CONTENT

MINISTRY OF TRANSPORT
No. 2131/ QD-BGTVT

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

Hanoi dated 12 October 2006

DECISION

On approval of plan and transferring Highway Engineer Consultant Company, a member of Transport Engineering Design Inc. into joint stock company

THE MINISTER OF MINISTRY OF TRANSPORT

Pursuant to Decree No. 34/2003/NĐ-CP dated 04/04/2003 of the Government to on stipulation of functions, tasks, rights, and organization chart of Ministry of Transportation;

Pursuant to Decree No. 187/2004/NĐ-CP dated 16 November 2004 regarding the conversion of state-owned company to joint stock company;

Pursuant to Circular No. 126/2004/TT-BTC dated 24 December 2004 issued by the Ministry of Finance giving instruction on the execution of governmental Decree No. 187/2004/NĐ-CP dated 16 November 2004 on the conversion of state-owned company to joint stock company;

Pursuant to Decision No. 1869/QĐ-BGTVT dated 12 September 2006 issued by the Ministry of Transport on defining the value of Highway Engineer Consultant Stated company;

Under the proposals of the Directing Board on privatization of the state-owned Highway Engineer Consultant company as stated in official document No. 2709/ TCCB-LD dated 03rd October 2006 of Standing Team supporting Steering Committee of innovation and development of enterprises of Ministry of Transportation at Inspection Minutes of privatization plan of Highway Engineer Consultant Stated company on the date of 04th October 2006;

Under the proposals of the Director General of Department of Personnel and Organization and Director General of Department of Finance,

DECIDES:

Article 1. To approve the privatization plan of Highway Engineer Consultant Stated company with the following main contents:

1. Name: CONG TY CO PHAN TU VAN THIET KE DUONG BO

- Trade name: HIGHWAY ENGINEER CONSULTANT JOINT STOCK COMPANY

- Abbreviated name: HECO

- Head office address: No. 278 Ton Duc Thang Street, Hang Bot, Dong Da Dist., Hanoi City, Vietnam.

2. The Joint Stock Company has:

a. the status of a legal entity as from the date of registration;

b. its independence accounting system;

c. its own seal and has opened an account at the bank in accordance with the Law of Vietnam;

d. organized and operating under the Enterprise Law, relevant regulations

3. Charter capital and scheme of stock issuance:

a. Charter capital: VND 11,550,000,000.

b. The 1st issuance of stock: VND 11,550,000,000./ 1,155,000 stocks, with unit price per stock is 10,000 VND, in which:

+ Stated owned stocks: 589.050 stocks, contributed by 51% of charter capital;

+ Stocks for employees of enterprise: 271,500 stocks, contributed 23% of charter capital;

+ Publishing stocks: 294.450 stocks, contributed 25.5% of charter capital

(Starting price for bidding: 10,000 VND/stock).

4. Planning of labor arrangement:

- Total of employees up to privation time: 201 employees;

- Total of employees transferred to joint stock company: 187 employees.

5. Planning of training, re-training for employees:

- Total of employees who must be trained to transfer to joint stock company: 56 employees;

- Estimated cost: 86,100,000 VND.

6. Privatization costs: The Director of Highway Engineer Consultant Company is responsible to decide about all actual costs spending while converting into joint stock company according to current regulations. And the labor costs for surplus employees must be executed to regulations of government.

Article 2. Director Board of privatization has responsible for guiding Highway Engineer Consultant Company to implement all procedures for selling its stocks according to regulations, inspection and ask for the Minister's approval on privatization costs, training results, labor costs for surplus employees.

The Director of Highway Engineer Consultant Company has responsible for management & instruction the company until passing all assets, capital, employees ….to the joint stock company and has responsible for business's results of the Company according to current regulations.

Article 3. This Decision comes into valid as from the date of signing. To cancel the Decision No. 857/QD/TCCB-LD dated 25th April 1996 of the Minister of Ministry of Transport on establishment of Highway Engineer Consultant Company.

The Steering Committee of innovation and development of enterprises of Ministry of Transport, The manager of privatization board, all director generals, the President and General director of Highway Engineer Consultant Company, leaders of all units under the Ministry have responsible for implementation of this Decision./.

For and behalf of the Minister

Deputy Minister

Pham Duy Anh (signed).

Receipt:

- *As above Article 3;*
- *The Minister (for report);*
- *Steering Committee of Innovation & development of enterprises;*
- *Ministry of Finance;*
- *People's Committee of Hanoi;*
- *Police Office of Hanoi;*
- *Departments of Planning & Investment and Finance of Hanoi city;*
- *Trade Union of Transportation of Vietnam;*
- *Filing*

I, HA Tu Cau, holder of ID number: 011914510, issued on 10/09/2011 in Hanoi, hereby commit that this is true translation from Vietnamese into English

Tôi, HÀ Tú Cầu CMND số: 011914510, Cấp ngày 10/09/2011 tại Hà Nội

Cam đoan đã dịch chính xác giấy tờ/văn bản này từ tiếng Việt sang tiếng Anh

Date/Ngày **22/ 06 /2012**

Translator/Người dịch

Hà Tú Cầu

This is to certify that Ms HA Tu Cau, holder or ID number: 011914510 – issued on 10/09/2011 in Hanoi has signed before me.

Authentication No: Book No **20** SCT/CK

At Justice office of People's Committee of Dong Da district,

Chứng thực bà HÀ Tú Cầu, CMND số: 011914510 - Cấp ngày 10/09/2011 tại Hà Nội, đã ký trước mặt tôi.

Số chứng thực: 296 Quyển số **20** SCT/CK

Tại Phòng tư pháp, Q. Đống Đa,

Date/Ngày **22/ 06 /2012**

PHÓ TRƯỞNG PHÒNG TƯ PHÁP

Lê Thị Thu Giang

HANOI PLANNING & INVESTMENT DEPARTMENT
BUSINESS REGISTRATION SECTION

SOCIALIST REPUBLIC OF VIETNAM
Independence – Freedom – Happiness

BUSINESS REGISTRATION CERTIFICATE OF

JOINT STOCK COMPANY

No.: 0100108078

The first certification dated 28th December 2006
Revision No. 03 dated 14th June 2012

1. ***Name of the enterprise:***

Vietnamese name: CONG TY CO PHAN TU VAN THIET KE DUONG BO

Trade name: HIGHWAY ENGINEER CONSULTANT JOINT STOCK COMPANY

Abbreviated name: HECO

2. ***Head office address:*** *No. 278 Ton Duc Thang Street, Hang Bot, Dong Da Dist., Hanoi City, Vietnam.*

Telephone No.: *38511271/35114714 Fax: 35111249*

Email: heco@heco.vn Website: heco.vn

3. *Main business lines:*

No.	Items	VSIC code
1	*Architect activities and technical consulting related to:* Following items: *- Designing works of bridges, roads;* *- Designing works of bridges, tunnels;* *- Designing works of railways;* *- Designing supply & drainage system of construction works;* *- Designing building structure of civil & industrial works;* *-Designing electric system for civil & industrial works and transportation works;* *-Designing foundation and foundation treatment of construction works;* *- Designing survey solutions of works and surveying geology and*	*7110*

	hydrographic of works; *- Designing bridge works;* *- Consulting & surveying transportation works (just comes into operation in case of its sufficiently abilities according to regulations of law and vocational certificate.)*	
2	To check and analyzing in technical aspects of the following: - *To take experiments on construction materials and geological works;* - *To check and test works (just comes into operation in case of its sufficiently abilities according to regulations of law);* - *To analyze, research, evaluate on environmental impacts.*	*7120*
3	- *To make general plan and detail plan of transportation;* - *To make report of construction investment; projects of construction investment; technical report;* - *To sum investment of project, and make estimation report and summarization report of project.* - *To make biding dossier, analyze and evaluate bids;* - *To inspect surveying files, investment project, technical & economical report, technical designing, drawings, estimation and summarization report (just comes into operation in case of its sufficiently abilities according to regulations of law);* - *To investigate, collect data of planning, population, socio-economic, other issues related to transportation, agriculture and rural development, construction, industry;* - *To investigate, collect data for designing transportation utilities;* - *To consult & manage the projects; construction investment (just comes into operation in case of its sufficiently abilities according to regulations of law and vocational certificate.);* - *To repair measure equipments.*	

4. *Charter capital: VND 11,550,000,000.*

In words: Eleven billion, five hundred and fifty million dongs.

Unit Price of stock: *10,000 VND.*

Total of stocks: 1,155,000

5. The quantity of offer able stock: 0

6. Legal Capital

7. List of founding members:

No.	Name of founding member	Registered address	Quantity of shares	Kind of shares	Valued	Contribution ratio (%)	ID No./License No.	Notes
1	Transportation designing consultancy one liability company, BRC No. 0106000933 according Decision No. 1765/QD-BGTVT dated 25th June 2010 of MOT	*No. 278 Ton Duc Thang Street, Hang Bot, Dong Da Dist., Hanoi City, Vietnam*	**589,050**	**General**	**5,890,500,000**	**51**	**01001078 39**	
2	234 other share stock holders	Vietnam	General	**565.950**	**5,659,000,000**	**49**		

8. *Legal representative:*

Title: Director

Name: Hoang Van Tho (Sexual: *Male*)

Date of birth: 06 May 1963 Ethnic: Kinh Nationality: Vietnamese

ID No.: 011549468 dated 19th June 2001 by Hanoi Police Office

Registration Residence Address: Room 803 – B10, Kim Lien Dormitory, Kim Lien Ward, Dong Da District, Hanoi City, Vietnam

Current address: Room 803 – B10, Kim Lien Dormitory, Kim Lien Ward, Dong Da District, Hanoi City, Vietnam

9. Information of branches

10. Information of representative offices

11. Information of trading places

Manager of BUSINESS REGISTRATION SECTION

Signature: (*Signed*)

Tran Minh Quang

I, HA Tu Cau, holder of ID number: 011914510, issued on 10/09/2011 in Hanoi, hereby commit that this is true translation from Vietnamese into English

Tôi, HÀ Tú Cầu CMND số: 011914510, Cấp ngày 10/09/2011 tại Hà Nội

Cam đoan đã dịch chính xác giấy tờ/văn bản này từ tiếng Việt sang tiếng Anh

Date/Ngày **22/ 06 /2012**

Translator/Người dịch

Hà Tú Cầu

This is to certify that Ms HA Tu Cau, holder or ID number: 011914510 – issued on 10/09/2011 in Hanoi has signed before me.

Authentication No: Book No **20** SCT/CK

At Justice office of People's Committee of Dong Da district,

Chứng thực bà HÀ Tú Cầu, CMND số: 011914510 - Cấp ngày 10/09/2011 tại Hà Nội, đã ký trước mặt tôi.

Số chứng thực: 296 Quyển số **20** SCT/CK

Tại Phòng tư pháp, Q. Đống Đa,

Date/Ngày **22/ 06 /2012**

PHÓ TRƯỞNG PHÒNG TƯ PHÁP

Lê Thị Thu Giang

PART I:

GENERAL INTRODUCTION

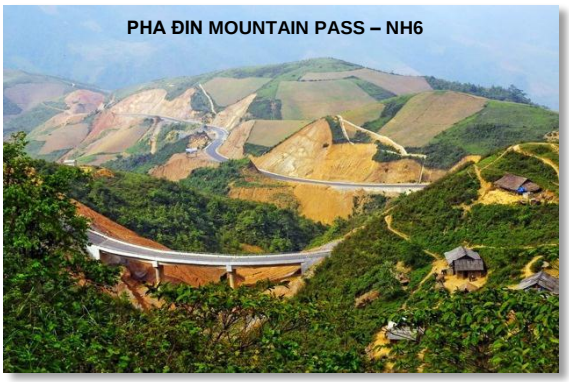
PREFACE

Highway Engineering Consultant Joint Stock Company – HECO has been equitized from former HIGHWAY ENGINEERING CONSULTANT, that was a first-class company with its own legal personality and banking account. This is a leading design company of Viet Nam, specializing in consulting services of construction works, including: bridges, tunnels and roads. Its operating ranges include:

1. Survey, design to establish Investment Report, Detailed Design, Working drawings, Planning Report of construction works, including special large bridges, interchanges, underpass, expressway, urban roads, national highways, rural roads and many other specialized types of roads.
2. Construction Supervision of transport projects.
3. Verification of transport projects.

