Appendices

1. Member List of the Study Team
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Member of the Study Team

The Basic Design Study
on
the Project for Construction of New Kawasoti Substation
in the Kingdom of Nepal

1. Shinji YOSHIURA
   Leader
   Resident Representative,
   JICA Nepal Office

2. Hidetaka SAKABE
   Project Coordinator
   Officer,
   Transportation and Electric Power Team,
   Project Management Group I,
   Grant Aid Management Department, JICA

3. Hiroyuki MORITA
   Chief Consultant / Power Supply Planner
   Nippon Koei Co., Ltd.

4. Yoshiyuki KUDO
   Substation & Transmission Planner /
   Natural Condition Survey (Topographic/Geographic)
   Nippon Koei Co., Ltd.

5. Kazuyuki TADA
   Procurement Planner / Cost Estimator
   Nippon Koei Co., Ltd.

Member of the Study Team

The Basic Design Study
on
the Project for Construction of New Kawasoti Substation
in the Kingdom of Nepal

(Explanation of the Draft Report)

1. Yoshio FUKUDA
   Leader
   Deputy Resident Representative,
   JICA Nepal Office

2. Hiroyuki MORITA
   Chief Consultant / Power Supply Planner
   Nippon Koei Co., Ltd.

3. Yoshiyuki KUDO
   Substation & Transmission Planner /
   Natural Condition Survey (Topographic/Geographic)
   Nippon Koei Co., Ltd.

The Project for Construction of New Kawasoti Substation in the Kingdom of Nepal
Site Survey: Nobember 8 to December 7, 2005

No.	Date	Day	Stay	Official		Consultant		
				JICA Mr. Yoshiura (Team Leader)	JICA Mr. Sakabe (Project Coordinator)	Mr. Morita	Mr. Kudo	Mr. Tada
1	Nov. 8	Tue	Bangkok		Narita→Bangkok (TG641)			
2	9	Wed	Kathmandu	(Entry at Site)	Bangkok→Kathmandu (TG319), Coutesy Call on JICA Nepal			
3	10	Thu	Kathmandu	Courtesy Call on Embassy of Japan, Ministry of Water Resources and Nepal Electricity Authority				
4	11	Fri	Kathmandu	Discussion with NEA, Explanation on Inception Report with NEA				
5	12	Sat	Bharatpur		Kathmandu→Bharatpur (GI111), Site Suurvey at Two Candidate Sites for New Kawasoti S/S, Existing Kawasoti S/S and Mukundapur S/S (under Construction)			
6	13	Sun	Bharatpur	Site Survey at Factory, Distribution Office, Existing Kawasoti S/S, Two Candidate Site for New Kawasoti S/S, Mukundapur S/S (under Construction)				
7	14	Mon	Kathmandu	Site Survey, Bharatpur→Kathmandu（OY174）				
8	15	Tue	Kathmandu	Discussion with NEA for Minutes				
9	16	Wed	Kathmandu	Discussion with NEA for Minutes				
10	17	Thu	Kathmandu	Discussion with NEA and Signing of Minutes				
11	18	Fri	Kathmandu		Reporting to JICA Nepal, Courtesy Call on EOJ, Kathmandu→Bangkok (TG319) Bangkok→Narita（TG642）	Reporting to JICA Nepal, Courtesy Call on Embassy of Japan, Preparation of Contract with Local Consultant		
12	19	Sat	Kathmandu		Arriving on Narita (TG642)	Data Collection, Preparation of Contract with Local Consultant		
13	20	Sun	Kathmandu			Data Collection, Preparation of Contract with Local Consultant		
14	21	Mon	Kathmandu			Data Collection, Discussion with NEA for Technical Matter		
15	22	Tue	Kathmandu			Data Collection, Discussion with NEA for Technical Matter		
16	23	Wed	Kathmandu			Data Collection, Discussion with NEA for Technical Matter		Narita→Bangkok (TG641)
17	24	Thu	Kathmandu			Data Collection, Discussion with NEA for Technical Matter		Bangkok→Kathmandu (TG319)
18	25	Fri	Bharatpur			Distribution of Tender Documents for Local Consultant, Kathmandu→Bharatpur (OY173), Decision of General Location of New Kawasoti S/S		
19	26	Sat	Bharatpur			Site Survey at Bharatpur S/S, Existing Kawasoti S/S and Existing 11kV Distribution Line		
20	27	Sun	Bharatpur			Site Survey at Bharatpur S/S, Land for New Kawasoti S/S and Existing 11kV Distribution Line		Bharatpur→Kathmandu (OY174)
21	28	Mon	Bhairahawa			Site Survey, Bharatpur→Kathmandu (OY174) Getting Bid Document	Kathmandu→Bhairahawa (BHA855)	Discussion with NEA, Data Collection
22	29	Tue	Kathmandu			Evaluation of Local Consultant, Making Drawings	Site Survey at Bardhaghat S/S, Bhairahawa→Kathmandu (BHA856)	Data Collection
23	30	Wed	Kathmandu			Data Collection, Making Drawings, Bidding for Local Consultant		
24	Dec. 1	Thu	Kathmandu			Data Collection, Making Drawings, Reporting to JICA Nepal		
25	2	Fri	Kathmandu			Visiting World Bank, Data Collection, Making Drawings		
26	3	Sat	Kathmandu			Discussion with NEA, Data collection		
27	4	Sun	Kathmandu			Discussion with NEA person in charge of ADB Project, Data Collection		
28	5	Mon	Kathmandu			Courtesy Call on Embassy of Japan, NEA, JICA Nepal		
29	6	Tue	(in flight)			Kathmandu→Bangkok (TG320), Bangkok→Narita（TG642）		
30	7	Wed				Arriving on Narita (TG642)		

Appendix 2 (1 of 2) Study Schedule

The Project for Construction of New Kawasoti Substation in the Kingdom of Nepal

Explanation on Draft Basic Design Report: March 24 to 30, 2006

No.	Date	Day	Stay	Official	Consultant	
				JICA Mr. Fukuda (Team Leader)	Mr. Morita	Mr. Kudo
1	Mar. 24	Fri	Bangkok		Narita→Bangkok (TG677)	
2	25	Sat	Kathmandu		Bangkok→Kathmandu（TG319)	
3	26	Sun	Kathmandu		Courtesy Call on NEA, and Explanation on DBD and Draft Specification with NEA	
4	27	Mon	Kathmandu		Reporting to JICA Nepal and Discussion with JICA Nepal for Study Schedule, Courtesy Call on Embassy of Japan	
					Discussion with NEA for DBD and Draft Specification	
5	28	Tue	Kathmandu		Discussion with NEA for Finalization of Minutes of Meeting	
					Signing of Minutes of Meeting（16:00AM）	
6	29	Wed	(in flight)		Reporting to JICA Nepal and Embassy of Japan	
					Kathmandu→Bangkok (TG320), Bangkok→Narita (TG642)	
7	30	Thu			Arriving on Narita (TG642)	

Appendix 2 (2 of 2) Study Schedule

Person in Charge of Recipient Country

The Basic Design Study
On
the Project for Construction of New Kawasoti Substation
in the Kingdom of Nepal

1. Ministry of Water Resources
   1. Mr. Anup Kumar Upadhyay — Joint Secretary

2. Nepal Electricity Authority

1.	Mr. Harish Chandra Shah	Managing Director
2.	Mr. Balaram Shrestha	General Manager, Transmission & System Operation
3.	Mr. Bhoj Raj Regmi	Act. General Manager, Engineering Services
4.	Mr. Uttar K. Shrestha	Deputy Managing Director, Finance and Administration
5.	Mr. Shambhu Pd. Upadhyay	General Manager, Generation
6.	Mr. Lok Man Maskey	Deputy Managing Director, Internal Audit
7.	Mr. H. M. Palikhe	Director, Transmission Line/Sub-station Construction Department
8.	Mr. Madhav P. Khakurel	Director, System Operation Department/Middle marsyangdi
9.	Mr. Shashi Raj Shrestha	Project Director, Middle Marsyangdi Hydro Electric Project
10.	Mr. Tirtha Man Shakya	Director, Technical Service/Commercial Department
11.	Mr. Santosh Kumar Pradhan	Project Coordinator, Rural Electrification & Transmission Project
12.	Mr. Krishna Jung Rayamajhi	Project Manager, Thankot-Chapagaon-Bhaktapur 132kV T/L Project (Coordinator of ADB Projects)
13.	Mr. Kanhaiya K. Manahdhar	Project Manager, Khimti-Dhalkebar 220kV Transmission Line Project
14.	Mr. Rajeev Sharma	Manager (Electrical), Transmission Line / Substation Construction Department
15.	Mr. Prem Bahadur Ayer	Assist. Director (Finance)
16.	Mr. Bhuvan Kumar Chhetry	Deputy Manager, Load Dispatch Center
17.	Mr. Bishnu Prasad Shrestha	Assistant Manager, Load Dispatch Center
18.	Mr. Subhash K. Mishra	Asst. Manager, Thankot-Chapagaon-Bhaktapur 132kV T/L Project
19.	Mr. Om K. Shrestha	Asst. Manager, ME(Elec. Power System)
20.	Mr. Mr. Shiva Pokharel	Supervisor, Transmission / Substation Dept.
21.	Mr. Rajendra Singh Chettri	Kawasoti Distribution Office
22.	Mr. Indra Raj Chaudari	Kawasoti Distribution Office
23.	Mr. Indra Bahadvy Khamcha	Kawasoti Distribution Office
24.	Mr. Lalhan Upadhyaya	Kawasoti Distribution Office
25.	Mr. Balshanker Sanju	Bardghat Substation
26.	Mr. Basundevd Chaudhary	Bardghat Substation
27.	Mr. Bijay Ghimire	Bardghat Substation
28.	Mr. Dhawtal Chaudhary	Bardghat Substation

