

資 料

- 資料 1 調査団員・氏名
- 資料 2 調査行程
- 資料 3 関係者(面会者)リスト
- 資料 4 討議議事録(M/D)
- 資料 5 事業事前計画表(基本設計時)
- 資料 6 参考資料/入手資料リスト
- 資料 7 その他の資料/情報

資料 1. 調査団員・氏名

(1) 現地調査時

表 A-1 調査団員名簿（現地調査時）

担 当	氏 名	所 属
総括	長谷川 謙	国際協力機構 タジキスタン駐在員事務所 駐在員
計画管理	坂部 英孝	国際協力機構 無償資金協力部 業務第一 グループ 運輸交通・電力チーム
業務主任／道路交通計画／ 運営・維持管理計画	森田 秀明	(株) 建設企画コンサルタント
道路設計 I	小石川 一晴	(株) 建設企画コンサルタント
道路設計 II／道路構造物 (付帯工)	清水 伸晴	(株) 建設企画コンサルタント
自然条件調査(地形・地質)	古賀 功次	(株) 建設企画コンサルタント
施工計画／積算	大窪 保弘	(株) 建設企画コンサルタント
通訳(ロシア語)	浅野 凶夢	(株) 建設企画コンサルタント
道路維持管理／機材計画／ 研修計画	蒲池 一比古	(株) 建設企画コンサルタント

(2) 基本設計概要説明時

表 A-2 調査団員名簿（基本設計概要説明時）

担 当	氏 名	所 属
総括	長谷川 謙	国際協力機構 タジキスタン駐在員事務所 駐在員
計画管理	坂部 英孝	国際協力機構 無償資金協力部 業務第一 グループ 運輸交通・電力チーム
業務主任／道路交通計画／ 運営・維持管理計画	森田 秀明	(株) 建設企画コンサルタント
道路設計 I	小石川 一晴	(株) 建設企画コンサルタント
通訳(ロシア語)	浅野 凶夢	(株) 建設企画コンサルタント

資料 2. 調査行程

(1)現地調査時：平成 19 年 6 月 12 日～7 月 21 日

表 A-3 調査工程（現地調査時）(1/2)

日付 (2007年)	①総括 長谷川 謙	②計画管理 坂部 英孝	③業務主任/道路交通計画/ 運営・維持管理計画 森田 秀明		④道路設計I 小石川 一晴		
			スケジュール	滞在地	スケジュール	滞在地	
1			Tokyo1330 → Seoul1555(OZ101) Seoul 1730→ Tashkent2110(OZ573)	Tokyo1330 → Seoul1555(OZ101) Seoul 1730→ Tashkent2110(OZ573)	UZU (Radi)	Tokyo1330 → Seoul1555(OZ101) Seoul 1730→ Tashkent2110(OZ573)	UZU (Radi)
2			0830 Visit to JICA Uzbekistan Office (for Tajikistan VISA) Tashkent1315 → Termez1515 (HY1153) Termez1530 → (Border 1730) → DSBhanbe1900, Supper JICA rep./dep. Rep.	0830 Visit to JICA Uzbekistan Office (for Tajikistan VISA) Tashkent1315 → Termez1515 (HY1153) Termez1530 → (Border 1730) → DSBhanbe1900, Supper JICA rep./dep. Rep.	DSB1 (Tajik)	0830 Visit to JICA Uzbekistan Office (for Tajikistan VISA) Tashkent1315 → Termez1515 (HY1153) Termez1530 → (Border 1730) → DSBhanbe1900, Supper JICA rep./dep. Rep.	DSB1 (Tajik)
3			AM 8:40 hotel to JICA : Meeting w/ JICA Office PM: C/C on Embassy of Japan, Ministry of Transport	am : JICA, EOJ pm : MOTC	DSB2	am : JICA, EOJ pm : MOTC, Nego.	DSB2
4			AM: Meeting w/ Min. of Transport (Explanation of Inception Report) PM: C/C on ADB Resident Office	am : MOTC(Incep.) pm : ADB(Concept)	DSB3	am : MOTC (Nego) pm : ADB	DSB3
5			Site Survey	Site Survey	DSB4	Site Survey	DSB4
6			Internal Meeting & Document Arrangement	Internal Meeting	DSB5	Internal Meeting	DSB5
7			Discussion w/ MOT	am,pm : MOTC, Route fix, 22jun, start invest.	DSB6	am,pm : MOTC, Route fix, 22jun, start invest.	DSB6
8				am,pm : MOTC, Route fix, 22jun, start invest.	DSB7	am,pm : MOTC and other, Nego.	DSB7
9			Discussion w/ MOT on M/D	am : MOTC→M/D pm : MOTC→M/D	DSB8	am : MOTC→M/D pm : MOTC→M/D	DSB8
10			AM: Finalization and Signing of M/D PM: Report to EOJ, Meeting w/ JICA Tajikistan Office	am : MOTC M/D sign pm : EOJ, JICA	DSB9	am : MOTC M/D sign pm : EOJ, JICA	DSB9
11			DSBhanbe0600 → (Border0730) → Termez1030 Termez 1135 → Tashkent 1320 (HY1152) 1600: Report to JICA Uzbekistan Office Midnight: Tashkent 2230→ (OZ574) → Seoul 0850 (OZ574)	Site, Investigation	Kur1	am pm : MOTC	DSB10
12			→ Seoul 0850 (OZ574) Seoul 1000 → Tokyo 1210 (OZ102)	Site, Benkel 1	Kur2	am pm : MOTC	DSB11
13				Site, Benkel 2	Kur3	Site, Boring 2	DSB12
14				Site, Benkel 3	Kur4	Site, Boring 3	DSB13
15				Site, Benkel 4	Kur5	Site, Boring 4	DSB14
16				Site, Benkel 5	Kur6	Site, Boring 5	DSB15
17				Site, Benkel 6	Kur7	JICA15:00	DSB16
18				JICA11:00	Kur8	Site, Boring 7	Kur1
19				Site, Benkel 8	Kur9	Site, Boring 8	Kur2
20				Internal Meeting	Kur10	Internal Meeting	Kur3
21				am : ADB pm : ADB	Kur11	Site, Inentry	Kur4
22				am-pm : MOTC	Kur12	am-pm : MOTC	Kur5
23				JICA11:00	Kur13	am-pm : MOTC	Kur6
24				Site Survey	DSB10	Site, Inentry	Kur7
25				Site Survey	DSB11	Site, Inentry	Kur8
26				Site Survey	DSB12	Site, Inentry	Kur9
27				Internal Meeting	DSB13	Internal Meeting	Kur10
28				am-pm : MOTC	DSB14	Site, Inentry	Kur11
29				Collection of Information(MOTC)	DSB15	Collection of Information(MOTC)	DSB17
30				am-pm : MOTC	DSB16	am-pm : MOTC	DSB18
31				JICA10:00	DSB17	Estimate correction	DSB19
32				Dshanbe0600 → (Border0730) → Termez → Tashkent 1500, 1600: Report to JICA Uzbekistan Office, Midnight: Tashkent 2230→ (OZ574)		Estimate correction	DSB20
33				→ Seoul 0850 (OZ574), Seoul 1000 → Tokyo 1210 (OZ102)		Estimate correction	DSB21
34						Estimate correction	DSB22
35						Estimate correction	DSB23
36						Estimate correction	DSB24
37						Estimate correction	DSB25
38					JICA10:00		DSB26
39						Dshanbe0600 → (Border0730) → Termez → Tashkent 2000, Midnight: Tashkent 2230→ (OZ574)	
40						→ Seoul 0850 (OZ574), Seoul 1000 → Tokyo 1210 (OZ102)	

凡例 : DSB=ドシャンベ、Kur=クルガンチュベ、Dus=ドスティ

表 A-4 調査工程（現地調査時） (2/2)

日付 (2007年)	⑤道路設計山道路構造物(付帯工) 清水 伸晴		⑥自然条件調査(地形・地質) 古賀 功次		⑦施工計画/積算 大窪 保弘		⑧道路維持管理/構材計画/研修計画 瀧池 一比古		⑨通訳(ロシア語) 浅野 園夢	
	スケジュール	所在地	スケジュール	所在地	スケジュール	所在地	スケジュール	所在地	スケジュール	所在地
1	12	火								
2	13	水								
3	14	木								
4	15	金								
5	16	土								
6	17	日								
7	18	月								
8	19	火	Tokyo1330 → Seoul1555(OZ101) Seoul 1730 → Tashkent2110(OZ573)	UZU (Rad)						
9	20	水	0830 Visit to JICA Uzbekistan Office (for Tajikistan VISA) Tashkent1315 → Termez1515 (HY1153) Termez1530 → (Border 1730) → DSBhanbe1900	DSB1 (Tajik)	am/pm: Site, marking	DSB8	0830 Visit to JICA Uzbekistan Office (for Tajikistan VISA) Tashkent1315 → Termez1515 (HY1153) Termez1530 → (Border 1730) → DSBhanbe1900	DSB1 (Tajik)	am: MOTC → M/D pm: MOTC → M/D	DSB8
10	21	木	am: MOTC M/D sign pm: E.OJ. JICA	DSB2	Equip. Check	DSB9	am: MOTC M/D sign pm: E.OJ. JICA	DSB2	am: MOTC M/D sign pm: JICA, MOTC	DSB9
11	22	金	am/pm: MOTC	DSB3	Site, Water flow check	Kur1	am/pm: MOTC	DSB3	Site(day return) check	DSB3
12	23	土	am/pm: MOTC	DSB4	Site, Water flow check	Kur2	am/pm: MOTC	DSB4	am/pm: MOTC	DSB11
13	24	日	Site, Pit 2	Kur1	Site, Survey 2	Kur3	Site, Investigation	Kur1	Site(day return) check	DSB5
14	25	月	Site, Pit 3	Kur2	Site, Water flow check	Kur4	Site, Investigation	Kur2	MOTC/ADB/EBRD	DSB6
15	26	火	Site, Pit 4	Kur3	Site, Water flow check	Kur5	Request estimate	DSB5	Site(day return) check	DSB7
16	27	水	Site, Pit 5	Kur4	Site, Water flow check	Kur6	Request estimate	DSB6	Site(day return) check	DSB8
17	28	木	Site, Pit 6	Kur5	Sta. Invent., Survey1	Kur7	Request estimate	DSB7	JICA15.00	DSB9
18	29	金	Site, Pit 7	Kur6	Sta. Invent., Survey2	Kur8	Price Investigation	DSB8	Dshambe600 → (Border0730) → Termez → Tashkent 1500, Midnight, Tashkent 2230 → (OZ574)	
19	30	土	Site, Pit 8	Kur7	Sta. Invent., Survey3	Kur9	Site(day return) check	Kur3	→ Seoul 0850 (OZ574), Seoul 1000 → Tokyo 1210 (OZ102)	
20	1	日	Internal Meeting	Kur8	Internal Meeting	Kur10	Site日帰り, check	Kur4		
21	2	月	Site, Inventory	Kur9	Sta. Invent., Survey4	Kur11	Price Investigation	Kur5		
22	3	火	Site, Inventory	Kur10	Sta. Invent., Survey5	Kur12	Price Investigation	Kur6		
23	4	水	Site, Inventory	Kur11	Sta. Invent., Survey6	Kur13	JICA11.00	DSB10		
24	5	木	Site, Inventory	Kur12	Sta. Invent., Survey7	Kur14	Dshambe600 → (Border0830) → Termez1130, Termez 1215 → Tashkent 1320 (HY), 1600. Report to JICA Uzbekistan Office, Tashkent 2230 → (HY)			
25	6	金	Site, Inventory	Kur13	Sta. Invent., Survey8	Kur15	→ Tokyo 0800 (HY)			
26	7	土	Site, Inventory	Kur14	Sta. Invent., Survey9	Kur16				
27	8	日	Internal Meeting	Kur15	Internal Meeting	Kur17				
28	9	月	Site, Inventory	Kur16	Sta. Invent., Survey10	Kur18				
29	10	火	Site, Inventory	Kur17	Sta. Invent., Survey11	Kur19				
30	11	水	Site, Inventory	Kur18	Sta. Invent., Survey12	Kur20				
31	12	木	Site, Inventory	Kur19	Sta. Invent., Survey13	Kur21				
32	13	金	Site, Inventory	Kur20	Sta. Invent., Survey14	Kur22				
33	14	土	Site, Inventory	Kur21	Sta. Invent., Survey15	Kur23				
34	15	日	Internal Meeting	Kur22	Internal Meeting	Kur24				
35	16	月	Site, Inventory	Kur23	Sta. Invent., Survey16	Kur25				
36	17	火	Data correction	DSB5	Sta. Invent., Survey17	Kur26				
37	18	水	Collection of Information(MOTC)	DSB6	Data correction	DSB10				
38	19	木	JICA10.00	DSB7	JICA10.00	DSB11				
39	20	金	Dshambe600 → (Border0730) → Termez1030 → Tashkent 2000, Midnight, Tashkent 2230 → (OZ574)							
40	21	土	→ Seoul 0850 (OZ574), Seoul 1000 → Tokyo 1210 (OZ102)							