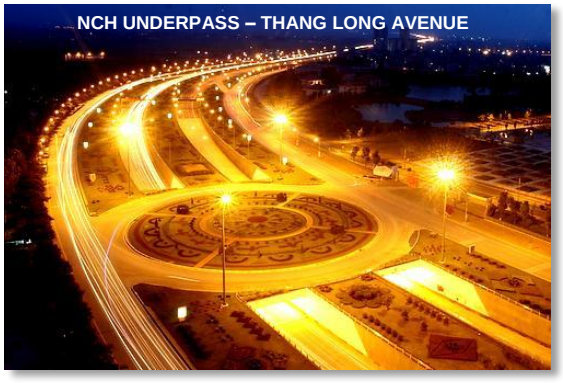
The following is some outlines about the company:

50 years of experience in consulting services of road and bridge construction works:



Established in 1962 (a branch of Transport Engineering Design Institute), Highway Engineering Consultant Joint Stock Company – HECO has more than 50 years of experience in consulting services of transport construction works, namely:

1. Survey and design most of large and key roads of Viet Nam, including: Bac Thang Long – Noi Bai Expressway; Lang - Hoa Lac Expressway; Cau Gie – Ninh Binh Expressway; …National Highways of Number 1, 2, 3, 5, 6, 10, 18…, ring roads, arterial roads of Ha Noi City; transport system of Hydroelectricity Plants, such as: Son La, Lai Chau, Dong Nai, Ham Thuan, Thac Mo, Buon Tua Srah, Buon Kuop, Dong Nai 4, Se San 4…
2. Survey and design special large bridges, such as: Thi Nai Bridge (length of 2470m), Tan An Bridge (length of 413m), Dai Phuoc (length of 520m). Some underpass tunnels are: Kim Lien Interchange, National Convention Hall…
3. Survey and design some transport projects in Lao, Cambodia.
4. Joint-venturing and cooperating with some foreign companies, such as: CHODAI, PCI, APECO, KEI, JBSI… to survey and design projects invested by WB, ADB, JBIC.




CAU GIE – NINH BINH EXPRESS WAY

5. Construction supervision of some key construction works, such as: National Highway No. 1A – section Trung Luong – My Thuan, section Vinh – Dong Ha, Thanh Tri Bridge, Binh Bridge, Can Tho Bridge, Hai Van Tunnel…

6. Provide high-quality workforce for foreign-invested projects.

Labor force of high quality and professionalism:

Quality of consulting service depends mainly on experience and knowledge of labor force involved in the project. Quality of labor force plays a key role in the success of the project. Understanding this clearly directs HECO to consider development of workforce quality as the top priority. The labor force of the company currently has about 220 people, including 1 Doctor of Philosophy, 6 Masters of Engineering, 149 engineers of different specializations. The rest are technicians and survey workers. The workforce is:

1. Always self-educated and re-trained, ensuring professionalism, modernity and responsibility for the work.
2. Of high engineering knowledge and experience. 20 per cent of the workforce is capable to be Project Manager, Survey Manager, Design Manager, Head Supervisor.
3. Using fluently specializing software, such as: AutoCAD, Land Development Desktop, RM2000, GeoSlope Office, SAP2000…
4. Using fluently modern equipment and machines, such as: Total Station, GPS machines, VEP equipment…
5. High-discipline, conforming to Quality Management System of ISO 9001-2000.

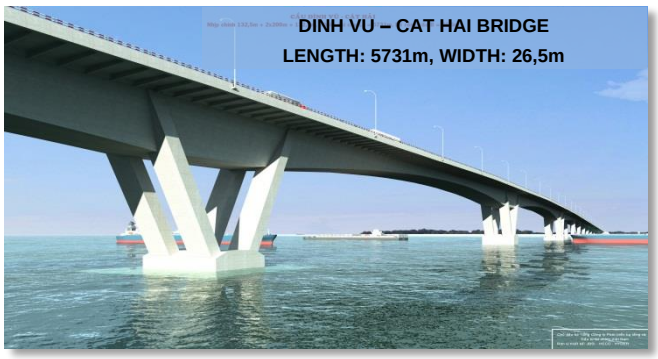

THANG LONG AVENUE

Modern production line:

In order to ensure high specialized production, the company is divided into departments that work in its own field. They range from survey of topography, geology…to design of bridge, road or construction supervision. Based on above closed production line, the company can deploy workforce independently and actively to meet project schedule requested by Employer.

Most of design work, data processing and management is implemented with computer and specialized software. Data systems are shared in Local Area Network (LAN) and connected to Internet.

Modern quality management system:


DINH VU – CAT HAI BRIDGE
LENGTH: 5731m, WIDTH: 26,5m

Highway Engineering Consultant Joint Stock Company – HECO always maintain and develop a **client-oriented quality management system,** ensuring quality of consulting service, suitable to demands of clients, meeting project schedule and dealing well with clients. The followings have been applied:

1. Client-oriented quality management system - ISO9001-2000.
2. A quality control department that is

independent of business departments, ensuring mitigation of errors, recommending protective and repairing methods.

A large and stable market with continuous development:

Regular clients of the company are not only Ministry of Transport, but Ministries of Defense, Agriculture and Rural Development, People's Committee of provinces and districts in the whole country. The company also provides labor force to International consulting companies.

The market of the company has developed stably in recent years, showing that company's prestige is being heightened. The quality of consulting service is ensured, suitable to client's demands.

Financial capacity of the company has grown significantly in recent years:

In period of 2008 – 2012, revenue of the company has increased continuously by about 8,94% per year.

Achievements in recent years:

- ✓ 01 First class Labor medal
- ✓ 01 Second class Labor medal
- ✓ 02 Third class Labor medals
- ✓ 01 Government flag for excellent company.
- ✓ 11 Certificates for high quality construction works

And many medals, awards and certificate for departments and individuals.

COMMITMENT TO CLIENTS

Highway Engineering Consultant Joint-Stock Company commits:

1. ***Always provide consulting services with highest quality, meeting project schedule and demands from clients.***
2. ***Always listen and answer complaints in a shortest time.***
3. ***Guaranteeing the products to the end.***

Please come to us to have the best consulting service.

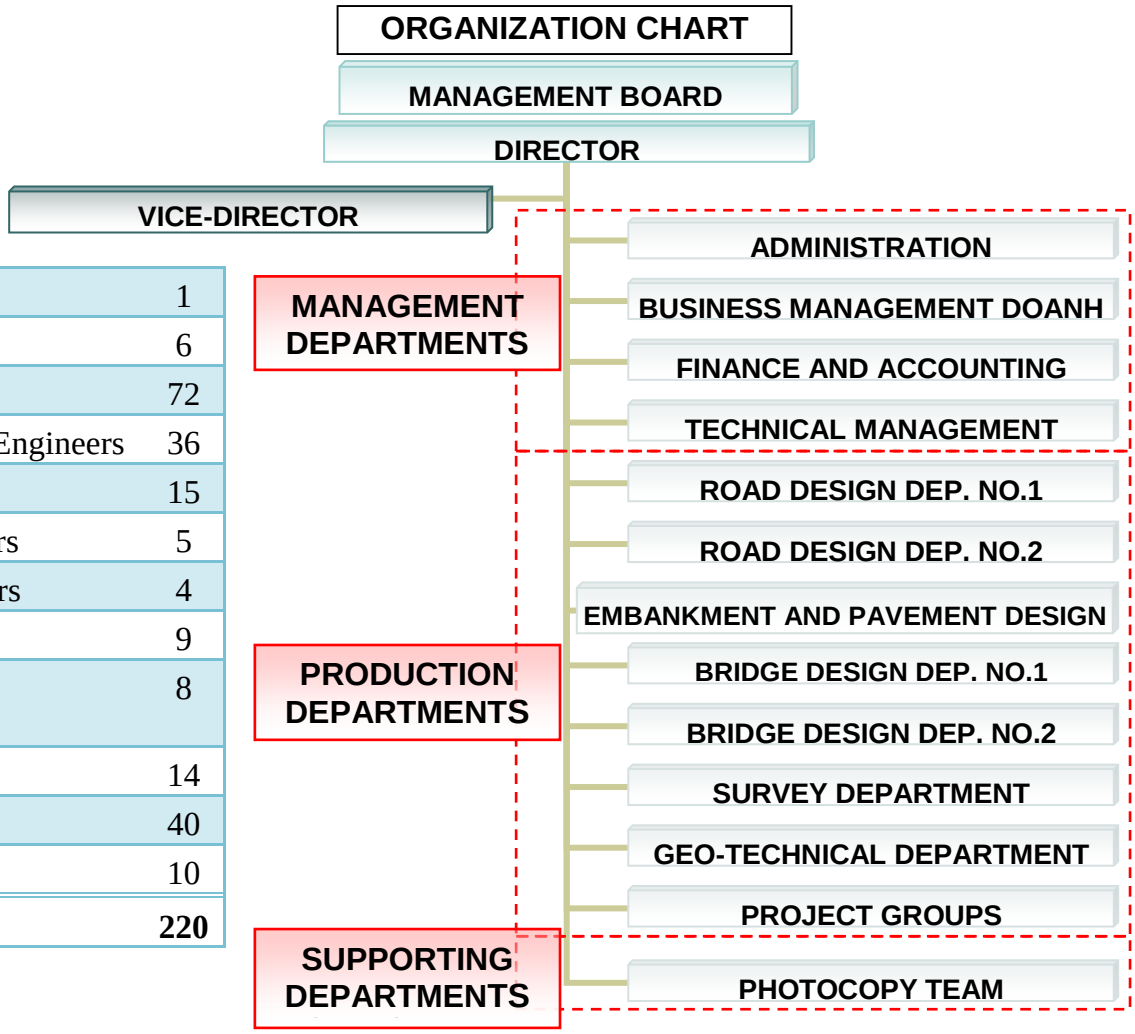
TYPES OF CONSTRUCTION CONSULTING SERVICES

Main types of consulting services:

According to Business Certificate No. 0103015225 dated on 28th December 2006 provided by Planning and Investment Department of Ha Noi, Highway Engineering Consultant Joint Stock Company - HECO is capable of providing services of investigation, establishment of road and interchange investment report, detailed design, Working drawings. Details are as follows:

- Master planning, detailed planning of transport network;
- Establishment of project investment report; Technical-Economical Report;
- Establishment of Bidding Documents; Analysis and Evaluation of Bidding Documents.
- Establishment of Total Cost Estimate; Detailed Cost Estimate;
- Design of bridges and road;
- Design of lighting system of industrial and civil works; transport projects;
- Design of geotechnical and hydrological investigation;
- Design of embankment treatment;
- Verification: Survey Report; Investment Reports; Technical-Economical Report; Detailed Design; Working drawings; Cost Estimate;
- Investigation of Hydrological and Geotechnical conditions;
- Investigation of environment;
- Topographical survey;
- Analysis and evaluation of environmental impacts;
- Investigation, analysis, collection of data for design of transport supporting works;
- Investigation, collection of data of planning, people's life, social – economic; agriculture and rural development, industry;
- Supervision of transport projects;
- Loading test;
- Testing construction material and geo-technical conditions;
- Consultation of project management, project investment (specified in Business Certificate);
- Repair measuring equipment.

ORGANIZATION CHART



Doctor	1
Master of Science	6
Road Engineers	72
Bridge and Tunnel Engineers	36
Survey Engineers	15
Hydrology Engineers	5
Geological Engineers	4
Cost Estimator	9
Engineers and other bachelors	8
Technicians	14
Workers	40
Other staff	10
Total	**220**

No.	POSITION	FULL NAME	DEGREE	PHONE
1	Chairman of Management Board	Bui Van Tong	Master	38513667
2	Director	Hoang Van Tho	Bridge Master	38569806
3	Vice-Director	Vu Van Chi	Road Engineer	38564371
4	Vice-Director	Pham Duy Khoi	Bridge Master	38514229

No.	DEPARTMENTS	HEAD		PHONE
1	Administration	Vu Thanh Tinh	Road Eng.	5114714
2	Business Management	Nguyen Van Hien	Bridge Eng.	8511271
3	Technical Management	Le Huy Thang	Road Eng.	5116541
4	Finance and Accounting	Bui Thi Van	Bachelor	5114713
5	Road Design No.1	Nguyen Manh Cuong	Road Eng.	5116280
6	Road Design No.2	Bùi Văn Vang	Road Eng.	5116275
7	Embankment and Pavement	Ung Viet Cuong	Road Eng.	5116279
8	Bridge Design No.1	Le Hoang Ha	Bridge Master	5116274
9	Bridge Design No.2	Dang Vu Tuan	Bridge Eng.	5117268
10	Geotechnical Investigation	Nguyen Hoach Nguyen	Geo. Eng.	5116277
11	Topographic Survey	Khong Viet Trung	Road Eng.	5116278
12	Environment and Hydrology	Ngo Van Hung	Hydrologic En.	8514431

MACHINES, EQUIPMENTS AND SPECIALIZED SOFTWARES

MACHINES, EQUIPMENT:

No	TYPE OF EQUIPMENTS	SOURCE	QUANTITY
I. Topographical equipment			
1	Total Station NIKON DTM-352	Japan	01
2	Total Station NIKON Laser NPL 352	Japan	01
3	Total Station NIKON DTM-330	Japan	01
4	Total Station NIKON DTM-310	Japan	01
5	Total Station Power SET3100 - SOKKIA	Japan	01
6	Total Station SET3C - SOKKIA	Japan	01
7	Total Station Leica – TC1000	Swisszeland	01
8	Total Station Leica – TC600	Swisszeland	01
9	Theodolite Theo 010, Theo 020	Germany	12
10	Levelling machine Ni025, Ni030, Topcon	Germany, Japan	13
11	Leveling machine Leica Na720	Swisszeland	04
12	Electric generator Honda EM 1000F	Japan	05
13	Car UAT	Russia	02
II. Boring machines			
1	Investigation boring machine XY – 1	China	03
2	Investigation boring machine XJ100	China	01
3	Investigation boring machine УКБ 12/25	Russia	02
III. Testing equipment on site			
1	Standard penetration test	China	04
2	Vane test on site GENOR H70	Italia	01
3	Pavement survey	Viet Nam	05
4	Dynamical cone penetrator	Viet Nam	04
5	Boring machine to take pavement samples	Italia	1
6	Roughness inspection machine	England	1
7	Length measuring machine (Tripmetter)	England	2
IV. Laboratory testing equipment			
1	CBR test (in laboratory)		3
2	Compacting test		1
3	Drilling machine		1
4	Sample cutting machine		1
5	Liquid limit machine		1
6	Glass pot, curved knife, sample cutting knife ...		32
7	Standard sieve (ASTM standard) + oscillation machine		3
8	Viscometer		1

