and telephone line to the base-camp,
 - (e) To secure the site for disposal of waste,
 - (f) To log the trees affecting the construction works,
 - (g) To remove the existing obstacles affecting the construction works,
 - (h) To remove or lower the existing roof of the platform for V.I.P.
 - (2) During construction work
 - (a) To make necessary arrangement of detours for public traffic at necessary sections, e.g. securing of land, public announcement etc,
 - (b) To keep the 4-hour window time during the adjacent work of the existing railway,
 - (c) Necessary coordination among residents and/or road users and the Contractor.
- 7-4. The Mongolian side shall secure enough budget and personnel necessary for the operation and maintenance of the facilities improved by the Project, including the periodical maintenance work after the completion of the Project.

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Project Cost to be borne by Japan's Grant Aid

This Page is closed
due to the confidentiality.



**МОНГОЛ УЛСЫН
ЗАМ, ТЭЭВЭР, БАРИЛГА,
ХОТ БАЙГУУЛАЛТЫН
ЯАМ**

15170 Улаанбаатар хот, Чингэлтэй дүүрэг
Барилгандын талбай 3, Утас/Факс (976-11) 32-29-04,
E-mail: webmaster@mtrcud.gov.mn

2008 10. 28 № 3/275

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ЯПОН УЛСЫН ОЛОН УЛСЫН
ХАМТЫН АЖИЛЛАГААНЫ
АГЕНЛАГТ

Annex-2

Тайлан хүргүүлэх тухай

Япон улсын буцалтгүй тусламжийн хөрөнгөөр баригдах Улаанбаатар хотын баруун 4-н зам, тээврийн товчооноос төмөр зам дээгүүр барих гүүрэн гарцын төслийн байгаль орчинд нөлөөлөх байдлын нарийвчилсан үнэлгээний тайланг батлуулан хүргүүлж байна.

Хүлээн авч танилцана уу.

ТӨРИЙН НАРИЙН БИЧГИЙН ДАРГЫН
ҮҮРЭГ ГҮЙЦЭТГЭГЧ

Ж.БАТ-ЭРДЭНЭ

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БАТЛАВ.
ЕРӨНХИЙ ШИНЖЭЭЧ



Ч.ГАНБАТ

ШҮҮМЖ БИЧСЭН:
ШИНЖЭЭЧ



**УЛААНБААТАР ХОТЫН БАРУУН ДӨРВӨН ЗАМ, ТЭЭВРИЙН
ТОВЧООНООС ТӨМӨР ЗАМ ДЭЭГҮҮР ГҮҮРЭН ГАРЦ БАРИХ
БАРИЛГЫН АЖЛЫН БАЙГАЛЬ ОРЧИНД НӨЛӨӨЛӨХ
БАЙДЛЫН НАРИЙВЧИЛСАН ҮНЭЛГЭЭНИЙ ТАЙЛАН**



ҮНЭЛГЭЭХИЙСЭН МЭРГЭЖЛИЙН
БАЙГУУЛЛАГА:
"САНИТРЕЙД" ХХК ЗАХИРАЛ



ЦАДЪЯАСҮРЭН

ТӨСӨЛ ХЭРЭГЖҮҮЛЭГЧ:
ЗАМ, ТЭЭВЭР, АЯЛАЛ ЖУУЛЧЛАЛЫН ЯАМ,
ТӨРИЙН НАРИЙН БИЧГИЙН ДАРГА



Ж.БАТ-ЭРДЭНЭ

ТӨСӨЛ ХЭРЭГЖИХ НУТАГ ДЭВСГЭР:

БАЯНГОЛ ДҮҮРГИЙН ЗАСАГ ДАРГА



П.ЦОГТБААТАР

ХАН-УУЛ ДҮҮРГИЙН ЗАСАГ ДАРГА



Д.ЗАГДЖАВ

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10.10.2008
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(2) テクニカルメモランダム(基本設計調査時)

Basic Design Study on the Project for Construction of Railway Fly-over
in Ulaanbaatar City in Mongolia

May 1, 2008

Technical Memorandum on Major Findings during the Field Survey

Important Notes:

The opinions expressed in this memorandum are solely those of the author and do not represent the official policies, opinions, or statements of JICA.

1. Demand Forecast of Traffic on Railway Flyover

Traffic demand on the Railway Flyover is forecasted as shown in Table 1, using the simulation model built by JICA Study that is "The Study on City Master Plan and Urban Development Program of Ulaanbaatar City (UBMPS)".

Table 1 Demand Forecast of Traffic on Railway Flyover in 2007

	Railway Fly-over		Balance of Traffic Volume	
	Before	After		
Gurvaljin Bridge	21,500	20,400	-1,100	95%
Peace Bridge	48,200	37,900	-10,300	79%
Railway FO	0	25,600	25,600	
Ikh Toyruu	31,100	33,900	2,800	109%
Engels Street	3,000	16,800	13,800	560%
Naryn Zam, East	56,300	55,100	-1,200	98%
Naryn Zam, West	29,100	29,600	500	102%

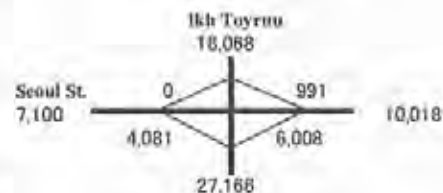
Peace Ave

	39	87	37	35	Total
39	0	3264	5963	464	9691
87	0	0	11609	17343	28952
37	7755	10782	0	1207	19744
35	622	16986	1084	0	18692
Total	8377	31032	18656	19014	77079



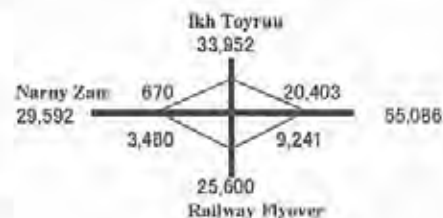
Seoul St.

	N42	98	99	38	Total
N42	0	2859	0	838	3707
98	3139	0	0	8853	11992
99	3019	4081	0	0	7100
38	153	8224	0	0	8377
Total	8311	15174	0	9691	31176

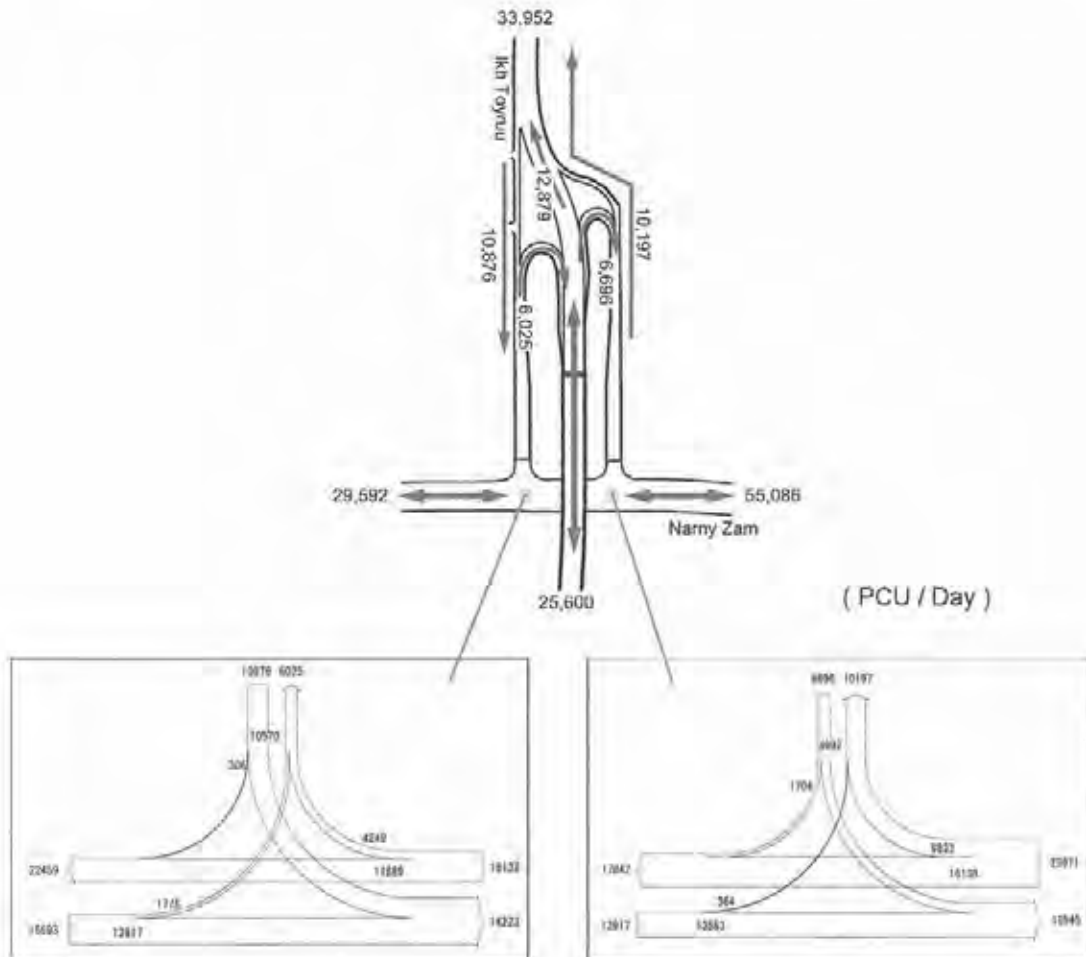


Naryn Zam

	N43	178	177	N40	Total
N43	0	1704	6042	4992	12738
178	1776	0	364	13553	15693
177	6837	306	0	10570	17713
N40	4249	11889	9033	0	25971
Total	12862	13899	16239	29115	72115



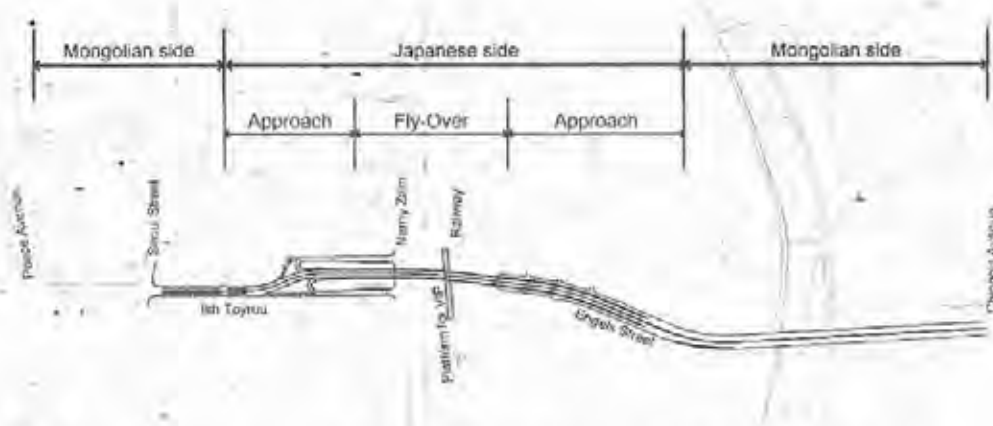
The directional traffic at the intersection between Ikh Toyruu and Naryn Zam is forecasted as follows:



Traffic volume of 25,600 PCU/day on Railway Flyover in 2007 will increase up to 41,900 PCU/day in 2020 according to future OD table prepared by UBMP.

2. Project Components

(1) Demarcation between Japan and Mongolia



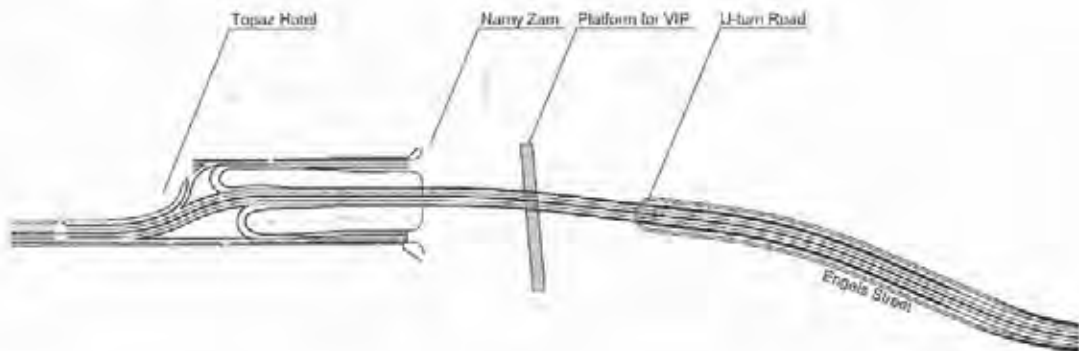
Note-1 : Beginning points (B.P) of Ikh Toyruu Section is West-cross Intersection.

Note-2 : Ending point (E.P) of Engels Street Section is Chinggis Avenue Intersection.

Note-3 : E.P of Japanese Section on Naryn Zam is the eastern and western ends of improved intersection.

Note-4 : B.P and E.P of the approach road are points that the elevation of the approach road is placed to the existing roads.

(2) Railway Fly-over Section as the Japanese Section L=895 m



Note-1 : B.P of Railway Fly-over Section is the construction limit of Ikh Toyruu at Sta. 0+365 (No. 18+05) to coincide with E.P of Ikh Toyruu Section.

Note-2 : E.P of Railway Fly-over Section is the construction limit of Engels Street Section at Sta. 1+260 (No. 63+00) to coincide with B.P of Engels Street Section.

Note-3 : E.P of Japanese Section on Naryn Zam will be determined by the design of

intersection during the analysis in Japan based on topographic map surveyed for the Study.

Location of piers in railway premises is agreed to Railway Authority and confirmed by the MD signed on March 26, 2008 as shown in Fig. 1.

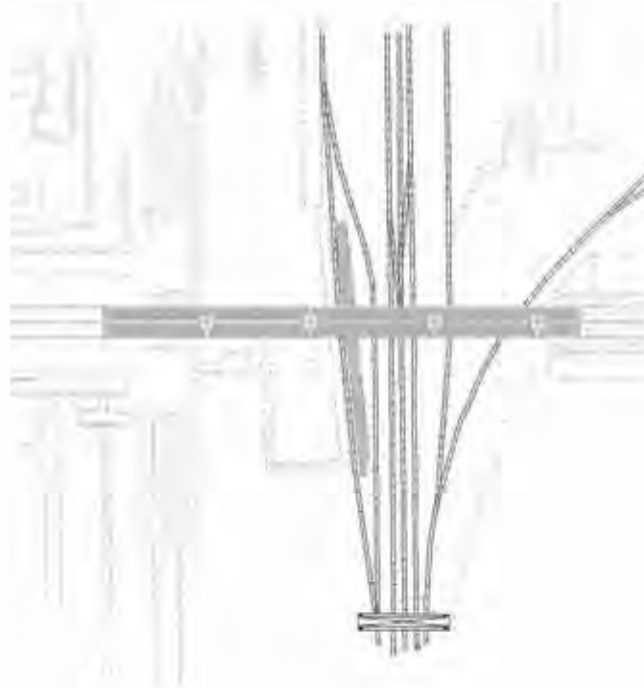


Fig. 1 Agreed Piers within Railway Premises

(3) Improvement of Ikh Toyruu Section L= 365 m

- 1) Establishment of Road Right-of-Way along Ikh Toyruu Section
- 2) Channelization of Seoul Street Intersection
- 3) Modification of Channelization at West-cross Intersection
- 4) Modification of Sidewalk along Ikh Toyruu Section
- 5) Modification of Drainage at the necessary section
- 6) Installation of Street Lighting in the vicinity of intersections
- 7) Installation of Traffic Marking at the necessary section

(4) Improvement of Engels Street Section L= 600 m

- 1) Establishment of Road Right-of-Way along Engels Street Section
- 2) Construction of 4-lane divided Arterial Street
- 3) Re-construction of Dund Gol Dund Bridge

- 4) Channelization of Dund Gol Street Intersection
- 5) Channelization of Chinggis Avenue Intersection
- 6) Modification of Drainage at the necessary section
- 7) Installation of Street Lighting in the vicinity of intersections
- 8) Installation of Traffic Marking at the necessary section

3. Design Standard for Highway

Mongolian Standard shall be used for highway design in principle, and Japanese Standard will supplement it as required, if any.