3. The World Bank
   1. Mr. Rajendra Dhoj Joshi — Senior Education Specialist

4. Embassy of Japan
   1. Mr. Tsuyoshi OOSAKA — First Secretary

5. JICA Nepal Office
   1. Mr. Sinji YOSHIURA — Resident Representative
   2. Mr. Yoshio FUKUDA — Deputy Resident Representative
   3. Ms. Sayako TOKUDA — Assistant Resident Representative
   4. Mr. Yukiyoshi OZAKI — JICA Expert
   5. Mr. Sourab Bickram Rana — Program Officer

Person in Charge of Recipient Country

The Basic Design Study
On
the Project for Construction of New Kawasoti Substation
in the Kingdom of Nepal

(Explanation of the Draft Report)

1. Nepal Electricity Authority

1.	Mr. Harish Chandra Shah	Managing Director
2.	Mr. Balaram Shrestha	General Manager, Transmission & System Operation
3.	Mr. Yugal Kishor Sah	Director, Grid Operation Department
4.	Mr. Bishnu Upadhyay	Project Manager of the Project
5.	Mr. Rajeev Sharma	Manager, Transmission Line/substation Construction Dept.
6.	Mr. Janardan Gautam	Engineer

2. Embasy of Japan

1.	Mr. Makoto YOSHINO	Second Secretary

3. JICA Nepal Office

1.	Ms. Sayako TOKUDA	Assistant Resident Representative
2.	Mr. Sourab Bickram Rana	Program Officer

4. Minutes of Discussions

Minutes of Discussions
on the Basic Design Study
on the Project for Construction of New Kawasoti Substation
in the Kingdom of Nepal

In response to the request from the His Majesty's Government of Nepal (hereinafter referred to as "Nepal"), the Government of Japan decided to conduct a Basic Design Study on the Project for Construction of New Kawasoti Substation (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Nepal the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Shinji Yoshiura, Resident Representative of JICA Nepal Office, and is scheduled to stay in the country from November 9 to December 6, 2005.

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

Kathmandu, November 17, 2005

Shinji Yoshiura
Leader
Basic Design Study Team
Japan International Cooperation Agency

Harish Chandra Shah
Managing Director
Nepal Electricity Authority

ATTACHMENT

1. Objective of the Project

The objective of the Project is to construct New Kawasoti substation and connect transmission line to the New Kawasoti substation for reinforcement of the power distribution to the Kawasoti area.

2. Project Site

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

3. Responsible and Implementing Organizations

3-1. The responsible Ministry is the Ministry of Water Resources (MOWR).

3-2. The implementing agency is the Nepal Electricity Authority (NEA).

3-3. The organization chart of implementing agency is shown in Annex-2.

4. Items Requested by the Government of Nepal

4-1. Originally, the Nepalese side requested the following items.

1) Construction of New Kawasoti substation comprising of 132/11kV transformers.
   (1) Construction of 132kV line bays (including communication and protection).
   (2) Construction of 132kV transformer bay.
   (3) Procurement and installation of power transformer, 132/11kV, 15MVA.
   (4) Procurement and installation of 12kV switchgear cubicles
2) Procurement and installation of 132kV transmission line and related equipment necessary for feeding to the New Kawasoti substation.
3) Procurement and installation of 11kV transmission line and related equipment necessary for feeding to the existing 11kV distribution lines.

4-2. On the discussion with the Team, the Nepalese side proposed a revised plan composed of following items as an alternative on the basic design, considering the expansion of distribution system in future.

1) Construction of New Kawasoti substation comprising of 132/33/11kV transformers.
   (1) Construction of 132kV line bays (including communication and protection).
   (2) Construction of 132kV transformer bay.
   (3) Procurement and installation of power transformer, 132/33kV, 30MVA.
   (4) Construction of 33kV line bay.
   (5) Construction of 33kV transformer bay.
   (6) Procurement and installation of power transformer, 33/11kV, 6/8MVA.
   (7) Procurement and installation of 11kV switchgear cubicle.
2) Procurement and installation of 132kV transmission line and related equipment necessary for feeding to the New Kawasoti substation.
3) Procurement and installation of 11kV transmission line and related equipment necessary for feeding to the existing 11kV distribution lines.

The system diagram of the revised plan is attached as Annex-3

4-3. JICA will assess the appropriateness of the request and the revised plan, and will report its findings to the Government of Japan.

5. Japan's Grant Aid Scheme

5-1. The Nepalese side understood the Japan's Grant Aid scheme explained by the Team, as described in Annex-4.

5-2. The Nepalese side will take the necessary measures, as described in Annex-5, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the study

6-1. The consultants will proceed to further study in Nepal until December 6, 2005.

6-2. JICA will prepare the draft report in English and dispatch a mission to Nepal in order to explain its contents around the middle of March 2006.

6-3. In case that the contents of the report is accepted in principle by the Government of Nepal, JICA will complete the final report in English and send it to the Government of Nepal by May 2006.

7. Other Relevant Issues

7-1. The Nepalese side shall obtain the land owner's agreement for the consultants to conduct Natural Condition Survey at the site by November 23rd, 2005.

7-2. Both sides confirmed that the Nepalese side should secure the land necessary for the New Kawasoti Substation, including temporary yard, by the end of April, 2006, at its expenses.

7-3. The Nepalese side confirmed that the following undertakings should be taken by the Nepalese side at the Nepalese expenses.

(1) Clearance of the land necessary for New Kawasoti substation and 132kv transmission line (including temporary yard, if necessary),

(2) Improvement and/or repair of existing transmission and distribution lines, if necessary.

7-4. Regarding to the Environment Impact Assessment (EIA) for the Project;

(1) The Nepalese side explained that EIA for the Project was now on progress based on the tentative schedule attached as Annex-6.

(2) Both sides confirmed that the Nepalese side should prepare the draft report of EIA by the middle of March, 2006, and hand it to the Study Team dispatched for the explanation of draft report of the Basic Design Study.

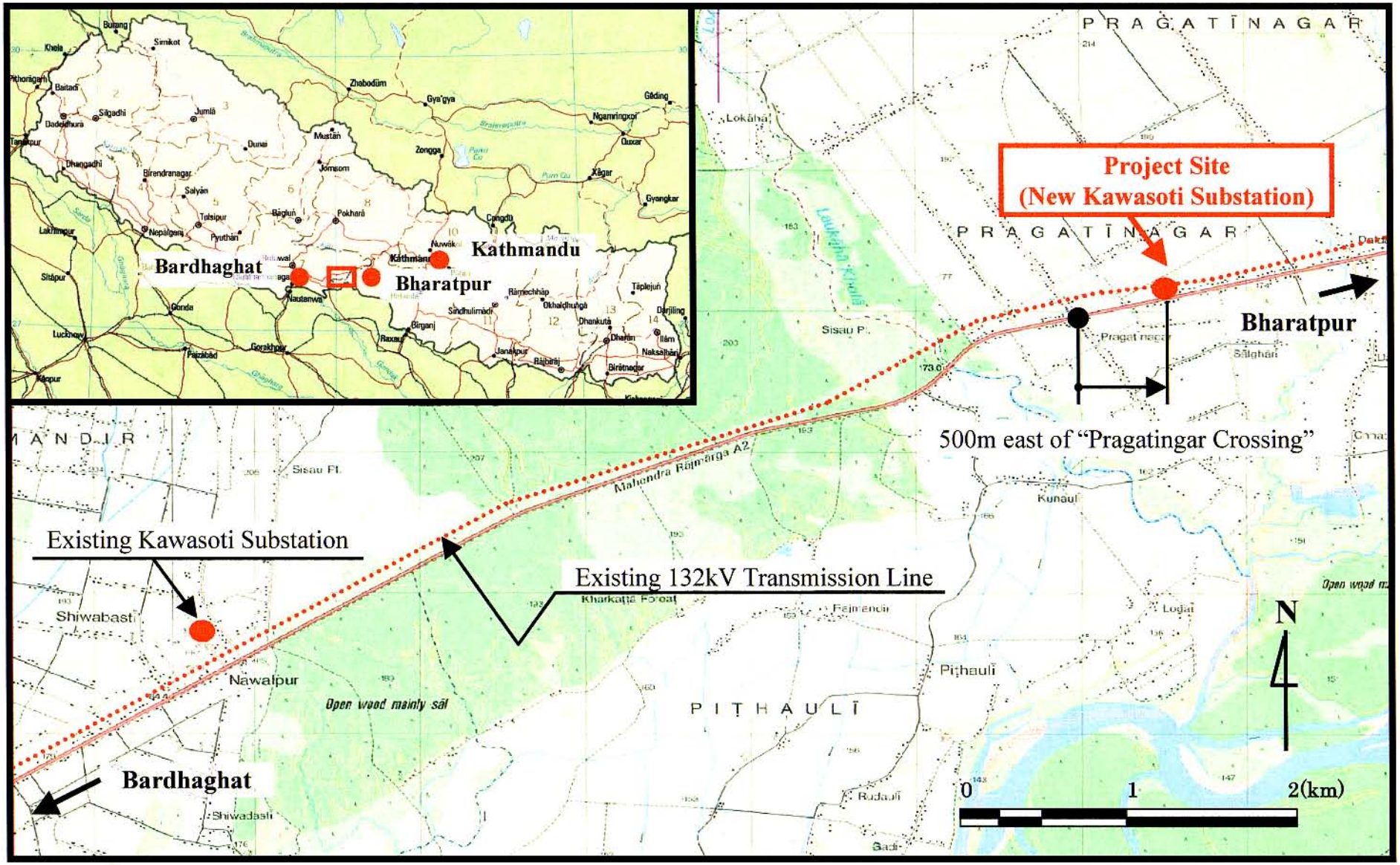
(3) Both sides confirmed that the Nepalese side should prepare the final draft report of EIA, and submit it to JICA Nepal Office by May, 2006.

7-5. The Nepalese side shall take necessary procedures to obtain the construction license for the Project by commencement of the Project

7-6. The Nepalese side shall secure enough budget and personnel necessary for the operation and maintenance of the facilities implemented by the Project, including the periodical maintenance work after the completion of the Project.