凡例 : DSB=ドシャンベ、Kur=クルガンチュベ、Dus=ドステイ

(2) 基本設計概要説明：平成19年11月2日～11月14日

表 A-5 調査工程（基本設計概要説明時）

日付	JICA		コンサルタント団員		
	長谷川 総括	坂部 計画管理	森田 業務主任/道路交通 計画/運営維持管理	小石川 道路設計I	浅野 通訳
11/2 (金)			成田OZ101(13:30)－(16:10)ソウル OZ573(17:30)－(21:10)タシケント		
11/3 (土)			JICAウズベキスタン報告 タシケントHY1153(13:15) －(15:15)テルメス －陸路ドシャンベ		
11/4 (日)			団内協議 資料収集、現場調査準備		
11/5 (月)			9:00 JICAタジキスタン表敬 11:30 EOJ 表敬 14:30 MOTC表敬(DBD協議) 副大臣、MOTC援助担当 MOTC技術部長、ハトロン州道路局長 － 調査日程の説明 － 報告書の提出、説明 － M/D案提出、説明		
11/6 (火) (祭日)			成田－ソウル－ タシケント	団内協議、資料収集	
11/7 (水)	タシケント －テルメス －ドシャンベ	10:00 MOTC DBD協議 － 報告書の説明、協議	タシケント －テルメス －ドシャンベ		
11/8 (木)	9:00 JICA M/D案関連の協議、調査進捗の説明 11:00 MOTC DBD協議、M/D協議				
11/9 (金)	am: MOTC M/D最終案の確認				
11/10 (土)	8:00 現地調査（ケルガンチュベドウスティ） 10:00 ハトロン州副知事表敬、対象区間、ニジノピアンジ橋視察 16:30 ドシャンベ帰着				
11/11 (日)	団内協議(書類作成)				
11/12 (月)	am: MOTC対応 16:00 M/D署名 18:00 大使館報告				
11/13 (火)		6:00ドシャンベ－陸路10:00着 テルメスHY1152(11:35) －(13:20)タシケント、タシケントOZ574(22:30)－(08:50)			
11/14 (水)		ソウルOZ102(10:00)－(12:10)成田			

資料 3. 関係者(面会者)リスト

表 A-6 面会者リスト

運輸通信省 (Ministry of Transport and Communication: MOTC)		
Mr. Ashurov A.A.	Minister	大臣
Mr. Zukhurov J.Z.	First Deputy Minister	第一副大臣
Mr. Anoyatshoev Alovuddin	Head of Construction Department of MOTC	建設局 局長
Mr. Mirzoev T.D.	Head of General Department of Construction and Road Facilities	調達局(建設・道路設備) 局長
Ms. Yokubzoda F.	Acting Head of International Cooperation Department	国際協力局 局長代理
Mr. Yatimov O.	Head of Investment Department	投資局 局長 (現 CIS 関係局 局長)
Mr. Firuz Makhmudov	Assistant Head of Department Commonwealth Independent States Relations	CIS 関係局 副局長
Mr. Nurulloev Bahrullo	Head of Transport Department in Khatlon Region	ハトロン州事務所交通局 局長
Mr. Kholikov M.	Deputy Head of Khatlon Transport Department	ハトロン州事務所交通局 副局長
Mr. Arzikulov T.	Head of State Road Maintenance Office of Kolkhozobad District	コルホゾバッド郡国道維持管理事務所 所長
Mr. Halimov I.K.	Head of State Road Maintenance Office of Kumsangir District	クムサンギ郡国道維持管理事務所 所長
設計研究所 (LOIKHAKASH)		
Mr. Fayzulloev K.	Director	所長
Mr. Yuldashev Yu.A.	Chief Engineer	主任技術者
Mr. Nazrishoev S.T.	Head of Road-Design and Survey Division	道路設計・調査課 課長
Mr. Saifuddinov F.	Head of Geological Division	地質課 課長
Ms. Fedorova T.I.	Chief Specialist of Geological Division	地質課 主任専門家
Mr. Koshkin A.S.	Chief Project Engineer	主任技術者
Mr. Kholdorov Olimjon	Bridge Engineer "Loikhakash"	橋梁技術者
水資源省 (Ministry of Land Reclamation and Water Recourses State Agency: Tajikgiprovodkhoz)		
Mr. Aliev Kodir	Head of Exploitation Department of Land Reclamation and Water Resource Ministry	開発水資源利用局 局長
Mr. Gulomov Habib	Head of the Exploitation Division of Kalinin Town of Land Reclamation and Water Resources Ministry	Kalinin Town 開発部 部長
Mr. Gadoev Shamsiddin	Deputy Head of Khatlon Department of Water Resources of Land Reclamation and Water Resources Ministry	Khatlon 事務所 副所長
Mr. Narzulloev M.	Specialist of Khatlon Department of Water Resources of Land Reclamation and Water Resources Ministry	Khatlon 事務所 専門家
Mr. Nabiev Akbar	Director of State Agency "Tajikvodkhoz"	Tajikvodkhoz 局長
建設建築庁 (State Construction and Architecture Agency: GOSSTROY)		
Mr. Rajaboev Davron	Chief Specialist of State Examination Department (in charge of Road Projects) of GOSSTROY	試験設計審査部(道路プロジェクト担当) 主任専門家
Mr. Aminov Manuchehr	Specialist of State Examination Department of GOSSTROY	試験設計審査部 専門家
ハトロン州 (Khatlon Region)		
Mr. Afzalov G.	Chairman of Hukumat of Khatlon Region	Hukumat 委員長
Mr. Rustamov S.	First Deputy Chairman of Hukumat of Khatlon Region	Hukumat 第一副委員長

Mr. Gulmatov M.G.	Deputy Chairman of Hukumat of Khatlon Region	Hukumat 副委員長
Mr. Nurulloev Bahrullo	Head of Transport Department in Khatlon Region	交通局 局長
Mr. Bobojonov Kh.	Head of Transport Division of Hukumat of Khatlon Region	Hukumat 交通課 課長
アジア開発銀行地域事務所		
Mr. Sadykov R.	Infrastructure Officer	社会基盤担当職員
欧州復興開発銀行地域事務所		
Mr. Faiziev B.	Senior Analyst	上級アナリスト
在タジキスタン 日本大使館 (Embassy of Japan)		
Mr. Takahashi Hiroshi	Charged Affaires	臨時大使
Mr. Kondo Shunsuke	Second Secretary	2等書記官
Mr. Ono Koji	Third Secretary	3等書記官
Mr. Suzuki Yuji	Third Secretary	3等書記官
Mr. Shimada Shizuo	Attache	専門調査員
JICA タジキスタン 事務所 (JICA Tajikistan Office)		
Mr. Hasegawa Ken	Resident Representative	所長
Mr. Orita Tomonori	Project Formulation Advisor	事務所所員
Mr. Alexander Serikov	Program Officer	事務所所員
JICA ウズベキスタン 事務所 (JICA Uzbekistan Office)		
Mr. Nishimiya Noriaki	Resident Representative	所長
Mr. Yamazaki Jun	Assistant Resident Representative	副所長

資料 4. 討議議事録 (M/D)

(1) 現地調査時

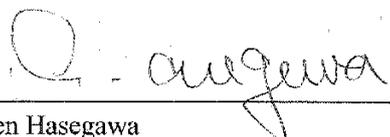
**Minutes of Discussions
on the Basic Design Study
on the Project for Rehabilitation of Kurgan Tyube - Dusti Road
in the Republic of Tajikistan**

Referring to the results of Preliminary Study conducted in October 2006, the Government of Japan decided to conduct a Basic Design Study on the Project for Rehabilitation of Kurgan Tyube - Dusti Road (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

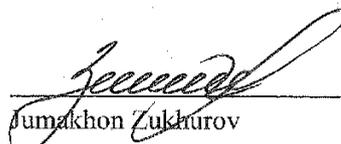
JICA sent to Tajikistan the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Ken Hasegawa, Resident Representative, JICA Tajikistan Office, and is scheduled to stay in the country from June 13 to July 20, 2007.

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

Dushanbe, June 21, 2007



Ken Hasegawa
Leader
Basic Design Study Team
Japan International Cooperation Agency



Jumakhon Zuhurov
First Deputy Minister
Ministry of Transport and Communication
The Republic of Tajikistan

ATTACHMENT

1. Objective of the Project

The objective of the Project is to rehabilitate the road between Kurgan Tyube and Dusti to ensure safe and smooth traffic through International Trunk Road No.11 in Tajikistan (Asian Highway No.7).

2. Project Site

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

3. Responsible and Implementing Organizations

The responsible and implementing Organization is Ministry of Transport and Communication (MOTC).

The organization chart of the responsible and implementing organization is shown in Annex-2.

4. Items Requested by the Government of Tajikistan

4-1. After discussions with the Team, the items described below were requested by the Tajik side.

Rehabilitation of the Existing Road between Kurgan Tyube and Dusti (Approximately 60km)

(1) Starting Point: Avtovokzal in Kurgan Tyube (Connecting point up to Dushanbe-Kurgan Tyube-Kulyab Road, International Trunk Road No.4), which is shown as figure-1 in Annex-3.

(2) Ending Point: Starting point of Dusti-Nizhniy Pyandzh Road (Connecting point up to new bypass for Dusuti town), which is shown as figure-2 in Annex-3.

(3) Contents of Rehabilitation

- 1) To rehabilitate the sub-grade and pavement at necessary sections
- 2) To reconstruct and/or rehabilitate the existing 14 bridges and culverts,
- 3) To rehabilitate the drainage facilities along the road at necessary sections,
- 4) To improve the existing intersection at necessary points for the traffic safety, and
- 5) To install the traffic safety facilities (road marking, traffic signs etc.)

4-2. Both sides reconfirmed that the specification of the road to be rehabilitated should be the "Category III" in Tajikistan Road Standard as described on the Minutes of Discussions signed by both sides on October 18, 2006. (hereinafter referred to as "the Signed Minutes")

4-3. Regarding the route in Kolkhozabad city, both sides confirmed that "the Eastern Route", which is shown as figure-3 in Annex-3, was selected for the Project.

4-4. JICA will assess the appropriateness of the request and will report its findings to the Government of Japan.



5. Japan's Grant Aid Scheme

The Tajik side reconfirmed the Japan's Grant Aid scheme and the necessary measures to be taken by the Tajik side as explained by the Basic Design Study Team and described in the Annex-2 and Annex-3 of the Signed Minutes.

6. Schedule of the study

6-1. The consultants will proceed to further study in Tajikistan until July 20, 2007.

6-2. JICA will prepare the draft report in Russian and dispatch a mission to Tajikistan in order to explain its contents at the beginning of November, 2007.

6-3. In case that the contents of the report is accepted in principle by the Government of Tajikistan, JICA will complete the final report in English and send it to the Government of Tajikistan by February 2008.

7. Other Relevant Issues

7-1. The Tajik side explained to the Team that the Construction permission for the Project (including the Environmental permission) could be obtained by the Tajik side within 2 months after the acceptance of the Basic Design drawings. Both sides confirmed that the Tajik side should submit the flow chart of the procedure for the Construction Permission to JICA Tajikistan Office by June 28, 2007.

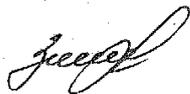
7-2. The Tajik side confirmed that the following undertakings should be taken by the Tajik side at the Tajik expenses.