(1) Classification of Highway

Railway Fly-over Section as a part of "Middle Ring Road" is classified into Arterial Road and the functional classification falls into Category of "Main Street of Urban Road" as shown in the Table 2.

Table 2 Functional and Technical Classifications of Highways

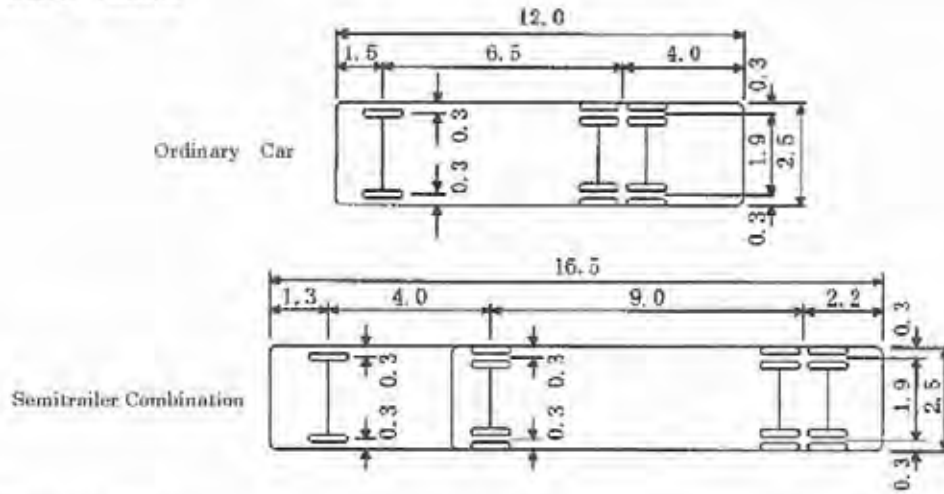
Road Classification		Number of lanes	Traveled Way (m)	Road shoulder width (m)	Remarks
National Road	I	4	15	2.0	Divided
	II	2	7.5		Undivided
	III	2	6.0	1.0 0.5	Undivided
Rural Road	IV	2	4.5	1.0 0.75	Undivided
Urban Road	Expressway	6	22.5	0.75	Divided
	Main Street	4	15		Divided
Village Road		2	7	0.5	Undivided

Source: BRIDGE AND CULVERT DESIGNING, BNBD 32.02-03, Construction Normative Documents, Construction Norms and Regulations of Mongolia, Ministry of Infrastructure of Mongolia, 2005

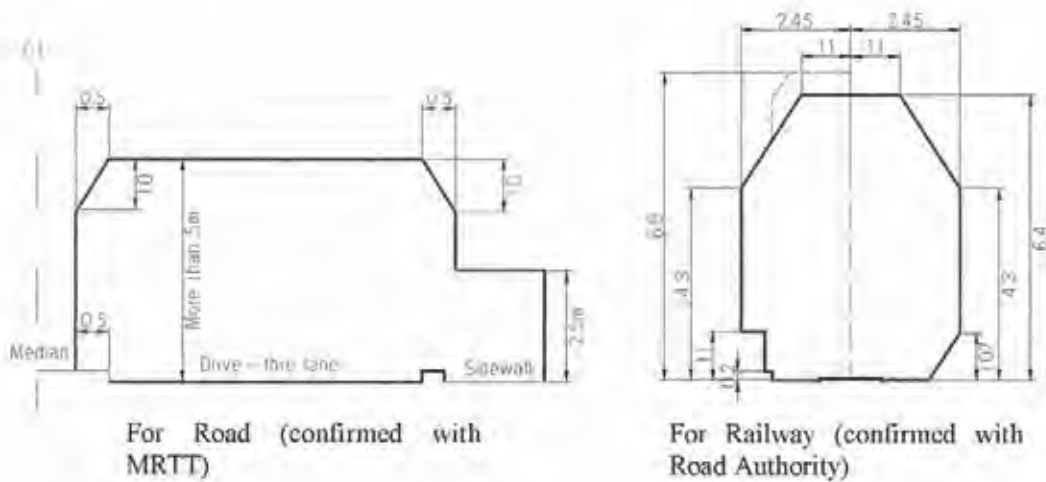
(2) Design Speed

Excessive land acquisition will be required for the Project in case that the Mongolian design criteria are applied where design speed of 80 Km/h is adopted. It is a matter of fact that the design speed of Naryn Zam is 60 Km/h. Accordingly the Japanese design criteria are proposed to be applied to the Project.

(3) Design Vehicles

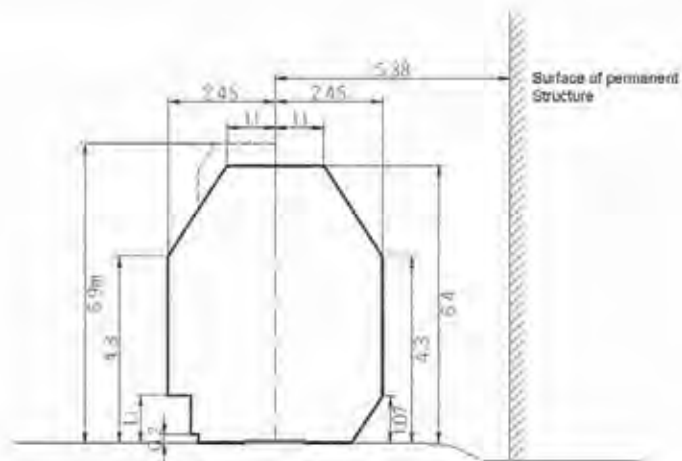


(4) Clearance Limits



(5) Construction of Permanent Structure within Railway Premises

The surface of permanent structure should be located 5.38 m far from the center of Railway's Clearance Limit. The surface of temporary structure may be located beyond Railway's Clearance Limit, provided that railway operation should be controlled at reduced speed.



(6) Geometric Design Standard

Table 3 Summary of Geometric Criteria for Through Traveled Lane of Railway Flyover

Item	Unit	Design Criteria
1. Design Speed	km/h	60
2. Traveled Land Width	m	3.25
3. Outer Shoulder Width	m	0.75
4. Median including Marginal Strip	m	1.0
5. Cross fall of Traveled Way	%	2
6. Cross fall of Shoulder	%	2
7. Type of Pavement	-	Flexible AC Pavement
8. Stopping Sight Distance	m	85
9. Maximum Super elevation	%	6
10. Minimum Horizontal Curve Radius	m	150
11. Minimum Horizontal Curve Length	m	100 or $700/\theta$
12. Minimum Transition Curve Length	m	50
13. Sharpest Curve without Transition Curve	m	500
14. Sharpest Curve without Super elevation	m	2,000
15. Max. Relative Slope for Super elevation Runoff	-	1:125
16. Maximum Grade	%	5
17. Minimum Vertical Curve Length	m	215
18. Horizontal Clearance	-	Roadway Width
19. Vertical Clearance	m	5.0
20. Min. Horizontal Curve Radius for Channelization	m	13.0

The geometric design criteria for at-grade intersection are referred to the Japanese standard.

(7) Drainage Design Standard and Criteria

Mongolian Standard shall be used for drainage design in principle. AASHTO Standard and/or Japanese Standard will supplement it as required, if any.

1) Design Storm

<u>Facility/Drainage Structure</u>	<u>Design Storm Frequency</u>
Road Surface Drainage	3 year
Bridge Surface Drainage	3 year
Pipe Culverts	10 year

2) Rainfall

The Rainfall-Intensity-Duration-Frequency (RIDF) Curves are developed from the rainfall-intensity-duration-frequency data of the each site area in Mongolia.

3) Catchment Area

The catchment area or contributing drainage areas are determined using the 1:50,000 and 1:25,000 scale topographic map.

4) Time of Concentration

The time of concentration (Tc), which is defined as the time required for water to flow from the farthest point of the catchment or the drainage area to the point under consideration, is determined by means of the United States Soil Conservation Service (USSCS) formula. ∴

$$T_c = \frac{0.87 L_s}{H}$$

Where :

Tc = Time of concentration in hours

Ls = Length of stream or watercourse in kms.

H = Difference in elevation between the farthest point of the catchment to the point under consideration in meters.

The minimum time of concentration used is 5 minutes.

5) Design Discharge

Design discharge calculations were made using the Rational Formula.

$$Q = CIA$$

Where : Q = design discharge in cu. m. per sec. (cms)

C = runoff coefficient

I = rainfall intensity in millimeter per hour (mm/hr)

A = catchment area in acres

For drainage areas less than 2.5 km², peak flows will be computed using the rational formula:

$$Q = CIA/360$$

Where : Q = design discharge in cu. ft. per sec. (cfs)

C = runoff coefficient

I = rainfall intensity in millimeter per hour (mm/hr)

A = catchment area in hectares

(8) General Traffic Safety Facilities

1) Guard Rail

Guard Rails are planned to install at the following locations:

- Naryn Zam Intersection
- Sharp Curve of Channelization
- High embankment

2) Road Markings

Road markings will be marked by tack with epoxy resin or be painted on pavement, and it will be consisted of the following type:

- Centerline
- Roadside line on marginal strip
- Separation on auxiliary lane
- Channelization
- Pedestrian crossing

3) Regulatory and Warning Signs

Principal regulatory and warning signs are planned to install at the following locations:

- Horizontally sharp curve
- Vertically steep grade
- Intersection

4) Street Lighting

Street Lighting will be installed to cover the stretches of Railway Flyover and intersections on Naryn Zam.

5) Traffic Signal

Traffic signal will be installed at two channelized intersections on Naryn Zam.

4. Design Standard for Bridge

(1) Applied Standard

- Specification for Highway Bridges, Japan Road Association, 2002
- Designing of Road Bridges and Culverts(BN&D 32.02.03), Ministry of Infrastructure, Mongolia, 2005

(2) Material Strength

PC girder	$\sigma_{ck} = 40 \text{ N/mm}^2$	Abutment, Pier	$\sigma_{ck} = 21 \text{ N/mm}^2$
RC girder	$\sigma_{ck} = 24 \text{ N/mm}^2$	Approach Wall	$\sigma_{ck} = 21 \text{ N/mm}^2$
RC Slab, Cross	$\sigma_{ck} = 24 \text{ N/mm}^2$	RC Pile (Precast)	$\sigma_{ck} = 24 \text{ N/mm}^2$
Concrete Pavement	$\sigma_{ck} = 24 \text{ N/mm}^2$	RC Box Culvert	$\sigma_{ck} = 21 \text{ N/mm}^2$
RC Hand Rail	$\sigma_{ck} = 21 \text{ N/mm}^2$	RC Pipe Culvert	$\sigma_{ck} = 21 \text{ N/mm}^2$

* Concrete Compressive Strength σ_{ck} (28 days)

Steel Grade (deformed Bar)	Strength(N/mm ²)		Length (Dia mm)
	Yield	Tensile	
SD295	295 min	440-600	6000-12000mm (10·32mm)
SD345	345-440	490 min	
SD390	390-510	560 min	

(3) Dead Load

Types of Dead Load	Unit Weight (kN/m ³)	Types of Dead Load	Unit Weight (kN/m ³)
Steel or cast steel	77	Cement mortar	21
Cast iron	71	Asphalt pavement	22.5
Aluminum alloys	27.5	Bituminous material	11
Timber(treated/untreated)	8	Compacted sand, earth/gravel	19
Concrete(plain)	23	Loose sand, earth, and gravel	18
Concrete(reinforced/prestressed)	24.5	Under ground water	10

(4) Live Load

Live load will be the B-Live Load of Japanese Specification for Highway Bridges in the designing of the new bridges. B Live Loading of Japan Loading System is shown in Attachment-1.

HS20-44 of AASHTO (Standard Specifications for Highway Bridges) is also considered as applicable live load since Railway Flyover will be a part of Asian Highway Network. Design results will be verified and reviewed by loading HS20-44.

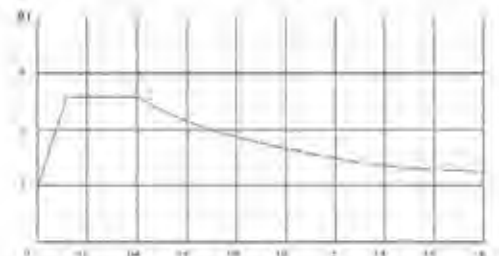
(5) Seismic Design of Bridge

The seismic design load of bridge is as specified in the Mongolian Standard published by the Ministry of Construction and Urban Development in 2006. Seismic design load is calculated by the following formula:

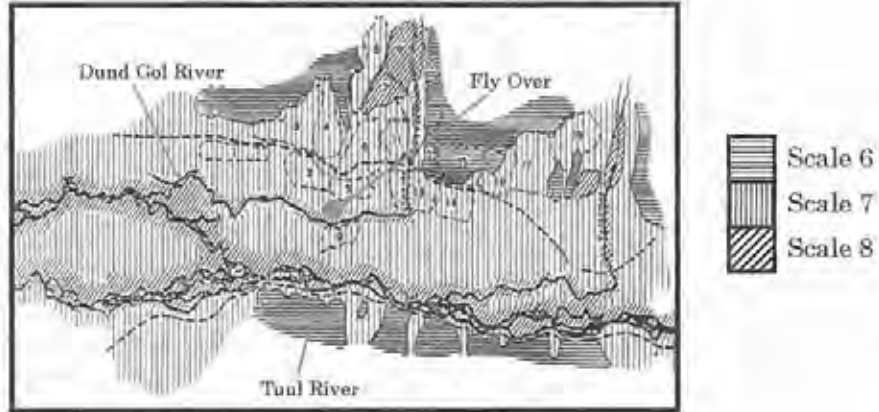
$$S_{0ik} = K_{\psi} * Q_k * \eta_{ik} * A * \beta_i$$

Where:

- S_{0ik} : Seismic Load
- K_{ψ} : 1 (in case of bridge structure)
- Q_k : Vertical Load
- η_{ik} : Height of Inertia Forth



A : 0.1 Region Factor (Scale 7)
 β_1 : Dynamic Coefficient
 T : Specific Period



Seismic Hazard Map of Ulaanbaatar city

Based on the above seismic load formula, seismic design is conducted to satisfy the following calculation methods:

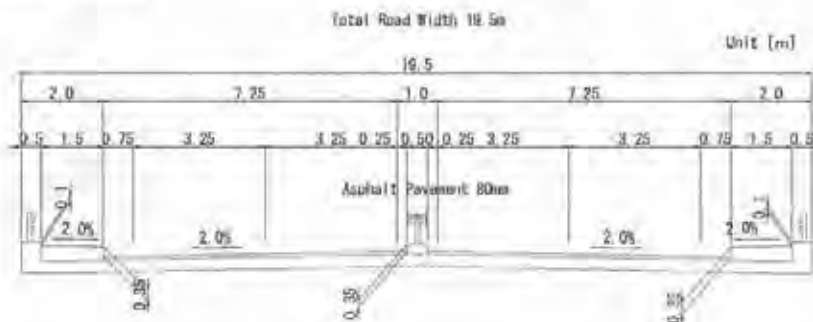
- 1) In case of allowable stress analysis: Seismic horizontal coefficient, K_h is 0.1
- 2) In case of ultimate stress analysis: Seismic load is analyzed by the above formula in consideration of inelastic/plastic deformation of bridge.