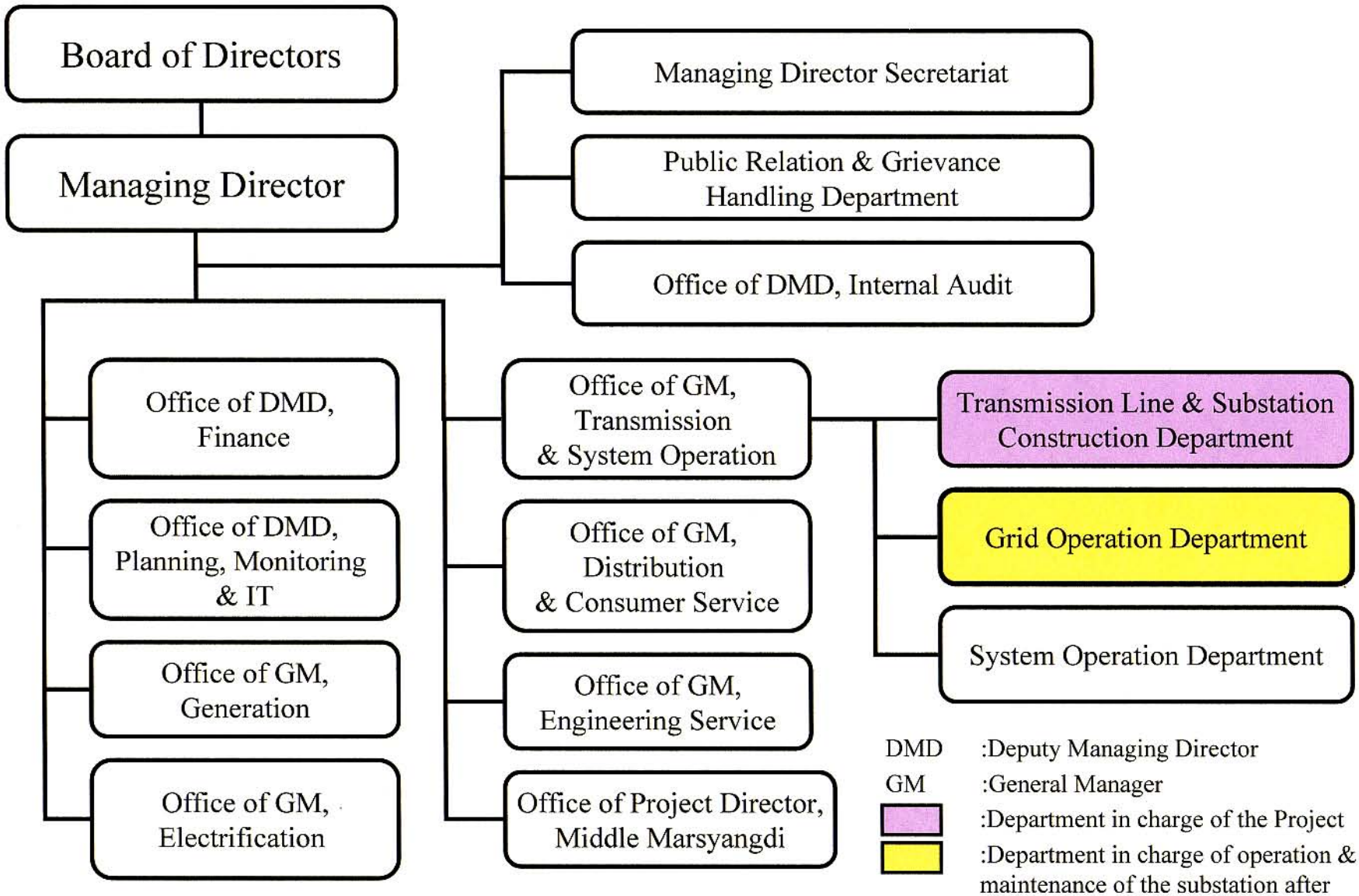
(Annex-1)

The Project Site



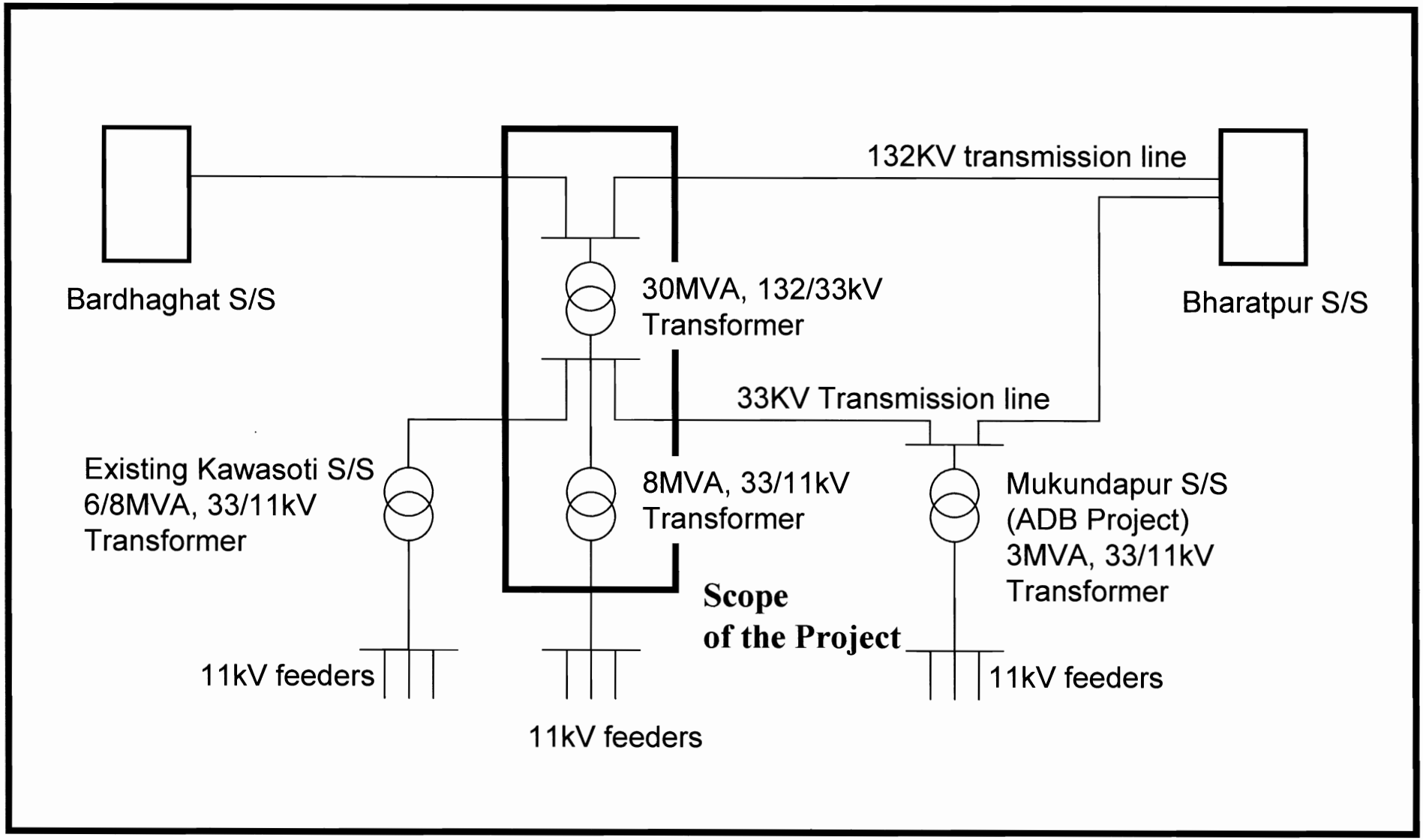
Organization Chart of Nepal Electricity Authority (NEA)

(Annex-2)



(Annex-3)

System Diagram of the Revised Plan



(Annex-4)

JAPAN'S GRANT AID SCHEME

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

1. Grant Aid Procedures

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

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

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

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

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

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

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

2. Basic Design Study

1) Contents of the Study

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

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view;
- Confirmation of items agreed upon by both parties concerning the basic concept of the Project.
- Preparation of a basic design of the Project.
- Estimation of cost of the Project.

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

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

2) Selection of Consultants

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

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

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

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

2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

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

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

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

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

4) Necessity of "Verification"

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

5) Undertakings required to the Government of the recipient country

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

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

6) "Proper Use"

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

7) "Re-export"

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

8) Banking Arrangement (B/A)

(1) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

(2) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to pay (A/P)

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

(ANNEX-5)

Major Undertakings to be Taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Country
1	To Secure land (including temporary yard)		●
2	To clear, level and reclaim the site		●
3	To construct gates and fences in and around the site		●
4	To construct the parking lots in the site	●	
5	To construct roads within the site	●	
6	To construct the control building of New Kawasoti substation	●	
7	To provide the facilities for the distribution of electricity, water, drainage, and other incidental facilities		
	1) Electricity		
	a. The main circuit breaker and transformer	●	
	b. The drop wiring and internal wiring within the site	●	
	2) Water supply		
	The water distribution system to the site		●
	3) Drainage		
	The drainage system (for toilet sewer, ordinary waste, storm drainage and others) in the site	●	
	4) Telephone system		
	a. The telephone trunk line to the distribution system frame/panel (MDF) of the building		●
	b. The MDF and the extension after the frame/panel	●	
	5) Furniture and Equipment for Control Building		
	a. General Furniture		●
	b. Project equipment	●	
8	To connect the 132kV line to new substation on the Project	●	
9	To improve and/or repair of 132kV Transmission lines and 11kV feeders to customers when needed		●
10	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising Commission of A/P		●
	2) Payment commission		●
11	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country		
	1)Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the boarder of Nepal		●
	3) Internal transportation from the port of disembarkation to the project site	●	

12	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
13	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
14	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
15	To bear all the expense, other than those to be borne by the Grant Aid, necessary for construction of the substation facilities		●

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

(Annex-6)

New Kawasoti Substation Project (132/33/11 kV)
Environmental Impact Assessment Study Schedule

No.	Activities	Schedule in Months											
		2005			2006								
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
1	**Scoping and ToR Stage**												
1.1	Literature Collection and Review												
1.2	Preparatory Work & Publication of Scoping Notice												
1.3	Field Visit for Scoping and ToR												
1.4	Collection of Muchulka and Concerns of VDC												
1.5	Preparation & Submission of Scoping and ToR Report												
1.6	Approval of Scoping Report & ToR												
2	**EIA Stage**												
2.1	Desk Study and Preparatory Work												
2.2	Field Investigation												
2.3	Data Encoding and Analysis												
2.4	Draft Report Preparation												
2.5	Preparation & Implementation of Public Hearing Program												
2.6	Collection of Recommendation of VDCs												
2.7	EIA Report Preparation and Submission												
2.8	Report Approval												

5. Minutes of Discussions

(Explanation of the Draft Report)

Minutes of Discussions
on the Basic Design Study
on the Project for the Construction of New Kawasoti Substation
in the Kingdom of Nepal
(Explanation on Draft Report)

In November 2005, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Construction of New Kawasoti Substation (hereinafter referred to as "the Project") to the Kingdom of Nepal (hereinafter referred to as "Nepal"), 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 Nepal on the contents of the draft report, JICA sent to Nepal the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Yoshio Fukuda, Deputy Resident Representative, JICA Nepal Office, from March 25 to 29, 2006.