- 1) Securing of the land for road construction area for the Project,
- 2) Relocation of existing utilities (electricity power, telecommunication, water, sewage, gas, etc.),
- 3) Relocation of the existing irrigation canal along the road,
- 4) Necessary procedure for removal of existing properties (including building, trees, plants, etc.),
- 5) Necessary arrangement of detours for public traffic at necessary sections during the construction of roads, e.g. securing of land, public announcement etc,
- 6) Securing and clearance of the temporary yard,
- 7) Securing site for borrow pit, quarry and disposal of waste (scarified asphalt concrete, excavated unsuitable soil, etc.),
- 8) Necessary arrangement of public utilities for the temporary yard to be used for site facilities such as site offices, plant yards, dormitory, etc. and for temporary works
- 9) Necessary arrangement and coordination with concerned Ministry and/or Agency,
- 10) Necessary arrangement for timely issuance of the license and permission, e.g. Company License for Contractor, permission of quarrying, etc.
- 11) Necessary arrangement for the tax exemption for the Project,
- 12) Budget allocation for the commission for Authorization to Pay (A/P) and Payment,
- 13) Budget allocation for the Examination Fee of Construction Permission for the Project, and
- 14) Budget allocation and personnel recruitment (assignment of experts, coordinators, etc.) for the implementation control organization (Project Implementation Unit, PIU) for the

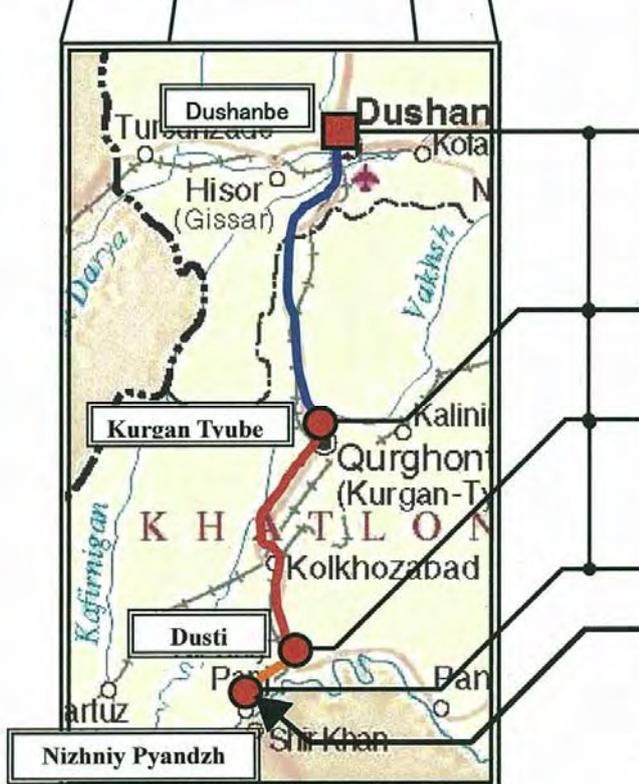
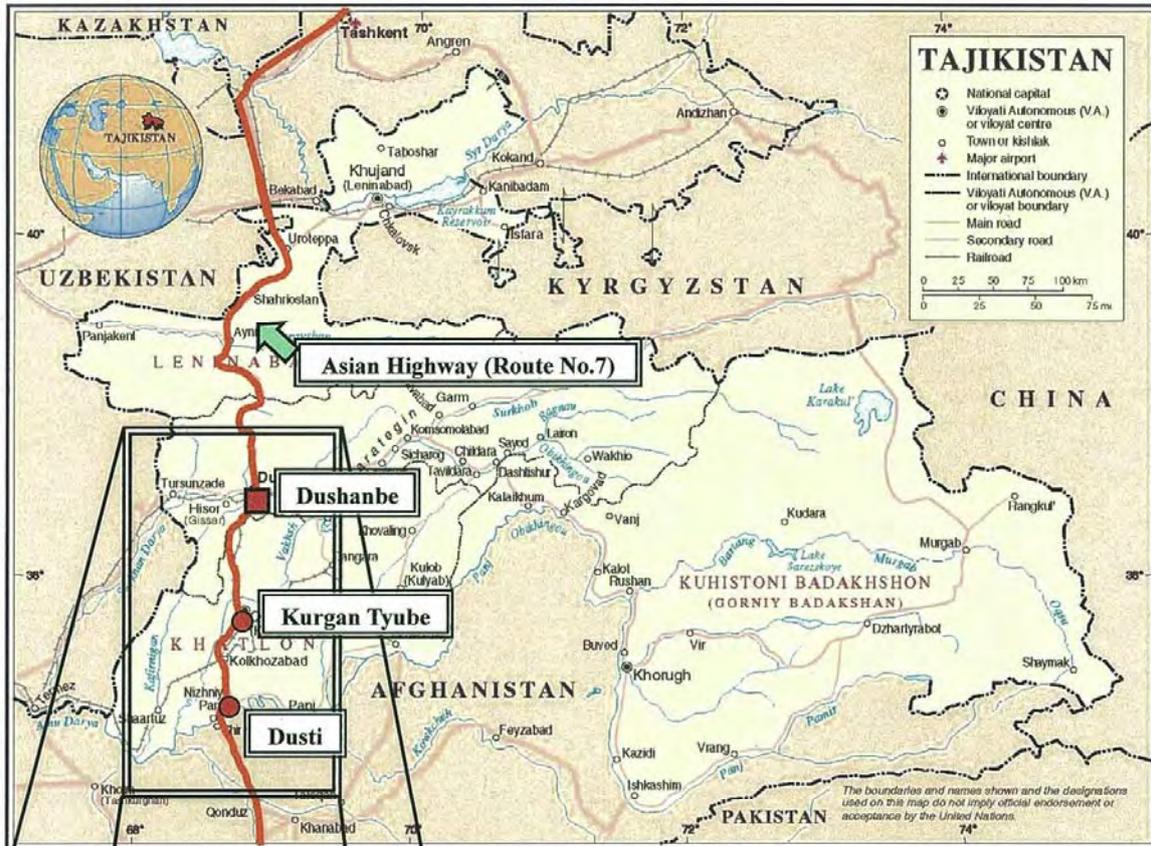


Project.

- 7-3. The Tajik side shall secure enough budget and personnel necessary for the operation and maintenance of the facilities implemented by the Project.
- 7-4. The Tajik side shall provide security for all concerned Japanese nationals working for the Project, if deemed necessary.
- 7-5. The Tajik side shall provide necessary numbers of counterpart personnel to the Team during the period of their studies in Tajikistan.
- 7-6. The Tajik side shall submit answers to the Questionnaire, which the Team handed to the Tajik side, by July 3, 2007
- 7-7. Both sides confirmed that the English text shall prevail when any doubt arises in interpretation of this Minutes of Discussions.



The Project Site



Current Condition of International Trunk Road from Dushanbe to Nizhniy Pyandzh

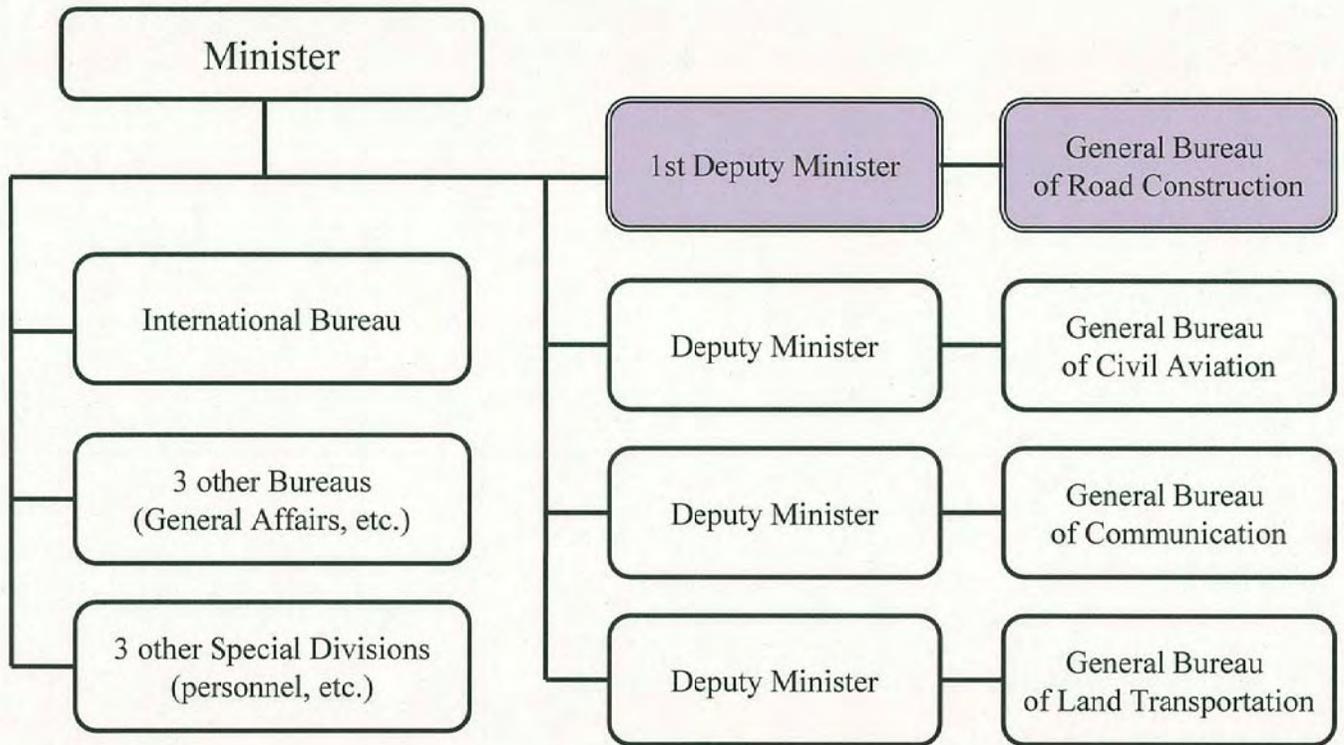
- Dushanbe - Kurgan Tyube
Rehabilitation is going by Asian Development Bank, and will be completed in August, 2007.
- Kurgan Tyube - Dusti
Requested Section under the Project
- Dusti - Nizhniy Pyandzh
The road improvement was commenced under the grant by the Government of Japan.
- Nizhniy Pyandzh Bridge (Border)
Now under construction donated by the Government of United States of America, and Norway, will be completed in August 2007.

Accepted

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Organization Chart of "the Ministry of Transport and Communication" (Annex-2)

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 :Person & Organization in charge of the Project

A-12

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(2) 基本設計概要説明

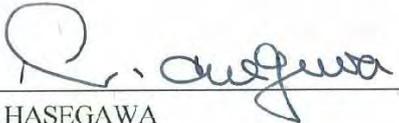
**Minutes of Discussions
on Basic Design Study
on the Project for Rehabilitation of Kurgan Tyube - Dusti Road
in the Republic of Tajikistan
(Explanation of Draft Report)**

In June 2007, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Rehabilitation of Kurgan Tyube - Dusti Road (hereinafter referred to as "the Project") to the Republic of Tajikistan (hereinafter referred to as "Tajikistan"), and through discussions, field survey and the results of technical examination 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 Tajikistan on the contents of the draft report, JICA sent to Tajikistan the Basic Design Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Ken HASEGAWA, Resident Representative of JICA Tajikistan Office, from November 3 to November 13, 2007.

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

Dushanbe, November 12, 2007



Ken HASEGAWA
Leader
Basic Design Explanation Team
Japan International Cooperation Agency



Jumakhon Zulkhurov
First Deputy Minister
Ministry of Transport and Communication
The Republic of Tajikistan

ATTACHMENT

1. Components of the Draft Report

- 1-1. The Tajik side agreed and accepted in principle the contents of the draft report of Basic Design Study by the Team.
- 1-2. The Tajik side prepared a list of comments on the draft report except for the components and submit to the Team, and requested to reflect these comments to the final report.

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

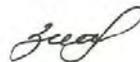
The Tajik side reconfirmed the Japan's Grant Aid scheme and the necessary measures to be taken by the Tajik side as explained by the Preliminary Study Team and described in the Annex-3 and 4 of the Minutes of Discussions signed by both sides on October 17, 2006.

4. Schedule of the Study

JICA will complete the Final Report in English, in accordance with the confirmed items and send it to the Tajik side by the beginning of February, 2008.

5. Other Relevant Issues

- 5-1. Regarding the replacement of the existing bridges with box culverts, both sides confirmed that the Tajik side obtained the approval of Ministry of Land Reclamation and Water Resources as attached in Annex-2.
- 5-2. Through the Preliminary Study and Basic Design Study for the Project, both sides confirmed that the Project would have no significant environmental and social impact. Therefore the Tajik side explained to the Team that the procedures for environmental clearance, EIA etc., are not necessary for the Project in advance.
- 5-3. Both sides confirmed that the Tajik side should obtain the necessary official approval including Environment and Social Considerations for the Project based on the Draft Report of the Basic Design Study by the end of January, 2008.
- 5-4. The Tajik side confirmed that the following undertakings should be taken by the Tajik side at its own expenses.
 - 1) Securing of the land for road construction area for the Project,
 - 2) Relocation of existing utilities (electricity power, telecommunication, water, sewage, gas, etc.),
 - 3) Relocation of the existing irrigation canal along the road,
 - 4) Necessary procedure for removal of existing properties (including building, trees, plants, etc.),



- 5) Necessary arrangement of detours for public traffic at necessary sections during the construction of roads, e.g. securing of land, public announcement etc,
- 6) Securing and clearance of the temporary yard,
- 7) Securing site for borrow pit, quarry and disposal of waste (scarified asphalt concrete, excavated unsuitable soil, etc.),
- 8) Necessary arrangement of public utilities for the temporary yard to be used for site facilities such as site offices, plant yards, dormitory, etc. and for temporary works
- 9) Necessary arrangement and coordination with concerned Ministry and/or Agency,
- 10) Necessary arrangement for timely issuance of the license and permission, e.g. Company License for Contractor, permission of quarrying, etc.
- 11) Necessary arrangement for the tax exemption for the Project,
- 12) Budget allocation for the commission for Authorization to Pay (A/P) and Payment,
- 13) Budget allocation for the Examination Fee of Construction Permission for the Project, and
- 14) Budget allocation and personnel recruitment (assignment of experts, coordinators, etc.) for the implementation control organization (Project Implementation Unit, PIU) for the Project.