(6) Other Loads

Loads	Specification	Remarks
Earth Pressure	Coulomb theory	Japanese Specification
Temperature	-40°C~+40°C	Mongolian Standard

5. Typical Cross Sections

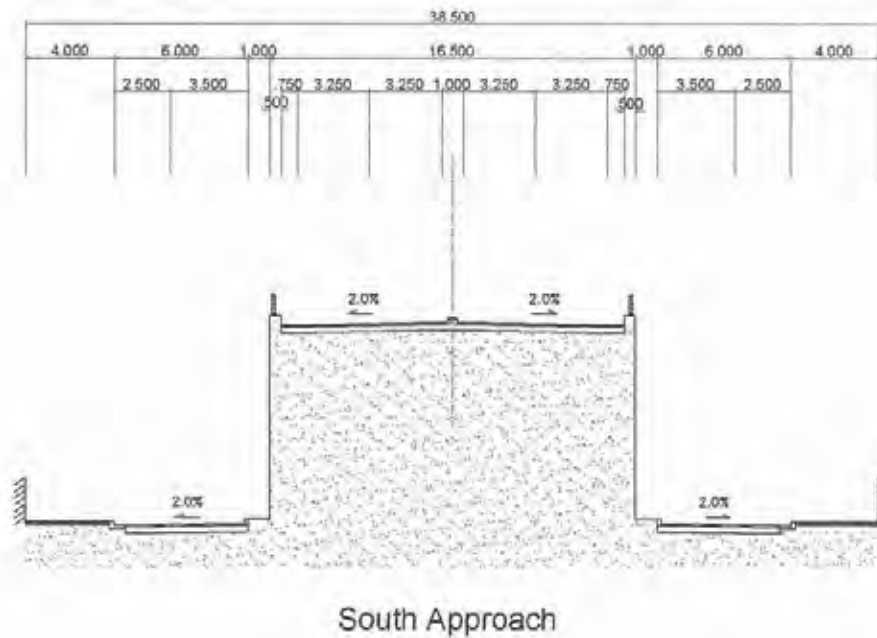
(1) Railway Fly-over



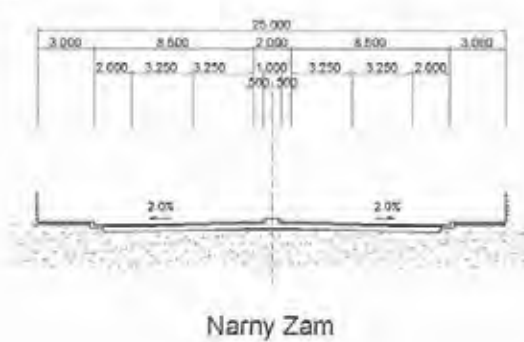
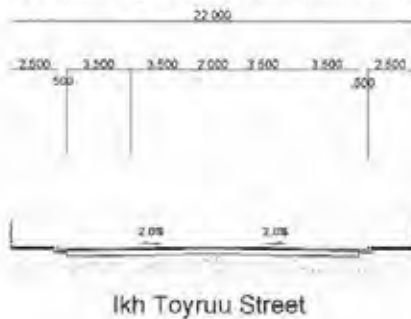
(2) Typical Cross Section in Earthwork Section, Northern Section



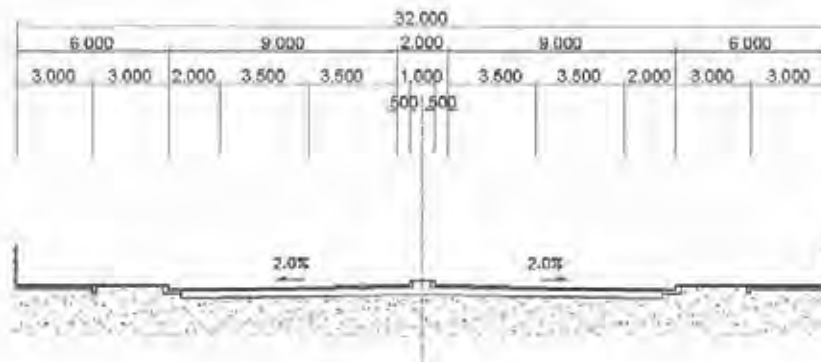
(3) Typical Cross Section in Earthwork Section, Southern Section



(3) Ikh Toyruu Section and Naryn Zam



(4) Engels Street Section



Engels Street

6. Drainage System

Drainage structures such as Pipe culvert, Ditch, Catch-basin, Inlet, etc. are installed to drain storm water on pavement up to the end of drainage system as shown in Attachment-2.

The following points are deemed important to make a drainage system workable:

- To connect the drainage system of Ikh Tovyruu to that of the northern section of Railway Flyover in order to keep consistency of the system.
- To modify the drainage system of Nary Zam to meet technical requirements brought by the improvement of intersections.
- To connect the drainage system of the southern section of Railway Flyover to that of Engels Street in order to keep consistency of the system.

7. Retaining Wall and Stone Masonry

Concrete structures such as retaining wall and/or stone masonry are constructed to improve road within Right-of-Way where embankment slope would violate the boundary of road. A retaining wall will be constructed to protect existing manholes encompassed by structure at Sta. 0+520 (No. 26+00), but some protection works in the vicinity of structure will be done by the Mongolian side to avert excessive earth pressure by traffic loads and embankment slope.

8. Extent of Sidewalk on Railway Flyover

The Railway Flyover is planned to have 1.5 m wide sidewalks at both sides. The extent of sidewalk will be provided from the Pier located at the southern side of Naryn Zam to the Pier located at the southern side of U-turn road. The location of staircases is shown in Fig. 2.



Fig. 2 Extent of Sidewalk on Railway Flyover

9. Major affected facilities and properties

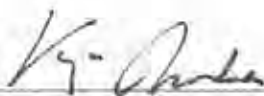
It is necessary to remove and/or replace all the affected facilities and properties within the Road Right-of-Way, especially construction of foundation of piers and abutments.

Major affected facilities and properties are listed in Attachment-4.

10. Major Undertakings to be taken by the Government of Mongolia

The Mongolian side shall be responsible for the following items:

- 1) Necessary land acquisition and establishment of Road Right-of-Way for the Project as shown in Attachment-5.
- 2) Relocation, improvement and/or repair of existing utilities (heating pipes, power lines, telecommunication lines, water supply pipes, sewer, power-supply catenaries of trolleybus etc.) as listed in Attachment-4.
- 3) Necessary arrangement for vehicles to make detour or set up a diversion at necessary sections. The diversion plan on Naryn Zam is shown in Attachment-6.
- 4) Securing and clearance of the temporary yard such as the land for contractor's facilities.
- 5) Installation of water supply, sewerage, electric power and telephone line up to the Base Camps
- 6) Securing of site for disposal of waste at Ulaan-Chuluut Waste Disposal Site as shown in Attachment-7.
- 7) Clearing and grubbing of affected trees as listed in Attachment-4.
- 8) Removal and/or replacement of affected facilities and properties as listed in Attachment-4.
- 9) Removal of the affected roof of the platform for V.I.P.
- 10) Completion of the necessary procedures to obtain the ECC (Environment Clearance Certificate) based on DEIA by the end of September, 2008.
- 11) Holding stakeholders' meetings on an appropriate occasion and report its results such as time and venue, attendee list and record of discussion to JICA Mongolia Office by the end of September, 2008.
- 12) Conclusion of the necessary procedures to obtain basic agreements of affected land owners by the end of September, 2008.
- 13) Necessary arrangement for controlling railway operation for neighboring construction so-called "window time" at least four (4) hours.



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Ministry of Road, Transport and Tourism

Reference Japan Loading System
 B Live Loading [Japan Road Association, 1994]

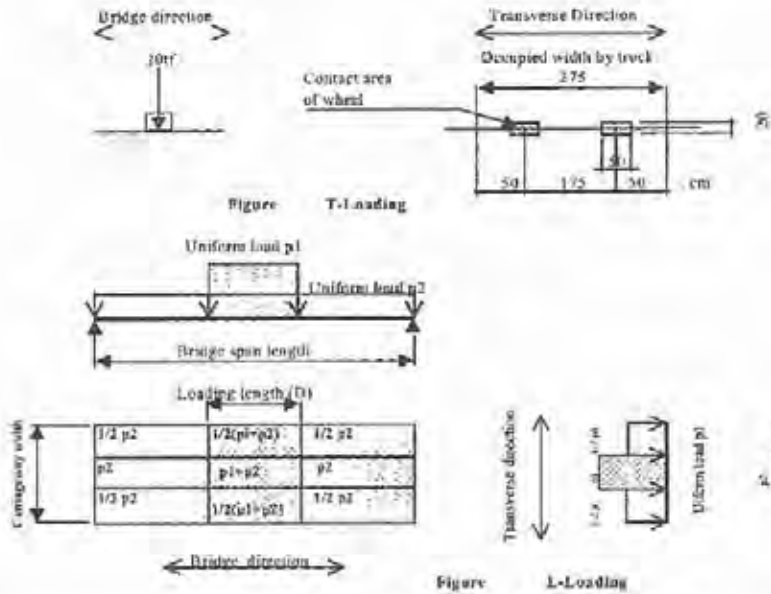


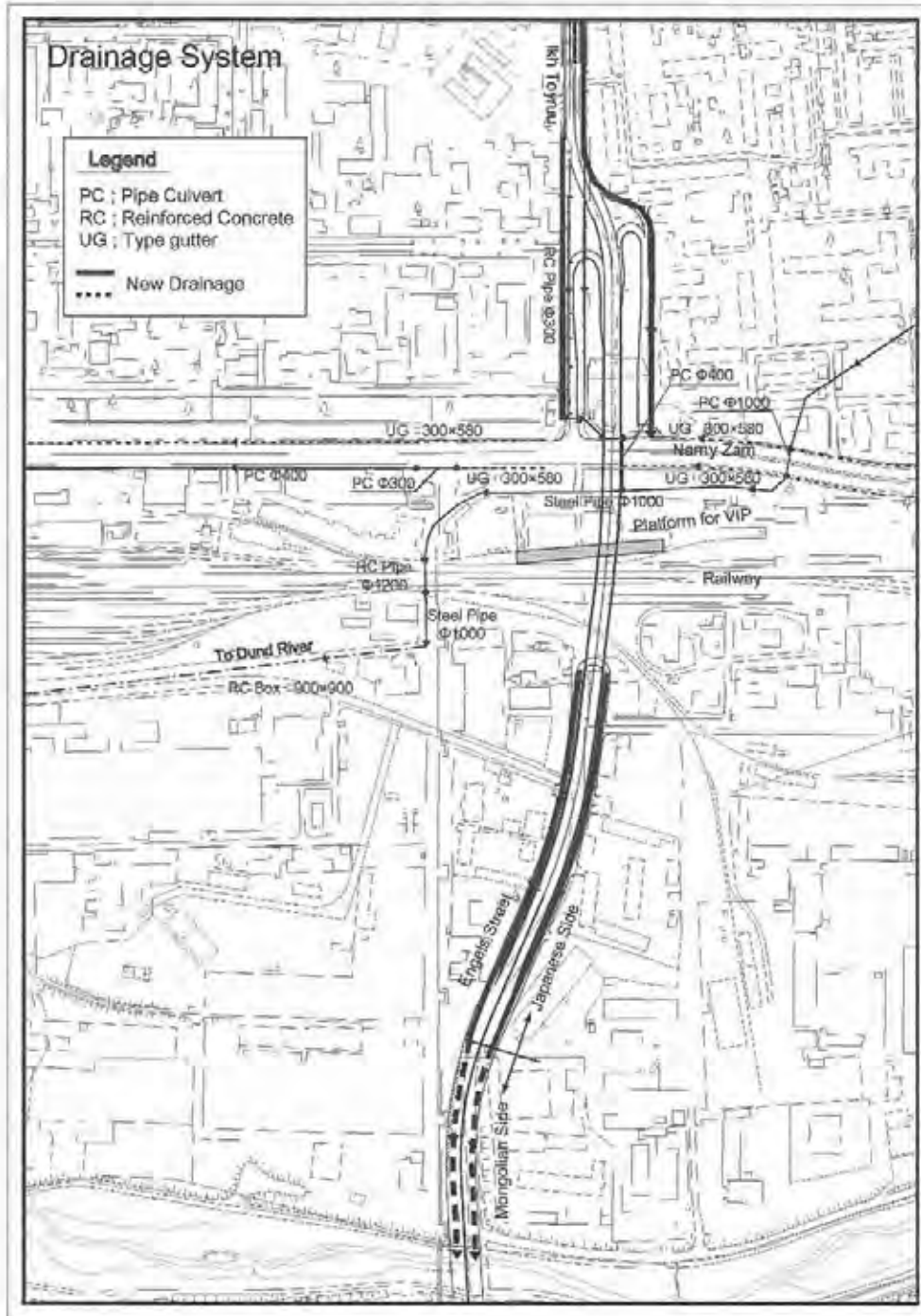
Table L- Loading (B-Live Load, Japan)

Loading length D (m)	Main loads (width 5.5m)					(L- Span)
	Uniform loads p1		Uniform loads p2			Sub loads (width-5.5m.)
	Load (kg/m ²)		Load (kg/m ²)			
	for Bending Moment	for Shearing Force	L < 80	80 < L < 130	L > 130	50% of Main load
10	1,000	1,200	350	430-L	300	