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

Kathmandu, March 28, 2006

福田義夫

Yoshio Fukuda
Leader
Draft Report Explanation Team
Japan International Cooperation Agency

H. C. Shah

Harish Chandra Shah
Managing Director
Nepal Electricity Authority

ATTACHMENT

1. Components of the Draft Report

The Nepalese side agreed and accepted in principle the contents of the draft report and draft detailed specification explained by the Team.

2. Japan's Grant Aid Scheme

The Nepalese side reconfirmed the Japan's Grant Aid scheme and the necessary measures to be taken by the Nepalese side as explained by the Basic Design Study Team and described in the Annex-4 and Annex-5 of the Minutes of Discussions signed by both sides on November 17, 2005.

3. Schedule of the Study

JICA will complete the Final Report in accordance with the confirmed items and send it to the Nepalese side by the end of May 2006.

4. Other Relevant Issues

4-1. The Team handed one copy of the draft detailed specifications of the scheduled substation equipment to Mr. Bishnu P. Upadhyay, Project Manager of Nepal Electricity Authority. Both sides agreed that these draft specifications were confidential and should not be duplicated or released to any outside parties.

4-2. Regarding the Environmental Impact Assessment (EIA) for the Project;

(1) The Nepalese side explained that EIA for the Project was now on progress based on the tentative schedule attached as Annex-1.

(2) Both sides confirmed that the Nepalese side has submitted the draft report to JICA Nepal Office on March 27, 2006.

(3) The Nepalese side explained that there were no outstanding issues of environmental and social considerations during the EIA study.

(4) Both sides confirmed that the Nepalese side should prepare the final draft report of EIA, and submit it to JICA Nepal Office by the end of April, 2006.

4-3. Both sides confirmed that the Nepalese side should secure the land necessary for the New Kawasoti Substation, including temporary yard if necessary, by the end of April, 2006, at its expenses.

4-4. The Nepalese side confirmed that the following undertakings should be taken by the Nepalese side at the Nepalese expenses.

(1), Improvement and/or repairing of existing transmission and distribution lines, if necessary,

(2) Clearance of the land necessary for New Kawasoti substation (including temporary yard, if necessary),

(3) Obtaining the construction license for the Project by commencement of the Project,

(4) Securing enough budget and personnel necessary for the operation and maintenance of the facilities implemented by the Project, including the periodical maintenance work after the completion of the Project, and

(5) Installing of additional 33/11kV transformer in the system according to expansion of electric power demand.

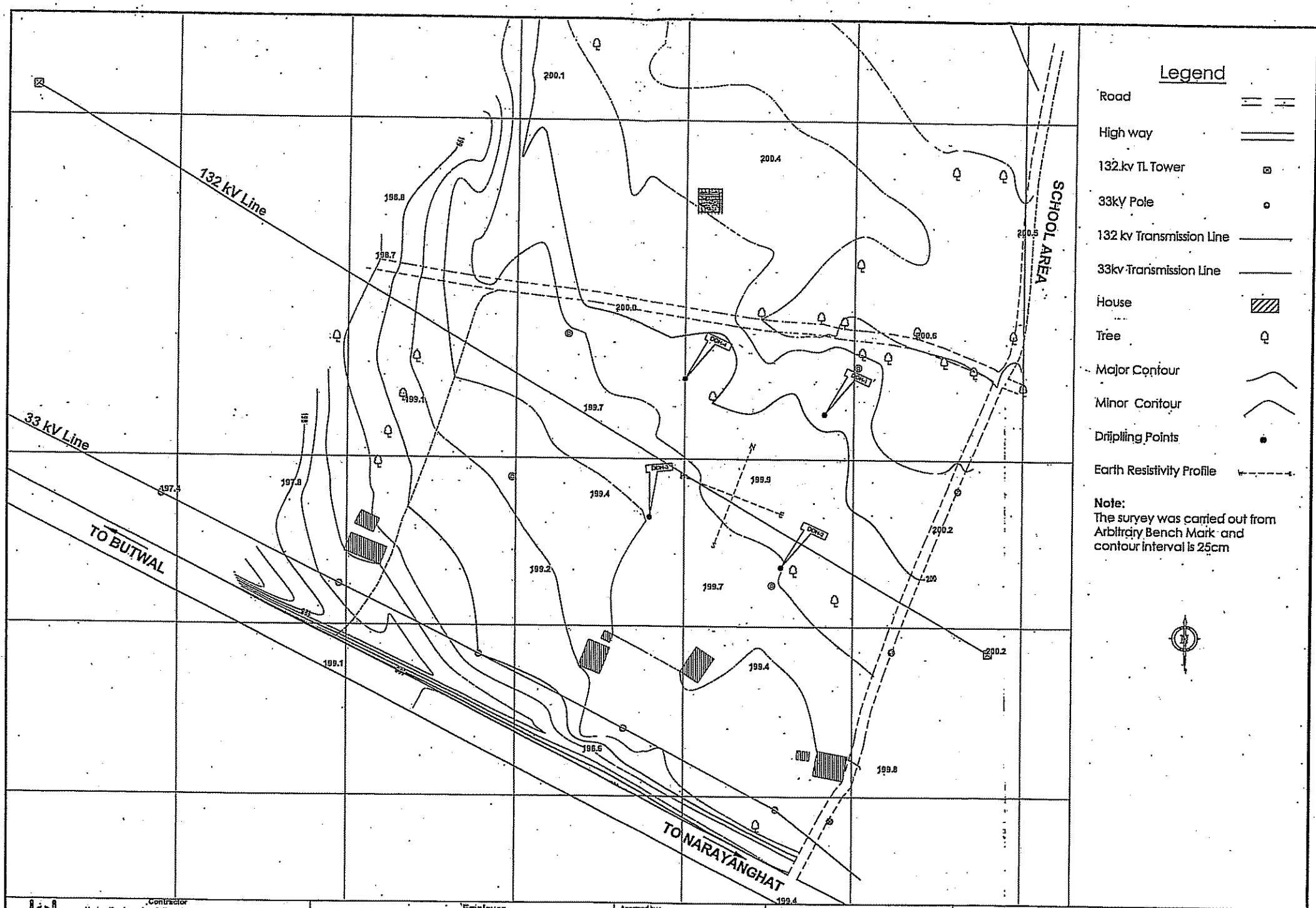
4-5. The Nepalese side shall make proper arrangements for holding the Board Meeting of Nepal Electricity Authority (NEA) for smooth implementation of the Project.

(Annex-1)

KAWASOTI 132/33/11 kV SUBSTATION PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT STUDY SCHEDULE

No.	Activities	Schedule in Months											
		2005			2006								
		Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.
1	**Scoping and ToR Stage**												
1.1	Literature Collection and Review												
1.2	Preparatory Work & Publication of Scoping Notice												
1.3	Field Visit for Scoping and ToR												
1.4	Collection of Muchulka and Concerns of VDC												
1.5	Preparation & Submission of Scoping and ToR Report												
1.6	Approval of Scoping Report & ToR												
2	**EIA Stage**												
2.1	Desk Study and Preparatory Work												
2.2	Field Investigation												
2.3	Data Encoding and Analysis												
2.4	Draft Report Preparation												
2.5	Preparation & Implementation of Public Hearing Program												
2.6	Collection of Recommendation of VDCs												
2.7	EIA Report Preparation and Submission												
2.8	Report Approval												

6. Soil Investigation Results



Contractor Hydro Engineering & Development Co.(P) Ltd. P.O. Box:7021 Naxal,Nagpokhari, Kathmandu Phone #: 4410877, Fax: 4410749 Email: hydroeng@wlink.com.np HEDCO	Employer Nippon Koei Co.Ltd New Kawasoti Sub Station Project	Approved by : Checked by : Surveyed by : Date :	SCALE 1:1000	Title Topographical Map New Kawasoti Sub Station Project	Dwg. :01

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	5.00
Steel Casing (Nx)	89mm	0.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-1 Elevation :200.05
Depth to Waer Table : 12.70m Started Date : December 29,2005
Driller : Srendra Raj bajracharya Logged by : Ravi Arayal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
100			Top Soil, gray CLAY		0.00	0.50	↓	7			
100			Yellowish gray sandy clayey SILT		1.00	2.30	↓	24			
21					2.00		↓	48*			
100			Yellowish gray silly SAND with boulder		3.00	2.20	↓	45*			
40					4.00		↓	23*			
					5.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	SHEET NO : DDH-1
Hydro Engineering & Development Co. (P) Ltd. (ENGINEERING PROJECT MANAGEMENT, CONSTRUCTION & DEVELOPMENT) P. O. Box : 7025 Nagpokhari, Naxal, Kathmandu. HEDCO	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	1/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing (Hw)	110mm	1.00
Steel Casing(Nx)	89mm	4.00
.....	.....	.....
.....	.....	.....