5-5. The Tajik 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.

5-6. Both sides confirmed that it is necessary to control over-loaded vehicles in order to make road maintenance rationally, and accordingly the Tajik side should establish suitable measures for traffic safety and control especially over loading traffic, which are essential for appropriate operation and maintenance of the roads rehabilitated by the Project.

5-7. Both sides confirmed that the English text shall prevail when any doubt arises in interpretation of this Minutes of Discussions.



Project Cost to be Borne by Japan's Grant Aid

Items		Cost (Million Japanese Yen)	
Construction Facilities	Road	Total Length: 59.9km Total width: 12.0m Carriageway: 2-lane carriageway (2 x 3.5 = 7.0m) Shoulder: 2.5m on each side (2 x 2.5m = 5.0m) Surface course: 5cm thick asphalt concrete Binder course: 5cm thick asphalt concrete (carriageway) Surface course: 3cm thick double bituminous surface treatment (shoulder) Base course: 20cm thick base course material Sub-base course: 4~24cm thick sub-base course material	3,025
	Structures	Box culvert: 13 places Box culvert extension: 32m Pipe culvert extension: 46m Stone pitching drainage: 200m Stone pitching: 840m ² Kerb: 135m	281
	Accessory work	Guard post: 176 places Traffic marking: 200,200m Traffic sign post: 199 places Kilometer post: 60 places	46
Detailed Design and Construction Supervision		236	
Total		3,588	

Notes:

- (1) The cost estimates in the above table are provisional and will be further examined by the Government of Japan for the approval of the Grant.
- (2) The Total Cost of the Project JPY 3,642 million is equivalent to USD 30.54 million at the current exchange rate USD 1.0 = JPY 119.26




ВАЗОРАТИ МЕЛИОРАТСИЯ
ВА ЗАХИРАҶОИ ОБИ
ҶУМҲУРИИ ТОҶИКИСТОН



МИНИСТЕРСТВО МЕЛИОРАЦИИ
И ВОДНЫХ РЕСУРСОВ
РЕСПУБЛИКИ ТАДЖИКИСТАН

734064, ш. Душанбе,
кӯчаи Шамси 5/1

тел: 235-35-54; 235-97-40
факс (+992-372) 235-35-66; (95) 132-90-01
E-mail: taj_water@mail.ru

734064, г. Душанбе
улица Шамси 5/1

Аз (от) «12» 11 соли 2007(года) №2ЭР-1731

Министерство транспорта
и коммуникаций
Республики Таджикистан

На Ваше письмо за №2 (13,2)-1957 от 08.11.2007 года Министерство мелиорации и водных ресурсов Республики Таджикистан сообщает, что предложение консультантов о замене существующих поврежденных мостов на монолитные прямоугольные водопропускные трубы большого размера считает целесообразным.

Первый Заместитель Министра

К. Нуралиев

3

資料 5. 事業事前計画表(基本設計時)

<p>1 案件名</p>
<p>タジキスタン共和国 クルガンチュベードゥスティ間道路改修計画</p>
<p>2 要請の背景（協力の必要性・位置付け）</p>
<p>タジキスタン共和国（以下「タ」国）において道路網は、社会・経済活動の主要な機軸となっている。この道路網の多くは旧ソ連時代に建設されたが、1991年独立後の内戦及び経年による損傷・老朽化が進行し、国民の生活に必要な物資の輸送だけでなく周辺国との交易にも支障をきたしており、経済活性化の阻害要因となっている。こうした状況の下、「タ」国では計画的にインフラ整備を行うため、「長期運輸開発計画」を5年ごとに策定し幹線道路網の優先整備を進めている。しかしながら、道路網整備の実施は慢性的な政府の予算不足のため、多くを外国からの援助に依存している状況にある。</p> <p>本調査の対象区間であるクルガンチュベードゥスティ間の道路は、首都ドゥシャンベを中心に東西南北に伸びる同国主要幹線道路網の、南ルート上の一区間として隣国アフガニスタン国を経由し、海に接続する重要なルートであり、「タ」国はこのルートに高い位置付けを与えている。同ルートは現在までに、米国による隣国アフガニスタン国との国境を流れるピアンジ川への架橋、アジア開発銀行（ADB）によるドゥシャンベクルガンチュベ間の道路改修が実施され、さらに、日本の無償資金協力によりドゥスティニジノピアンジ間の道路整備が現在実施されている。しかしながら、全線にわたって劣化が進んだ状態にあるクルガンチュベードゥスティ間道路については具体的な改修計画が無く、他区間の整備が完了した後、国際幹線道路 11 号線（旧、国道 384 号線）のボトルネックとなることが予想され、一刻も早い改修が必要とされている。このような背景にあって、本計画は対象となるクルガンチュベードゥスティ間道路改修計画を実施する事により、対象区間の安全で円滑な交通流を確保することを目的とする。</p>
<p>3 プロジェクト全体計画概要 *下線部：本無償資金協力に直接関係する成果、活動および投入</p>
<p>(1) プロジェクト全体計画の目標（裨益対象の範囲及び規模） 国際幹線道路 11 号線上(アジアハイウェイ AH7 号線)、クルガンチュベードゥスティ間の円滑かつ安定的な交通が確保される。 裨益対象：「タ」国の住民 662 万人</p> <p>(2) プロジェクト全体計画の成果 <u>クルガンチュベードゥスティ間道路 59.9km が改修される。</u></p> <p>(3) プロジェクト全体計画の主要活動 <u>対象道路における舗装、道路構造物、付帯施設の改修工事。</u></p> <p>(4) 投入（インプット） ア <u>日本側：無償資金協力 35.88 億円</u> イ 相手国側 (ア) 道路建設実施に伴う支障物件の移設に係る費用 (イ) 線形改良に伴う一部区間の土地取得及び、建設ヤード造成用の土地借り上げ費用 (ウ) 道路建設後の維持管理費用</p> <p>(5) 実施体制 主管官庁、実施機関：運輸通信省（MOTC）</p>

4 無償資金協力案件の内容											
<p>(1) サイト 「タ」国、ハترون州</p> <p>(2) 概要 対象道路の改修</p> <p>(3) 相手国側負担事項 ① 建設用地の確保 ② 支障物件の移設 ③ 建設に必要な手続き</p> <p>(4) 概算事業費 概算事業費 36.13 億円（無償資金協力 35.59 億円、相手国側負担 0.54 億円）</p> <p>(5) 工期 実施設計、入札期間を含め約 51 ヶ月（予定）</p> <p>(6) 貧困、ジェンダー、環境及び社会面の配慮 なし</p>											
5 外部要因リスク（プロジェクト全体計画の目標の達成に関するもの）											
- 当初想定量よりも交通量が大幅に増加しない											
6 過去の類似案件からの教訓の活用											
特になし											
7 プロジェクト全体計画の事後評価に係る提案											
(1) プロジェクト全体計画の目標達成を示す成果指標											
<table border="1"> <thead> <tr> <th>成果指標</th> <th>2007年(実施前)</th> <th>2011年(実施後)</th> </tr> </thead> <tbody> <tr> <td>対象区間の安全な走行速度の向上</td> <td>30km/時</td> <td>73km/時</td> </tr> <tr> <td>見通し距離（視距）の増加</td> <td>10m以上</td> <td>140m以上</td> </tr> </tbody> </table>			成果指標	2007年(実施前)	2011年(実施後)	対象区間の安全な走行速度の向上	30km/時	73km/時	見通し距離（視距）の増加	10m以上	140m以上
成果指標	2007年(実施前)	2011年(実施後)									
対象区間の安全な走行速度の向上	30km/時	73km/時									
見通し距離（視距）の増加	10m以上	140m以上									
(2) その他の成果指標 ・ 特になし											
(3) 評価のタイミング 対象区間の供用開始（2012年）以降											

資料 6. 参考資料/入手資料リスト

番号	名 称	資料形態	オリジナル /コピー	発行機関	発行年
1	Highway Design Standards	資料	コピー	設計研究所	1998
2	Asian Development Bank Board of Directors Proposed Loan and Asian Development Fund Grant D Border Road Rehabilitation Project (Phase II)	資料	コピー	JICAタジギスタン 事務所	2005
3	Tadzhikistans standerd road design Nature security laws	CD-R	コピー	設計研究所	不明
4	Public Invest Programme and Technicalment Assistar 2007-2009 Investment plan and Technical Support	資料	コピー	MOTC	2007
5	Foreign Aid Report-2006	資料	コピー	MOTC	2007
6	Location Map	地図	コピー	JICAタジギスタン 事務所	不明
7	Loikhakash pamphlet	パンフレット	コピー	JICAタジギスタン 事務所	2006
8	Snip Contraction Road Highway Design Standards	資料	コピー	設計研究所	1997
9	List of Necessary documents for receiving permission Procedure of Construction License	資料	コピー	MOTC	2007
10	Ministry of Melioration and water resource	資料	コピー	MOTC	2007
11	State Program of Investment for Transport The budget according to sector	資料	コピー	MOTC	2007
12	Transportation Amount of transportation and Freight traveler	資料	コピー	MOTC	2007
13	Ministry of Transport and Communication of the Road	資料	コピー	MOTC	2007
14	Foreign Aid for Road Transport	資料	コピー	MOTC	2007
15	Answers to the JICA the Railways transport	資料	コピー	MOTC	2007
16	Ministry of Finance MOTC budget of MOF	資料	コピー	MOTC	2007

資料 7. その他資料/情報

7-1 技術覚書

7-2 自然条件調査結果（土質）

7-3 自然条件調査結果（地質）



CONSTRUCTION PROJECT CONSULTANTS, INC.

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Facsimile:+81-3-5337-4092

13 July, 2007

The 1st Deputy Minister
Ministry of Transport and Communication (MOTC)
The Republic of Tajikistan

**Subject: Submission of Technical Note for the Basic Design Study of
Rehabilitation of Kurgan Tyube - Dusti Road on the Japanese Grant Aid
Project**

Dear Sir,

We are pleased to submit the Technical Note which indicates the key design value to be used for the Basic Design Study for the captioned project by the Japan International Cooperation Agency (JICA) as Japanese Grant Aid Project.

The values on the Technical Note are following the result of discussion by the Study Team and MOTC technical representative. Thus the concepts of basic design on Technical Note which was carried out and agreed by both parties at the conference room of MOTC head quarter on 12nd July, 2007.

Please kindly confirm the attached Technical Note and references.

Very truly yours,

A handwritten signature in blue ink, appearing to read 'R. Morita', is written over a horizontal line.

Hideaki Morita

Project Manager

Construction Project Consultants, Inc. Japan (CPC)

Ref. 1. The stated Technical Note

2. Inter-section design concept (6 places)

3. Table-1 Existing bridge condition and initial evaluation of measure

Memorandum

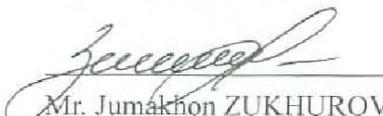
Subject: Technical note of Design Value to be used for the Basic Design Study on the Project

The JICA Study Team will propose the following principal standard for the design of .captioned project.

Description	Units	Value		
		Flat Section	Rolling	Mountainous
Road Category	-	III		
Design Speed	Km/hr	100 (80)	80 (60)	50 (30)
No. of Lanes	No.	2		
Right of Way Width	m	50		
Carriageway Width	m	7.0		
Shoulder width	m	2.5(included 0.5m width as hard shoulder)		
Cross Fall on Carriageway	%	2.0		
Cross Fall on Shoulder	%	4.0		
Minimum Radius of Horizontal Curve *1	m	380	230	125
Maximum Gradient	%	3 (8)	5 (8)	8 (8)
Maximum Superelevation	%	6	6	6
Minimum Sight Distance	m	205 (157)	140 (113)	85 (74)
Fill Slope	Granular soil	Angle	1:1.5~2.0 (depend on soil type)	
Cut Slope	Hard Rock	Angle	1:0.5	
	Decomposed Rock	Angle	1:0.75	
	Other than Rock	Angle	1:1.0~1.5 (depend on soil type)	
Pavement Type	-	Carriageway=AC, Shoulder=BST		
Structure Live Load	-	Class B Load of Japan Road Association (This is more than HA, HB load on the British Standard which applied as Tanzania Standard)		
Seismic	Kh			

Remarks : () = Minimum value, AC=Asphaltic Concrete, BST=Bituminous Surface Treatment

Note : Exceptional minimum radius will be applied in the township area (R=30m expected).