No	TYPE OF EQUIPMENTS	SOURCE	QUANTITY
9	Compressor of 200 tons (Italia)		1
10	Compressor of 10 tons + 5 tons		2
11	Tam Lien Compressor		8
12	Odiometer test		2
13	Tri_axial compression test		1
14	Electronic analysis scale		2
15	Electronic technical scale		2
16	Drier		2

DESIGN SOFTWARE:

NO	SOFTWARE	APPLICATION	FIRM /SOURCE
1	**Road design**		
-	Open Office	Presentation; calculation sheets; data base; report;	OpenOffice
-	AutoCAD 2006	Technical drawings	AutoDesk
-	Land Dev. Desktop	Road design; planning; ground leveling	AutoDesk
-	TDT Solution 7.1	Road design	TDT Technology
-	Nova TDN	Road design	Hai Hoa
-	Geometric design of road	Detailed design of profile, cross-sections	Self-developed
-	Pavement design	Design of flexible pavement and concrete pavement	Self-developed
-	Culvert analysis	Design of longitudinal culverts, lateral culverts, manholes...	Self-developed
2	**Design of tunnels, bridges, culverts**		
-	RM2000	Bridge design	Austria
-	SAP	Structure design	
-	STAAD	Structure design	
-	Pier analysis	Calculation of bridge piers	Self-developed
-	Abutment analysis	Calculation of bridge abutments	Self-developed
-	Pile analysis	Calculation of bored piles; driven piles;	Self-developed
-	Beam design	Calculation of prestressed beams	Self-developed
3	**Geotechnical design**		
-	GeoSlope W	Calculation of slope stability; soft soil treatment	Canada
-	Soft soil treatment	Calculation of settlement, slide stability. Design of sand piles, drainage, loading berm…	Self-developed

4	**Hydrological design**		
-	Hydrological analysis	Determination of design water level, scour, overflow...	Self-developed
-	Hydraulic analysis	Water opening, control of water power...	Self-developed
5	**Topographical survey**		
-	Land Dev. Desktop-Survey	Plan, profile, cross-sections, record of topographical survey…	AutoDesk
-	Processing data of plan and elevation control network o	To precise co-ordinates and elevations of IV-Class and technical network. Processing capacity is up to 10.000 points with many networks	Self-developed
-	Topographical survey	Processing data from files of Total Station; Automatic drawing and presentation	Self-developed
-	Program to process co-ordinate and elevation control network	To precise co-ordinates and elevations of IV-Class and technical network. Processing capacity is up to 10.000 points with many networks	Self-developed
6	**Cost estimation, Evaluation of project**		
-	Cost estimation	Estimate costs for construction works, such as: road and bridges…	Institute of construction economics – Ministry of Construction (MOC)
-	Cost estimation	Estimate costs for construction works, such as: road and bridges…	Informatic company – MOC
-	Cost estimation	Estimate costs for construction works, such as: road and bridges…	Self-developed
-	Evaluation of project	Analysis of economics/finance of project	Self-developed
7	**Accounting and business management**		
-	Business accounting	Accounting	Viet Nam
-	Staff management	Manage personnel	Viet Nam

FINANCIAL STATEMENT
FROM 2007 TO 2012

Unit: million VND

No	*Main criteria*	*Year 2007*	*Year 2008*	*Year 2009*	*Year 2010*	*Year 2011*	*Year 2012*
1	Revenue	41 300	52 541	63 320	67 862	60.207	60.890
2	Business capital	11 550	11 550	11 550	11 550	11.550	11.550
3	State capital	11 759	12 082	12 566	12 885	15.785	16.589
4	Net profit	1 855	2 037	2 408	2 548	2.700	3.444
5	Average wage (million VND/month)	5,90	7,63	10 369	10 389	9.187	9.274
6	Contribution to state budget	4 782	6 549	7 946	7 755	7.798	7.465
7	Net profit/Business capital	0.16	0.17	0.21	0.22	0,17	0,26
8	Growth rate	11.9%	27.2%	20.5%	7.2%		1,1%

∗ *The above financial data has been audited.*

BUREAU VERITAS Certification

TRANSPORT ENGINEERING DESIGN INC. (TEDI)

Standards

ISO 9001:2008

Scope of Certification

CONDUCTING TRANSPORT PLAN, FEASIBILITY STUDY FOR INVESTMENT PROJECT, PRE-FEASIBILITY STUDY FOR INVESTMENT PROJECT, DETAILED DESIGN, WORKING AND SHOP DRAWING, CONSTRUCTION SUPERVISION, QUALITY ASSESSMENT, EXPERIMENTAL CONSTRUCTION, ENVIRONMENTAL IMPACT ASSESSMENT FOR TRANSPORT ENGINEERING AND CIVIL WORKS; CONSULTING FOR TENDERING OF TRANSPORT PROJECT, TENDER DOCUMENTATION; CONDUCTING TOPOGRAPHIC, BATHYMETRIC, HYDRO-METEOROLOGICAL, GEOTECHNICAL, ENVIRONMENTAL, TRAFFIC SURVEYS AND FORCAST; INSPECTION; MATERIAL, GEOTECHNICAL FIELD AND LABORATORY TESTING.

Site 3 **HIGHWAY ENGINEERING CONSULTANTS JSC (HECO)**

Address: **278 TON DUC THANG STREET, DONG DA DISTRICT, HA NOI, VIET NAM**

Scope: **CONDUCTING TRANSPORT PLAN, FEASIBILITY STUDY FOR INVESTMENT PROJECT, PRE-FEASIBILITY STUDY FOR INVESTMENT PROJECT, DETAILED DESIGN, WORKING AND SHOP DRAWING, CONSTRUCTION SUPERVISION, QUALITY ASSESSMENT, EXPERIMENTAL CONSTRUCTION, ENVIRONMENTAL IMPACT ASSESSMENT FOR TRANSPORT ENGINEERING AND CIVIL WORKS; CONSULTING FOR TENDERING OF TRANSPORT PROJECT, TENDER DOCUMENTATION; CONDUCTING TOPOGRAPHIC, BATHYMETRIC, HYDRO-METEOROLOGICAL, GEOTECHNICAL, ENVIRONMENTAL, TRAFFIC SURVEYS AND FORCAST; INSPECTION; MATERIAL, GEOTECHNICAL FIELD AND LABORATORY TESTING.**

Version 1. Revision date: **October 24, 2012**

Nguyen Thi Nam Tran

UKAS MANAGEMENT SYSTEMS
008

Certification body address: Brandon House,180 Borough High Street, London SE1 1LH, United Kingdom.
Local office: Bureau Veritas Certification Vietnam, Unit 4.4A, 4th Floor, E-Town1 Building,
364 Cong Hoa Street, Tan Binh District, Ho Chi Minh City, Vietnam.

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization.
To check this certificate validity please call (+ 84.8. 38 122 246)

HIGH QUALITY AWARDED CONSTRUCTION WORKS

No	WORKS	IMPLEMENTATION YEAR	CERTIFIED BY
1	Quy Nhon – Song Cau Road	1996	Ministry of Transport
2	Dong Ha Bridge – Quang Tri Province	1991	Viet Nam Construction Association
3	National Highway No.5, section Km47 – Km62	1993	Viet Nam Construction Association, Viet Nam Construction Consultant Association
4	National Highway No.183	1994	Viet Nam Construction Association, Viet Nam Construction Consultant Association
5	Highway Bac Thang Long – Noi Bai	1992	Viet Nam Construction Association
6	Xuan Son Bridge - Ho Chi Minh Highway	2000	Viet Nam Construction Consultant Association
7	Retaining wall of Cau Xoi – Kham Duc - Ho Chi Minh Highway	2002	Ministry of Transport, Viet Nam Construction Consultant Association
8	National Highway No.1A: Tan An bypass and Tan An bridge	2004	Viet Nam Construction Consultant Association

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP - TỰ DO - HẠNH PHÚC

BỘ TRƯỞNG BỘ GIAO THÔNG VẬN TẢI
TẶNG

BẰNG CÔNG NHẬN

CÔNG TRÌNH ĐẠT CHẤT LƯỢNG CAO NGÀNH GIAO THÔNG VẬN TẢI

HẠNG: Nhì
NĂM: 2001
Công trình: Đường Quốc lộ 1 Long Xuyên
Đơn vị: Công ty Tư vấn thiết kế Đường bộ, TEDI.

Theo QĐ Số 4460/QĐ-GTVT Ngày 31 tháng 12 năm 2002
Hà nội, Ngày 07 tháng 01 năm 2003
K.T BỘ TRƯỞNG BỘ GIAO THÔNG VẬN TẢI
Thứ Trưởng

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP - TỰ DO - HẠNH PHÚC

BỘ XÂY DỰNG
HỘI XÂY DỰNG VIỆT NAM
BỘ KHOA HỌC CÔNG NGHỆ & MÔI TRƯỜNG

BỘ GIAO THÔNG VẬN TẢI
TỔNG LIÊN ĐOÀN LAO ĐỘNG VIỆT NAM
BỘ NÔNG NGHIỆP VÀ PHÁT TRIỂN NÔNG THÔN

BẰNG CHỨNG NHẬN

CÔNG TRÌNH CHẤT LƯỢNG TIÊU BIỂU

Công trình: Cầu Đông Hà

đạt công trình chất lượng tiêu biểu của thập kỷ 90

Đơn vị thiết kế: Công ty Tư vấn thiết kế Đường bộ Công ty Tư vấn thiết kế Gtvt (TEDI)

Hà Nội, ngày 1 tháng 6 năm 2000
TM/HỘI ĐỒNG TUYỂN CHỌN CÔNG TRÌNH CLTB
CHỦ TỊCH HỘI ĐỒNG - PHÓ CHỦ TỊCH HỘI XDVN

PHẠM SĨ LIÊM

Số đăng ký :...../TWH

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP - TỰ DO - HẠNH PHÚC

BỘ XÂY DỰNG
HỘI XÂY DỰNG VIỆT NAM
BỘ KHOA HỌC CÔNG NGHỆ & MÔI TRƯỜNG

BỘ GIAO THÔNG VẬN TẢI
TỔNG LIÊN ĐOÀN LAO ĐỘNG VIỆT NAM
BỘ NÔNG NGHIỆP VÀ PHÁT TRIỂN NÔNG THÔN

BẰNG CHỨNG NHẬN

CÔNG TRÌNH CHẤT LƯỢNG TIÊU BIỂU

Công trình: Quốc lộ 5-Km 47-62

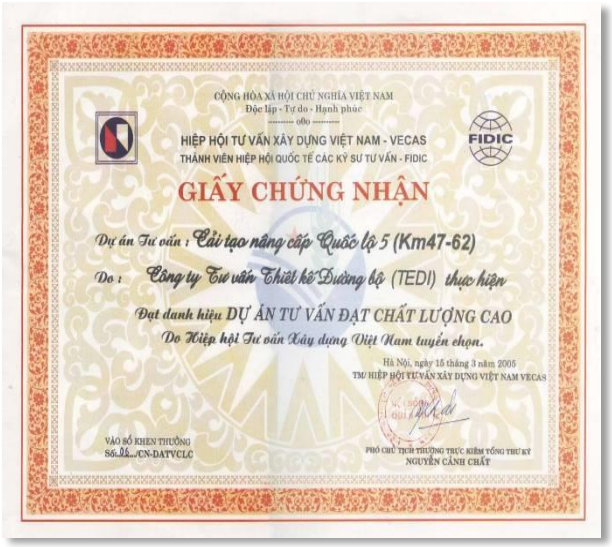
đạt công trình chất lượng tiêu biểu của thập kỷ 90

Đơn vị thiết kế: Công ty Tư vấn thiết kế Đường bộ Công ty Tư vấn thiết kế Gtvt (TEDI)

Hà Nội, ngày 1 tháng 6 năm 2000
TM/HỘI ĐỒNG TUYỂN CHỌN CÔNG TRÌNH CLTB
CHỦ TỊCH HỘI ĐỒNG - PHÓ CHỦ TỊCH HỘI XDVN

PHẠM SĨ LIÊM

Số đăng ký :...../TWH



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM - VECAS
THÀNH VIÊN HIỆP HỘI QUỐC TẾ CÁC KỸ SƯ TƯ VẤN - FIDIC

GIẤY CHỨNG NHẬN

Dự án Tư vấn : Cải tạo nâng cấp Quốc lộ 5 (Km47-62)
Do : Công ty Tư vấn Thiết kế Đường bộ (TEDI) thực hiện
Đạt danh hiệu DỰ ÁN TƯ VẤN ĐẠT CHẤT LƯỢNG CAO
Do Hiệp hội Tư vấn Xây dựng Việt Nam tuyển chọn.