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-1 Elevation : 200.05
Depth to Waer Table : 12.70m Started Date : December 29,2005
Driller : Sumdra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
30					5.00		↓	53*			
					6.00	2.80					
50			Yellowish gray silty SAND with boulder				↓	50*			
					7.00						
10							↓	57*			
					8.00						
15			Yellowish gray silty SAND with gravel and boulder				↓	58*			
					9.00	2.20					
35							↓	76*			
					10.00						

LEGEND

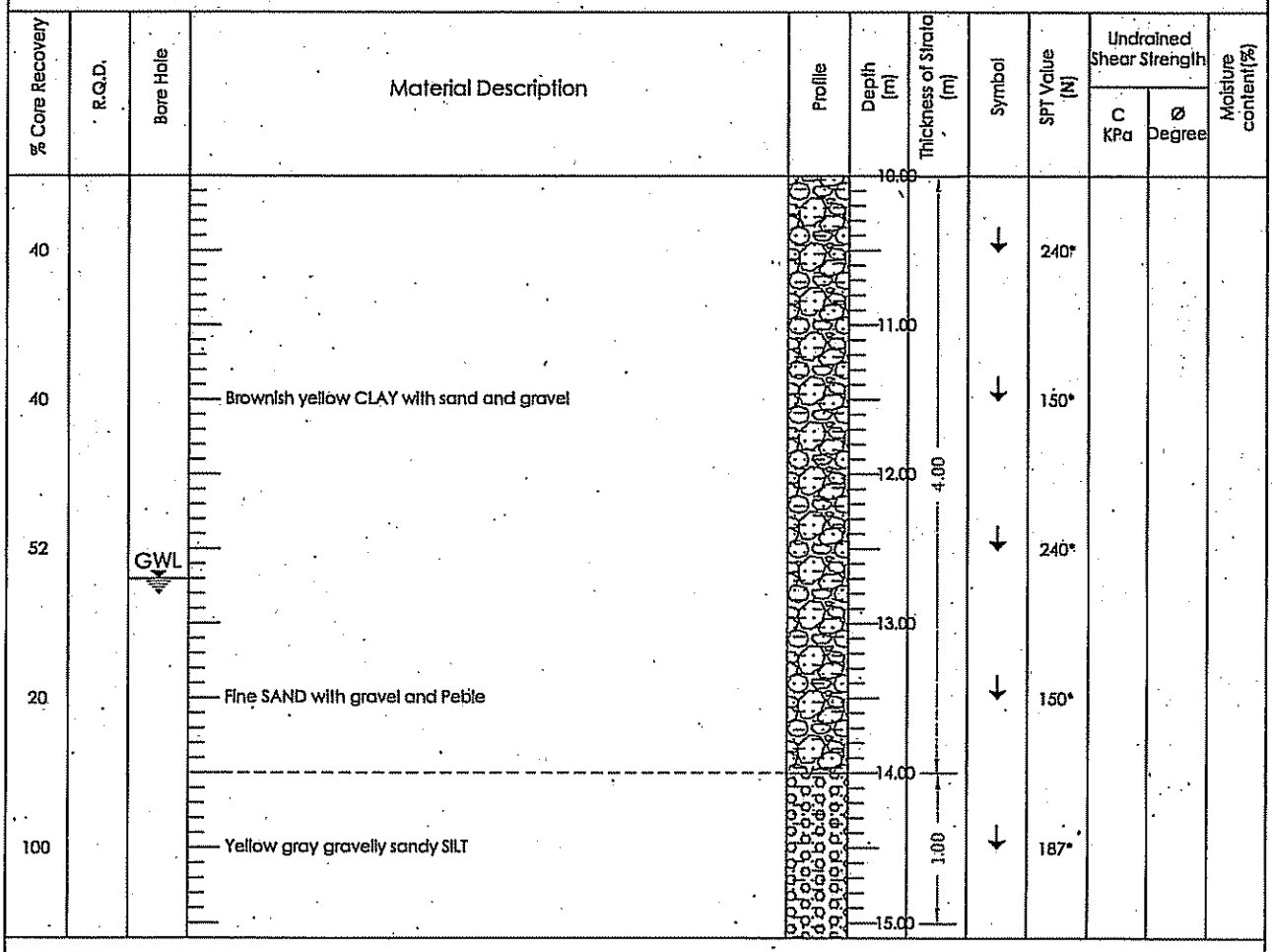
- ------ Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- ● Disturbed Soil Sample
- ■ Core Sample
- □ Core Sample Lost
- • DCPT Carried out
- ↓ Standard Penetration Test
- ≡ Water Table
- N No of Blows / 30cm Penetration
- ● Bulk Sample

Contractor	Employer	Title	
HEDCO *Hydro Engineering & Development Co. (P) Ltd.* (ENGINEERING,PROJECT MANAGEMENT,CONSTRUCTION & DEVELOPMENT) P. O. Box : 7025 Naggokari, Naval, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	SHEET NO :DDH-1 2/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing (Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-1 Elevation : 200.05
Depth to Waer Table :12.7m Started Date :December 29,2005
Driller : Surendra Raj Bjracharya Logged by : Ravi Aryal



LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	
Hydro Engineering & Development Co. (P) Ltd. (Engineering Project Management, Construction & Development) P. O. Box : 7025 Nagpokari, Naxal, Kathmandu. HEDCO	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	SHEET NO : DDH-1 3/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing (Hw)	110mm	0.00...
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-1 Elevation : 200.05
Depth to Waer Table : 12.70m Started Date : December 29,2005
Driller : Surendra raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C, KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
100			Yellow gray gravelly sandy SILT		15.00			39*			
100					16.00	2.50		33			
45					17.00			115			
24			Yellowish gray silty SAND with gravel and boulder		18.00	2.50		115*			
30					19.00			37*			
					20.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	SHEET NO : DDH-1
HEDCO Hydro Engineering & Development Co. (P) Ltd. (Engineering, Project Management, Construction & Development) P. O. Box : 7025 Naxpokad, Naxal, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	4/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	5.00
Steel Casing (Nx)	89mm...	0.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-2 Elevation : 199.75
Depth to Waer Table : 12.50m Started Date : January 9,2006
Driller : Surendra Raj Bajracharya Logged by :Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
100			Top Soil, yellowish CLAY		0.00	0.50	↓	9			
			Yellowish Clayey SILT		1.00	1.00					
70							↓	9			
			Yellowish gray clayey SILT with gravel		2.00	1.30					
75							↓	37*			
30					3.00		↓	54*			
			Yellowish gray silty sand with BOULDER		4.00	2.20					
56							↓	61*			
					5.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	SHEET NO : DDH-2
HEDCO Hydro Engineering & Development Co. (P) Ltd. (Engineering Project Management, Construction & Development) P. O. Box : 7025 Nagpokari, Naxal, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	1/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm...	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-2 Elevation : 199.75
Depth to Waer Table : 12.50m Started Date : January 9,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
49					5.00		↓	130*			
29					6.00		↓	51*			
17			Yellowish gray silty sand with BOULDER		7.00	5.00	↓	59*			
29					8.00		↓	65*			
26					9.00		↓	59*			
					10.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-2 Elevation : 199.75
Depth to Waer Table : 12.50m Started Date : January 9,2006
Driller : Surendra Raj Bajracharya Logged by :

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
23					10.00		↓	65*			
					11.00						
34							↓	70*			
			Yellowish gray silty sand wth BOULDER		12.00	4.00					
16		GWL					↓	62*			
					13.00						
36							↓	58*			
					14.00						
36			Yellowish gray silty SAND with gravel and boulder			1.00	↓	71*			
					15.00						

LEGEND

- ------ Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- ● Disturbed Soil Sample
- ■ Core Sample
- □ Core Sample Lost
- • DCPT Carried out
- ↓ Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	SHEET NO : DDH-2
HEDCO Hydro Engineering & Development Co. (P) Ltd. (Engineering, Project Management, Construction & Development) P. O. Box : 7025 Naggokot, Nawal, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	3/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-2 Elevation : 199.75
Depth to Waer Table : 12.50m Started Date : January 9,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
27					15.00			60*			
32					16.00			240*			
17			Yellowish gray silty SAND with gravel and boulder		17.00	5.00		68*			
20					18.00			70*			
22					19.00			72*			
					20.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	SHEET NO : DDH-2
HEDCO Hydro Engineering & Development Co. (P) Ltd. (Hydropower Planning/Project Management, Construction & Development) P. O. Box : 7025 Naggokarl, Nakal, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal	4/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	5.00
Steel Casing (Nx)	89mm	0.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-3 Elevation : 199.45
Depth to Waer Table : 17.50m Started Date : January 17,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
100			Top Soil, gray clayey SILT		0.00	0.50	↓	11			
68					1.00		↓	11			
80					2.00		↓	46*			
14			Gray silty SAND with gravel and boulder		3.00	4.50	↓	39*			
22					4.00		↓	240*			
					5.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	49mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-3 Elevation : 199.45
Depth to Waer Table : 17.50m Started Date : January 17,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
42					5.00		↓	80*			
33					6.00		↓	50*			
23			Gray silty SAND with gravel and boulder		7.00	5.00	↓	49*			
24					8.00		↓	48*			
24					9.00		↓	62*			
					10.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-3 Elevation : 199.45
Depth to Waer Table : 17.50m Started Date : January 17,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Adyal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
40					10.00		↓	240*			
29					11.00		↓	72*			
19			Gray silly SAND with gravel and boulder		12.00	5.00	↓	51*			
23					13.00		↓	240*			
29					14.00		↓	67*			
					15.00						

LEGEND

- ———— Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- ● Disturbed Soil Sample
- ■ Core Sample
- □ Core Sample Lost
- • DCPT Carried out
- ↓ Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	66mm	0.00
Steel Casing (Nx)	...	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-3 Elevation : 199.45
Depth to Waer Table : 17.50m Started Date : January 17,2006
Driller : Kiran Shahi Logged by :