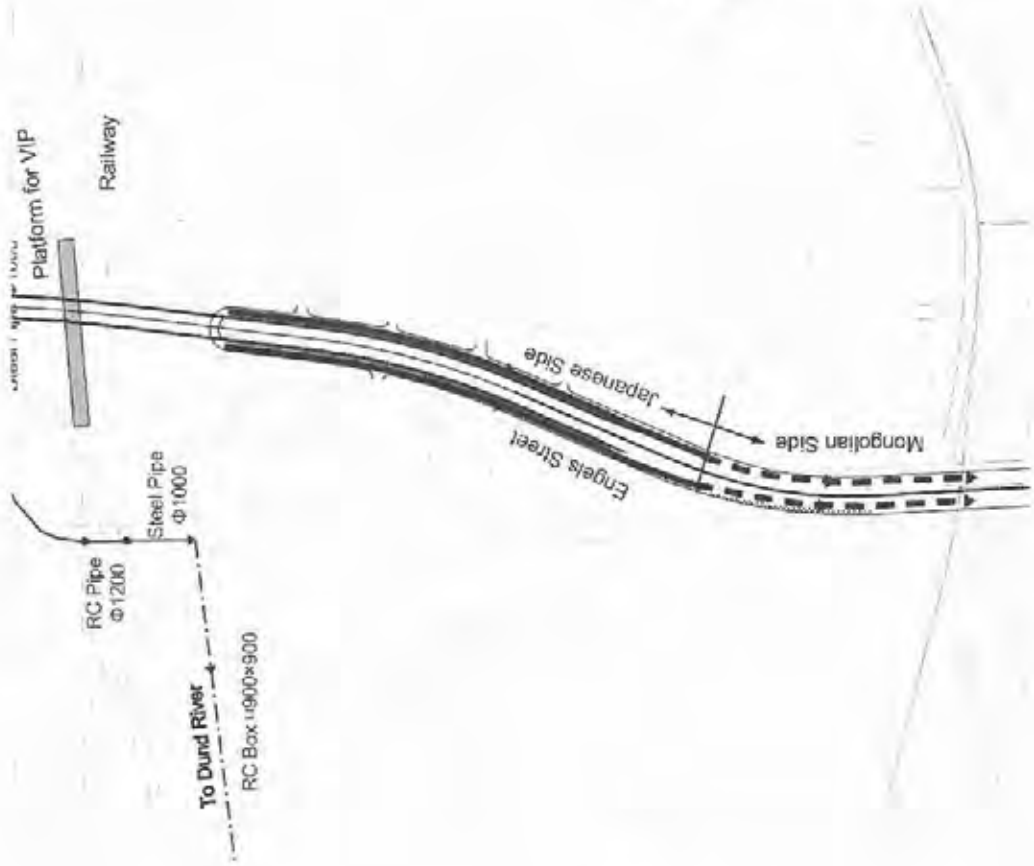
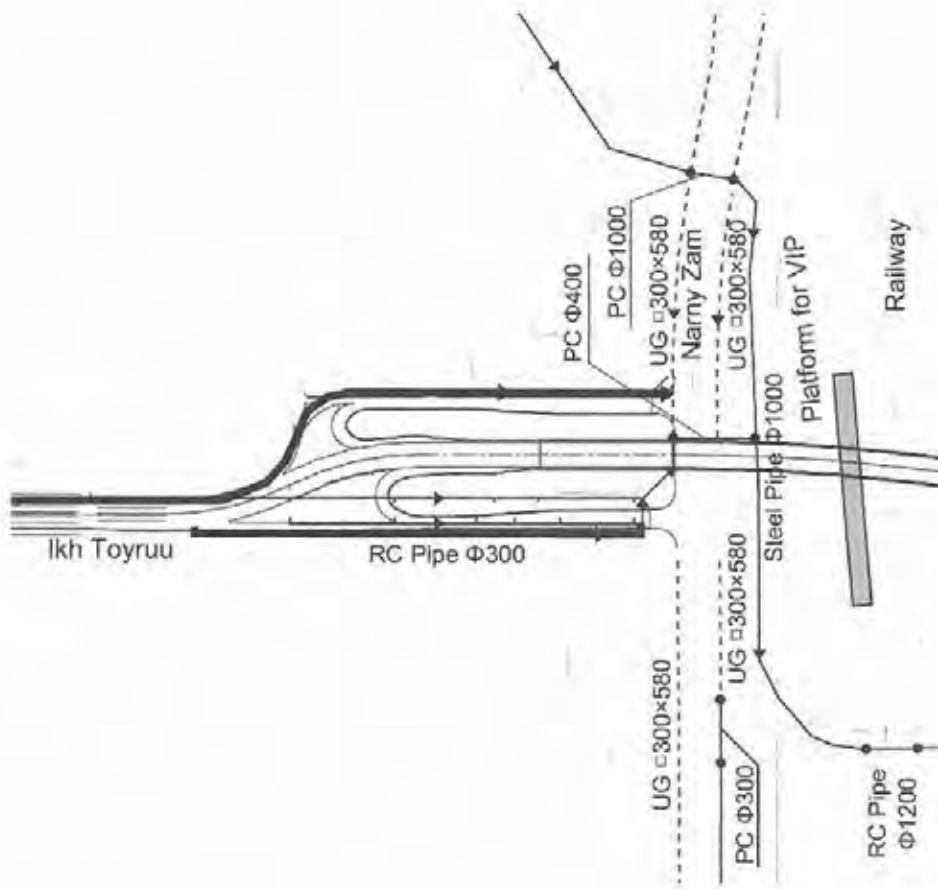
Table Uniform Loading for Sidewalk

Span Length (m)	For Slab	For Main Girder		
		L < 80	80 < L < 130	L > 130
Uniform Load (kg/m ²)	800	350	430-L	300

Attachment-2: Targeted Ends of Drainage System



A 2-1



Attachment-4: List of Utilities Affected by the Construction Works

Section	Station	Underground					On and Above Ground							Overhead				
		Sewer Pipe	Drainage Pipe	Water Supply Pipe	Electric Cable	Hot Water Distribution Pipe	Telecommunication Cable	Electric Pole	Advertising Pillar	Tree	Street Lighting and Foundation	Fence	Entrance with staircase	Kiosk	Traffic Signal	Traffic Sign Board	Power Supply Cables/ies of Trolleybus	Electric/Telecommunication Cable
Ikh Toyrun	No.18 - No.19		RD	RD	RD	RD	RD			RD				RD			RD	RD
	No.19 - No.20		RD	RD	RD	RD	RD			RD	RD		RD	RD			RD	RD
	No.20 - No.21		RD	RD	RD	RD	RD			RD			RD	RD			RD	RD
	No.21 - No.22		RD	RD	RD	RD	RD			RD							RD	RD
	No.22 - No.23		RD	RD	RD	RD	RD		RD	RD		RD		RD			RD	RD
	No.23 - No.24		RD	RD	RD	RD	RD			RD	RD		RD			RD	RD	RD
	No.24 - No.25		RD	RD	RD	RD	RD			RD	RD		RD				RD	RD
	No.25 - No.26	RD				RD		RD		RD	RD		RD				RD	RD
	No.26 - No.27	RD	RD	RD	RD	RD	RD	RD		RD	RD						RD	RD
	No.27 - No.28	RD				RD				RD							RD	RD
	No.28 - No.29	RD				RD				RD							RD	RD
	No.29 - No.30	RD			RD			RD		RD	RD						RD	RD
	No.30 - No.31	BP			BP					RD	RD	RD					RD	RD
	No.31 - No.32	BP		BP	BP					RD	RD	RD					RD	RD
	No.32 - No.33	BP		BP	BP	BP				RD							RD	RD
	No.33 - No.34	BP		BP	BP	BP		RD		RD							RD	RD
No.34 - No.35	BP		BP	BP			RD	RD		RD	RD			RD	RD	RD	RD	
No.35 - No.36				BP		BP				BR	BR							
No.36 - No.37				BP		BP					BR							
Railway Station	No.37 - No.38								BR									
	No.38 - No.39			BP					BR									
	No.39 - No.40										BR							
	No.40 - No.41																	
	No.41 - No.42				BP						BR	BR					BR	
	No.42 - No.43											BR						
Engels Street	No.43 - No.44			BP							BR						BR	
	No.44 - No.45							BR									BR	
	No.45 - No.46			BP	BP													
	No.46 - No.47			RD	RD													
	No.47 - No.48			RD	RD													
	No.48 - No.49			RD	RD													
	No.49 - No.50			RD	RD			RD									RD	
	No.50 - No.51			RD	RD						RD							
	No.51 - No.52				RD													RD
	No.52 - No.53				RD						RD							RD
	No.53 - No.54				RD													RD
	No.54 - No.55				RD						RD							RD
	No.55 - No.56				RD													RD
	No.56 - No.57				RD						RD							RD
	No.57 - No.58				RD													RD
	No.58 - No.59				RD						RD							RD
	No.59 - No.60				RD													RD
No.60 - No.61				RD				RD		RD							RD	
No.61 - No.62				RD				RD									RD	
No.62 - No.63				RD				RD									RD	

Notes: RD: Affected by Road Construction
 BP: Affected by Bridge Pier Construction
 BR: Affected by Bridge Construction



A 5-1

A-40
A-33



A 5-2

A-41
A-34



A 5-3

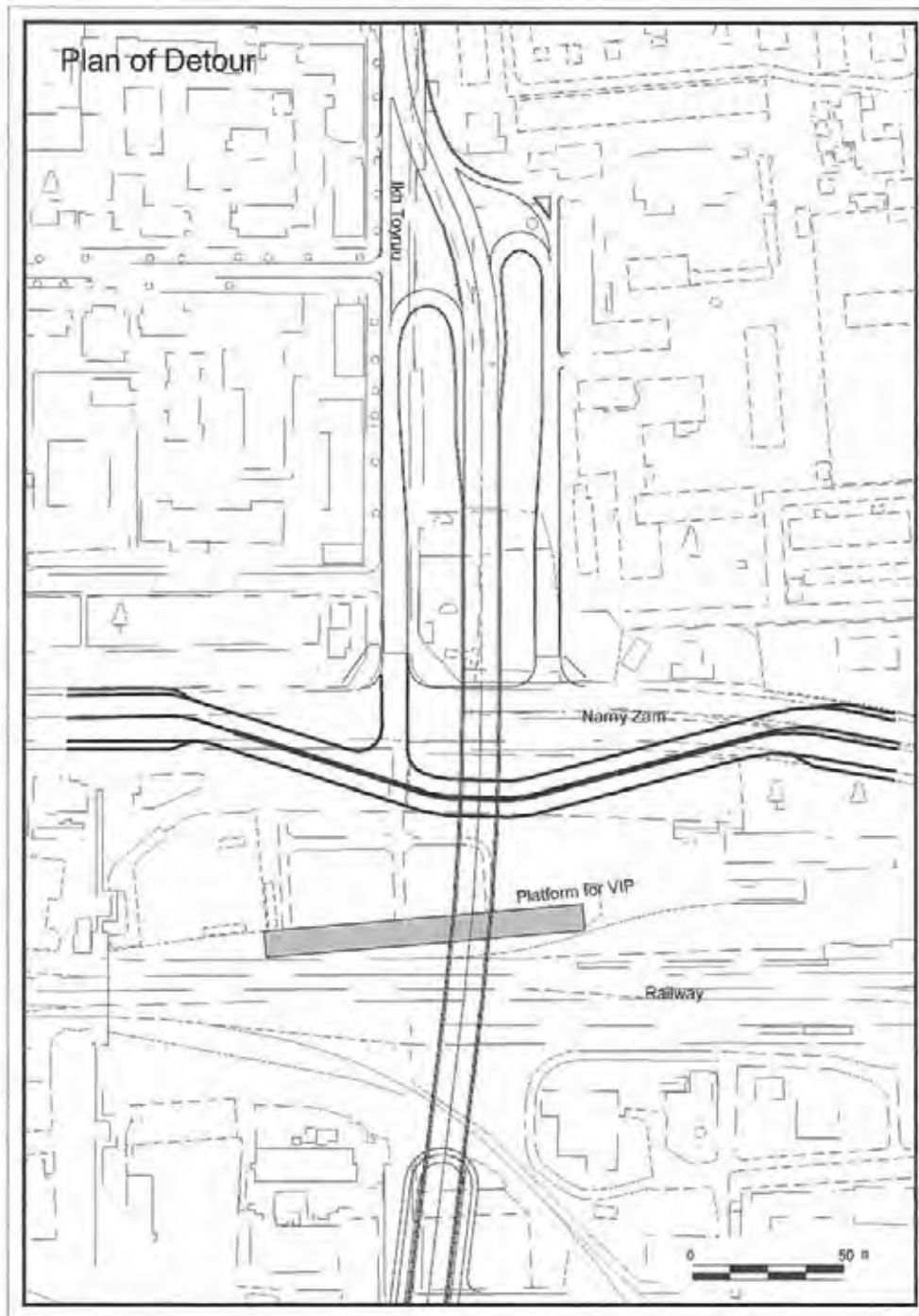
A-42
A-35



A 5-4

A-43
A-36

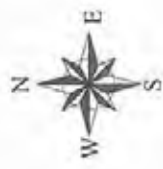
Attachment-6:



A 6

A-44
A-37

Attachment-7: Waste Disposal Site Location Map



あ

(4) テクニカルメモランダム (基本設計概要説明時)

Basic Design Study on the Project for Construction of Railway Fly-over
in Ulaanbaatar City in Mongolia

November 4, 2008

Technical Memorandum on the Basic Design Report

Important Notes:

The opinions expressed in this memorandum are solely those of the author and do not represent the official policies, opinions, or statements of JICA.

The general layout and details of bridge and road structure are presented in the report of Basic Design Study. Detailed design will be proceeded based on the results of Basic Design Study. Furthermore, some details of structures were confirmed hereinafter.

1. DETAILS OF BRIDGE STRUCTURES

1.1 General Layout and Cross Section

- (1) General Layout of Bridge shall be designed as shown in Basic Design Drawing BD-1.
- (2) Typical cross sections are shown in Figure-1.

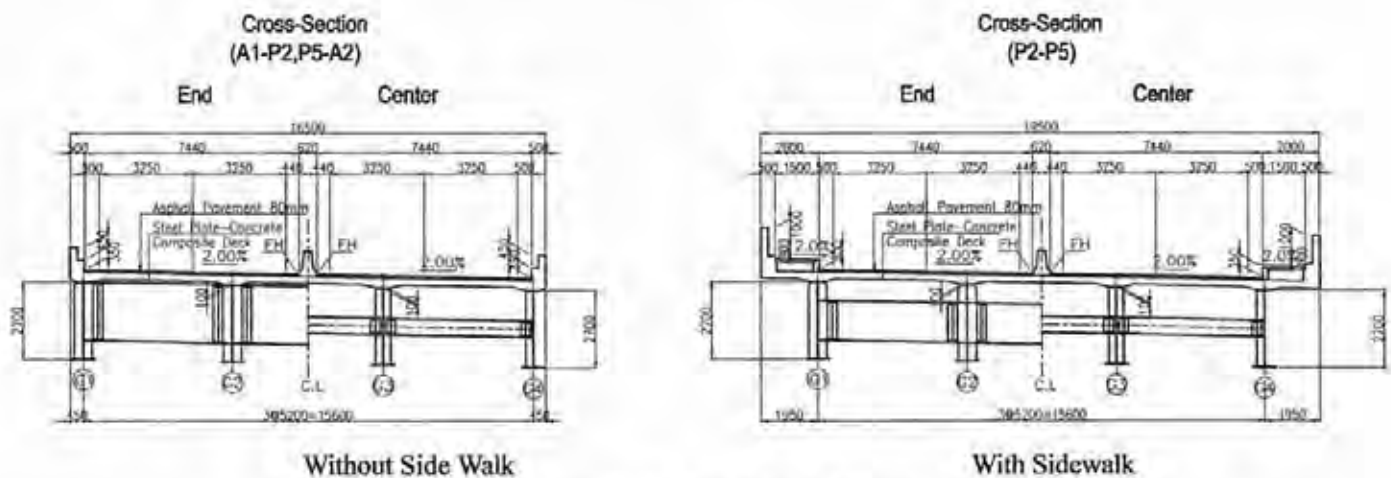


Figure-1 Typical Cross Section

- (3) Details of median strip are shown at Figure-2.

The median strip shall be constructed by cast-in place concrete.

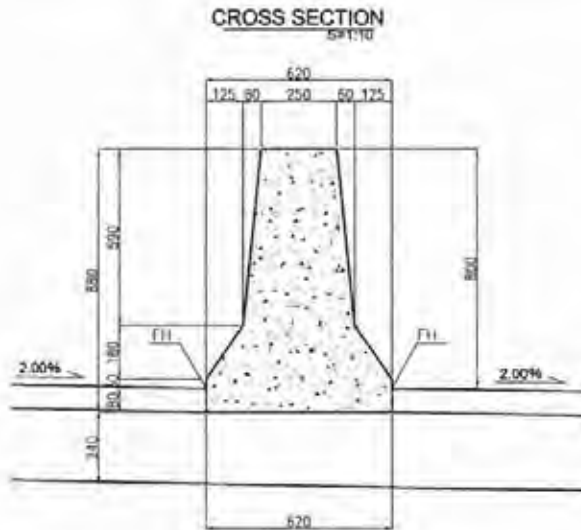


Figure-2

(4) Guard Fence

Guard fence is planned to be constructed by cast-in-place concrete as shown in Figure-3. Details of guard fence will be discussed and decided during detailed design.