Hà Nội, ngày 15 tháng 3 năm 2005
TM/ HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM VECAS

VÀO SỔ KHEN THƯỞNG
Số: 06 /CN-DATVCLC

PHÓ CHỦ TỊCH THƯỜNG TRỰC KIÊM TỔNG THƯ KÝ
NGUYỄN CẢNH CHẤT

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP - TỰ DO - HẠNH PHÚC

BỘ XÂY DỰNG
HỘI XÂY DỰNG VIỆT NAM
BỘ KHOA HỌC CÔNG NGHỆ & MÔI TRƯỜNG

BỘ GIAO THÔNG VẬN TẢI
TỔNG LIÊN ĐOÀN LAO ĐỘNG VIỆT NAM
BỘ NÔNG NGHIỆP VÀ PHÁT TRIỂN NÔNG THÔN

BẰNG CHỨNG NHẬN

CÔNG TRÌNH CHẤT LƯỢNG TIÊU BIỂU

Công trình: Quốc lộ 183

đạt công trình chất lượng tiêu biểu của thập kỷ 90

Đơn vị thiết kế: Công ty Tư vấn thiết kế Đường bộ Công ty Tư vấn thiết kế Gtvt (TEDI)

Hà Nội, ngày 1 tháng 6 năm 2000
TM/HỘI ĐỒNG TUYỂN CHỌN CÔNG TRÌNH CLTB
CHỦ TỊCH HỘI ĐỒNG - PHÓ CHỦ TỊCH HỘI XDVN

PHẠM SĨ LIÊM

Số đăng ký :...../TWH

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM - VECAS
THÀNH VIÊN HIỆP HỘI QUỐC TẾ CÁC KỸ SƯ TƯ VẤN - FIDIC

GIẤY CHỨNG NHẬN

Dự án Tư vấn : Cải tạo nâng cấp Quốc lộ 183
Do : Công ty Tư vấn Thiết kế Đường bộ (TEDI) thực hiện
Đạt danh hiệu DỰ ÁN TƯ VẤN CHẤT LƯỢNG TIÊU BIỂU
Do Hiệp hội Tư vấn Xây dựng Việt Nam tuyển chọn.

Hà Nội, ngày 15 tháng 3 năm 2005
TM/ HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM VECAS

VÀO SỔ KHEN THƯỞNG
Số: 03 /CN-DATVCLTB

PHÓ CHỦ TỊCH THƯỜNG TRỰC KIÊM TỔNG THƯ KÝ
NGUYỄN CẢNH CHẤT

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP - TỰ DO - HẠNH PHÚC

BỘ XÂY DỰNG
HỘI XÂY DỰNG VIỆT NAM
BỘ KHOA HỌC CÔNG NGHỆ & MÔI TRƯỜNG

BỘ GIAO THÔNG VẬN TẢI
TỔNG LIÊN ĐOÀN LAO ĐỘNG VIỆT NAM
BỘ NÔNG NGHIỆP VÀ PHÁT TRIỂN NÔNG THÔN

BẰNG CHỨNG NHẬN

CÔNG TRÌNH CHẤT LƯỢNG TIÊU BIỂU

Công trình : Đường Bắc Thăng Long - Nội Bài

đạt công trình chất lượng tiêu biểu của thập kỷ 90

Đơn vị thiết kế : Công ty Tư vấn thiết kế Đường bộ Công ty Tư vấn thiết kế Gtvt (TEDI)

Hà Nội, ngày 1 tháng 6 năm 2000

TM/HỘI ĐỒNG TUYỂN CHỌN CÔNG TRÌNH CLTB

CHỦ TỊCH HỘI ĐỒNG - PHÓ CHỦ TỊCH HỘI XDVN

PHẠM SĨ LIÊM

Số đăng ký : ...../TWH

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM - VECAS
THÀNH VIÊN HIỆP HỘI QUỐC TẾ CÁC KỸ SƯ TƯ VẤN - FIDIC

FIDIC

GIẤY CHỨNG NHẬN

Dự án Tư vấn : Cầu Xuân Sơn

Do : Công ty Tư vấn Thiết kế Đường bộ (TEDI) thực hiện

Đạt danh hiệu DỰ ÁN TƯ VẤN ĐẠT CHẤT LƯỢNG CAO

Do Hiệp hội Tư vấn Xây dựng Việt Nam tuyển chọn.

Hà Nội, ngày 15 tháng 3 năm 2005

TM/ HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM VECAS

VÀO SỔ KHEN THƯỞNG
Số: 02 /CN-DATVCLTB

PHÓ CHỦ TỊCH THƯỜNG TRỰC KIÊM TỔNG THƯ KÝ
NGUYỄN CẢNH CHẤT

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ĐỘC LẬP - TỰ DO - HẠNH PHÚC

BỘ TRƯỞNG BỘ GIAO THÔNG VẬN TẢI
TẶNG

BẰNG CÔNG NHẬN

CÔNG TRÌNH ĐẠT CHẤT LƯỢNG CAO NGÀNH GIAO THÔNG VẬN TẢI

HẠNG: NHÌ
NĂM: 2003

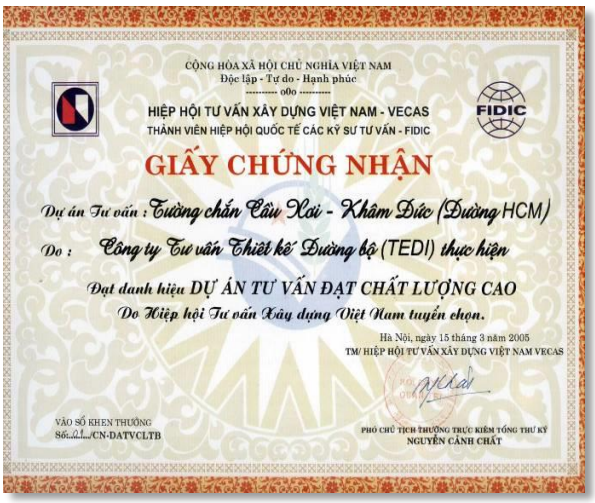
Công trình: Đoạn tường chắn Cầu Xói - Khâm Đức (Km276+383 - Km277+212), Dự án XD đường Hồ Chí Minh

Đơn vị: Công ty Tư vấn thiết kế đường bộ (TEDI)

Theo QĐ Số 383 /QĐ - BGTVT
Ngày 03 tháng 02 năm 2005

Hà nội, Ngày 16 tháng 2 năm 2005
KT. BỘ TRƯỞNG BỘ GIAO THÔNG VẬN TẢI
THỨ TRƯỞNG

Ngô Thịnh Đức



CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM - VECAS
THÀNH VIÊN HIỆP HỘI QUỐC TẾ CÁC KỸ SƯ TƯ VẤN - FIDIC

FIDIC

GIẤY CHỨNG NHẬN

Dự án Tư vấn : Tường chắn Cầu Xói - Khâm Đức (Đường HCM)

Do : Công ty Tư vấn Thiết kế Đường bộ (TEDI) thực hiện

Đạt danh hiệu DỰ ÁN TƯ VẤN ĐẠT CHẤT LƯỢNG CAO

Do Hiệp hội Tư vấn Xây dựng Việt Nam tuyển chọn.

Hà Nội, ngày 15 tháng 3 năm 2005

TM/ HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM VECAS

VÀO SỔ KHEN THƯỞNG
Số: 01 /CN-DATVCLTB

PHÓ CHỦ TỊCH THƯỜNG TRỰC KIÊM TỔNG THƯ KÝ
NGUYỄN CẢNH CHẤT

CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
Độc lập - Tự do - Hạnh phúc

HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM - VECAS
THÀNH VIÊN HIỆP HỘI QUỐC TẾ CÁC KỸ SƯ TƯ VẤN - FIDIC

FIDIC

GIẤY CHỨNG NHẬN

Dự án Tư vấn: Tuyến tránh thị xã Tân An và Cầu Tân An quốc lộ 1A

Đơn vị thực hiện: Công ty Cổ phần Tư vấn Thiết kế Đường bộ HECO

Đạt danh hiệu DỰ ÁN TƯ VẤN CHẤT LƯỢNG TIÊU BIỂU

Do Hiệp hội Tư vấn Xây dựng Việt Nam tuyển chọn

Hà Nội, ngày 29 tháng 11 năm 2007

TM/ HIỆP HỘI TƯ VẤN XÂY DỰNG VIỆT NAM VECAS

VÀO SỔ KHEN THƯỞNG
Số: 29 /CN-DATVCLC-TB

CHỦ TỊCH
NGUYỄN CẢNH CHẤT

PART II:

TYPICAL CONSULTING SERVICES

SURVEY AND DESIGN OF BRIDGES AND TUNNELS
SOME TYPICAL WORKS

No	Project	Technical Criteria	Span layout	Design stage	Year	Cost (billionVND)
1	Thi Nai Bridge - Binh Dinh Province	Length = 2470 m Width = 14,5 m	25x40+(70+3 x 120 + 70) +24x40	Feasibility Study, Detailed Design, Working drawings	2001 2002	324
	– Bridge over sea in Prestressed Concrete Structure – longest in Viet Nam. – Connecting Quy Nhon city to new urban zone in Nhon Hoi Peninsula. – Water opening: River of Class II, Width = 60m, Height = 9m – Span structure: Continuous prestressed concrete box beam – Simple beam of Super "T". – Foundation structure: Bored piles - Diameter = 1,5m and 1,2m.					
2	Tan An Bridge, 1A National Highway	Length = 413 Width = 12	2x38+(70+11 0+70)+2x38	Feasibility Study, Detailed Design	2002	45
	– The bridge is located in bypass of Tan An town, crossing Vam Co Tay river. – Water opening: River of Class III, width = 50m, height = 7m – Span structure: Continuous prestressed concrete box beam – Simple beam of Super "T". – Foundation structure: Bored piles - diameter = 1,5m and = 1m. – Construction is finished in December 2003.					
3	Cua Tung Bridge, Quang Tri Province	Length = 460 Width = 9	(65+3x105+6 5)	Feasibility Study, Detailed Design, Working drawings	2002 2003	42
	– Bridge's location is close to seaport, connecting two districts of Vinh Linh and Gio Linh. – Water opening: Width = 50m, Height = 8,5m (for fish ship) – Span structurep: Continuous prestressed concrete box beam with 5 spans. – Foundation structure: Bored piles – diameter = 1,5m.					
4	Cua Lap Bridge, Ba Ria – Vung Tau province	Length = 722 Width = 12	5x33+(43,5+ 63+43,5)+12 x33	Feasibility Study, Detailed Design, Working drawings	2000 2001	68
	– Bridge's location is close to seaport, on the seaside way of Vung Tau – Long Hai – Binh Chau – Water opening: B = 50m, H = 7m. – Span structure: "T" shaped frame of prestressed concrete – simple prestressed concrete beam . – Foundation structure: Bored piles – diameter D = 1m. – The construction was finished in 2006.					

No	Project	Technical Criteria	Span layout	Design stage	Year	Cost (billionVND)
5	Xuan Son Bridge, Ho Chi Minh Highway	Length = 285 m Width = 12 m	30+(42+63+63+42)+30	Feasibility Study, Detailed Design, Working drawings	2000 2001	41
	– The bridge is located in mountainous area of Quang Binh Province, crossing Son river. – Water opening: Width = 50m, Height = 3,5m. – Span structure: Continuous prestressed concrete box beam and box simple beam. – Foundation structure: Bored piles - Diameter = 1,2m. – Bridge construction is finished in 2002.					
6	Flyover in Nga Tu Vong Interchange	Length = 276 m Width = 16 m	30+(6x35)+30	Feasibility Study	2001	56
	– Flyover in Le Duan – Giai Phong direction. – Clearance under bridge: 2x(30m x 4,5m). – Span structure: Continuous prestressed concrete hollow slab beam. – Foundation structure: Bored piles - diameter = 1m – Bridge construction is finished in 2002.					
7	Vinh Thinh Bridge, National Highway No.2C	Length = 3888 m Width = 24	8x24+(190+370+190)+70x40	Investment Report	2005	1476
	– The bridge crosses Hong River. – Connecting 2 provinces of Vinh Phuc and Ha Tay. – Span structure: Main bridge is stayed-cable; Approach bridge is prestressed reinforcement concrete of Super "T". – Foundation structure: Bored piles – diameter = 2m and 1,2m.					
8	Dai Phuoc, Dong Nai Province	Length = 525 Width = 14,5	4x33+(70+110+70)+4x33	Feasibility Study, Detailed Design, Working drawings	2003 2004	108
	– The bridge crosses Cai river to go into Ecological Tourism Zone of Dai Phuoc. – Clearance: B = 50m, H = 7m. – Span structure: Prestressed reinforcement concrete continuous box beam and prestressed reinforcement concrete simple beam . – Foundation structure: Bored piles – diameter = 1,5m and 1,2m.					
9	Dai Ngai, Road of Hau River South	Length = 477 Width = 12	4x33+(55+90 + 55)+4x33	Detailed Design	2005	104