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
17					15.00		↓	240*			
31					16.00		↓	58*			
34		GWL	Gray silty SAND with gravel and boulder		17.00	5.00	↓	49*			
36					18.00		↓	63*			
37					19.00		↓	240*			
					20.00						

LEGEND

- ———— Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- ● Disturbed Soil Sample
- ■ Core Sample
- □ Core Sample Lost
- • DCPT Carried out
- ↓ Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	5.00
Steel Casing (Nx)	89mm	0.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-4 Elevation : 199.90
Depth to Waer Table : 16.30m Started Date : January 24,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
100			Top Soil, yellowish gray CLAY		0.00	0.50	↓	11			
52			Gray clayey silty SAND		1.00	2.50	↓	10			
40					2.00		↓	40*			
19			Gray silty SAND with gravel and boulder		3.00	2.00	↓	53*			
26					4.00		↓	240*			
					5.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- Disturbed Soil Sample
- Core Sample
- Core Sample Lost
- DCPT Carried out
- Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-4 Elevation : 199.90
Depth to Waer Table : 16.30m Started Date : January 24,2006
Driller : Surendra Raj Baracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
					5.00						
18							↓	62*			
					6.00						
44							↓	240*			
			Gray silty SAND with gravel and boulder		7.00						
50						5.00	↓	240*			
					8.00						
44							↓	240*			
					9.00						
40							↓	240*			
					10.00						

LEGEND

Approximate Material Boarder
R. Q. D. Rock mass Quality Designation
• Disturbed Soil Sample
Core Sample
Core Sample Lost
* DCPT Carried out
↓ Standard Penetration Test
Water Table
N No of Blows / 30cm Penetration
Bulk Sample

Contractor	Employer	Title	
HEDCO Hydro Engineering & Development Co. (P) Ltd. P. O. Box : 7015 Naxal, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	SHEET NO : DDH-4 2/4

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-4 Elevation : 199.90
Depth to Waer Table : 16.30m Started Date : January 24,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
25					10.00		↓	240*			
					11.00						
23							↓	240*			
			Gray silty SAND with gravel and boulder		12.00	3.60					
35							↓	63*			
					13.00						
50							↓	55*			
					14.00						
55			Yellow Silty SAND with gravel			1.40	↓	47*			
					15.00						

LEGEND

- ------ Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- ● Disturbed Soil Sample
- ■ Core Sample
- □ Core Sample Lost
- • DCPT Carried out
- ↓ Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

DRILLING RECORD
New Kawasoti Sub station Project
Pragati Nagar, Nawal Parasi, Nepal

Drill and Casing Type	Size	Metres
Steel Casing(Hw)	110mm	0.00
Steel Casing (Nx)	89mm	5.00
...	...	...
...	...	...

Project : New Kawasoti Sub Station Project
Site : Pragati Nagar
Hole No. : DDH-4 Elevation : 199.90
Depth to Waer Table : 16.30m Started Date : January 24,2006
Driller : Surendra Raj Bajracharya Logged by : Ravi Aryal

% Core Recovery	R.Q.D.	Bore Hole	Material Description	Profile	Depth (m)	Thickness of Strata (m)	Symbol	SPT Value - (N)	Undrained Shear Strength C KPa	Undrained Shear Strength Ø Degree	Moisture content(%)
40		GWL			15.00		↓	61*			
23					16.00		↓	44*			
40			Yellow Silty SAND with gravel		17.00	5.00	↓	56*			
30					18.00		↓	48*			
40					19.00		↓	53*			
					20.00						

LEGEND

- Approximate Material Boarder
- R. Q. D. Rock mass Quality Designation
- ● Disturbed Soil Sample
- ▮ Core Sample
- ▯ Core Sample Lost
- * DCPT Carried out
- ↓ Standard Penetration Test
- Water Table
- N No of Blows / 30cm Penetration
- Bulk Sample

Contractor	Employer	Title	SHEET NO : DDH-4
HEDCO Hydro Engineering & Development Co. (P) Ltd. (Engineering, Project Management, Construction & Development) P. O. Box : 7025 Nagpokari, Naxal, Kathmandu.	Nippon Koei Co., Ltd Consulting Engineers Tokyo, Japan.	CORE LOGGING New Kawasoti Sub Station Project Pragati Nagar, Nawal Parasi Nepal.	4/4

EMES Pvt. Ltd.

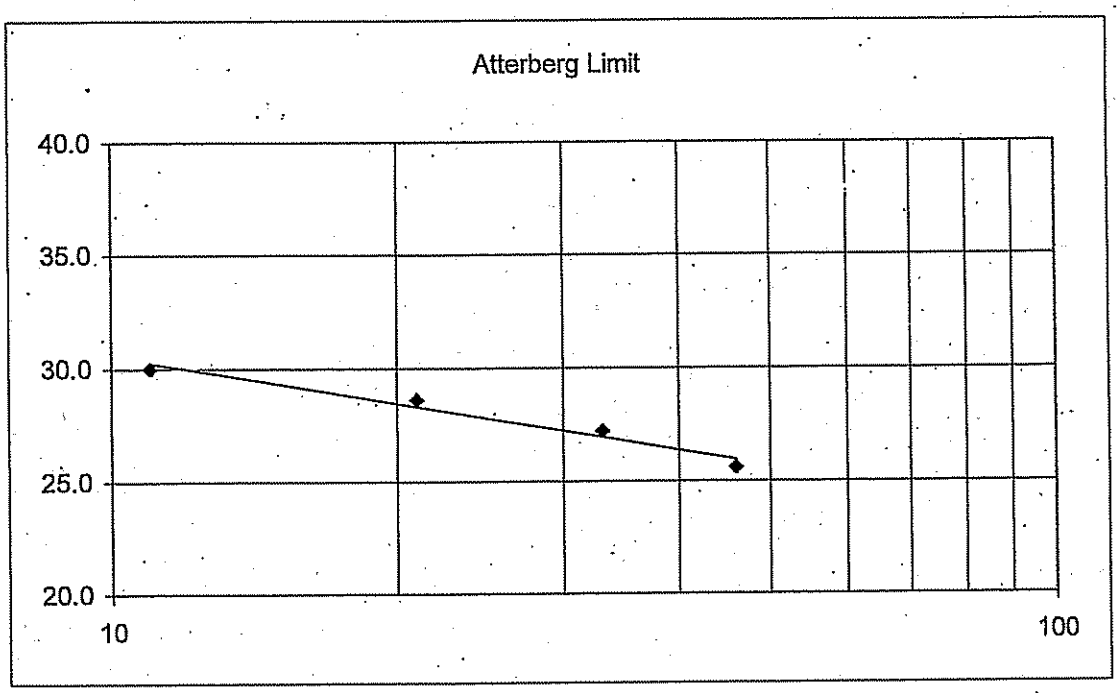
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 10.2.2006
Sample No.:
Standard : AASHTO T 89 - 81 & T 90 - 81
Lab. Ref. : EMES #

Project :- Sub-station
Location :- Pragati nagar
Bore hole No. :- DDH - 1
Depth(m) :- 1.00 - 1.50 (DS-1)

Atterberg Limit Test Results

Number of blows	11	21	33	46
Water content %	30.00	28.61	27.20	25.60



LIQUID LIMIT(LL) = 28 %

PLASTIC LIMIT(PL) = 21 %

PLASTICITY INDEX (PI) = 7 %

Tested by :

EMES Pvt. Ltd. Regd. 814 EMES 2050 Satdobato, Lalitpur

Checked by :

EMES Pvt. Ltd.

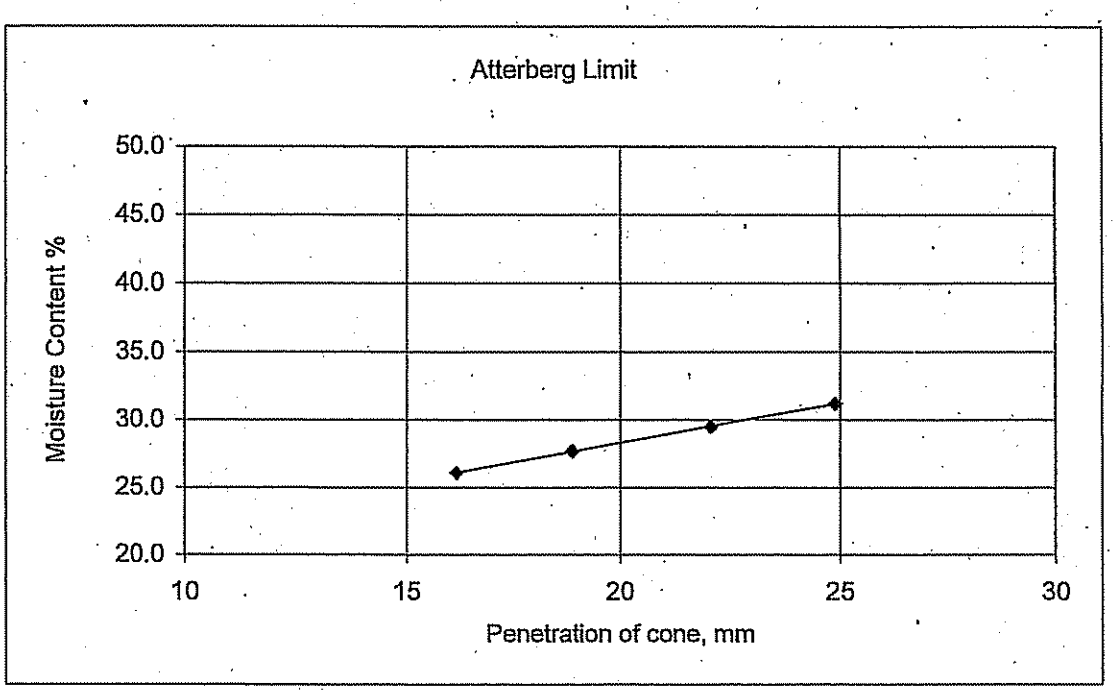
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 10.2.2006
Sample No.:
Standard : BS 1377: 1975, Test 2(A) & Test 3
Ref. EMES #

Project:- Sub-station
Location:- Pragati nagar
Bore Hole No.:- DDH - 1
Depth(m):- 2.00 - 2.50(DS-2)

Atterberg Limit Test Results

Penetration of cone, mm	16.2	18.9	22.1	24.9
Water content %	26.09	27.69	29.49	31.19



LIQUID LIMIT(LL) = 28 %

PLASTIC LIMIT(PL) = NP

PLASTICITY INDEX (PI) = NP

Tested by :

Checked by :

EMES Pvt. Ltd.