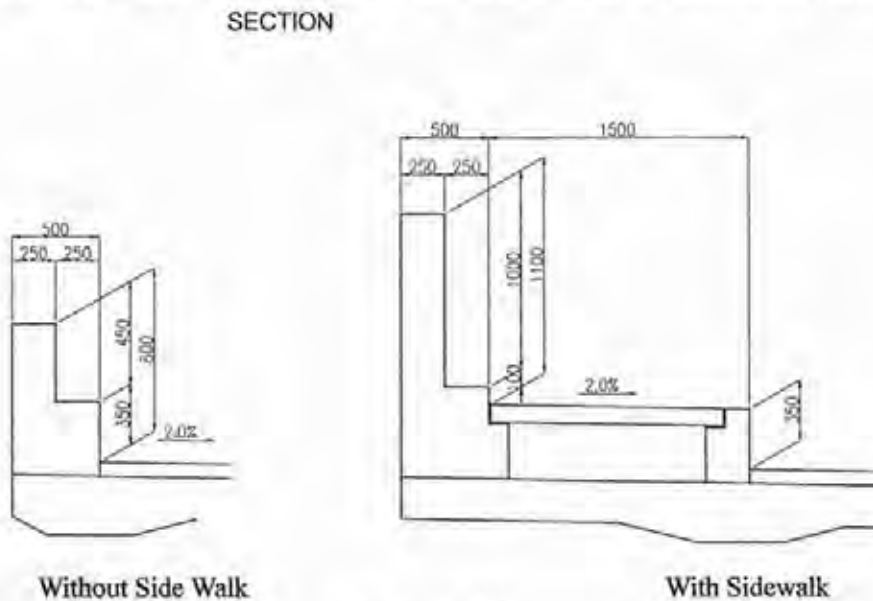
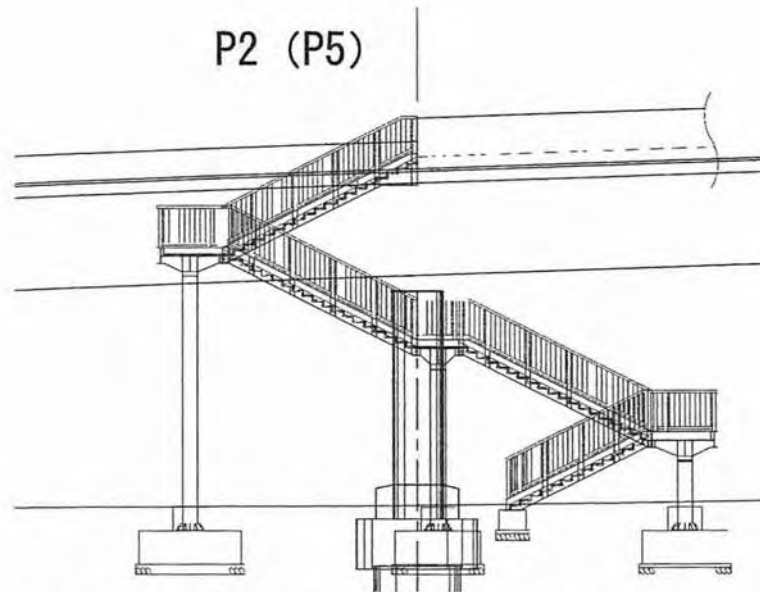


Figure-3 (1)



Note: The height of guard fence shall be change at the end side walk.

Figure-3 (2)

1.2 Details of Side Walk

The side walks are planned to be hollow section and covered by precast concrete panels for weight saving. The precast concrete panel is fixed on the slab by bolts. The panel is removable. Details of side walk and the utilization of space under the panel will be discussed and decided during detailed design.

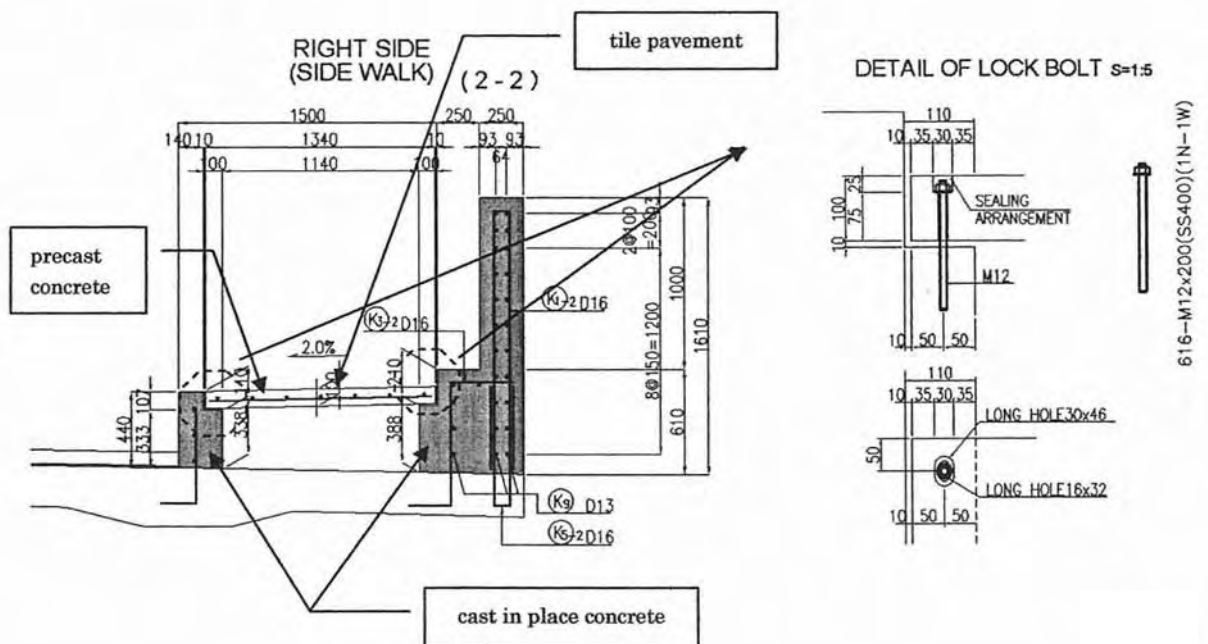
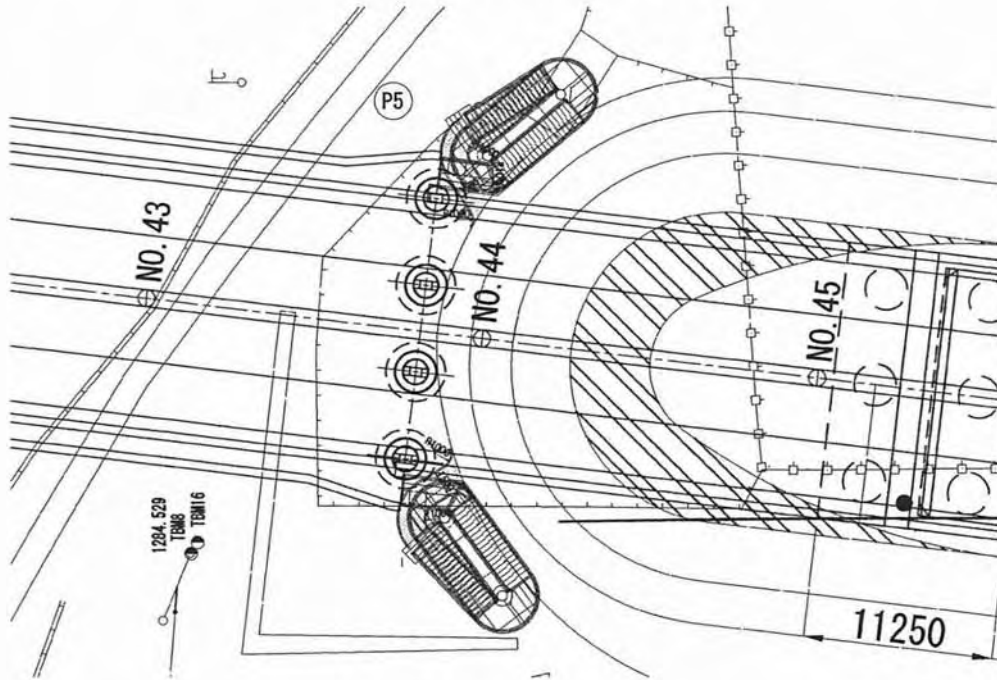
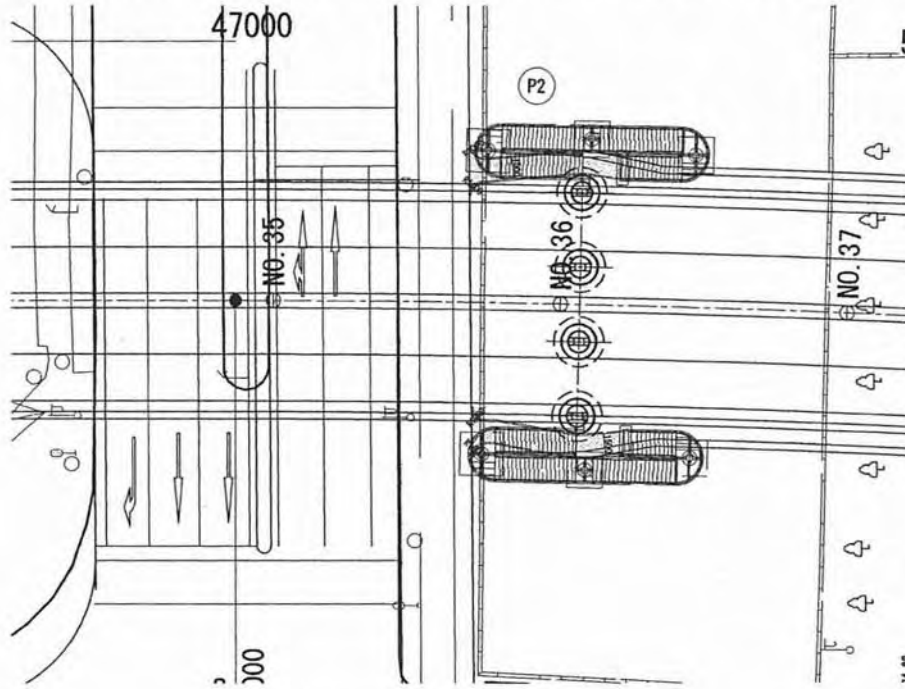