Mr. Jumakhon ZUKHUROV
First Deputy Minister

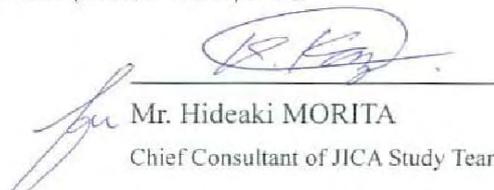

Mr. Hideaki MORITA
Chief Consultant of JICA Study Team

Table -1 Existing Bridge Condition and Initial Evaluation of Measure (KuluganTube~Dusti)

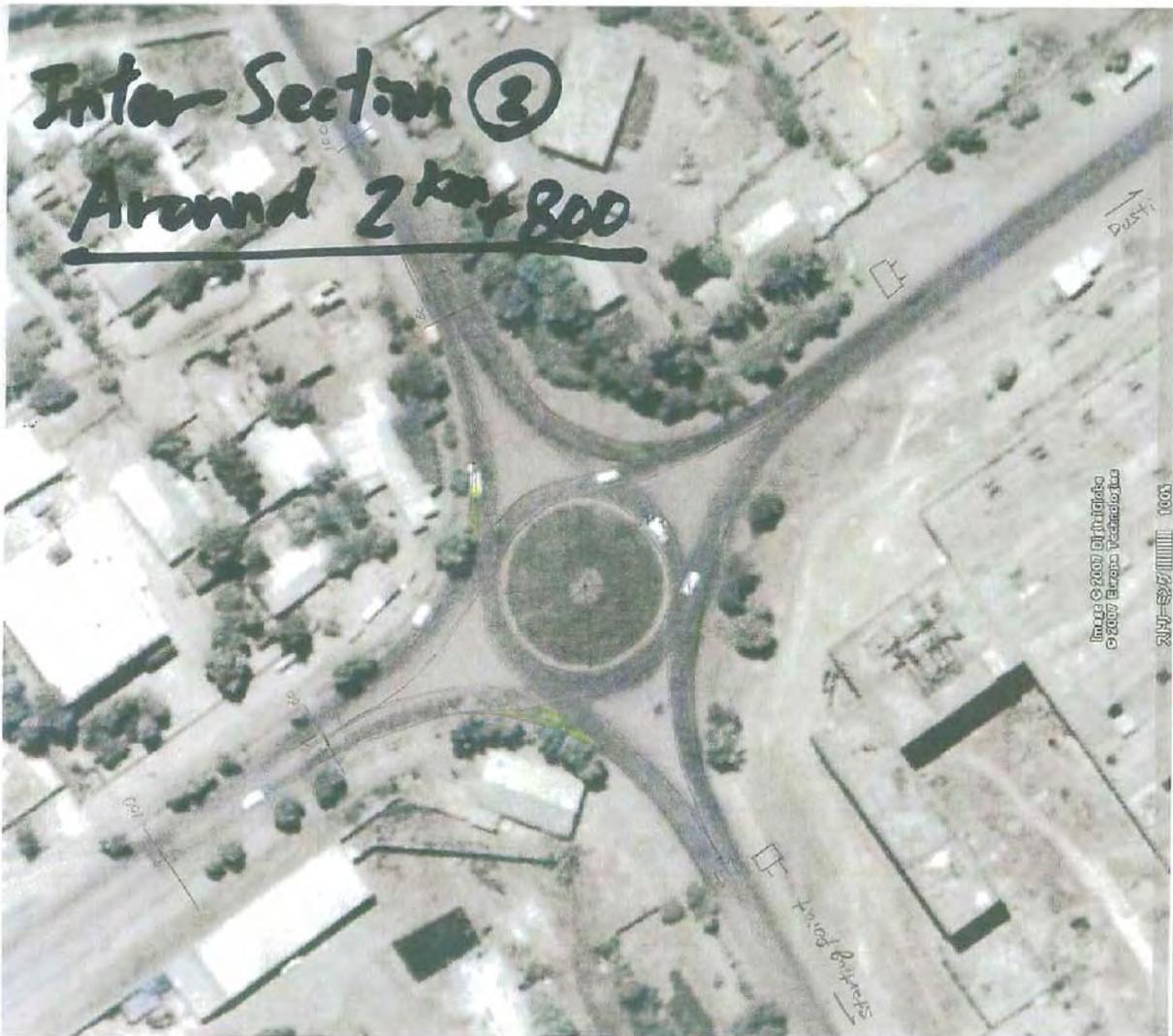
No.	Km	Existing Bridge Condition						Evaluation					
		Total Width(m)	Side walk width(m)	Span length(m)		Type of the structure (Super/Sub-structure)	General Condition	Existing Utilities	Width	Durability	Evaluation	Estimated Type of Structure	
1	1+000	13.40	None	5.5 (Skew)	1 span	RC Slab Bridge with H shaped girder at both outside	RC	1960s Build, Re-bar exposed, Partly lack	Crossing water supply pipe (4pcs.) Gas pipe(L), Sanitary pipe(R)	0	x	Replacement	Box Culvert (B5.0m x H2.4m, Skew)
2	2+250	8.95	2 @ 0.9m	26.95 (5.30+16.35+5.3)	3 spans	Main plate girder with H shaped girders on outer span	Pile Bent Abuts and piers (Steel pile D=350mm)	Before 1960s Build, Re-bar exposed, Partly lack, Critical Rust	Crossing water supply pipe, Gas pipe(L), 2 @ Sanitary pipe(L), 2 @ WSP(R)	x	x	Replacement	Box Culvert (B7.0m x H6.3m + 2@ (B5.0m x H6.3m), 3 cells)
3	11+400	12.50	2 @ 0.7m	17.41 (5.63+6.00+5.78)	3 spans	RC Slab	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1960s Build, Re-bar exposed, Partly lack	Crossing water supply pipe, Irrigation Pipe(L)	0	x	Replacement	Box Culvert (B9.0m x H3.5m)
4	13+600	12.00	2 @ 0.4m	11.1 (5.55+5.55)	2 spans	RC Slab	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1960s Build, Re-bar exposed, Partly lack	Crossing water supply pipe, WSP(L), Sanitary pipe(R)	0	x	Replacement	Box Culvert (B6.0m x H5.2m)
5	14+800	11.00	2 @ 0.7m	12.1 (2.5+7.10+2.5 (Left side W=4m 1 span)	3 spans	RC Slab	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1960s Build, Re-bar exposed, Partly lack	Crossing water supply pipe, Irrigation water gate(L)	x	x	Replacement	Box Culvert (B9.0m x H2.2m)
6	27+400	12.40	2 @ 0.35m	3.3 (Skew)	1 span	RC Slab	RC	1960s Build, Partly lack, Critical scored	WSP(L), (R)	0	x	Replacement	Box Culvert (B3.0m x H4.5m, Skew)
7	28+050	10.30	2 @ 1.40m	42	1 span	Plate girder	Un shown	1993s Build, Partly lack on the Expansion joint	Crossing water supply pipe, WSP(L), E/L & T/L (R)	-	0	Repair of the Expansion joint	-
8	30+100	10.17	2 @ 1.0m	15.6 (Skew)	1 span	RC T girder	Pile Bent Abuts (RC pile 300mmx 350mm)	1960s Build	Crossing water supply pipe, WSP(R), E/L & T/L (R)	x	0	Replacement	Box Culvert (B7.0m x H4.3m, Skew)
9	30+700	10.00	2 @ 1.0m	28.1 (5.90+16.50+5.70)	3 spans	RC T girder with Slab bridge on the outer spans	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1960s Build	Irrigation way bridge w=1.2m(R), WSP D=800mm(L)	x	0	Replacement	Box Culvert (B8.0m x H5.7m)
10	30+900	7.55	None	22.3 (8.05+6.95+7.30)	3 spans	H shaped girder	Pile Bent Abuts and piers (Steel pile D=350mm)	1960s Build	Crossing water supply pipe, WSP(L, R), E/L & T/L (R)	x	x	Replacement	Box Culvert (B12.0m x H5.7m + 2@ (B6.0m x H5.7m, 3 cells)
11	38+200	11.75	2 @ 1.45m	29.4 (6.50+16.40+6.50)	3 spans	RC T girder with Slab bridge on the outer spans	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1985s Build	Previous Old bridge (L), Crossing water supply pipe, Gas pipe (L), WSP(L, R), T/L (L)	-	0	Repair of the Expansion joint	-
12	46+800	10.00(Skew)	2 @ 0.45m	12.3 (6.15+6.15)	2 spans	RC Slab	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1960s Build	Pedestrian bridge W=1.0m (L), WSP(L)	x	0	Replacement	Box Culvert (B7.0m x H2.7m, Skew)
13	46+830	8.30	-	12.85	3 spans (continuous)	H shaped girder	RC wall type	1960s Build, Critical rust.	Pedestrian bridge W=1.0m (L), Previous Old bridge (R), Crossing water supply pipe(D=900mm), WSP(L, R)	x	x	Demolish	Embankment
14	52+200	10.85	None	18.45 (4.85+4.40+4.60+4.60)	4 spans	RC Slab	Pile Bent Abuts and piers (RC pile 300mmx 350mm)	1960s Build, Re-bar exposed, Partly lack, Collapsed?	Pedestrian bridge W=0.6m (L), WSP(L, R)	x	x	Replacement	Box Culvert (B10.0m x H3.0m)

* NO 7 and NO 11 Design Report will be provided by MoTC to analyze current durability.

** It will be arranged joint site inspection b/t 16-17 July '07 for NO 7 and NO 11 existing bridge to confirm current condition.

Inter-Section ①
Around B.P.

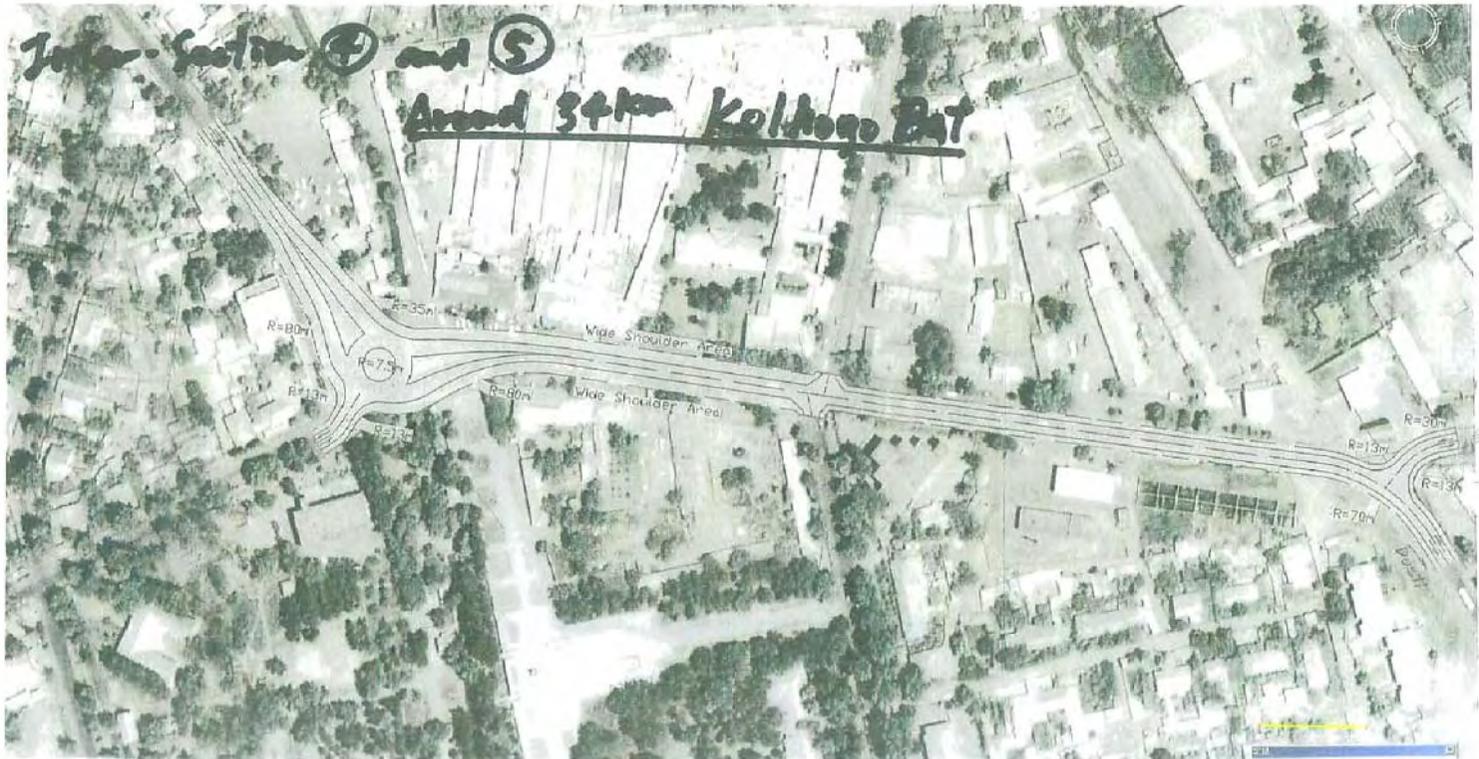




* If will be considered road marking instead of road island.