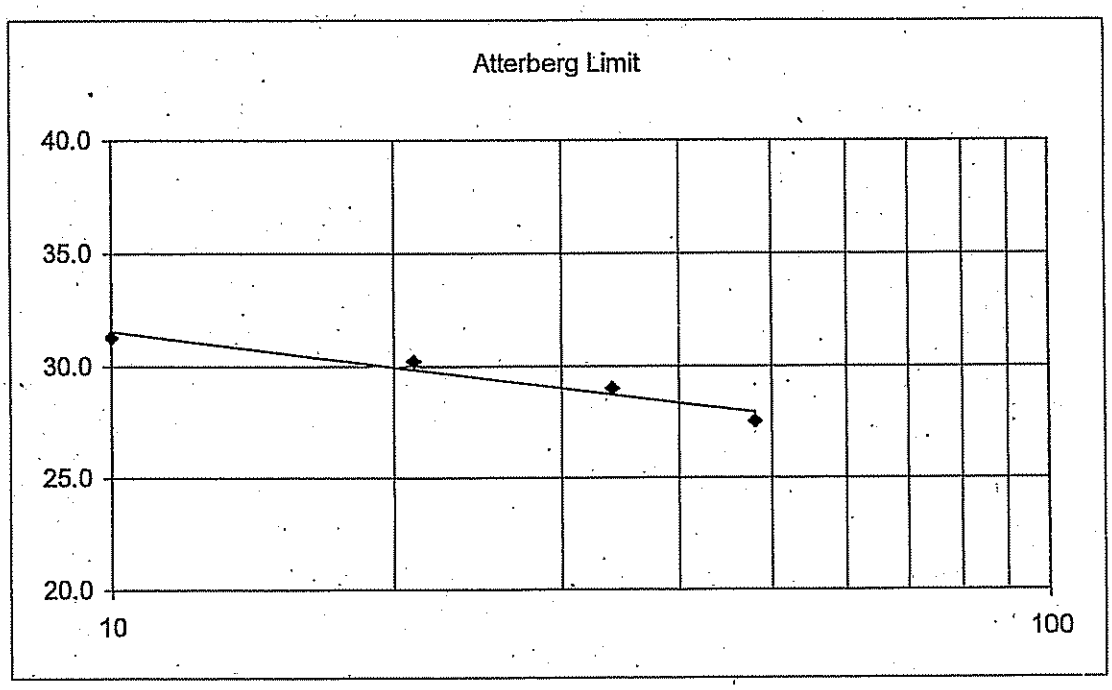
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 10.2.2006
Sample No.:
Standard : AASHTO T 89 - 81 & T 90 - 81
Lab. Ref. : EMES #

Project :- Sub-station
Location :- Pragati nagar
Bore hole No. :- DDH - 2
Depth(m) :- 1.50 - 2.00 (DS-1)

Atterberg Limit Test Results

Number of blows	10	21	34	48
Water content %	31.28	30.21	28.99	27.51



LIQUID LIMIT(LL) = 29 %

PLASTIC LIMIT(PL) = 21

PLASTICITY INDEX (PI) = 8 %

Tested by :

EMES Pvt. Ltd. Regd. 814 EMES 2050 Satdobato, Lalitpur

Checked by :

EMES Pvt. Ltd.

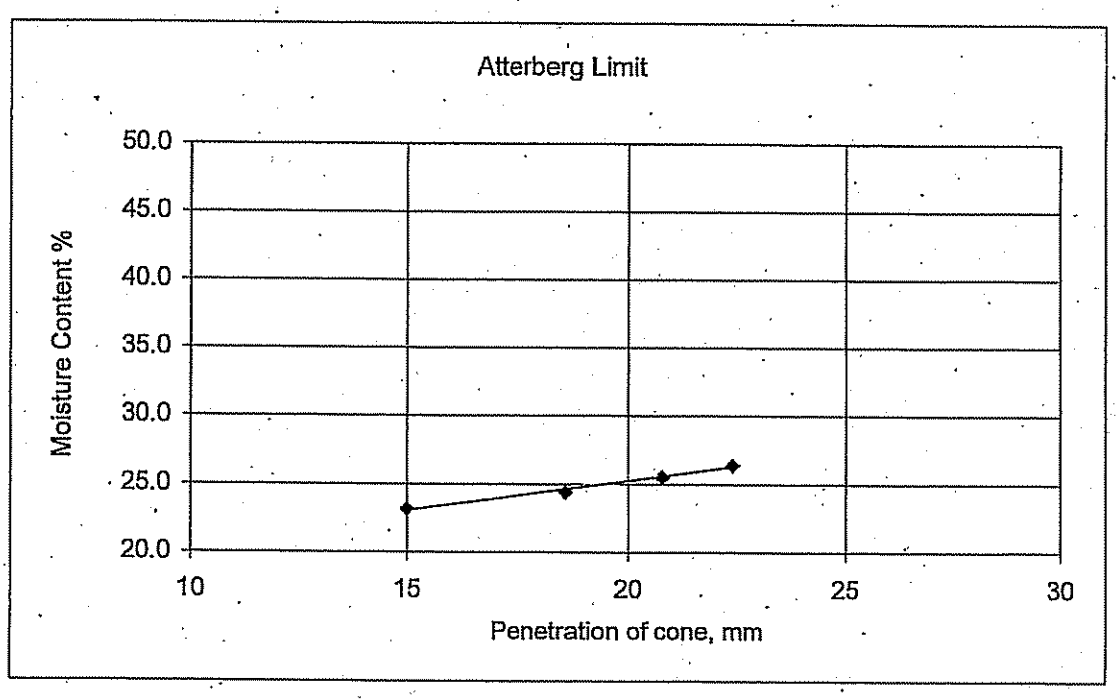
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 9.2.2006
Sample No.:
Standard : BS 1377: 1975, Test 2(A) & Test 3
Ref. EMES #

Project:- Building Complex
Location:- New Baneshwor, Kathmandu
Bore Hole No.:- DDH - 2
Depth(m):- 3.00 - 3.50(DS-2)

Atterberg Limit Test Results

Penetration of cone, mm	15.0	18.6	20.8	22.4
Water content %	23.16	24.41	25.52	26.39



LIQUID LIMIT(LL) = 25 %

PLASTIC LIMIT(PL) = NP

PLASTICITY INDEX (PI) = NP

Tested by :

EMES Pvt. Ltd. Regd. 814 2050 Satdobato, Lalitpur

Checked by :

EMES Pvt. Ltd.

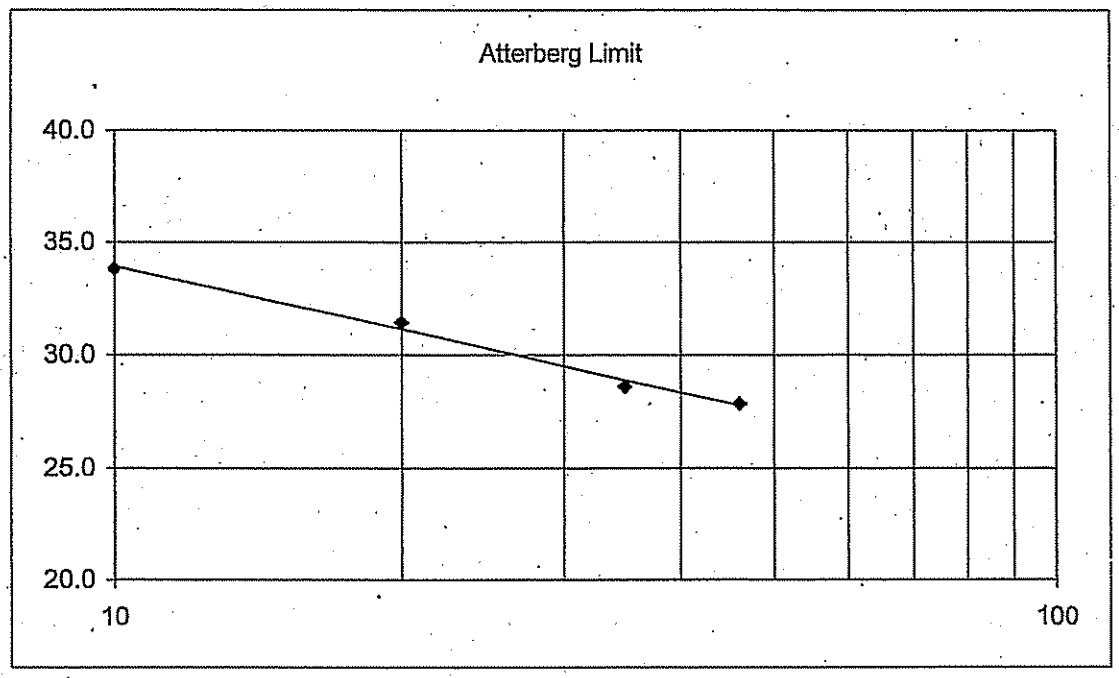
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 9.2.2006
Sample No.:
Standard : AASHTO T 89 - 81 & T 90 - 81
Lab. Ref. : EMES #

Project :- Sub-station
Location :- Pragati nagar
Bore hole No. :- DDH - 3
Depth(m) :- 2.00 - 2.50 (DS-1)

Atterberg Limit Test Results

Number of blows	10	20	35	46
Water content %	33.81	31.42	28.61	27.85



LIQUID LIMIT(LL) = 30 %

PLASTIC LIMIT(PL) = 20 %

PLASTICITY INDEX (PI) = 10 %

Tested by :

EMES Pvt. Ltd. Regd. 814 EMES 2050 Satdobato, Lalitpur

Checked by :

EMES Pvt. Ltd.