No	Project	Technical Criteria	Span layout	Design stage	Year	Cost (billionVND)
	– The bridge crosses Dong Nai River – Soc Trang Province. – Clearance: B = 50m, H = 7m. – Span structure: Prestressed reinforcement concrete continuous box beam and prestressed reinforcement concrete simple beam . – Foundation structure: Bored piles – diameter = 1,5m and 1,2m .					
10	Flyover of Phu Do Interchange	Length = 321 m Width = 11 m	30+7x36+30	Detailed Design Working drawings	2005	38
	– The flyover crosses the expressway – Project of Widening and Finishing the highway of Lang – Hoa Lac. – Clearance under the bridge: H = 4,75m. – Span structure: 9 spans of prestressed reinforcement concrete hollow slab beam – arranged in circular curve. – Foundation structure: Bored piles – diameter = 1,5m.					
11	Flyover to zoo of wild animal	Length = 178 Width = 2x16,25	30+3x35+30	Detailed Design, Working drawings	2005	54
	– The bridge is located in the expressway lying above the road to zoo of wild animal - Project of Widening and Finishing the highway of Lang – Hoa Lac. – Clearance under the bridge: H = 4,50 m. – Span structure: Prestressed reinforcement concrete hollow slab beam. – Foundation structure: Bored piles – diameter = 1,5m .					
12	Flyover of Provincial Road No.70	Length = 207 Width = 21	30+4x35+30	Detailed Design	2005	47
	– The flyover is located in Provincial Road No.70 – lying above the expressway of Lang – Hoa Lac. – Clearance under the bridge: H = 4,75m and 4,5m. – Span structure: Prestressed reinforcement concrete hollow slab beam. – Foundation structure: Bored piles – diameter = 1,2m.					
13	Flyover of Tien Son Interchange	Length = 236 m Width = 9	10x22,5	Feasibility Study, Detailed Design, Working drawings	2003	14

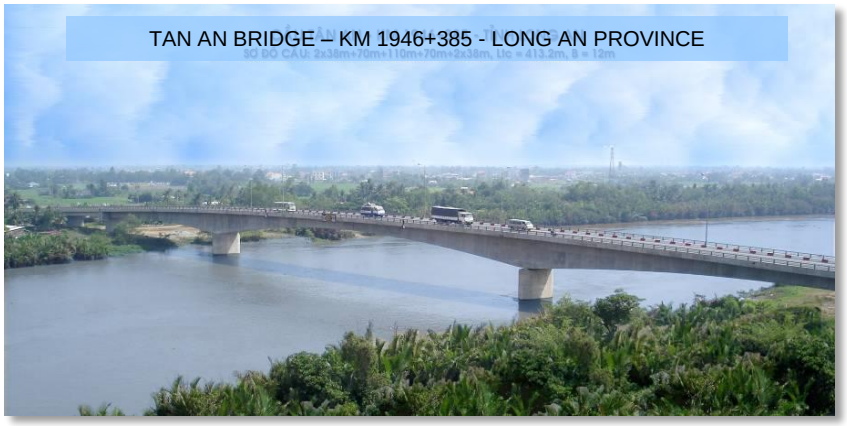
No	Project	Technical Criteria	Span layout	Design stage	Year	Cost (billionVND)
	– The flyover is located in New National Highway No.1 – section of Ha Noi – Bac Ninh. – Clearance under the bridge: H = 4,75m – Span structure: Simple prestressed reinforcement concrete slab beam. – Foundation structure: Bored piles – diameter = 1,3m. – The construction is finished in 2003.					
14	Flyover of Cai Lan Interchange	Length = 508,5 Width = 22-10	Main bridge 2x33+2x31+ 3 x 33 2 side bridges 4x33	Detailed Design	2002 2003	66
	– The flyover crosses National Highway No.18 and railway with 2 turning branches. – Clearance under bridge: H = 6,55m and 4,5m. – Span structure: Prestressed reinforcement concrete hollow slab beam and simple prestressed reinforcement concrete beam. – Foundation structure: Bored piles – diameter = 1,2m.					
15	Flyover of Van Diem Interchange	Length = 175 Width = 25	5x33	Feasibility Study, Detailed Design	2001	36
	– The flyover is located in Phap Van – Cau Gie Expressway. – Clearance under bridge: H = 4,5m. – Span structure : Simple prestressed reinforcement concrete beam. – Foundation structure: Bored piles – diameter = 1m.					
16	Muong La 2 bridge	Length = 482 Width = 8	11 x 42	Feasibility Study, Working drawings	2004	43
	– The bridge crosses Da River for construction of Son La Hydroelectricity Plant – Span structure: Simple composite steel beam with reinforcement concrete slab. – Foundation structure: Bored piles – diameter =2m.					
17	Kien Khe Bridge	Length = 220 Width = 12	33+(42+63+ 42)+33	Detailed Design, Working drawings	2004 2005	28
	– The bridge crosses Day River in Ha Nam province, Project of upgrading transport system – belonging to plan of upgrading infrastructure to protect from floods of Day River. – Water opening: B = 50m, H = 3,5m. – Span structure: Prestressed reinforcement concrete continuous box beam and prestressed reinforcement concrete simple beam . – Foundation structure: Bored piles – diameter = 1,5m.					

No	Project	Technical Criteria	Span layout	Design stage	Year	Cost (billionVND)
18	Flyover of Tan Tao Interchange	Length = 269 m Width = 24,6 m	29+30+29,5 + 35,5+38+35 +32+ 31	Detailed Design, Working drawings	2005	72
	– The bridge crosses National Highway No.1A at Tan Tao Interchange – Ho Chi Minh City – located in circular curve. – Span structure: Simple prestressed reinforcement concrete beam . - Foundation structure: Bored piles – diameter = 1,2m..					
19	Flyover of Dai Xuyen Interchange	Length = 201 Width = 16	27+4x33+27	Detailed Design	2005	51
	– The bridge crosses the expressway of Cau Gie - Ninh Binh – Ha Tay Province. – Clearance under the bridge: H = 4,75m. – Span structure: Prestressed reinforcement concrete hollow slab beam . – Foundation structure: Bored piles – diameter = 1,5m. – Soft soil at 2 approaches are treated in sand wells.					
20	Bridge of Gie River	Length = 266 Width = 34,5	6 x 42	Detailed Design	2005	99
	– The bridge crosses Gie River – Expressway Project of Cau Gie – Ninh Binh, Ha Tay Province. – Span structure: Simple prestressed reinforcement concrete beam with continuous joints at piers. – Foundation structure: Bored piles – diameter = 1,5m. – Soft soil at 2 approaches are treated in sand wells.					
21	Flyover at Vuc Vong Interchange	Length = 244 Width = 34,5	7 x 33	Detailed Design	2005	87
	– The bridge is located in Cau Gie – Ninh Binh Expressway, Ha Nam Province. – Clearance under bridge: H = 4,5m. – Foundation structure: Simple prestressed reinforcement concrete beam . – Foundation structure: Bored piles – diameter = 1,5m.					
22	140 weak bridges	Total length 0f bridges Width	9363 9, 12, 22, 27	Feasibility Study Detailed Design	2004 2005	1423

No	Project	Technical Criteria	Span layout	Design stage	Year	Cost (billionVND)
	– HECO is the project manager of 140 weak bridges – Project of Transport Credit to upgrade national road network with involvement of 9 other consulting companies. – Bridges are located in 38 provinces and cities all over the country. – HECO designed 13 bridges, including Cay Duong bridge with total length of 352m – width of 12m – Span layout: 3x33+(42+63+42)+3x33 (m) - Prestressed reinforcement concrete continuous box beam. Bored piles with diameter of 1,2m.					
23	Underpass of National Convention Hall	Length = 545 Width = 2x17,25		Detailed Design, Working drawings	2005	157
	– The underpass is located in the Expressway along the National Convention Hall – Project of Widening and Finishing the Lang - Hoa Lac Highway – Ha Noi City. – Clearance of tunnel: H = 4,75m – Tunnel structure: Integral reinforcement concrete. – Foundation structure: Reinforcement concrete – dimensions of 40x40cm and natural ground.					
24	Underpass of West-South University	Length = 426 Width = 19,5		Detailed Design, Working drawings	2005	69
	– The tunnel is located in lateral road crossing under Lang – Hoa Lac Highway – Ha Noi. – Clearance under the tunnel: 4,5m. – Tunnel structure: Integral reinforcement concrete and precast prestressed reinforcement concrete. – Foundation structure: Reinforcement concrete of 40x40cm and natural ground treated with sand wells.					
16	Song Da bridge	Length = 316 Width = 8	7 x 42	Detailed Design, Working drawings	2008	53
	– The bridge crosses Da River, Lai Chau province – Span structure: Simple composite steel beam with reinforcement concrete slab. – Foundation structure: Bored piles – diameter =2.5m.					


FLYOVER OF THI NAI LAGOON
HIGHWAY QUY NHƠN – NHƠN HỘI
SPAN LAYOUT: 25x40m+(70+3x120+70)m+24x40m


XUAN SON BRIDGE – HO CHI MINH HIGHWAY – QUANG BINH PROVINCE

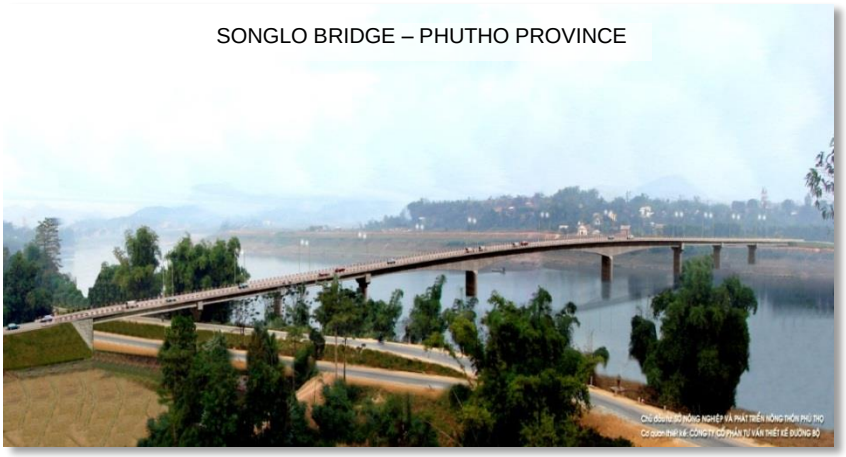

TAN AN BRIDGE – KM 1946+385 - LONG AN PROVINCE


CUA TÙNG BRIDGE – QUẢNG TRỊ PROVINCE

NCC INTERCHANGE - THANGLONG AVENUE

CAILAN INTERCHANGE – NH18

SONGLO BRIDGE – PHUTHO PROVINCE



KHEMAY BRIDGE – QUANGTRI PROVINCE

SURVEY AND DESIGN OF ROADS - SOME TYPICAL WORKS

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
1	Cau Gie – Ninh Binh Expressway	Width: 35,5m, 6 motorized lanes Design speed: 100-120km/h	60km	Feasibility Study, Detailed Design	2004, 2005	1.440
	– Feasibility Study: implemented by HECO, including: survey, design, selection of Final Solution. – Detailed Design: HECO worked as Project Manager, choosing types of Survey, design Specification, pavement structure. HECO designed a section of 12 km from Km210 to Km222, in which there is 1 interchange and 3 large bridges. – Soft soil treatment: Almost the whole length of the road is built on soft soil. The treated length is about 30-40%.					
2	Lang – Hoa Lac Expressway (K1+800 – K11+620)	Width: 140m, 6 motorized lanes and 6 urban lanes Design speed: 120km/h	9,8km	Detailed Design, Working drawings	2005, 2006	1.410
	– The expressway has the largest width up to now. – Traffic is organized in 2 parts. The first is the expressway used for long journey. The second is the urban road for internal journey. – Interchange at National Convention Hall: + Traffic is organized at different elevations, ensuring traffic capacity as well as beauty and modernity of architecture landscape of the area. + 2 underpasses are constructed with total length of 545 m. Width of tunnel's cross-sections is 17,25m.					
3	Bac Thang Long – Noi Bai Expressway	Width: 23m, 4 motorized lanes, Design speed: 100km/h	20	Feasibility Study, Detailed Design	1992	
	– It is the first expressway of Viet Nam (design speed is 120 km/h). – It is the first time that material of graded-aggregate is applied in pavement construction. – It is the first time that soft soil treatment is implemented in sand wells.					
4	Ha Noi – Hai Phong Expressway	Width: 35m, 4 motorized lanes, Design speed: 100km/h	102,5	Project Investment	2006	13483