Figure-4

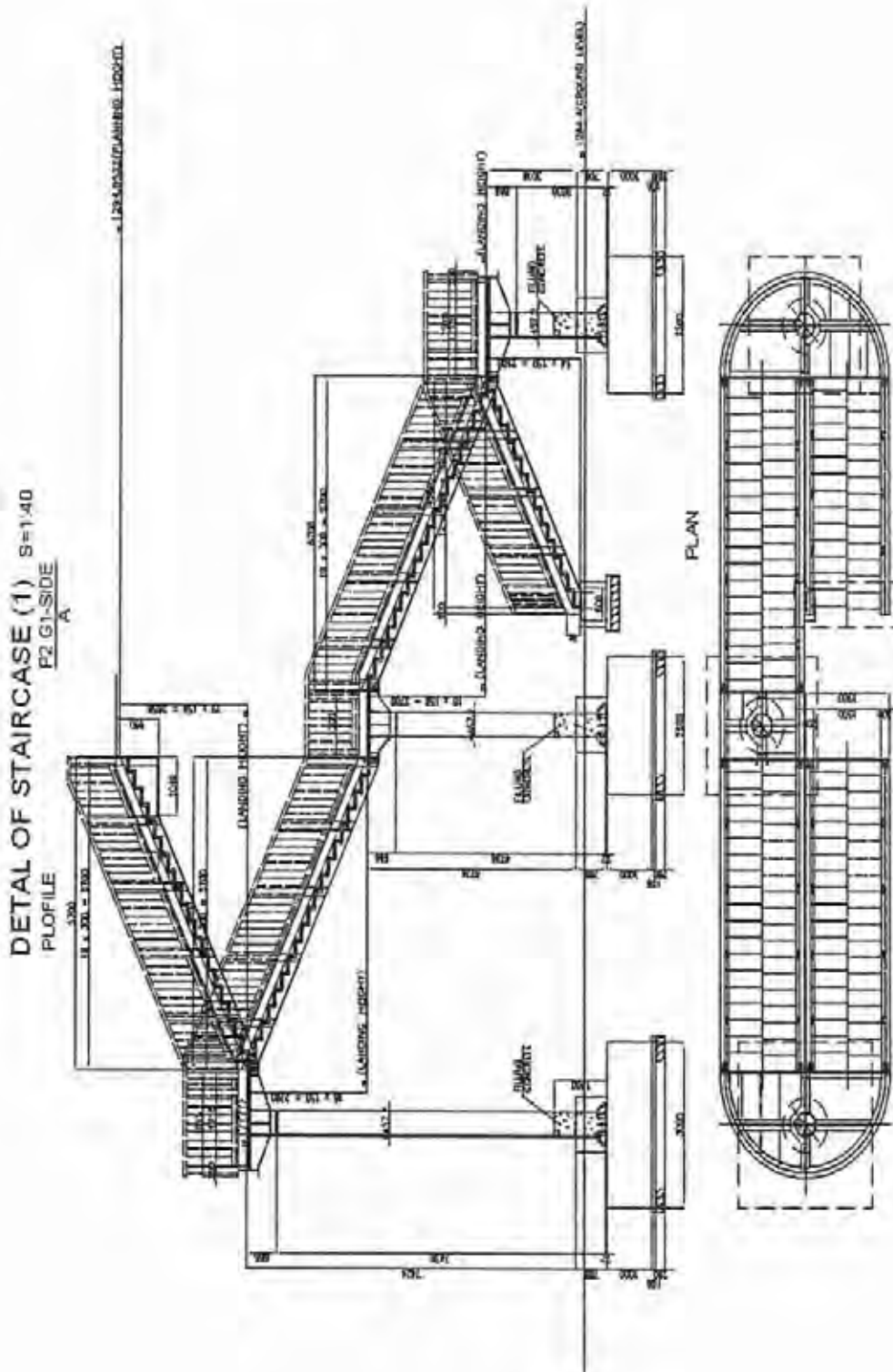
1.3 Stair Case

(1) Location and direction

4-Staircases are installed and details of the staircases are shown at Figure-5

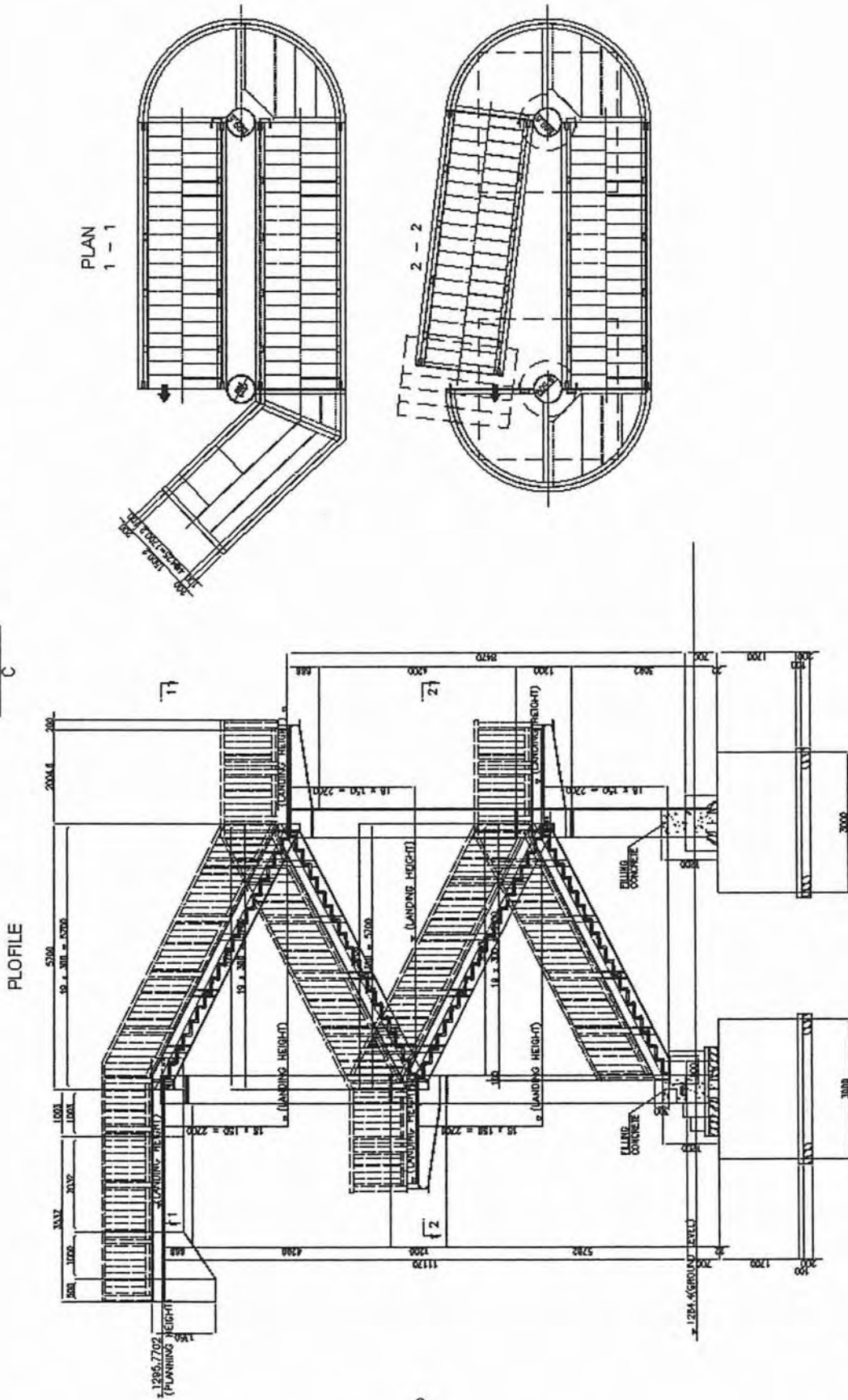


(2) Detail of Satire Case



DETAIL OF STAIRCASE (3) S=1:40

P5 G1-SIDE
C



1.3 Drainage Plan

(1) Drainage System

Drainage pipe are connected to the street drain at A1,P1,P2,P5,A2. The Drainage System are shown in Figure-6.

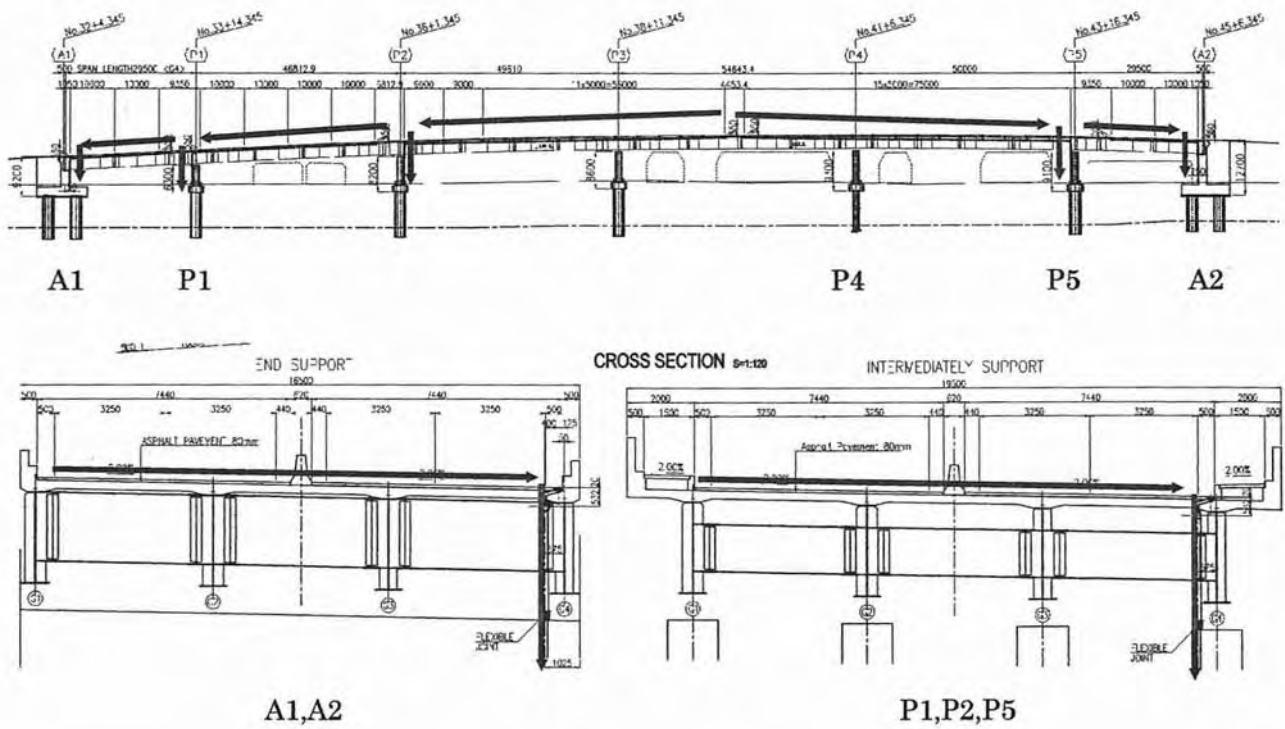


Figure-6

1.4 Heat Insulating plate

The Heating Insulating Plate shall be installed over the ordinary operation area only as shown in Figure-7.

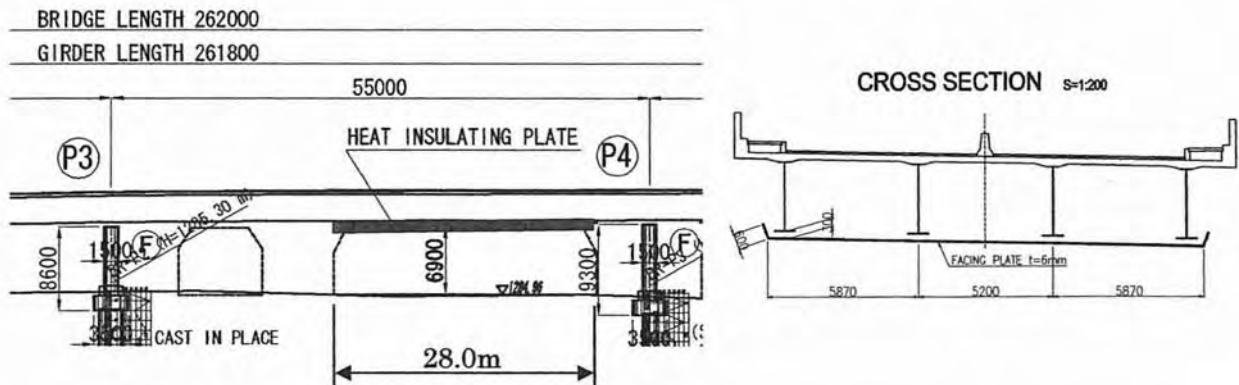
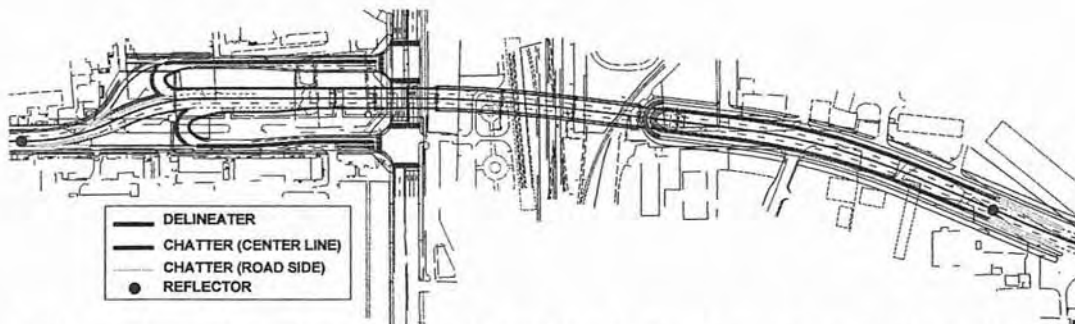


Figure-7

2. DETAILS OF ROAD STRUCTURES

- (1) Road Alignment (Plane and Vertical) including the channel at Ikh Toyruu shall be designed as shown in Basic Design Drawing BD-13 ~BD-19.
- (2) Width of Carriageway and Shoulder shall be designed as shown in Basic Design Drawing BD-20~BD-22.
- (3) Thickness of Pavement shall be designed as shown in Basic Design Drawing BD-20~BD-22.
- (4) End of Drainage (Existing Drainage) shall be designed as shown in Figure 2-2-4 of Draft Final Report.
- (5) Extent of Guard Rail and Guard Pipe shall be designed as shown in Figure 2-2-2 of Draft Final Report.
- (6) Extent of Delineator shall be set as below.



- (7) Dimension of Traffic Sign Board shall be designed as shown in Basic Design Drawing BD-37. (Location of the Sign Board shall be within 30m behind of subject intersections.)
- (8) Condition of Street Lighting shall be designed based on following specification.

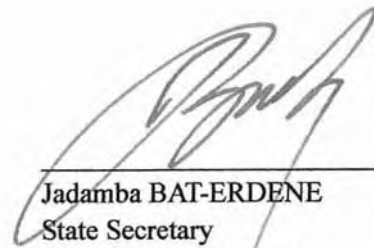
Item	Specification
Average Road Surface Luminance	>1.0 cd/m ²
Height of Lighting Pole	H=10m
Type of the Lump	High-pressure Sodium Lump(Light Flux F>15,000 lx)

✓

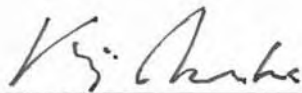
- (9) Benchmark of R.O.W shall be set to cover the road width shown in attached Basic Design Drawing before commencement of Detailed Design.

3. INTER-GOVERNMENTAL PROCEDURE

The Ministry shall issue the document to the Ulaanbaatar city to consummate the inter-governmental procedure for the use of the land for the project.



Jadamba BAT-ERDENE
State Secretary
Ministry of Road, Transport, Construction
and Urban Development
Mongolia



Kenji MARUOKA
Director General
Chief Consultant
JICA Basic Design Study Team



Choimpog BAT
General Manager of City
and Chief of the Mayor's Office
Ulaanbaatar City
Mongolia

あ



НИЙСЛЭЛИЙН ЗАСАГ ДАРГЫН ХЭРЭГЖҮҮЛЭГЧ АГЕНТЛАГ
АВТО ЗАМЫН ГАЗАР

210646 Улаанбаатар хот, Чингэлтэй дүүрэг,
Бага тойруу 15, Утас/факс (976-11) 32-44-98

2008-9-26 № 11798

танай _____-ны № _____-т

“ЖАЙКА” БАЙГУУЛЛАГЫН МОНГОЛ ДАХЬ
СУУРИН ТӨЛӨӨЛӨГЧИЙН ГАЗАР -Т

Зам, Тээвэр, Аялал Жуулчлалтын Яам,
Нийслэлийн Авто замын газраас Япон улсын
буцалтгүй тусламжаар баригдах Энгельсийн
гудамжнаас төмөр зам дээгүүрх гүүрэн гарц барихтай
холбогдуулан зохион байгуулсан сонирхогчдын
бүлгийн уулзалтын тэмдэглэлийг хүргүүлж байна.

ДАРГА

Д. БАТ-ЭРДЭНЭ

26 SEP 2008

636075

IN

USA

Information

Монгол улсын Улаанбаатар хотод Япон улсын засгийн газрын буцалтгүй тусламжаар баригдах төмөр зам дээгүүрх гүүрэн гарцыг барихтай холбогдуулан зохион байгуулж байгаа сонирхогчдын бүлгийн уулзалтын тэмдэглэл

Төмөр зам дээгүүрх гүүрэн гарцыг барихтай холбогдуулан зохион байгуулж байгаа сонирхогчдын бүлгийн уулзалт 2008 оны 9-р сарын 16-ны өдрийн 15 цагт Нийслэлийн төр захиргааны 3-р байрны 8 давхарын хурлын зааланд болов.

Уулзалтыг Зам, тээвэр, аялал жуулчлалын яам, Нийслэлийн авто замын газар хамтран зохион байгуулав.

Уулзалтанд оролцсон хүмүүсийн нэрсийн жагсаалтыг хавсаргав.

Уулзалтаар хэлэлцсэн асуудал:

д/д	Хэлэлцсэн асуудал	Танилцуулга хийсэн албан тушалтан
1	Төслийн тодорхойлолт, техник эдийн засгийн үндэслэл.	Нийслэлийн авто замын газрын орлогч дарга Л.Батцоож
2	Төслийн хүрээндэх хог хаягдлын менежмент.	Санни трейд ХХК-н мэргэжилтэн Б.Батболд
3	Нийгмийн асуудал.	Санни трейд ХХК-н мэргэжилтэн Б.Батболд
4	Байгаль орчинд нөлөөлөх байдлын нарийвчилсан үнэлгээ, орчны хяналт шинжилгээний хөтөлбөр.	Санни трейд ХХК-н мэргэжилтэн Б.Батболд
5	Төслийн эрсдлийн үнэлгээ	Санни трейд ХХК-н мэргэжилтэн Б.Батболд
6	Барилгын ажлын талбай чөлөөлөх асуудал	Нийслэлийн авто замын газрын орлогч дарга Л.Батцоож
7	Төслийн явцад Монгол талын гүйцэтгэх үүрэг	Нийслэлийн авто замын газрын орлогч дарга Л.Батцоож
8	Асуулт хариулт	

Хэлэлцүүлгийн дараахь асуулт хариулт:

Адьясүрэн: Энэ төслийн хувьд байгаль орчин талаасаа үзүүлэх сөрөг нөлөөлөл бага байгаа. Бид хотын авто зам, гүүрт анх удаа байгаль орчны үнэлгээ хийж байна. Цаашид хэрэгжих төслүүдэд байнга нарийвчилсан үнэлгээ хийлгэж байх хэрэгтэй. Байгаль орчинд нөлөөлөх нөлөөллийн хувьд бага гэж гарсан. Үнэлгээний дүгнэлтийг анхаарах нь зүйтэй.

Гүнтэвсүрэн: Гүүрэн гарц гүүр хоёрын ялгаа нь юу вэ, явган зорчигчын замын өргөн хэд вэ, гүүрийн өндөр нь тохирч байгаа юу?