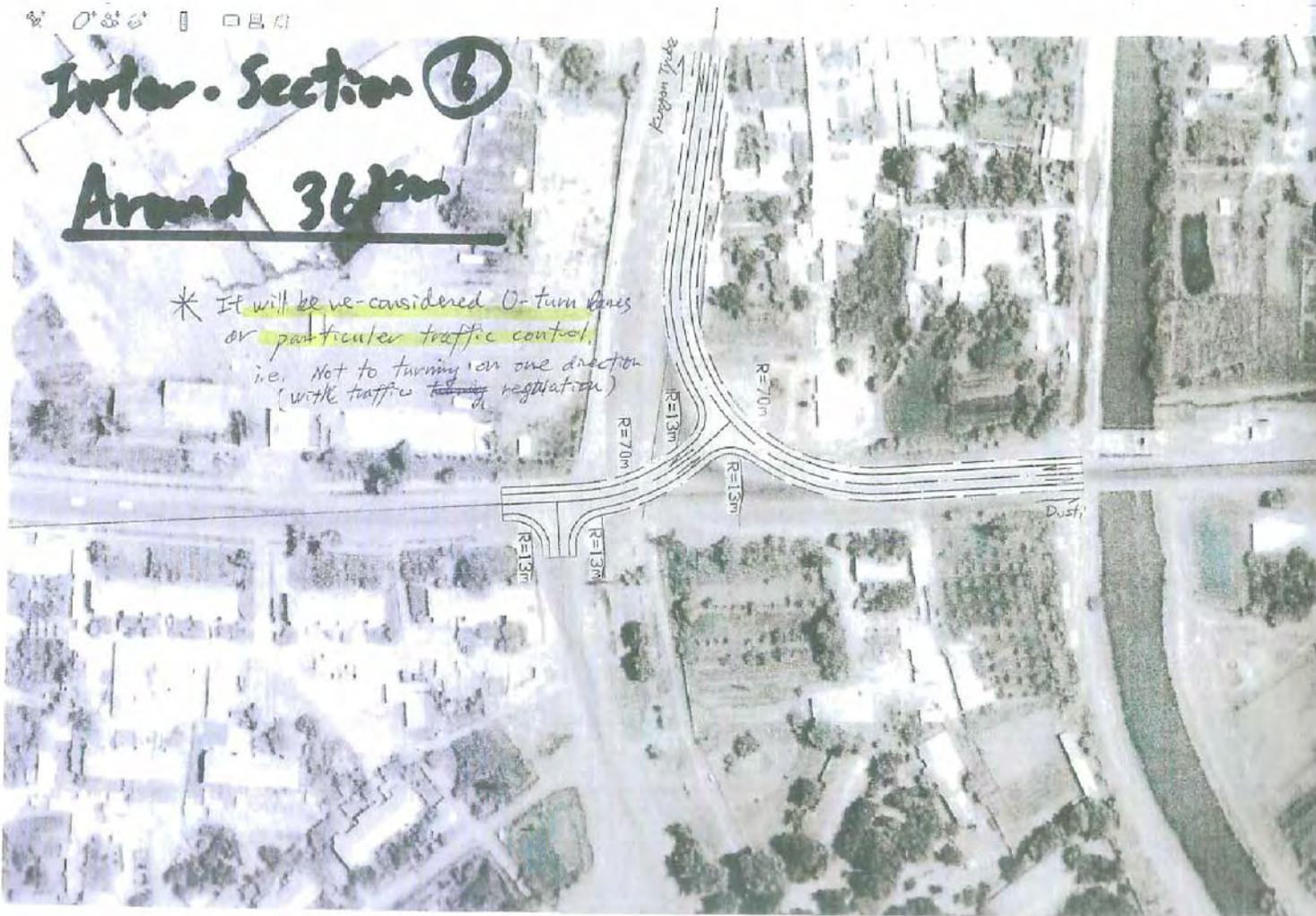




Inter-Section ⑥

Around 360m

* It will be re-considered U-turn lanes
or particular traffic control,
ie. Not to turning in one direction
(with traffic ~~regulation~~ regulation)



7-2. 自然条件調査結果 (土質)

土質試験結果一覧表 (テストピットからの採取試料)

試料番号		TP km0.5R	TP km4.5L	TP km9.0R	TP km11.5R	TP km13.5L	TP km18.0R
	(深さ) m	0.45	0.55	0.47	0.65	0.22	0.51
	m	1.00	1.00	1.00	1.00	1.00	1.00
一般	湿潤密度 ρ_t (g/cm ³)						
	乾燥密度 ρ_d (g/cm ³)						
	土粒子の密度 ρ_s (g/cm ³)	2.711	2.697	2.717	2.750	2.722	2.724
	自然含水比 W_n %						
	空隙比 e						
	飽和度 S_r %						
粒度	石分 (75mm以上) %						
	レキ分* (2~75mm以上) %						
	砂分* (0.075~2mm以上) %						
	シルト分* (0.005~0.075mm以上) %						
	粘土分* (0.005mm未満) %						
	最大粒径 mm						
	均等係数 U_c						
コンシステン	液性限界 W_L %	23.7	25.6	26.0	26.6	23.6	25.1
	塑性限界 W_p %	21.2	19.4	20.9	21.3	19.4	20.2
	塑性指数 IP %	2.5	6.2	5.1	5.3	4.2	4.9
	E_s %						
分類	地盤材料の分類名						
	分類記号						
締固め	試験方法						
	最大乾燥密度 ρ_{dmax} (g/cm ³)	1.888	1.882	1.886	1.848	1.885	1.828
	最適含水比 W_{opt} %	11.6	11.7	12.3	11.6	12.9	13.2
CBR	試験方法						
	膨張比 %	1.0	0.76	0.47	0.35	0.33	0.68
	貫入試験後含水比 %	13.0	12.5	12.7	13.0	12.5	13.2
	平均CBR %	13	12	11	14	21	12
	90%修正CBR %						
	95%修正CBR %						
コーン指数	突固め回数						
	コーン指数 qc kN/m ²						
その他		Subgrade	Subgrade	Subgrade	Subgrade	Subgrade	Subgrade

特記事項:

c.f. 1:* 石分を除いた75mm未満の土質材料に対する百分率で表す。

c.f. 2 (1kN/m²=0.102kgf/cm²)

土質試験結果一覧表 (テストピットからの採取試料)

調査件名: タジキスタン国 クルガンチュバードウステイ間改修計画基本設計調査

試料番号		TP km22.5L	TP km27.0R	TP km31.5L	TP km35.5R	TP km37.0L	
	(深さ) m	0.15	0.45	0.45	0.61	0.55	
	m	1.00	1.00	1.00	1.00	1.00	
一般	湿潤密度 ρ_t (g/cm ³)						
	乾燥密度 ρ_d (g/cm ³)						
	土粒子の密度 ρ_s (g/cm ³)	2.727	2.718	2.714	2.722		
	自然含水比 W_n %						
	空隙比 e						
	飽和度 S_r %						
粒度	石分 (75mm以上) %						
	レキ分* (2~75mm以上) %	64.1			76.2		
	砂分* (0.075~2mm以上) %	30.9			9.6		
	シルト分* (0.005~0.075mm以上) %	5.0			14.2		
	粘土分* (0.005mm未満) %						
	最大粒径 mm	37.5			37.5		
	均等係数 U_c						
コンシステン	液性限界 W_L %		25.0	22.7		21.9	
	塑性限界 W_p %		20.3	19.8		17.9	
	塑性指数 IP %		4.7	2.9		4.0	
	E_s %						
分類	地盤材料の分類名						
	分類記号						
締固め	試験方法						
	最大乾燥密度 ρ_{dmax} (g/cm ³)	2.083	1.812	1.904	2.131	1.872	
	最適含水比 W_{opt} %	6.9	13.0	12.0	5.9	11.7	
CBR	試験方法						
	膨張比 %	0.16	0.63	0.01	0.13	0.25	
	貫入試験後含水比 %	7.2	13.2	12.3	5.1	12.3	
	平均CBR %	30	10	13	32	17	
	90%修正CBR %						
	95%修正CBR %						
コーン指数	突固め回数						
	コーン指数 qc kN/m ²						
その他		Base	Subgrade	Subgrade	Base	Subgrade	

特記事項:

c.f. 1:* 石分を除いた75mm未満の土質材料に対する百分率で表す。

c.f. 2 (1kN/m²=0.102kgf/cm²)

土質試験結果一覧表 (テストピットからの採取試料)

調査件名: タジキスタン国 クルガンチュヘートウステイ間改修計画基本設計調査

試料番号		TP km40.5R	TP km45.0R	TP km49.5L	TP km54.0R	TP km54.0R
(深さ)	m	0.40	0.32	0.80	0.10	0.40
	m	1.00	1.00	1.00	0.30	1.00
一般	湿潤密度 ρ_t (g/cm ³)					
	乾燥密度 ρ_d (g/cm ³)					
	土粒子の密度 ρ_s (g/cm ³)	2.728	2.676	2.698	2.727	
	自然含水比 W_n %					
	間隙比 e					
	飽和度 S_r %					
粒度	石分 (75mm以上) %					
	レキ分* (2~75mm以上) %				51.6	
	砂分* (0.075~2mm以上) %				37.4	
	シルト分* (0.005~0.075mm以上) %				11.0	
	粘土分* (0.005mm未満) %					
	最大粒径 mm				37.5	
コンシステン	液性限界 W_L %		23.3	24.2		23.8
	塑性限界 W_p %		20.1	20.2		20.1
	塑性指数 IP %		3.2	4.0		3.7
	E_s %					
分類	地盤材料の分類名					
	分類記号					
締固め	試験方法					
	最大乾燥密度 ρ_{dmax} (g/cm ³)	2.134	1.888	1.858	2.083	1.827
	最適含水比 W_{opt} %	5.8	11.9	10.6	6.9	12.5
CBR	試験方法					
	膨張比 %	0.08	0.64	0.59	0.16	0.69
	貫入試験後含水比 %	6.4	12.3	8.6	7.2	11.9
	平均CBR %	30	7	10	29	10
	90%修正CBR %					
コーン指数	突固め回数					
	コーン指数 q_c kN/m ²					
その他		Base	Subgrade	Subgrade	Base	Subgrade

特記事項:

c.f. 1:* 石分を除いた75mm未満の土質材料に対する百分率で表す。

c.f. 2 (1kN/m²=0.102kgf/cm²)

土質試験結果一覧表 (テストピットからの採取試料)

調査件名: タジキスタン国 クルガンチュバードウステイ間改修計画基本設計調査

試料番号		TP km58.5L	TP km59.2L				
(深さ)		0.25	0.38				
		1.00	1.00				
一般	湿潤密度 ρ_t (g/cm ³)						
	乾燥密度 ρ_d (g/cm ³)						
	土粒子の密度 ρ_s (g/cm ³)	2.742					
	自然含水比 W_n %						
	空隙比 e						
	飽和度 S_r %						
粒度	石分 (75mm以上) %						
	レキ分* (2~75mm以上) %						
	砂分* (0.075~2mm以上) %						
	シルト分* (0.005~0.075mm以上) %						
	粘土分* (0.005mm未満) %						
	最大粒径 mm						
	均等係数 U_c						
コンシステン	液性限界 W_L %						
	塑性限界 W_p %						
	塑性指数 IP %						
	E_s %						
分類	地盤材料の分類名						
	分類記号						
締固め	試験方法						
	最大乾燥密度 ρ_{dmax} (g/cm ³)	1.909	1.887				
	最適含水比 W_{opt} %	11.7	11.6				
CBR	試験方法						
	膨張比 %	0.71	0.94				
	貫入試験後含水比 %	12.5	11.5				
	平均CBR %	10	8				
	90%修正CBR %						
	95%修正CBR %						
コーン指数	突固め回数						
	コーン指数 qc kN/m ²						
その他		Subgrade	Subgrade	Subgrade	Base	Subgrade	

特記事項:

c.f. 1:* 石分を除いた75mm未満の土質材料に対する百分率で表す。

c.f. 2 (1kN/m²=0.102kgf/cm²)