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
	– The design ensures modernity with automatic toll stations in the whole length (this is the new type that is applied Viet Nam for the first time). Service works are arranged fully, such as central operation house, bus station, telephone booth, service area... – Total length of the road is 102,5km with the width of 35m, including 4 or 6 motorized lanes.. – Crossroads in the road include 13 interchanges and 6 grade separations. – There are 29 large brisges, 20 medium bridges with total length of 11.360m. – 74% of road length lies on soft soil. Thickness of treated soil changes from 20 m to 30 m. – HECO worked as Project Manager, selecting Design Specifications, pavement structure for the whole project. HECO also implemented detailed design for 49 km – sections Km24+700 –Km61+500 and Km75 – Km87.					
5	National Highway No.1 – section Dong Ha – Quang Ngai (HPR2)	Width: 12m, 2 motorized lanes, Design speed: 80km/h	300	Feasibility Study, Detailed Design	1998	832
	– The project is funded by WorldBank. This is the first time a large scale project's consulting service funded by foreign investment is implemented by a Vietnamese Consultant. – The project length is 300km, crossing provinces of Quang Tri, Hue, Da Nang, Quang Ngai. – The section through Hai Van Pass is improved in 21 km (Km893 – Km914). – Concrete pavement is applied for sections affected seriously by floods in 2001 with total length of 10,7km. The cost estimate is 73 billions VND.					
6	National Highway No.1 section: Ha Noi - Lang Son, Section: Km132 – Km165	Width: 35,5m, 4 motorized lanes, Design speed: 100km/h	33	Detailed Design	2001	-
	– Criteria of expressway are applied. Design speed is 100km/h. – There are 5 interchanges. – The road is located in soft soil with its thickness of 25- 40m.					
7	National Highway No.5	Width: 30-40m, 6-8 motorized lanes, Design speed: 100km/h	15	Feasibility Study, Detailed Design	1995	-

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
	This is the first time AASHTO Specifications for survey and design are applied. ❖ Feasibility Study: HECO implemented FS for the whole project. Especially consultant recommended the final alignment direction to bypass Hai Duong city (to the left). ❖ HECO also implemented Detailed Design for section of Km47 – Km62 (bypass of Hai Duong city). – *This is the first time topographical survey is done in Control Networks of Co-ordinates and elevations..* – *This is the first time pre-fabricated vertical drain (PVD) is applied to treat soft soil in Viet Nam*.					
8	National Highway No.5: Project of heightening transport capacity	-	60	Feasibility Study, Detailed Design	1998	-
	– Traffic in the whole road is re-organized. The number of turning points is controlled. – Lanes of waiting, acceleration, deceleration are arranged at crossroads. – Interchanges are applied to the followings crossroads: Trau Quy, Phu Thuy, Quan Goi. – Overpassing bridges are applied to serve pedestrians. – Pedestriams crossing the road are controlled by fences at central separator. – *Traffic accidents in the road decreased significantly.*					
9	National Highway No.6 – section through Ha Dong town	Width: 47m, 6 motorized lanes, Design speed: 80km/h	5	Feasibility Study, Detailed Design	1997	-
	– The road has 2 main functions: Main urban street of Ha Dong town as well as centripetal national road of Ha Noi Capital. It conforms to criteria of Class I urban road – width of 47 m with 6 motorized lanes. – The road is widened in 1 side, ensuring minimum quantity of plan clearance, suitable to town planning.					
10	National Highway No.6 section: Hoa Binh – Son La	Width: 9m, 2 motorized lanes, Design speed: 40-60km/h	251	Feasibility Study, Detailed Design	2002	2.400

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
	❖ Feasibility Study: – Survey, design for the whole project. – Recommending solutions to improve all mountain passes in the whole road, especially Cun slope, Thung Khe pass, Hua Tat pass, Da Moc pass. – Recommending suitable design specification for the whole project: design speed of 60km/h (40 km/h for difficult terrain). – Recommending traffic direction during construction. ❖ Detailed Design: – Worked as Project Manager. – *Improving totally Thung Khe Pass* (Km112 – K134), which is the most difficult pass with length of 22km. Height difference between the peak and bottom is 700m. The road is located on high and very difficult cliff. – Improving totally Hua Tat Pass by changing the road direction to the left, located in flat terrain. Hua Tat Pass now does not exist in National Highway No.6. – Moc Chau rock Pass (Km206-Km210): located behind Thung Khe Pass, Moc Chau Rock Pass is the second difficult in the road with the length of 4km, located in high rock area with very difficult terrain.					
11	National Highway No.6 section: Son La – Tuan Giao	Width: 7,5m, 2 motorized lanes, Design speed: 25-40km/h	85	Feasibility Study, Detailed Design	2005	
	Pha Din – the pass that was considerd to be "black spot" is very dangerous for vehicles – has been improved comletely by: – Changing totally the alignment direction of approaching roads.. – *Reducing the number of small radius curves.* The number of curves that have radius of below 60 m (40 m- 60 m) constitute below 15%. – Sloping gradients change gradually. Average gradient is 8% (maximum gradient is 9%).. – The new road is 1,7 km shorter than the former one.					
12	National Highway No.18	Width: 12-24m, 2-4 motorized lanes, Design speed: 80km/h	182	Feasibility Study, Detailed Design	2002	-
	– HECO provide key engineers, such as: Co-Project Managers, road and bridge engineers... to PCI company (Japanese). – Survey and Feasibility Study for Bieu Nghi – Cua Ong section)57 km) are implemented by HECO. – Survey, detailed design for widened section through towns (Km108+100 – Km115+650 7,2km) are also done by HECO.					

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
13	Ho Chi Minh Highway	Width: 9m, 2 motorized lanes, Design speed: 40-60km/h	160	Detailed Design	2002	1.152
All the road sections surveyed and designed by HECO are located in very difficult terrain with sparse population, ranging from Quang Binh to Quang Nam, including the following sections: – Pheo – Bung (Km486+500 – Km545+500): 58,66km. – Cau Xoi – Kham Duc (Km265+600 – Km303+100): 39,76km. – Western section (Km62T – Km120T): 30km. – Especially, the terrain of section Km276+300 - Km277+200 have high cliff with high tension poles of 500 KV on the right hand side and abyss of Cai river on the other side. Filling slope is protected in reinforcement concrete retaining wall with height of 4 – 8m rested on bored piles. Design of this section has been awarded as ‘’Consulting Service of High Quality’’ by Viet Nam Construction Consulting Association.						
14	National Highway No.279 Section connecting National Highway No.2 – National Highway No.3	Width: 7,5m, 2 motorized lanes, Design speed: 40 km/h	156	Feasibility Study, Detailed Design	2006	205
HECO worked as Project Manager for stages of Feasibility Study and Detailed Design for the most difficult section (Km124 – Km157). Details are as follows: – Section of Km74 - Km112: the road lies on the peak of Mo waterfall in order to bypass floods. The terrain is very difficult with many high rock cliffs. – Section through rock pass of Km127+500 - Km131: Height of the cliff may reach 130m. – Section through But Pass of Km150 - Km151: Maximum longitudinal gradient is 15%.						
15	3 roads to Son La Hydro-electricity Plant	Width: 9m, 2 motorized lanes, Design speed: 40km/h	80,7	Feasibility Study, Working drawings	2002	412
The total length of 3 roads is 80,7km, in which the road of Son La – Na Co – Muong Bu with the length of 30 km is especially difficult due to Cao Pha Pass (Km11+ 200 - Km13+600): – Difference of height is approximately 240m. – The length is about 730 m as the crow flies. – 7 sections are very limited in technical criteria with radius of 10m and longitudinal gradient of 15%. – Slope of terrain is nearly vertical. There are high cliffs with height of about 500 m on one side and a deep abyss on the other side. *The road has been finished and Cao Pha Pass does not exist currently*.						

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
16	Transport System of Dong Nai 3, 4 Hydro-electricity Plant	Width: 7,5m, 2 motorized lanes, Design speed: 25-40km/h	38,1	Feasibility Study, Working drawings	2004	134
	Currently, construction of all the roads is going to be finished. The employer appreciates very much consulting service provided by HECO.					
17	Transport System of Se San 3 Hydro-electricity Plant	Width: 7,5m, 2 motorized lanes, Design speed: 25-40km/h	30	Feasibility Study, Working drawings	2002	221
	The roads are newly-constructed on difficult terrain. Design time is very limited (only 3 months for the whole work). Survey and design work are appreciated by Employer.					
18	Transport System of Buon Kop Hydro-electricity Plant	Width: 7,5m, 2 motorized lanes, Design speed: 40km/h	37,4	Feasibility Study, Working drawings	2003	248
	Transport system to serve construction of the plant includes 37,8 km of road, 1 large bridges, 3 medium ones and 40 culverts. All these items was designed by HECO with appreciation from Employer.					
19	Transport System of Buon Tua Srah Hydro-electricity Plant	Width: 7,5m, 2 motorized lanes, Design speed: 40km/h	25,4	Feasibility Study, Working drawings	2004	175
	Transport system to serve construction of the plant includes 25,4 km of road, 1 large bridges, 2 medium , 1 small ones and 74 culverts. All these items was designed by HECO with appreciation from Employer.					
20	Provincial Road No.176 to Hydro-electricity Plant of Tuyen Quang, Section: Chiem Hoa – Na Hang	Width: 7,5m, 2 motorized lanes, Design speed: 25-40km/h	35,5	Feasibility Study, Working drawings	2001	167
	The former road is very bendy, running very closely Gam river, in a seriously flooded area. *Especially, 10 km of road through Co Yeng Pass (Km65-Km75) is a very big obstacle with so many small radius (below 10m) and large longitudinal gradient (15%). These reasons lengthen the time to cross 40 km of the pass to about 3 hours.* Now the road has been put into use to serve construction of the plant, connecting two districts of Chiem Hoa and Na Hang. Co Yeng Pass has been improved completely with shortened length.					
21	Road connecting Hydro-electricity Plants of Hoi Quang and Ban Chat	Width: 7,5m, 2 motorized lanes, Design speed: 25-40km/h	34,5	Feasibility Study, Detailed Design	2002	262,8

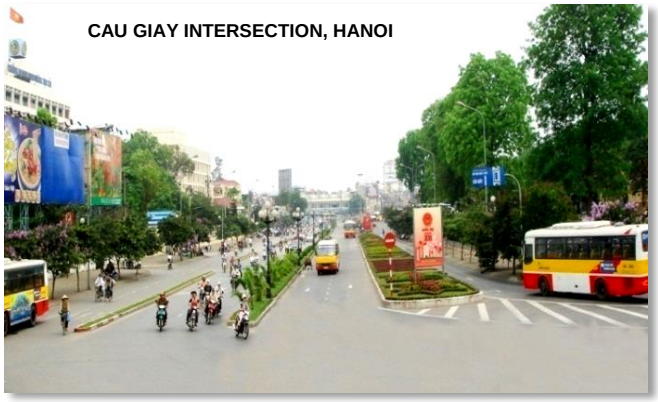
No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
	The road is the most difficult one compared with other service roads. Especially, 6 km section at the end of the road is located in a very difficult terrain that have abyss of Nam Mu river on one side and vertical cliff on the other side. The solution of constructing 1,5 km of tunnel recommended by Electricity Consulting Company No.1 was vetoed by HECO. Instead, HECO recommended use of protection works, such as retaining wall, dyke, and viaducts with lower cost with insurance of road serviceability. *Design and survey work were appreciated by Employer*.					
22	The ring road No.3 – Ha Noi city – section Mai Dich – Noi Bai	Width: 120m, 6 motorized lanes, Design speed: 100km/h	14,6	Project Investment	2006	2700
	– This is an urban expressway (design speed of 100 km/h) that is invested fully with traffic lanes for both long journey and internal journey. – System of interchanges are constructed completely with suitable traffic organization. (8 interchanges). – Underpasses (box culverts, tunnels) are constructed completely. – Suitable to master plan of Ha Noi city.					
23	The ring road No.4 – Ha Noi city – section Tien Du – Soc Son	Width: 100m, 8 motorized lanes, Design speed: 120km/h	43	Project Investment	2002	-
	– This is an urban expressway (design speed of 120 km/h) that is invested fully with traffic lanes for both long journey and internal journey. – System of interchanges are constructed completely with suitable traffic organization (4 interchanges, 8 large bridges with total length of 3100m). – Underpasses (box culverts, tunnels) are constructed completely. – Suitable to master plan of Ha Noi city.					
24	The ring road No.1 – Ha Noi city – section Kim Lien – O Cho Dua	Width: 50m, 6 motorized lanes, Design speed: 80km/h	1,1	Feasibility Study	2005	773
	– Section of Kim Lien – O Cho Dua with the length of 1180m and width of 50m plays a key role in closing the ring road No.1, solving completely traffic jams. This is one of the key construction works of the city to celebrate 1000 thousands of Thang Long – Ha Noi. – Total Investment Cost for the project is 773 billions VND, including domestic capital and borrowed from ODA Funds. Construction cost is 100 billions VND.					
25	Kim Liên Interchange Ha Noi City	Urban interchange with motorized underpass	-	Feasibility Study	2000	-