Л.Батцоож: Явган замын хувьд хоёр талдаа 1.5 метрээр төлөвлөгдсөн байгаа. Гүүрэн гарц гэдэг нь хоёр өөр төвшинд огтлолцож байгаа замын байгууламж учраас тэгж нэрлэгдэж байгаа юм. Та бүхэнд дуулгахад зөвлөх компани шалгарсан гэдгийг энэ ялдамд хэлье. Гүүрийн өндөрийн хувьд замын зорчих хэсгээс дээш гүүрийн хамгийн доод талын хийц хүртэл 5м, төмөр зам дээгүүр гарахдаа 6,4 м гэдэг бол хангалттай гэж үзэж байна.

Х.Ламжав: Дунд голын гүүрийн баруун урд “мебелийн 12 айл” байдаг. Тэр айлуудын ая тухтай байдал алдагдах уу?, Хотын ерөнхий төлөвлөгөөтэй уялдсануу? - Тээврийн товчооны шар байрнуудыг буулгаад 9 давхар байр барина гэж байгаа тэр хавийн оршин суугчид яах вэ? Сүхбаатар дүүрэг талдаа бол гайгүй байх.

Л.Батцоож: Манай энэ төслийн хүрээнд баригдах гүүр болон 2 талаасаа холбогдох замын трасст ороогүй бол бид хөндөхгүй. Харин трасст орсон тээврийн товчооны шар байшингуудын залгаа барьсан өргөтгөлүүдийг шилжүүлж барилгын талбайг чөлөөлнө. Бид энэ гүүртэй холбох 2 талын замыг нийслэлийн өөрийн хөрөнгөөр инженерийн байгууламжтай нь хамт цогцоор барина. Барилгын талбайд ороогүй газруудыг НГА болон хот төлөвлөлтийн газар мэдэж байгаа. УБ хотын ерөнхий төлөвлөгөөтэй уялдсан.

Батболд: Манай байгууллага нарийвчилсан үнэлгээ хийхдээ судалгаа хийж тухайн орчны оршин суугчидтай уулзаж санал бодлыг нь сонссон. Нөлөөлөх зүйл байхгүй гэж үзсэн.

Сугарбат: Энэ төслийн гол зорилго бол иргэдийнхээ ая тухтай байдлыг хангахын тулд л хэрэгжүүлэх гэж байгаа юм .

Ө.Алтантоль: Энэ 2 талын замд явган хүний нүхэн гарц гэж байгаа юу?

Гантөмөр: Энэ зам нь “Нарны зам” шиг болох юм. Дээгүүр нь гарцын тэмдэглэгээтэй, цаашдаа нүхэн гарц төлөвлөгдөж болох байх.

Л.Батцоож: Төмөр замын газрын холбогдох хүмүүстэй ярилцаж тохирсон. 1-р ангийн хашаанд гүүрийн тулгуур л орж ирнэ, тээврийн товчооны талбай барилгын талбайд орно.

Д.Доржцоо: Гүүрийн өндөр төмөр зам дээгүүр 6,4м гэж байна. Төмөр зам урагшаа эргэсэн салаа орчимд төгсгөл хэсэгтээ хэд байх вэ?

Л.Батцоож: Гүүрэн гарц нь төмөр зам дээгүүр гарахдаа 6,4 м байгаа ба 2 талруугаа буухдаа 5,4% налуутай бууна.

Д.Оюунцэцэг: Тээврийн товчооны автобусны буудлын хажууд байгаа жижиг ТҮЦ-үүдийг яах вэ?

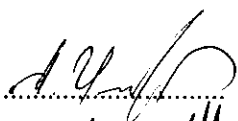
Л.Батцоож: Тэдгээр ТҮЦ-үүд болон байшинд залгаж барьсан жижиг барилгууд зам барилгын талбайд орж байгаа тул чөлөөлөх арга хэмжээ авна.

Ч. Однасан: САПУ сүүний төвийн хажууд байдаг шинэ байрнууд яах вэ? 9 давхар байрнуудын доор байдаг.

Л.Батцоож: Тэр байрнууд хамаарахгүй. Өөр асуулт байна уу?

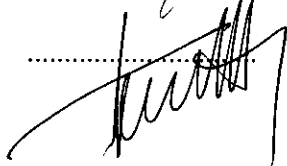
Х.Ламжав: Энэ төслийг иргэд бид нар дэмжиж байна энэ гүүр баригдсанаар манай дүүрэг хорооны оршин суугчид болоод нийслэл хотын маань ард иргэдэд ихээхэн ач тустай юм наанадаж тээвэр унаанаас эхлүүлээд эдийн засгийн хувьд ч их ашиг тустай байх, ингээд энэ төслийг санаачлан хэрэгжүүлж байгаа бүх хүмүүст ажлын амжилт хүсье.

Тэмдэглэл хөтөлсөн



/Л.Цэрэнбат/

Танилцсан



/Л.Батцоож/

Сонирхогчдын бүлгийн уулзалтанд оролцсон хүмүүс:

- Х.Гантөмөр – Зам, Тээвэр, Аялал Жуулчлалын Яамны
Авто замын газрын орлогч дарга
- Д.Загдраднаа - Зам, Тээвэр, Аялал Жуулчлалын Яамны
Авто замын газрын мэргэжилтэн
- Г.Сугарбат – Нийслэлийн засаг даргын тамгын газрын
Хотын хөгжлийн бодлогын хэлтсийн мэргэжилтэн
- Ч. Однасан- Нийслэлийн өмчийн харилцааны газрын дарга
- Г.Гансүрэн – Нийслэлийн өмчийн харилцааны газрын мэргэжилтэн
- Л.Батцоож - Нийслэлийн авто замын газрын орлогч дарга
- Г.Баттогтох- Нийслэлийн авто замын газрын
Зам барилгын хяналтын хэлтсийн дарга
- Н.Сэмжид - Нийслэлийн мэргэжлийн хяналтыг газрын улсын байцаагч
- О.Алтангэрэл - Нийслэлийн байгаль орчны газрын мэргэжилтэн
- Ш.Амгаланбаяр-Нийслэлийн захирагчийн ажлын албаны
инженерийн байгууламжийн хэлтсийн дарга
- А.Энхпүрэв – Нийслэлийн захирагчийн ажлын албаны
инженерийн байгууламжийн хэлтсийн мэргэжилтэн
- Л.Гүнтэвсүрэн - Замын цагдаагийн газрын хөдөлгөөн зохион
байгуулалтын хэлтсийн ахлах байцаагч дэд хурандаа
- Адьяасүрэн- “Санни трейд “ ХХК-ийн захирал
- Д.Одонцэцэг- “Санни трейд “ ХХК-ийн мэргэжилтэн
- Ч.Чулуунцэцэг-“Санни трейд “ ХХК-ийн мэргэжилтэн
- Б.Батболд- “ Санни трейд “ ХХК-ийн мэргэжилтэн
- Г. Диваажавзах - Баянгол дүүрэг Эрч Сууц Өмчлөгчдийн холбоо
- Н. Самьяа- Чандмань-Эрдэнэ Сууц Өмчлөгчдийн Холбоо
- Х. Ламжав – Баянгол дүүргийн 3-р хорооны Засаг дарга
- Ө. Алтантоль- Баянгол дүүргийн 3-р хорооны байцаагч
- Ш.Чулуунцэцэг- Хан-Уул дүүрэг 3-р хорооны иргэн
- Д.Доржцоо - Хан-Уул дүүрэг 3-р хорооны иргэн
- С.Шараа - Хан-Уул дүүрэг 3-р хорооны иргэн
- М.Наянтай- Хан-Уул дүүрэг 3-р хорооны иргэн
- Ж.Балжмаа - Хан-Уул дүүрэг 3-р хорооны иргэн
- Д.Оюунцэцэг- Сүхбаатар дүүрэг 5-р хорооны иргэн
- Г.Цогзолмаа- Сүхбаатар дүүрэг 5-р хорооны иргэн

あ



Г ЖАЙКА БАЙГУУЛЛАГЫН МОНГОЛ
ДАХЬ СУУРИН ТӨЛӨӨЛӨГЧИЙН
ГАЗАРТ

НИЙСЛЭЛИЙН ЗАСАГ ДАРГЫН ХЭРЭГЖҮҮЛЭГЧ АГЕНТЛАГ
НИЙСЛЭЛИЙН ГАЗРЫН АЛБА

210646 Улаанбаатар хот, Чингэлтэй дүүрэг,
Бага тойруу 15, Нийслэлийн төр захиргааны III байр,
Утас: 32-50-43, Факс: (976-11) 32-89-76

2008.10.02 № 9/1899.
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Г Гүүрэн гарцын ажлын явцын тухай Г

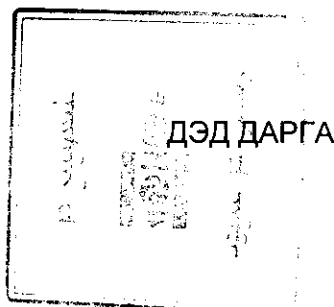
Улаанбаатар хотыг 2020 он хүртэл хөгжүүлэх ерөнхий төлөвлөгөө болон авто замыг сайжруулах мастер төлөвлөгөөнд тусгагдсан "Үндсэн хуулийн гудамжийг Энгельсийн гудамжтай холбох гүүрэн гарц"-ыг Япон улсын буцалтгүй тусламжаар 2009 оноос эхлэн хэрэгжүүлэхээр хоёр улсын Засгийн газрын хооронд санамж бичигт гарын үсэг зурсны дагуу нийслэлийн Засаг даргын 2005 оны 338 дугаар захирамжаар тус гүүрэн гарцын байршлыг тогтоож, газар эзэмшүүлэх эрх олгосон.

Үүний дагуу гүүрэн гарц тавигдах трасст орсон иргэн аж ахуйн нэгж байгууллагуудын судалгааг гаргасан бөгөөд нийт 11 аж ахуйн нэгж орсноос одоогийн байдлаар Нийслэл Засаг даргын захирамжтай 2, дүүргийн Засаг даргын захирамжтай 1 аж ахуй нэгжийн байршлыг нь шилжүүлж, өөрийн эзэмшлийн газраас хэтрүүлж зөвшөөрөлгүй хашаагаа сунгасан 2 аж ахуй нэгжид мэдэгдэл өгч хашааг татуулж, нийтийн эзэмшлийн 3 хэсэг газрын талбайг гүүрэн гарцын талбайн эзэмшилд ашиглах боломжтойгоор тус тус бүрэн чөлөөлсөн болно.

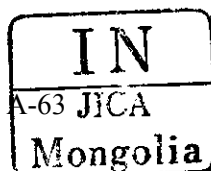
Харин гүүрэн гарцын трасст орсон нийслэлийн Засаг даргын захирамжтай Цагаан ноён ХХК-ны трассын шугаманд орсон хэсгийг татуулах, иргэн Г.Заяа, Төмөрмөнх нарын газрын байршлыг шилжүүлэх болон захирамж хүчингүй болгож газар чөлөөлөх асуудлыг төлөвлөсөн хугацаанд шийдвэрлэх боломжтой юм.

Иймд манай албаны зүгээс дээрх гүүрэн гарцын трассын шугаманд орсон иргэн аж ахуй нэгж байгууллагуудыг нүүлгэн газар чөлөөлөх ажлыг төлөвлөгөөт хугацаанаас өмнө гүйцэтгэж байгаа бөгөөд цаашид үргэлжлүүлэн явуулахад бүхий талын арга хэмжээг авч ажиллах болно.

Хавсралтаар иргэн аж ахуй нэгжийн судалгаа, зургийг хүргүүлэв. /хуудас 6/
Хувийг Нийслэлийн Авто замын газарт



М.БУЯНДЭЛГЭР



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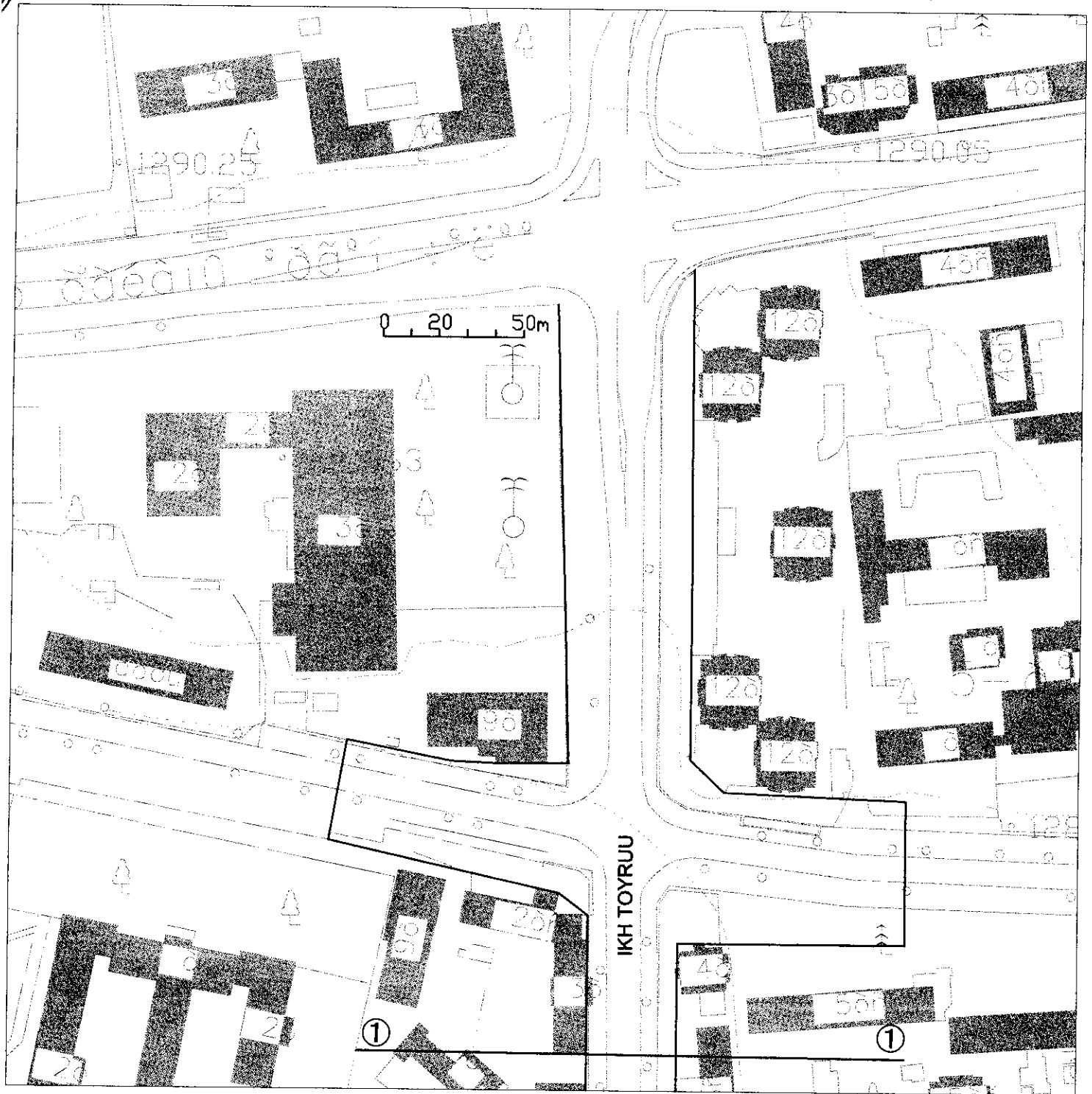
Япон улсын Засгийн газрын буцалтгүй тусламжаар Энгельсийн гудамжны чиглэлд баригдах гүүрэн гарцын трасст орсон иргэн аж ахуй нэгжүүдийг нүүлгэн шилжүүлэх тухай ажлын төлөвлөгөө, газар чөлөөлсөн тухай ажлын явц