土質試験結果一覧表(原石山・土取場)

調査件名: タジキスタン国 クルガンチュヘドゥステイ間改修計画基本設計調査

試料番号 (深さ)		BP1	BP1a 2.00	BP2 2.00	BP3 2.00		
m		§	§	§	§	§	§
m							
一般	湿潤密度 ρ_t (g/cm ³)						
	乾燥密度 ρ_d (g/cm ³)						
	土粒子の密度 ρ_s (g/cm ³)	2.743	2.774	2.677	2.773		
	自然含水比 W_n %						
	間隙比 e						
	飽和度 S_r %						
粒度	石分 (75mm以上) %						
	レキ分* (2~75mm以上) %		0.5	70.1	71.7		
	砂分* (0.075~2mm以上) %		90	25.3	27.5		
	シルト分* (0.005~0.075mm以上) %		9.5	4.6	0.8		
	粘土分* (0.005mm未満) %						
	最大粒径 mm		2	50	50		
均等係数 U_c							
コンシステン	液性限界 W_L %	24.9					
	塑性限界 W_p %	22.3					
	塑性指数 IP %	2.6					
	Es %						
分類	地盤材料の分類名						
	分類記号						
締固め	試験方法						
	最大乾燥密度 ρ_{dmax} (g/cm ³)	1.77	1.74	2.08	2.00		
	最適含水比 W_{opt} %	12.5	11	6.8	8.4		
CBR	試験方法						
	膨張比 %	0.63	0.63	0.18	0.63		
	貫入試験後含水比 %	11.3	9.7	7.2	7.0		
	平均CBR %	8	12	22	23		
	90%修正CBR %						
95%修正CBR %							
すりへり	37.5/9.5mm (%)			15.3	13.2		
	12.5/9.5mm (%)			15.5	18.5		
	6.0/4.75mm (%)			13.5	22.7		
	2.36mm (%)			21.7			
その他	安定性		2.17	4.58	2.88		
	吸水率 37.5/19.0			0.54			
	19.0/12.5			1.11	0.48		
	12.5/4.75			1.01	0.99		
アルカリ・シリカ反応 (%)			0.045	0.0286			

特記事項:

c.f. 1:* 石分を除いた75mm未満の土質材料に対する百分率で表す。

c.f. 2 (1kN/m²=0.102kgf/cm²)

土質試験結果一覧表（原石山・土取場）

調査件名： タジキスタン国 クルガンチュバードウステイ間改修計画基本設計調査

試料番号		Q1	Q2	Q3			
(深さ)		2.00					
m							
m			サルバント	シリカル			
一般	湿潤密度 ρ_t (g/cm ³)						
	乾燥密度 ρ_d (g/cm ³)						
	土粒子の密度 ρ_s (g/cm ³)	2.679	2.048	2.715			
	自然含水比 W_n %						
	空隙比 e						
	飽和度 S_r %						
粒度	石分 (75mm以上) %	14.5	35.6				
	レキ分* (2~75mm以上) %	71.2	64.4	73.3			
	砂分* (0.075~2mm以上) %	13.1		22.1			
	シルト分* (0.005~0.075mm以上) %	1.2		4.6			
	粘土分* (0.005mm未満) %						
	最大粒径 mm	75	75	50			
	均等係数 U_c						
コンシステン	液性限界 W_L %						
	塑性限界 W_p %						
	塑性指数 IP %						
	E_s %						
分類	地盤材料の分類名						
	分類記号						
締固め	試験方法						
	最大乾燥密度 ρ_{dmax} (g/cm ³)	2.11		2.19			
	最適含水比 W_{opt} %	7.9		6.9			
CBR	試験方法						
	膨張比 %	0.48		0.69			
	貫入試験後含水比 %	7.0		6.5			
	平均CBR %	33		38			
	90%修正CBR %						
	95%修正CBR %						
すりへり	37.5/9.5mm (%)	17.8	9.6	13.7			
	12.5/9.5mm (%)	16.6	15.8	17.5			
	6.0/4.75mm (%)	17.2	22.9	16			
	2.36mm (%)	22.1		23.3			
その他	安定性	2.16					
	吸水率 37.5/19.0	0.56		0.49			
	19.0/12.5	1.2E+00		1.21			
	12.5/4.75	0.98		0.98			
	アルカリ・シリカ反応 (%)	0.0455	0.0396				

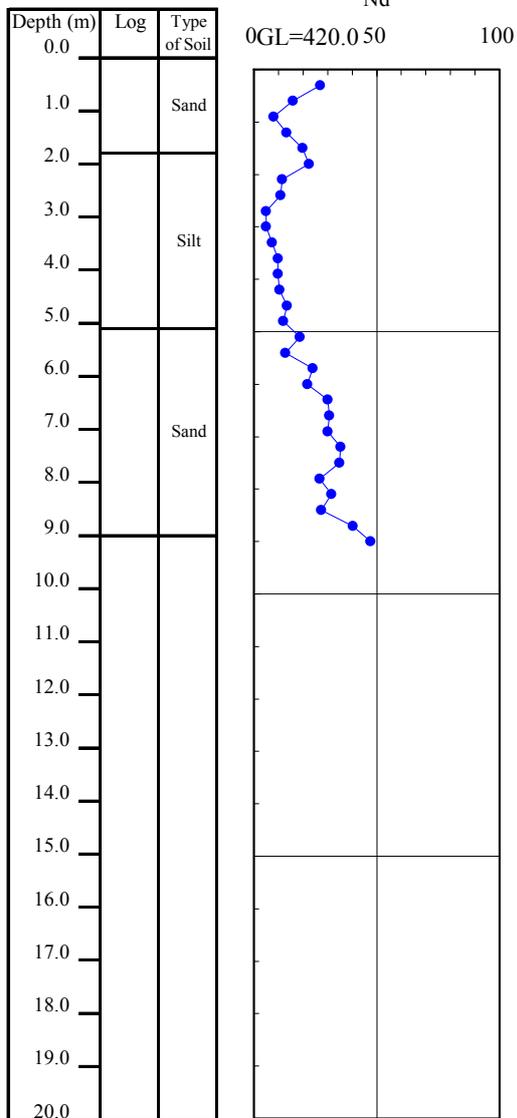
特記事項:

c.f. 1:* 石分を除いた75mm未満の土質材料に対する百分率で表す。

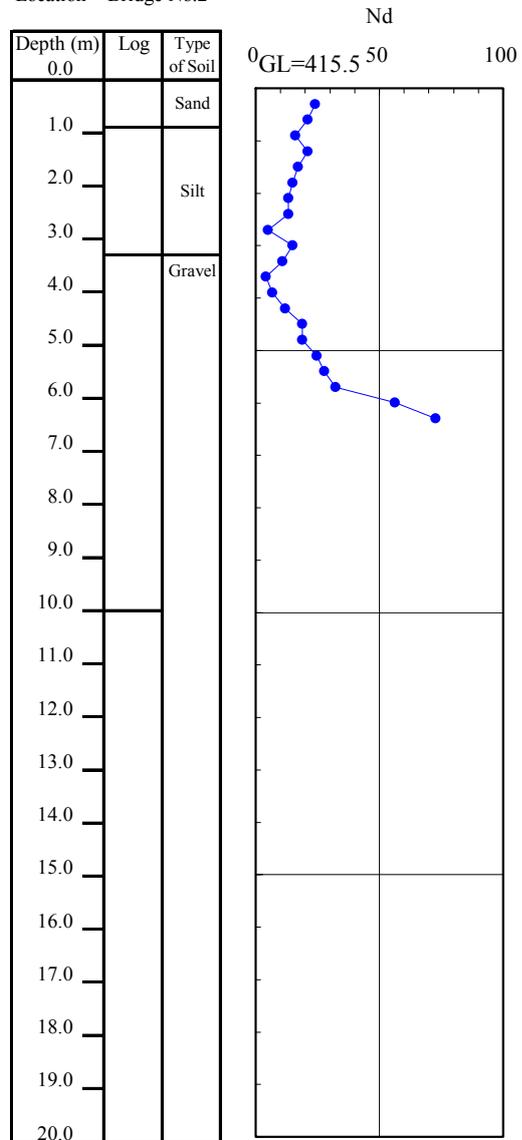
c.f. 2 (1kN/m²=0.102kgf/cm²)

7-3. 自然条件調査結果 (地質)

Date 18th July 2007
Location Bridge No.1



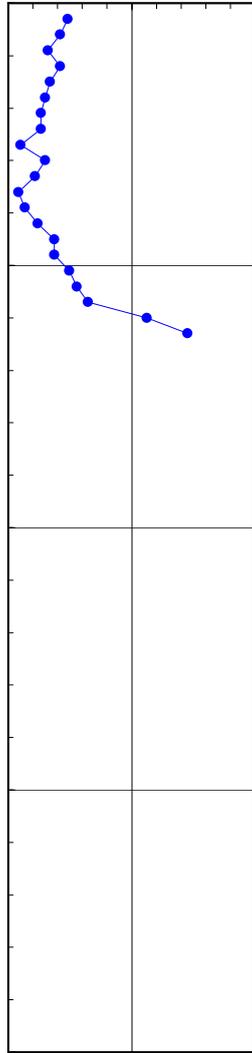
Date 19th July 2007
Location Bridge No.2



Date 17th July 2007
 Location Bridge No.3

Depth (m)	Log	Type of Soil
0.0		
1.0		Sand
2.0		Sand
3.0		Sand
4.0		Silt
5.0		Compacted Sand
6.0		Compacted Sand
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		

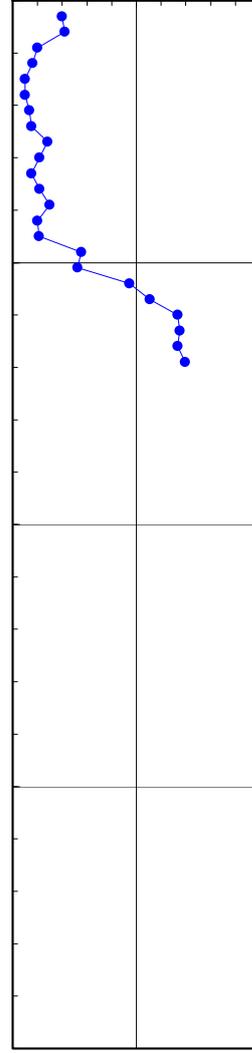
Nd
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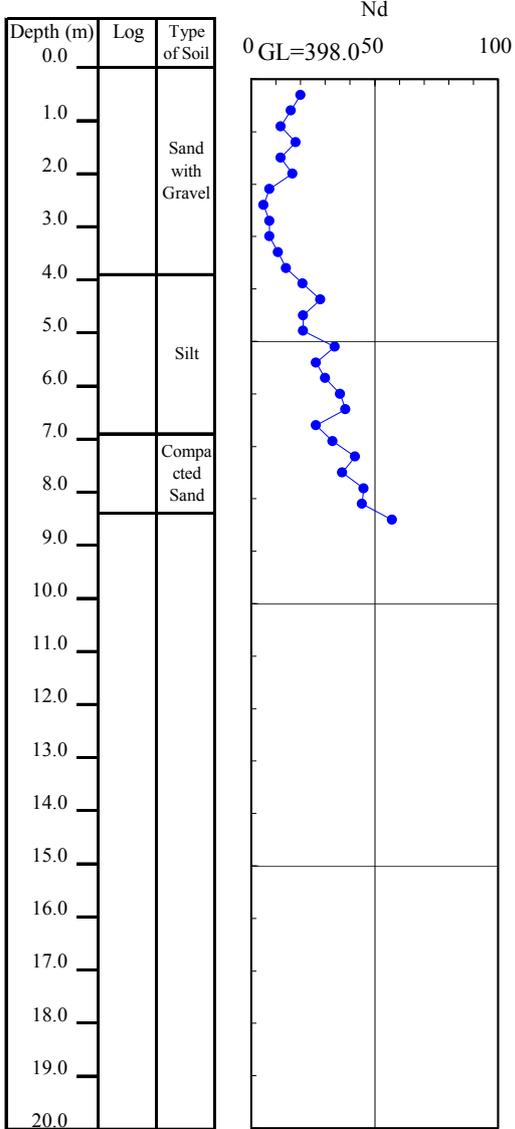
Date 14th July 2007
 Location Bridge No.4

Depth (m)	Log	Type of Soil
0.0		Sand
1.0		Sand
2.0		Sand
3.0		Sand
4.0		Sand
5.0		Compacted Sand
6.0		Compacted Sand
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		