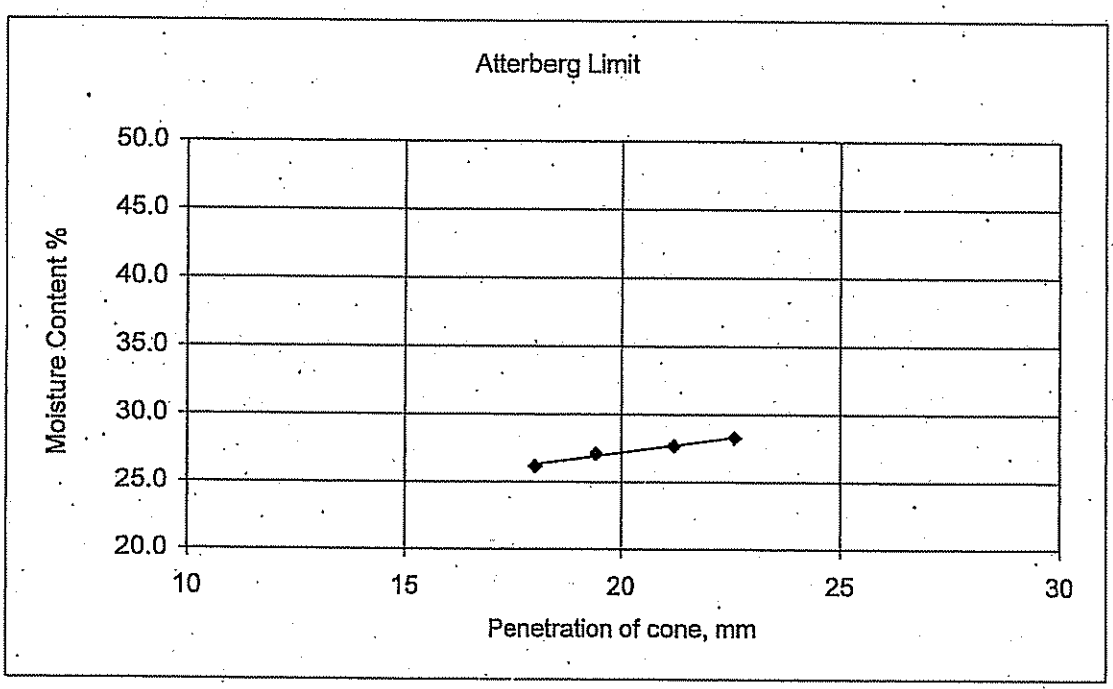
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 9.2.2006
Sample No.:
Standard : BS 1377: 1975, Test 2(A) & Test 3
Ref. EMES #

Project:- Building Complex
Location:- New Baneshwor, Kathmandu
Bore Hole No.:- DDH - 3
Depth(m):- 3.25 - 3.75(DS-2)

Atterberg Limit Test Results

Penetration of cone, mm	18.0	19.4	21.2	22.6
Water content %	26.16	27.10	27.67	28.27



LIQUID LIMIT(LL) = 27 %

PLASTIC LIMIT(PL) = NP

PLASTICITY INDEX (PI) = NP

Tested by :

Checked by :

EMES Pvt. Ltd.

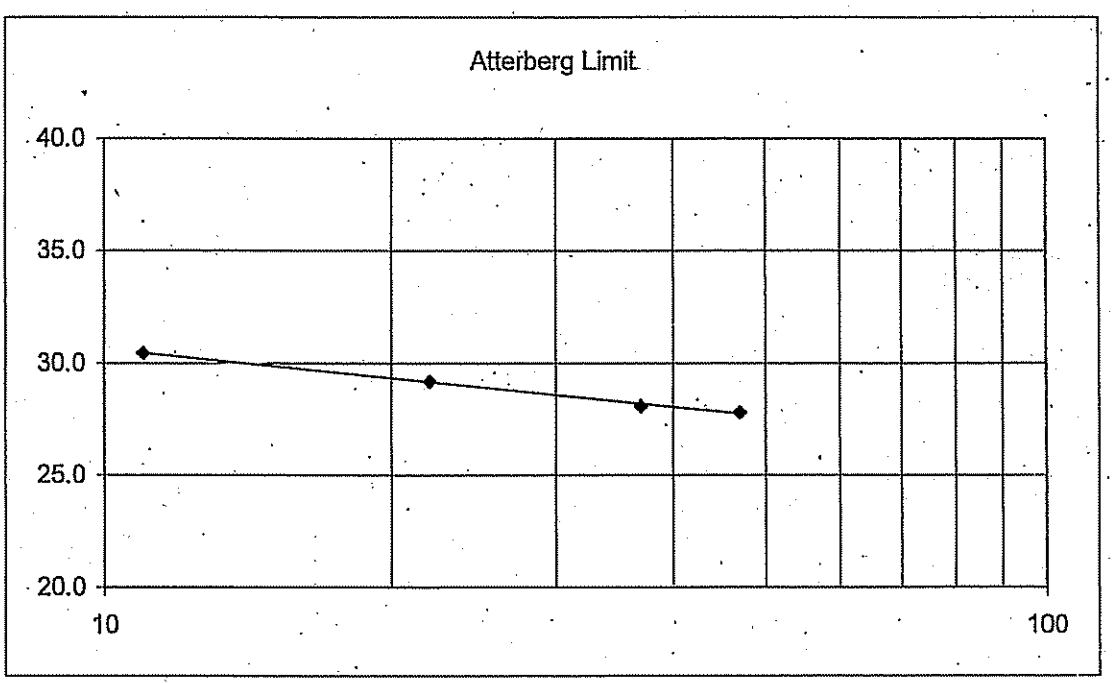
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 9.2.2006
Sample No.:
Standard : AASHTO T 89 - 81 & T 90 - 81
Lab. Ref. : EMES #

Project :- Sub-station
Location :- Pragati nagar
Bore hole No. :- DDH - 4
Depth(m) :- 1.50 - 2.00 (DS-1)

Atterberg Limit Test Results

Number of blows	11	22	37	47
Water content %	30.44	29.18	28.08	27.79



LIQUID LIMIT(LL) = 29 %

PLASTIC LIMIT(PL) = 19 %

PLASTICITY INDEX (PI) = 10 %

Tested by :

Checked by :

EMES Pvt. Ltd.

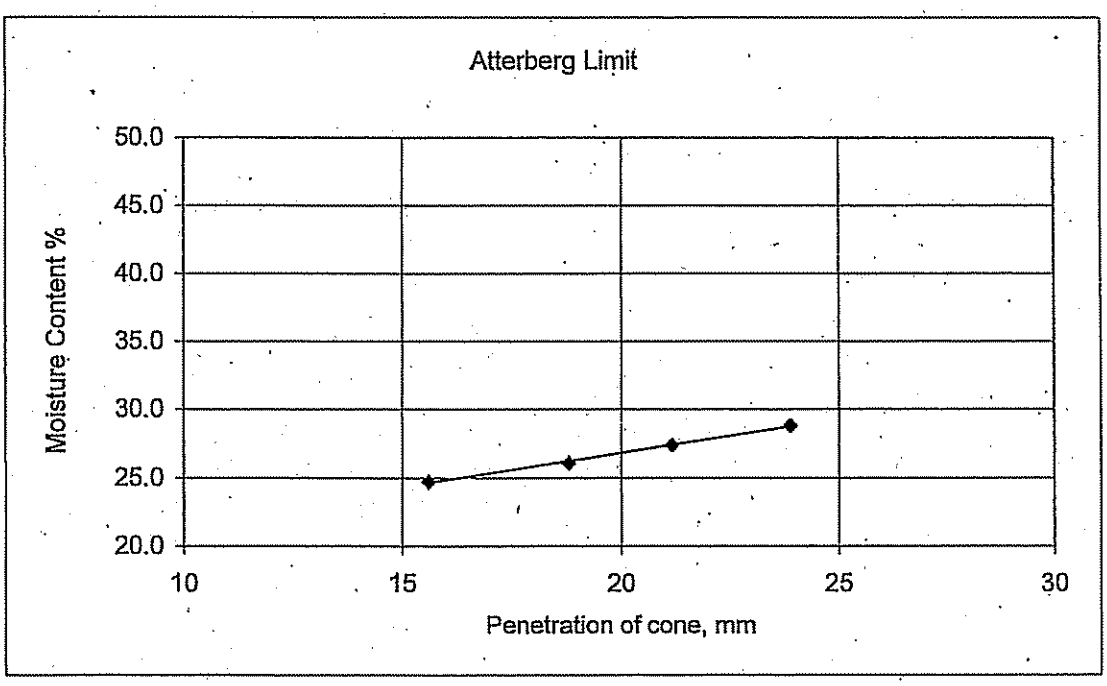
P.O.BOX 1192, Satdobato, Lalitpur, Nepal
PHONE NO : 5-520242.
FAX NO. 977-1-5538325.

Date : 10.2.2006
Sample No.:
Standard : BS 1377: 1975, Test 2(A) & Test 3
Ref. EMES #

Project:- Building Complex
Location:- New Baneshwor, Kathmandu
Bore Hole No.:- DDH - 4
Depth(m):- 3.00 - 3.50(DS-2)

Atterberg Limit Test Results

Penetration of cone, mm	15.6	18.8	21.2	23.9
Water content %	24.71	26.09	27.39	28.79



LIQUID LIMIT(LL) = 27 %

PLASTIC LIMIT(PL) = NP

PLASTICITY INDEX (PI) = NP

Tested by :

EMES Pvt. Ltd. Regd. 814 2050 Satdobato, Lalitpur

Checked by :