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
	– Because the interchange cuts North – South railway that will become on-the-air railway in the future, design and traffic organization of the interchange is very complicated. – The tunnel direction is Dai Co Viet-Kim Liên with the length of 644,69m (the length of coverd tunnel, uncovered tunnel, approaches is 140m, 405m, 99,69m respectively. The width is 18,5m and the height is 6,25m. The clearance height is 4,75m. – Pedestrian underpasses include 2 tunnels crossing Le Duan and Giai Phong streets with total length of 90m.					
26	Nga Tu Vong Interchange - Ha Noi City	Urban interchange with motorized flyover	-	Feasibility Study	2000	200
	– Like Kim Lien interchange, Nga Tu Ving interchange cuts North-South railway (Truong Chinh street). In the future, the railway will become on-the-air railway. design and traffic organization of the interchange become very complicated. – In Feasibility Study, HECO recommended a lot of options as well as detailed comparison. The selected option has now put into operation.					
27	Ring roads to protect from floods in Song Day Zone – Ha Nam province	Width: 9m, 2 motorized lanes, Design speed: 40-60km/h	24,8, 18	Feasibility Study, Detailed Design	2004 , 2005	241 + 72
	The project has 7 roads (including additional 5 roads of Provincial Roads No.978, 979, 9028, 9032 and connecting roads between Provincial Road No.9028 and 9029). The followings are some outlines of the project: – Total length: 42,8km. – Scale: 2 motorized lanes, width of from 9m to 12m (depending on cleared land area). – Design speed: 40-60km/h. – Asphalt pavement with required resilient modulus of 1400 daN/cm2.					
28	Ring road No.1, 2 of Phu Ly Town – Ha Nam Province	Width: 27-42 m, 4-6 motorized lanes, Design speed: 80km/h	8,8	Feasibility Study, Detailed Design	2005	288
	– Extended from National Highway No.21A to National Highway No.1A, being the ring road of Phu Ly town – Ha Nam Province. – The road conforms to criteria of Class II Urban road – Pavement of high-level asphalt concrete with required resilient modulus of 1530 daN/cm2. – Infrastructure, including sidewalk, drainage, lighting system, utilities tunnel are constructed fully.					
29	Road of 62m width in Hai Duong Province	Width: 62m, 6 motorized lanes, Design speed: 80km/h	4,2	Feasibility Study, Detailed Design	2002	330

No	Project	Technical Criteria	Length	Design Stage	Year	Cost (billion)
	– 62 m road is the main route connecting central area of Hai Duong city to Gia Loc district. In the future, it will connect Ha Noi – Hai Phong Expressway to National Highway No.5. – The road conforms to Class II urban road criteria– pavement of high-level asphalt concrete with required resilient modulus of 1800daN/cm2. In the first period, the road has the width of 33m with 4 motorized lanes and total cost estimate of 224 billions VND. – Infrastructure, including sidewalk, drainage, lighting system, utilities tunnel are constructed fully.					
30	Thinh Lang Avenue – Hoa Binh Town	Width: 36m, 4 motorized lanes, Design speed: 60km/h	1,8	Feasibility Study	2006	43
	– Thinh Lang Avenue has a length of 1,8km, being the Eastern main route of Hoa Binh town. – The road conforms to criteria of Class II Urban road – Pavement of high-level asphalt concrete with required resilient modulus of 1530 daN/cm2. – Infrastructure system (sidewalk, drainage, lighting system, utilities tunnel) are all newly-constructed.					

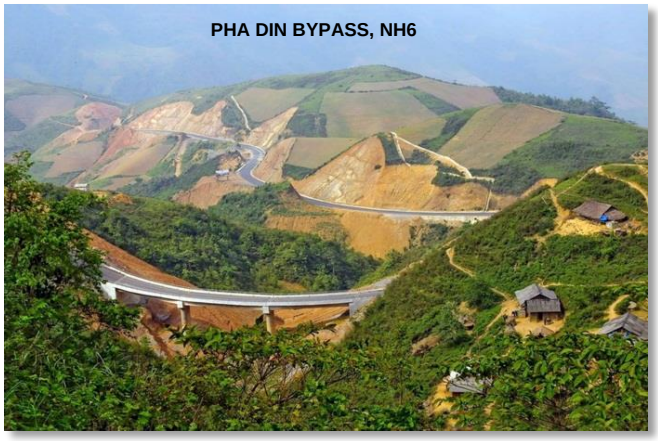
THANG LONG AVENUE, HANOI

CAU GIAY INTERSECTION, HANOI



CAU GIE – NINH BINH
EXPRESS WAY

PHA DIN BYPASS, NH6



VERIFICATION OF SURVEY, DESIGN, COST ESTIMATION RECORDS – SOME TYPICAL WORKS

No	Project	Technical Criteria	Characteristics	Location	Year
1	Feasibility Study of National Road No.279, section Minh Thang – Pa Uon	Length = 40km, width = 7,5m	The road is located in moutainous terrain .	Son La, Lai Chau	2002
	– Technical criteria: Class IV of mountainous area (specified in National Standard of TCVN 4054-85). Design speed is 40km/h, maximum longitudinal gradient = 10%, minimum horizontal radius Rmin = 40m. Pavement is bituminous-treated with resilient modulus of 890 daN/cm^2. – There are 2 medium bridges and 1 small bridge with total length of 78m.				
2	Feasibility Study of National Road No.32, section Dien - Nhon	Length = 4,07km Width = 50m	Main street of Class I (22TCN 104-83)	Ha Noi City	2002
	– Technical criteria: Design speed is 80 km/h, maximum longitudinal gradient is 0,76%, minimum horizontal radius is 600m. Pavement is bituminous-treated with resilient modulus of 1800 daN/cm^2. – There is 1 medium bridge of 45m, 1 large bridge to cross over railway and Phu Dien station.				
3	Working drawings and Cost Estimate of Hai Gia Bridge - Km 7+289,31 – Provincial Road No. 631A	Length = 279,42m Width = 7,5m	The road is located in mountainous terrain .	Quang Tri	2004
	Span structure: 8 simple spans – each of 33m. Beam is prestressed reinforcement concrete in T-shape. Cross-section includes 3 beams with each distance of 2,5m – Height of each beam is 1,65m. Prestressing steel is type of 12 threads with diameter of 12,7mm. Foundation of abutments and piers are rested on bored piles of 1m diameter. Each abutment includes 5 piles with length of 8 – 9m. Pier foundation is rested directly on rock bed. Pier T7 has foundation of 4 bored piles with expected length of 10m. The approaches are designed in conformity with mountainous Class IV criteria. Width of roadbed is 7,5m. Pavement is bituminous-treated with the width of 5,5m.				
4	Detailed design, cost estimate of National Highway No.32 - Km14 – Km41 (Nhon – Son Tay)	Length = 27km, width =12 - 35m	The road is located in flat terrain, crossing through 3 towns	Ha Tay	2004
	– Technical criteria: Class of 60. Design speed is 60km/h, maximum longitudinal gradient is 4%, minimum horizontal radius is 125m. Pavement structure is asphalt concrete – Required resilient modulus is 1400daN/cm^2. – There is 1 medium bridge and 1 small bridge with their total length of 50 m in the road. – Span layout: Beam is prestressed reinforcement concrete in T-shape. – Bored piles of 1m diameter for the medium bridge and driven piles of 40x40cm for the small bridge.				

No	Project	Technical Criteria	Characteristics	Location	Year
5	Detailed design, Cost estimate of National Highway No.1 – section: Trung Luong – My Thuan	Length: 58,2km Width: 20m	Upgrading, widening the existing road.	Tien Giang	2004
	– Technical criteria: Design speed is 80km/h, pavement of asphalt concrete – required resilient modulus is 1600/daN/cm^2 – There are 7 medium bridges with total length of 337m. – Span structure: Simple prestressed reinforcement concrete hollow slab and T-shaped prestressed reinforcement concrete beam. – Bored piles – diameter = 1m and reinforcement concrete pile of 45x45cm – Soft soil at 2 approaches are treated in reinforcement concrete slab resting on pile foundation and sand wells.				
6	Detailed design, Cost estimate of Provincial Road No.723, Da Lat – Da Chay	Length: 24,57km Width: 9-16m.	The road is located in mountainous terrain .	Lam Dong	2005
	– Technical criteria: 6,4km of the beginning section is urban ring road – width is 16 m, the rest section is of Class 40 road – design speed is 40km/h, maximum longitudinal gradient is 8%. Pavement is asphalt concrete with required resilient modulus of 270daN/cm^2 – There are 2 medium bridges od Da Sar and DaDeum in the road. – DaSar bridge includes 5 spans of prestressed reinforcement concrete – length of each is 33m – I-shaped cross-section, height of beam is 1,65m. Foundation is of shallow type rested on rock bed. – DaDeum bridge includes 3 spans with layout of 15m+25,7m+15m. Main span includes 5 prestressed reinforcement concrete beams – length of each is 25,7m – "I" shaped section – beam height is 1,45m. Approaching bridge includes 6 beams of Class 300 reinforcement concrete – "T" shaped section – length is 15 m.. Foundation of abutments and piers is rested on rock bed.				
7	Feasibility Study – Project of National Highway No.28 Construction Investment and road of bypassing flood from Dong Nai 3 Hydroelectricity Plant	Length of Option I: 15,37km, Length of Option II: 6,28km Width: 7,5m	The road is located in mountainous terrain .	Lam Dong	2005

No	Project	Technical Criteria	Characteristics	Location	Year
	– Technical criteria: Mountainous class IV road. Design speed is 40km/h, maximum longitudinal gradient is 8%, minimum horizontal radius is 60m. Pavement is asphalt concrete with required resilient modulus of 1150daN/cm^2. – There are 3 large bridges (for both options) with total length of 699m. Span structure: Simple precast prestressed reinforcement concrete beam with length of 33m for 2 bridges of Option I (span layout is 5x33m) and 2 approaching spans of Da Dung bridge of Option I. Balanced cantilever prestressed reinforcement concrete beam is applied to main span of Option II (span layout is 75m+120m+75m). Shallow foundation rested on rock bed is applied to abutments and piers.				
8	Detailed Design of Ho Chi Minh City – Trung Luong Expressway (02 packages of road and 2 packages of bridge)	Total length of 2 road packages is 2,7km. Width is 26m	The road is located in flat and low terrain with soft soil.	Long An, Tien Giang	2005
	Technical criteria: Expressway of Class A. Design speed is 120km/h – asphalt concrete pavement with required resilient modulus of 1910daN/cm^2. Technical criteria of bridge: - Approaching bridge No.5: includes 8 spans of continuous prestressed reinforcement concrete hollow slab beam. Span layout is 3x30m+2x35m+3x30m. Total length of bridge is 250,9m. Abutments and piers are reinforcement concrete resting on bored piles of 1,0m diameter. - Xang Muc Bridge: includes 5 spans of simple beam – length of 25,7m. Total length of bridge is 129,94m. Cross-section includes 5 main beams of "T" shaped prestressed reinforcement concrete. The angle between the bridge and water flow is 70^o. Abutments and piers are rested on driven piles of 40x40cm.				
9	Detailed Design, Cost Estimate of Nam Song Hau Road – section Km 17 – Km50 and section Km80 – Km100	Total length: 52,98km. Width: 7,5 - 12m.	The road is located in flat terrain with soft soil.	Soc Trang	2005
	– Technical scale: Class III of flat terrain. Design speed is 80km/h, maximum longitudinal gradient is 7%, minimum horizontal radius is 250m. Pavement is asphalt concrete with required resilient modulus of 980daN/cm^2. – There are 2 medium bridges with each total length of 61m. Span layout is 3x20m. Structure is simple pre-tensioning reinforcement concrete. Abutments and piers are rested on driven pile of 40x40cm – length changes from 34 to 39 m.				
10	Detailed design, Cost estimate of Da P'Loa Bridge, Da Huoai District, Lam Dong province.	Bridge length: 104,48m, Width: 9m	The road is located in mountainous terrain .	Lam Dong	2006

No	Project	Technical Criteria	Characteristics	Location	Year
	– Span layout: 3 spans of simple prestressed reinforcement concrete beam – length of each is 33m. Beam's cross-section is in "I" shape. Bridge's cross-section includes 4 main beams with spacing of 2,2m. Height of beam is 1,65m. Prestressing steel is type of 5 bundles – 12 threads of 12,7mm. Foundation is rested on bored piles of 1m diameter. Each abutment includes 6 piles. Piers are rested on bored piles of 2m diameter, each pier has 5 piles. Total length of approaches is 453m, conforming to mountainous Class IV road – design speed is 40 km/h. Width of roadbed is 9m, pavement is asphalt concrete with required resilient modulus of 1270/daN/cm^2.				
11	Detailed design, Cost estimate of Provincial Road No.398B, connecting National Road No.183 with National Road No.18, Hai Duong province.	Length: 8,57km, width: 12m	The road is located in flat terrain.	Hai Duong	2006
	– Technical criteria: Design speed is 80 km/h. maximum longitudinal gradient is 4%, minimum horizontal radius is 250m. Pavement is asphalt concrete with required resilient modulus of 1400daN/cm^2. There are 1 medium bridge and 2 small bridges. Span structure is simple prestressed reinforcement concrete slab beam of Class 400. Abutments and piers are rested on driven piles of 40x40cm.				
12	Working drawings, Cost Estimate of road, water supplying system, drainage of Zone 1 – Project of constructing infrastructure of Dai Phuoc Ecological Tourism Zone.	Zone area is about 51ha – total length of road is 6,14km	The ecological tourism zone is located on Ong Con island. The embankment is constructed on soft soil.	Dong Nai	2007
	– Technical criteria: Design speed is from 60 to 80km. The embankment has 6 different types of width, changing from 12m to 49,5m. distributing on 25 branches and main road of Zone I. Maximum longitudinal gradient is 6 - 8%, minimum horizontal radius is 125-250m. Pavement is asphalt concrete with required resilient modulus of 1190 - 1530daN/cm2. – Soft soil is treated in PVD with depth of from 7m to 22m.				