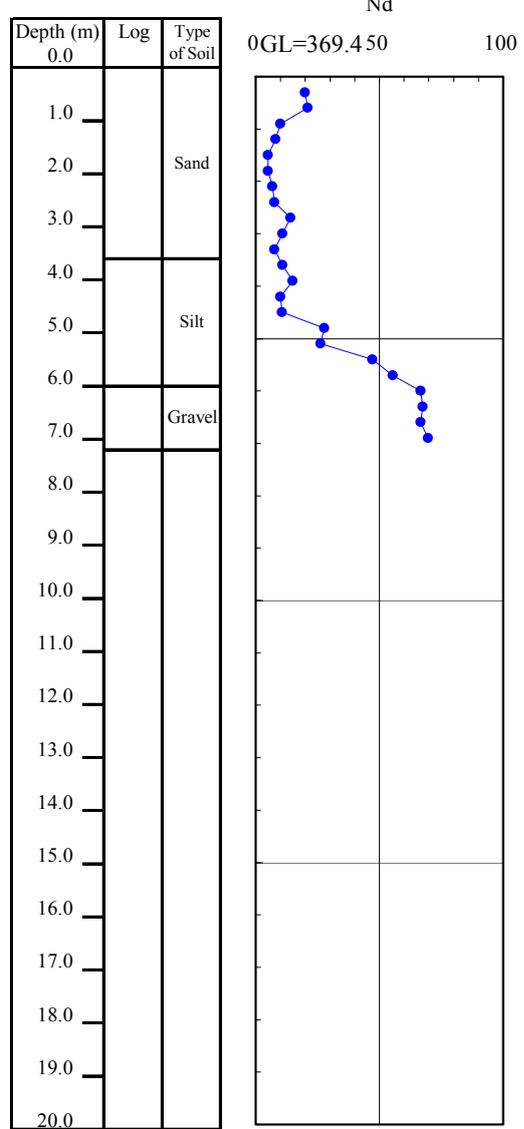
Nd
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Date 14th July 2007
 Location Bridge No.5

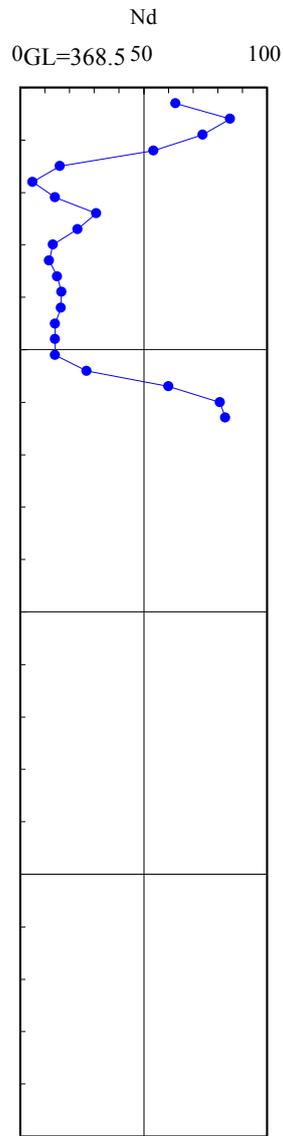


Date 11th July 2007
 Location Bridge No.6



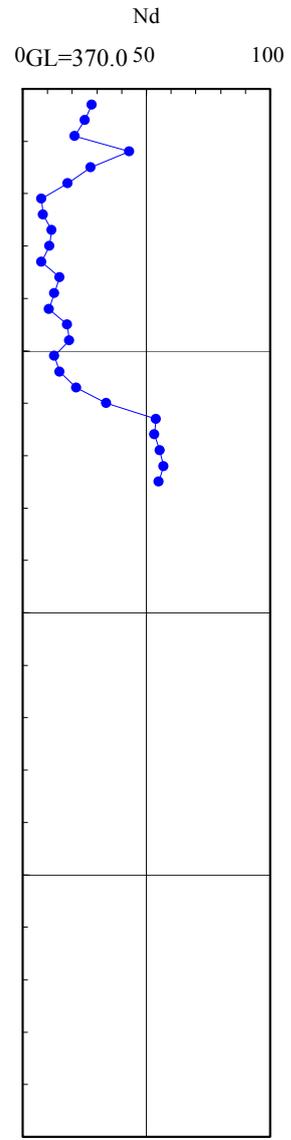
Date 10th July 2007
 Location Bridge No.8

Depth (m)	Log	Type of Soil
0.0		
1.0		
2.0		Sand
3.0		
4.0		Silt
5.0		
6.0		Gravel
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		

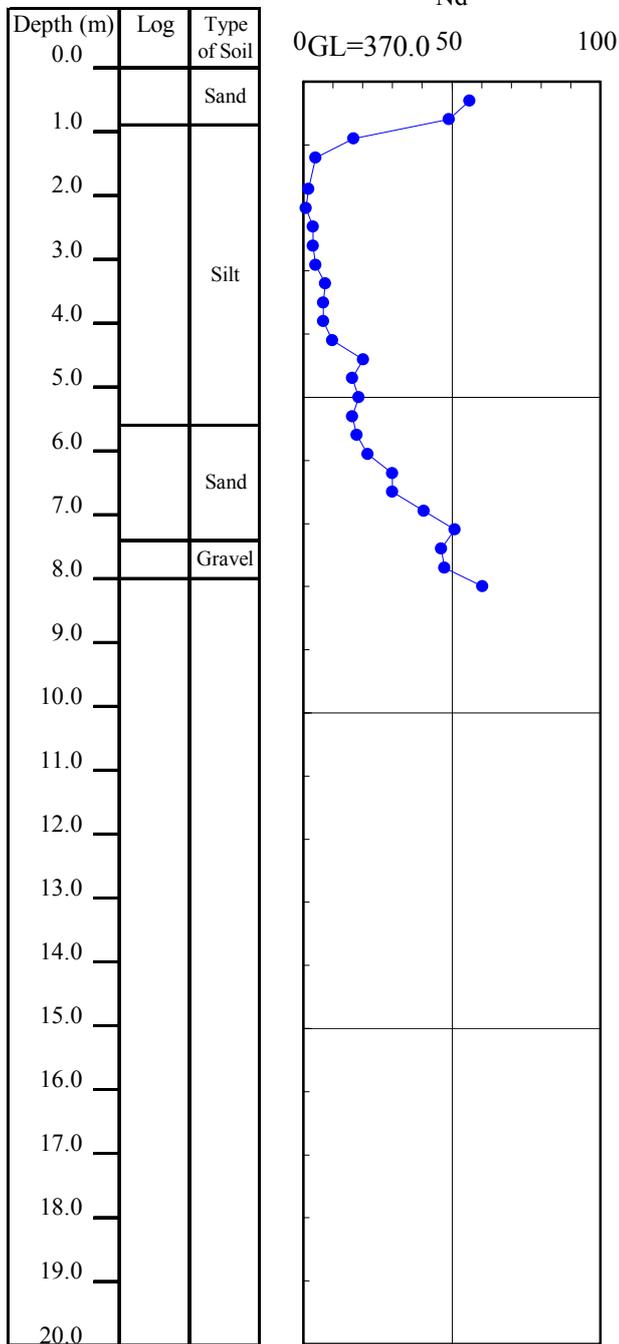


Date 10th July 2007
 Location Bridge No.9

Depth (m)	Log	Type of Soil
0.0		
1.0		Sand
2.0		
3.0		
4.0		Silt
5.0		
6.0		
7.0		Gravel
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		

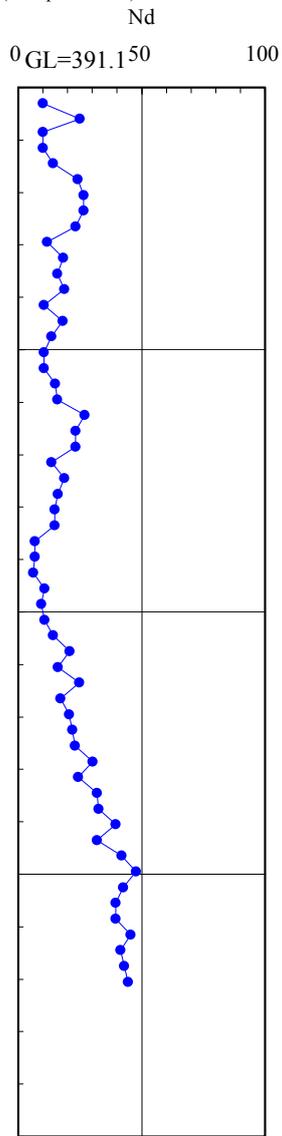


Date 4th July 2007
 Location Bridge No.10



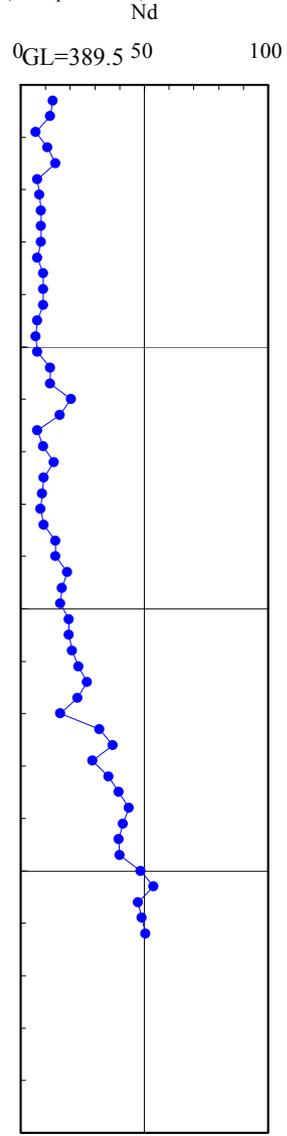
Date 2nd July 2007
 Location Bridge No.11-1 (End point Side)

Depth (m)	Log	Type of Soil
0.0		
1.0		
2.0		Sand
3.0		
4.0		
5.0		Silt
6.0		Sand
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		Silt
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		



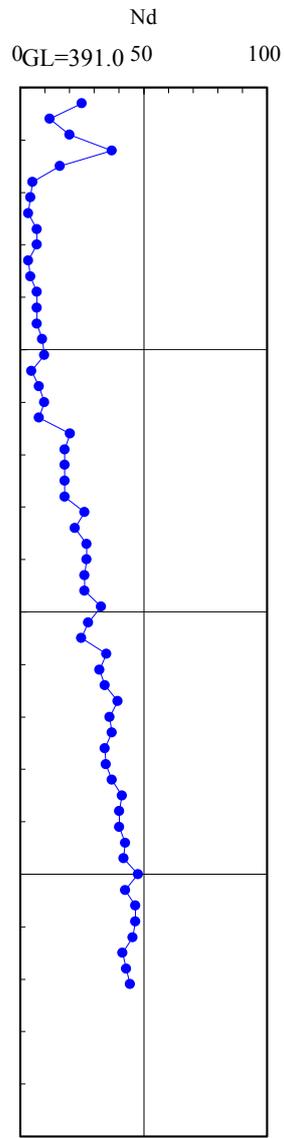
Date 3rd July 2007
 Location Bridge No.11-2 (Start point Side)

Depth (m)	Log	Type of Soil
0.0		
1.0		
2.0		
3.0		
4.0		Sand
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		Silt
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		



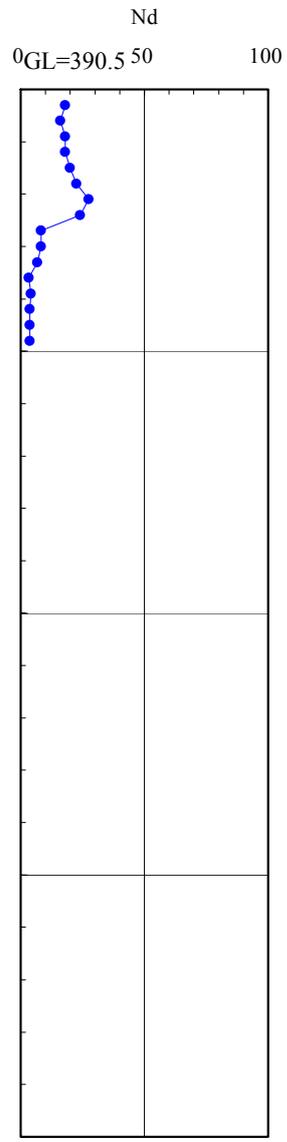
Date 6th July 2007
 Location Bridge No.12

Depth (m)	Log	Type of Soil
0.0		
1.0		Fill
2.0		
3.0		Sand
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		Silt
11.0		
12.0		
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		



Date 6th July 2007
 Location Bridge No.13

Depth (m)	Log	Type of Soil
0.0		
1.0		
2.0		
3.0		Silt
4.0		
5.0		
6.0		
7.0		
8.0		
9.0		
10.0		
11.0		
12.0		
13.0		
14.0		
15.0		
16.0		
17.0		
18.0		
19.0		
20.0		



Date 3th July 2007
 Location Bridge No.14