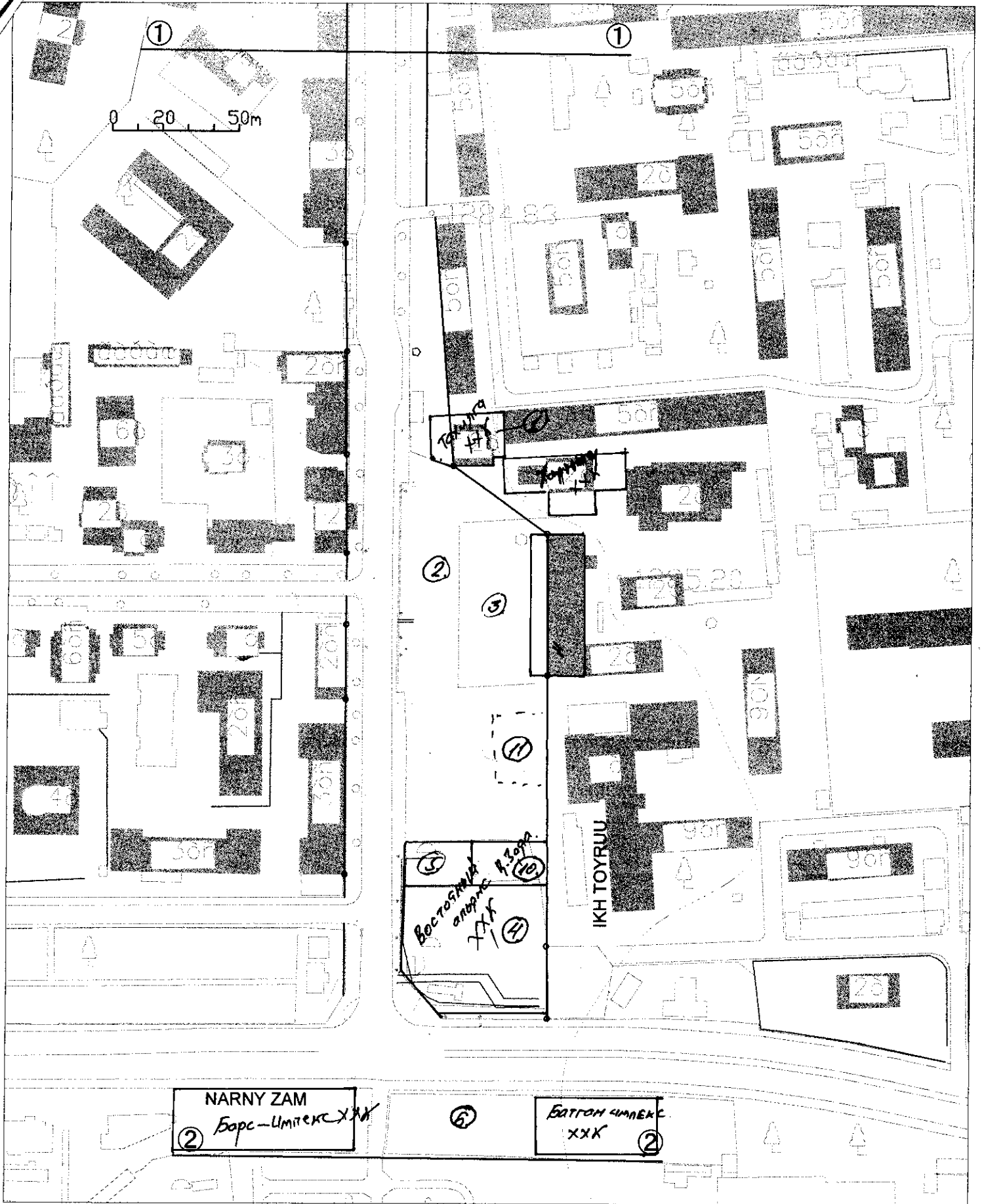
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Д/д	Объектын нэр	Хорооны дугаар	Захирамжийн дугаар	Талбай /м2/	Гүүрэн гарцын трасст орсон газрын байршлууд	Газар чөлөөлөх хугацаа	Газар чөлөөлөх талбай хийсэн ажлын тайлан
1	Тахилга ХХК	СБД 5-р хороо	2003-06-09 248	500	Захирамжаар олгогдсон талбайгаас илүү газар хашаа барьсан, зөвшөөрөлгүй 1 павильон тавьсан	2009 оны Эхний хагас жилд	Өөрийн эзэмшиж буй талбайгаас илүү гарагж хашаа барьсан, илүү барьсан хашааг буулгах боломжтой
2	Нийтийн эзэмшлийн талбай	СБД 5-р хороо			Нийтийн эзэмшлийн талбай		Нийтийн эзэмшлийн талбай учир талбай ашиглах боломжтой
3	Нийтийн эзэмшлийн	СБД 5-р хороо			Тээврийн газарт олгохоор төлөвлөж буй газар, Тээврийн газрын урд талын хэсэг талбай	2009 оны Эхний хагас жилд	Нийтийн эзэмшлийн талбай учир талбай ашиглах боломжтой
4	Восточный Альянс ХХК	СБД 5-р хороо	2007-05-02 81	2612	Захирамжаар олгосон талбайг өөр байршилд шилжүүлэх тухай уг компаны эзэнтэй уулзаж тохиролцох	2009 оны Эхний хагас жилд	СБД-н нутаг дэвсгэр дэх газрын байршлыг НЗД-ын 2008 оны 291 дугаар захирамжаар БГД-н нутаг дэвсгэрт шилжүүлж газар чөлөөлсөн.
5	Нийтийн эзэмшлийн	БГД 3-р хороо					Нийтийн эзэмшлийн талбай учир талбай ашиглах боломжтой
6	Төмөр замын удирдах газрын орон сууцны контор	БГД 3-р хороо			Төмөр замын газарт хамаардаг нийтийн эзэмшлийн зориулалттай	Төмөр замын газарт баталгаажигдсан талбай тодорхойгүй	Нийтийн эзэмшлийн талбай учир талбай ашиглах боломжтой /Төмөр замтай тохиролцох боломжтой/
7	Оюун-эрдэнэ	БГД 3-р хороо	ДЗД 2004 он 2004 оны 302 "Газар эзэмшүүлэх төсөл сонгон шалгаруулах" захирамжтай		Хашаа барьсан хоосон газар	ДЗД-ийн 2005 оны 75 тоот захирамжаар хүчингүй болгосон	Газар эзэмших эрх нь хүчингүй болж газар чөлөөлсөн.
8	С. Хайсанбуу	БГД 3-р хороо		1544	Талбай багасгах талаар тохиролцох	2009 оны Эхний хагас жилд	Одоогийн байгаа талбайг зүүн тийш шилжүүлж газар чөлөөлсөн.

9	Цагаан ноён ХХК	БГД 3-р хороо	2006 оны 87 Тоот	155133	Талбай багасгах талаар болон байшинг нь Нийслэлийн өмчийн газраар үнэлүүлж үнэлгээ дээр тухай тохиролцох	2009 оны Эхний хагас жилд	Гүүрэн гарцын трасст орсон хэсгийг тохиролцож газар чөлөөлөх боломжтой.
10	Г.Заяа	СБД 5-р хороо	2003 оны 485	280	Газрын байршил шилжүүлэх тухай тохиролцох	2009 оны Эхний хагас жилд	Төлөвлөсөн хугацаанд газрын байршил шилжүүлэх болон захирамж хүчингүй болгож газар чөлөөлөх боломжтой
11	иргэн Төмөрмөнх		ДЗДЗахирамж		Газрын байршил шилжүүлэх тухай тохиролцох	2009 оны Эхний хагас жилд	Төлөвлөсөн хугацаанд газрын байршил шилжүүлэх болон захирамж хүчингүй болгож газар чөлөөлөх боломжтой

Нийслэлийн Газрын алба





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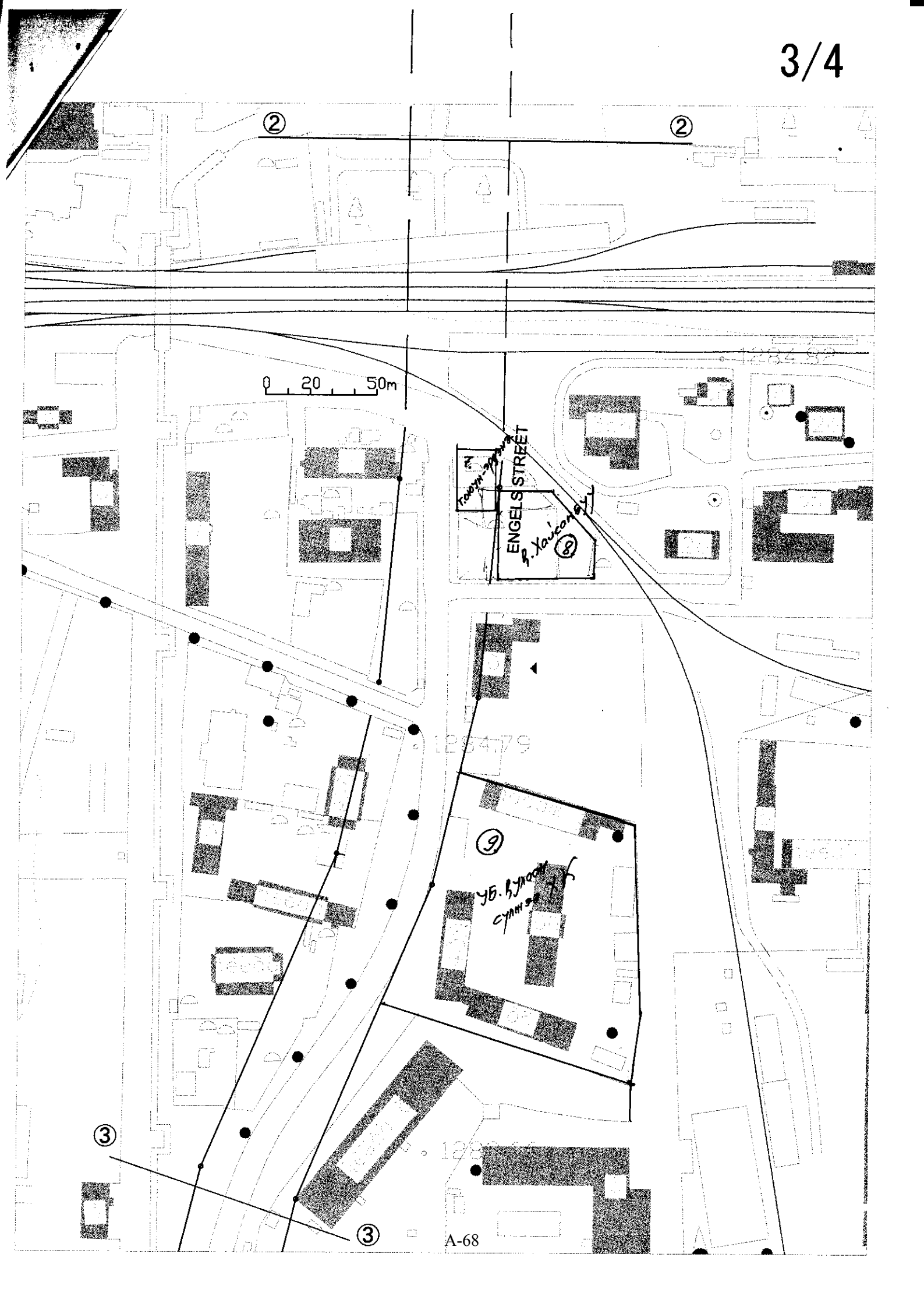
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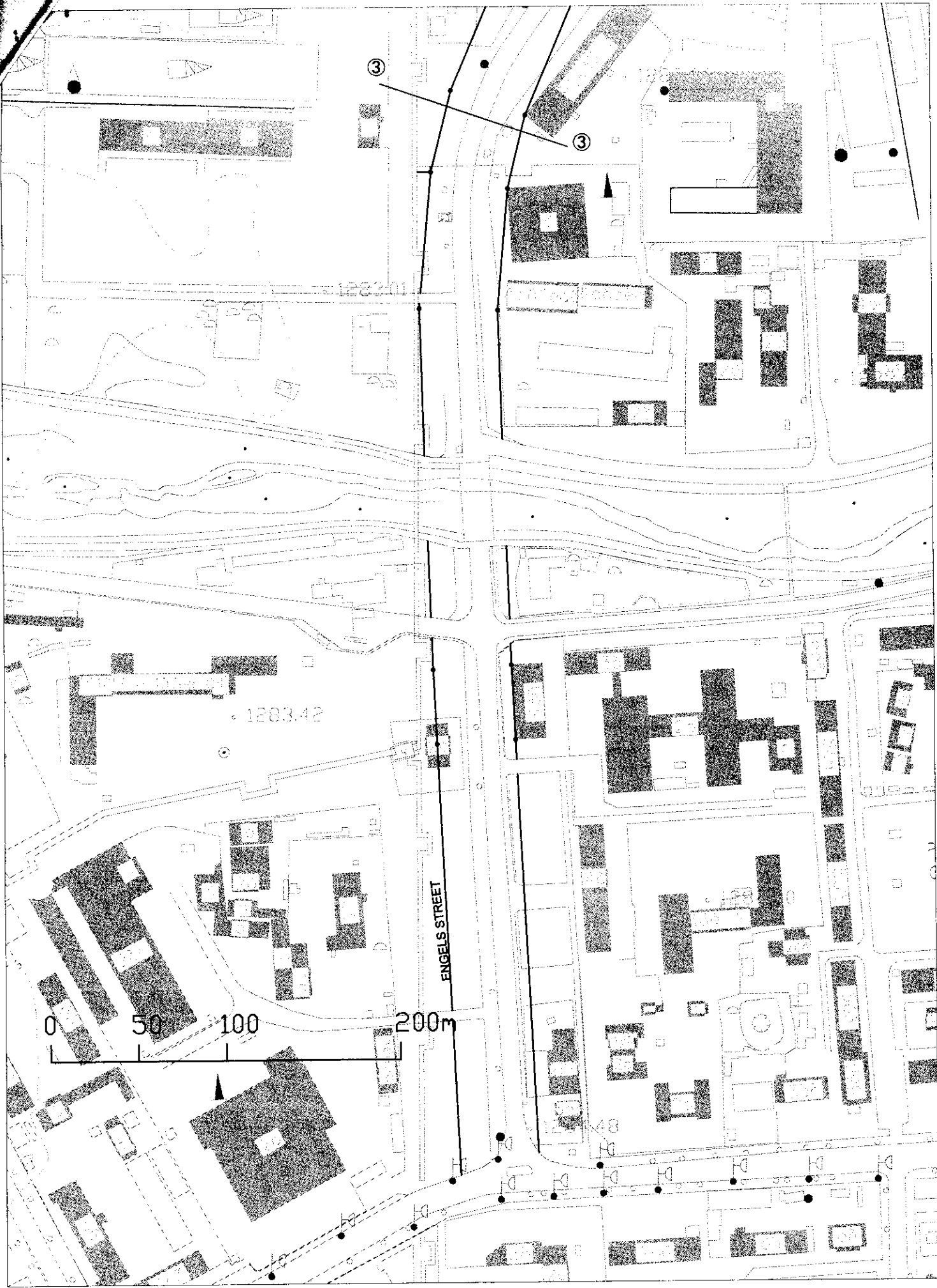
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