CONSTRUCTION SUPERVISION – SOME TYPICAL WORKS

No	Project	Technical Criteria	Characteristics	Location	Year
A. DOMESTIC INVESTED PROJECTS					
1	Quy Nhon-Song Cau Road and bridges	Length: 33,2km Width: 12 - 20m	The road crosses Quy Nhon city, located in mountain side, along the seaside.	Binh Dinh – Phu Yen	1997-2000
	– Design speed is 60m – 80km/h; maximum longitudinal gradient is 7%, minimum horizontal radius is 130m – Pavement is asphalt concrete. – There are 12 bridges with total length of 435m, in which there is 1 large bridge with length of 212m, including 6 spans of simple prestressed reinforcement concrete.				
2	Quy Nhon - Nhon Hoi Road and 5 Ha Thanh bridges	Length: Width: 15m	The road crosses the sea, connecting Quy Nhon city with Nhon Hoi peninsula	Quy Nhon city	2002 - 2005
	– Interchanges: Dong Da, Hoa Lu, Nui Hang – The road conforms to Street and Rural Road Design Standard, design speed is 80km/h. Pavement is asphalt concrete. – 5 Ha Thanh Bridge includes 3 large and 2 medium ones with total length of 670m . Width is 14,5m. – Span structure: Super simple beam and simple precast prestressed reinforcement concrete beam. – Foundation is rested on driven piles of 45 x 45cm.				
3	Cua Lap Bridge	Length: 722m Width: 12m	Span layout: 5x33+(43,5+63+43,5)+12x33(m)	Ba Ria-Vung Tau	2002 - 2005
	– The bridge is close to sea port, on the seaside road of Vung Tau – Long Hai – Binh Chau. – Water opening: B = 50m, H = 7m. – Span structure: “T” shaped frame of prestressed concrete – simple prestressed reinforcement concrete beam. – Foundation: Bored piles of 1m diameter. – The bridge has been finished in 2006.				
4	Road No.188 and its bridges	Length: 14,7km Width: 12m		Hai Duong	2004 - 2006

No	Project	Technical Criteria	Characteristics	Location	Year
	– Technical criteria: Design speed is 60km/h, pavement of asphalt concrete with required resilient modulus of 1470/daN/cm^2 – Da Vach Bridge: length of 559m, span layout: 4x30+(44+2x64+44)+7x30m. – Hiep Thuong Bridge: length of 453m, span layout: 4x30+(55+90+55)+4x30m. – Span structure: Prestressed reinforcement concrete box beam and simple Prestressed reinforcement concrete beam. – Foundation: Bored piles of 1,5m diameter.				
5	Ho Chi Minh Highway and its bridges	Length: 225km Width: 9 - 12 m		Ha Noi Ninh Binh Thanh Hoa	
	– HECO has assigned 1 engineer to work as Technical Vice-Director and 10 Construction Inspector. Project Manager is Cuban consultant. – Section: Km0 – Km105. – Design speed: 60 – 80km/h, asphalt concrete. – Bridges in the road: 59 medium bridges and small bridges, 2 large bridges, in which Cuc Phuong Bridge has a length of 950m.				
6	Kien Khe Bridge	Length: 220m Width: 12m	Span layout: 33+(42+63+42)+33 (m)	Ha Nam	2005 - 2006
	– The bridge crosses Day River in Ha Nam Province - Project of upgrading transport system – belonging to plan of upgrading infrastructure to protect from floods of Day River. – Water opening: B = 50m, H = 3,5m. – Span structure: Continuous prestressed reinforcement concrete box beam and simple prestressed reinforcement concrete beam. – Foundation: Bored piles of 1,2m diameter.				
7	National Highway No.1A – section Trung Luong – My Thuan and its bridges	Length: 58,2km Width: 20m	Upgrading and widening the existing road	Tien Giang	2005 - 2006
	– Technical criteria: Design speed is 80km/h, asphalt concrete pavement with required resilient modulus of 1600/daN/cm^2 – There are 7 medium bridges with total length of 337m. – Span structure: Simple prestressed reinforcement concrete hollow slab beam and simple “I” shaped prestressed reinforcement concrete beam. – Foundation: Bored piles of 1m diameter and driven piles of 45x45cm – Soft soil on the two approaches are treated in reinforcement concrete slab rested on piles and sand wells.				

No	Project	Technical Criteria	Characteristics	Location	Year
B. FOREIGN INVESTED PROJECTS					
1	Binh Bridge	Length: 1280m Width: 23,5m	Span layout: 50+6x60+(100+ 260+100)+6x60+5 0) (m)	Hai Phong	2002 - 2005
	– HECO cooperates with CHODAI company assigning 10 engineers to check design and inspect construction of Binh bridge, approaches and ticket station. – Main bridge: 3 cable-stayed spans, steel beam composited with reinforcement concrete slab. – Approaching bridge: Continuous steel beams composited with reinforcement concrete slab. – Foundation: steel tube piles with diameters of 2m,0.8, 0.9m.				
2	Can Tho Bridge	Length: Width:	Span layout: 15x40+(50+550+ 150)+22x40+(50+ 3x80+50)+2x40	Can Tho	since 2005
	– HECO assigned 2 engineers to take part in design, inspection. NIPPON KOE Company plays as Project Manager. – Clearance: H = 30m. – Main bridge: Cable-stayed structure with steel box beam and prestressed reinforcement concrete. – Approaching bridge: Span layout: 50+3x80+50 - prestressed reinforcement concrete box beam – span of 40m: simple beam of prestressed reinforcement concrete Super ”T”. – Foundation: Bored piles of 2,5m diameter 1,2m diameter; reinforcement concrete piles of 45x45cm.				
3	Hai Van Tunnel	Length: 6345m	Tunnel for motorized vehicles	Thua Thien - Hue, Da Nang	2000 - 2005
	– HECO assigned 6 engineers working with companies of NIPPON KOEI and Louis BERGER. – Technical criteria: Main bridge has a length of 6345m, width of 12m, height of 7,5m (clearance height is 4,95m). Rescuing tunnel has a length of 6345m; width of 4,7m, height of 3,8m; ventilation tunnel has a length of 1810m, width of 8,2m, height of 5,3m. – Approaches have length of 5655m, width of 12m. There are 8 bridges with total length of 1800m, in which Lang Co Bridge has span layout of 25x33m.				
4	East-West Corridor Road – National Highway No.9	Length: 100km Width: 9 - 12m	Connecting National Highway No.1 with Daxavan Border Gate and Ho Chi Minh Highway	Quang Tri	2004 - 2005

No	Project	Technical Criteria	Characteristics	Location	Year
	– HECO assigned 2 engineers working with companies of Luis Berger and Stanley. – Design speed is 60km/h, minimum horizontal radius is 130m and 65m; maximum longitudinal gradient is 8%. – Asphalt concrete pavement with required resilient modulus of 1270 daN/cm2 – There are 14 medium bridges and small bridges, all of which are newly-constructed or upgraded. Their total length is 653m				
5	Thanh Tri Bridge	Length: 2873m Width: 33m	Span layout: 6x33+28+(80+130+80)+11x50+(80+4x130+80)+17x50+(80+130+80)+5x33 (m)	Ha Noi	2002-2006
	– HECO assigned permanent engineer assistant to work with Company PCI. – Thanh Tri Bridge is a large one, crossing Hong river with water opening of B = 80m, H = 10m. – Structure of main span: Continuous prestressed reinforcement concrete box beam. – Foundation structure: Bored piles of 2m diameter.				

PART III:

ABILITY OF COMPANY LEADERS AND KEY ENGINEERS

QUALIFICATION OF DIRECTOR BOARD AND KEY ENGINEERS

No	FULL NAME	GRADUATION DATE	UNIVERSITY	QUALIFICATION	POSITION
I. DIRECTOR BOARD					
1	Bui Van Tong	1975	Ha Noi University of Transport and Communication	Road Engineer	Chairman
2	Hoang Van Tho	1985	Ha Noi University of Civil Engineering	Master of Bridge Engineering	Director
3	Vu Van Chi	1980	Ha Noi University of Transport and Communication	Road Engineer	Vice-Director – in charge of projects of road
4	Pham Duy Khoi	1985	Ha Noi University of Transport and Communication	Master of Bridge Engineering	Vice-Director – in charge of projects of bridge
II. KEY ENGINEERS					
1	Nguyen Van Hien	1979	Ha Noi University of Transport and Communication	Road Engineer	Head of Business Management
2	Le Huy Thang	1996	Ha Noi University of Transport and Communication	Road Engineer	Head of Technical Management
3	Nguyen Manh Cuong	1999	Ha Noi University of Transport and Communication	Road Engineer	Head of Road Design Department 1
4	Luong Quang Khuong	1999	Ha Noi University of Transport and Communication	Road and Bridge Engineer	Vice-Head of Road Design Department 1
5	Bui Van Vang	1984	Ha Noi University of Water Resources	Hydrological Engineer	Head of Road Design Department 2
6	Nguyen Xuan Thuy	1999	Ha Noi University of Civil Engineering	Civil Engineer	Vice-Head of Road Design Department 2

No	FULL NAME	GRADUATION DATE	UNIVERSITY	QUALIFICATION	POSITION
7	Ung Viet Cuong	1999	Ha Noi University of Civil Engineering	Civil Engineer	Vice-Head of Embankment and Pavement Design Department
8	Le Hoang Ha	1999	Ha Noi University of Transport and Communication	Ph.D of Bridge Engineering	Vice-Head of Bridge Design Department 1
9	Dang Vu Tuan	1997	Ha Noi University of Transport and Communication	Road and Bridge Engineer	Head of Bridge Design Department 2
10	Tran Thanh Khai	2001	Ha Noi University of Transport and Communication	Road Engineer	Vice-Head of Survey Department
11	Nguyen Hoach Nguyen	1980	Ha Noi University of Transport and Communication	Geo-technical engineer	Head of Geo-technical Survey and Design
12	Le Ngoc Thanh	1995	Ha Noi University of Mine and Geology	Geo-technical engineer	Vice - Head of Geo-technical Survey and Design
13	Ngo Van Hung	1999	Ha Noi University of Water Resources	Hydrological and Environmental Engineer	Head of Hydrological and Environmental Department
14	Vu Thi Minh Huong	1996	Ha Noi University of Transport and Communication	Construction Economics Engineer	Manager and controller of Cost Estimation
15	Duong Ngoc Hien	1995	Ha Noi University of Mine and Geology	Topographic Survey Engineer	Quality Controller / Manager of topographical survey;
16	Truong Quang Dong	1995	Ha Noi University of Mine and Geology	Geo-technical engineer	Quality Controller / Manager of Geology and soft soil treatment,

No	FULL NAME	GRADUATION DATE	UNIVERSITY	QUALIFICATION	POSITION
17	Nguyen Thi Kim Khanh	1997	Ha Noi University of Transport and Communication	Construction Economics Engineer	Manager of Cost Estimation
18	Khong Viet Trung	1992	Ha Noi University of Transport and Communication	Construction Economics Engineer	Manager of Cost Estimation
19	Truong Thi Mai Phuong	1996	Ha Noi University of Transport and Communication	Construction Economics Engineer	Manager of Cost Estimation
20	Do The Huong	1992	Ha Noi University of Transport and Communication	Bridge Engineer	Manager of Bridge Design, Construction Inspector .
21	Pham Thi Bich Thuy	1998	Ha Noi University of Transport and Communication	Construction Economics Engineer	Manager of Cost Estimation
22	Tran Thuy Quynh	1996	Ha Noi University of Mine and Geology	Geo-technical engineer	Manager of geo-technical investigation, soft soil treatment
23	Nguyen Quang Trung	2001	Ha Noi University of Mine and Geology	Geo-technical engineer	Manager of geo-technical investigation, soft soil treatment
24	Dao Manh Thang	2000	Ha Noi University of Transport and Communication	Road and Bridge Engineer	Manager of Bridge Design, Construction Inspector .
25	Pham Thi Ngoc Huyen	1992	Ha Noi University of Civil Engineering	Road and Bridge Engineer	Manager of Design
26	Nguyen Thu Yen	1998	Ha Noi University of Transport and Communication	Road Engineer	Manager of Design

No	FULL NAME	GRADUATION DATE	UNIVERSITY	QUALIFICATION	POSITION
27	Pham Vinh Thang	1995	Ha Noi University of Transport and Communication	Road Engineer	Manager of Design, Construction Inspector .
28	Nguyen Thi Kim Anh	1995	Ha Noi University of Mine and Geology	Geo-technical engineer	Design Manager of soft soil treatment
29	Mai Xuan Ngoc	2001	Ha Noi University of Civil Engineering	Road and Bridge Engineer	Manager of Design, Construction Inspector .
30	Nguyen Trong Hoan	1999	Ha Noi University of Transport and Communication	Road Engineer	Manager of Design, Head Construction Inspector .
31	Tran Van Nganh	1995	Ha Noi University of Transport and Communication	Road Engineer	Manager of Design, Head Construction Inspector .