

- 7) Monitor and report on the physical and financial progress of the works undertaken by construction contractors and recommending action to be taken when progress is not in accordance with the approved program;
- 8) Ensure that the quality of the construction works are completed according to the design drawings and specifications, and providing quality assurance on quality control tests performed by contractors;
- 9) The CPM shall have its own independent laboratory and equipment and test sites to control construction materials quality, independently of the Contractor's laboratory and equipment; the provisions for laboratory space and equipment will be provided to the CPM as established in Appendix F of this contract. The CPM shall include a quality assurance (QA) testing plan with a minimal number of respective QA tests per unit road and/or bridge as a percentage of the number of tests in the approved QC plan of the Contractor;
- 10) Monitor and ensure that the Construction Contractors prepare and submit EMP implementation plans for CPM approval. Review the proposed EMP implementation plans with attention to the appropriate sequencing and integration of EMP activities with related construction works. Comment and/or approve the EMP implementation plans.
- 11) Monitor and ensure the implementation of the EMP and the HIV/AIDS Awareness Plan by the Contractor, in accordance with the implementation plan of the EMP, including all environmental measures that apply to borrow pits, dumping areas and camp yards, as well as all public outreach and consultation activities of the Contractor;
- 12) Monitor the processes related to environmental issues carried out by the Contractors with MARN, such as new sites for borrow banks, camp yards and dumping areas, as well as processes with any other institution;
- 13) Ensure that the Contractor has attended any unforeseen environmental impact that could arise during the construction period and that necessary mitigation measures have been taken, and support as necessary to avoid delays;
- 14) Certify that the monthly certificates for payment from construction contractors accurately reflect the value of the works completed and recommend to proceed for payment;
- 15) Ensure that the Construction Contractors perform their work in accordance with the Compact, MCC's regulations, Salvadoran legal framework and any other provisions given in the construction contract;
- 16) In case of where the construction contractor does not meet its contractual obligation, the CPM shall report the case immediately to UIPC and FOMILENIO and compile all support documents pertaining to such case;
- 17) Compile and evaluate information for accident reports as they occur and report to both the UIPC and FOMILENIO;
- 18) Prepare and issue site instructions to construction contractors, as necessary for Project implementation;
- 19) To maintain the Record Book (Bitacora) at the work site and use for daily communication with contractors and to maintain registers of main events in a timely manner during the development of the works;
- 20) Provide full time lead construction supervision engineers for each of the construction contracts;
- 21) Review, verify the accuracy, respond, and approve all necessary shop drawings submitted by the construction contractors;

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- 22) Review, approve and monitor the Quality Control Plan submitted by the Construction Contractors;
 - 23) Review and comment on or recommend approval of construction contractors proposed change (variation) orders to FOMILENIO. Prior to propose to FOMILENIO, CPM shall discuss these matters with UIPC in relation to technical issues;
 - 24) Propose change orders for the approval by FOMILENIO; this shall also include the cost and time impact of such proposed changes, if any. CPM shall also be required to submit the various alternatives with cost benefit analysis and effect on time for the particular section on construction and for the project as a whole for facilitating the decision by FOMILENIO. Prior to propose to FOMILENIO, CPM shall discuss these matters with UIPC in relation to technical issues;
 - 25) Review and approve reports submitted by construction contractors;
 - 26) Review, approve and monitor the Safety and Occupational Health Plan submitted by the construction contractors, and include comments and recommendations in the Monthly Reports related to the execution of such Safety and Occupational Health Plan;
 - 27) Provide photographs of construction documenting weekly and monthly progress and potential trouble areas according to the formats to be defined previous to the commencement of the construction supervision activities; these photographs should be posted on the web-based project management system.
 - 28) Review and certify monthly payment certificates of construction contractors;
 - 29) Analyze and make recommendations regarding claims submitted by construction contractors;
 - 30) Attend claims meetings between FOMILENIO and construction contractors;
 - 31) Communicate with businesses and communities affected by any of the works undertaken under the Project to keep them aware of the construction process and schedule;
 - 32) Review (verify accuracy of) the as-built drawings prepared by construction contractors and compiling complete sets of these drawings for FOMILENIO on a monthly basis;
 - 33) Perform pre-final and final inspections of projects sites, as well as prepare, as and if applicable, detailed punch lists and verify that all punch list items are corrected prior to recommendation of FOMILENIO acceptance of the completion of the works and issuance of the Taking Over Certificate;
 - 34) Prepare a Final Report for each one of the road projects, including recommendation to FOMILENIO for Final Acceptance of all the works included in the contract documents and amendments, with a quality certification, stating that IRIs or any other evaluation parameters have been accomplished;
 - 35) Maintain orderly working files and a comprehensive, computerized log for correspondence, minutes of meetings and conferences, submittal data, submittal registers, inspection and monthly progress reports, contract documents including amendments, notices to proceed, change orders and modifications, all in a system which is comparable with software used by FOMILENIO, which will provide deliverable inventory, scheduled dates and actual status.
- During the course of the work, the CPM shall maintain it in good order and in a reference library format in office space in San Salvador for use by FOMILENIO staff. From time to time, FOMILENIO may request the CPM to show documents to interested parties, approved by FOMILENIO. Documents of a sensitive nature should be stored separately in the reference library. Prior to completion of the period of work, the CPM shall pack and deliver to FOMILENIO the entire contents of the Project Library in good order and properly indexed and marked. In addition, the CPM shall provide FOMILENIO with all electronic files of any and all.

project documents stored in a media acceptable to FOMILENIO including a comprehensive, well-organized electronic index of all those documents. The copyright of all Project materials will remain with FOMILENIO;

36) Answer, together with the construction contractors if necessary, to any comment on the performance of the works issued by FOMILENIO;

37) Perform all other construction supervision and project administration tasks as specified in the contracts between FOMILENIO and construction contractors;

38) Support or participate in third party environmental audits, as requested by FOMILENIO;

39) Review and verify that delivered materials meet specifications and criteria as described in the Technical Specifications and those that are required to meet the desired performance of the project. The CPM shall perform necessary QA tests, in the field and in a laboratory as required, to ensure compliance of delivered materials to the specified criteria. The CPM shall briefly describe its QA testing plan for expected delivered materials in its technical proposal;

40) Conduct weekly meetings with the Contractors to review current work program and daily activities. The CPM is expected to compile and report minutes from the meetings as part of scheduled deliverable reports;

41) For every construction project, the CPM will facilitate periodic meetings between FOMILENIO, UIPC and the Contractor project management team to provide high-level status reports and discuss problems, delays, potential change orders, and other pertinent contractual impacts; and

42) Perform other duties as directed by the FOMILENIO.

43) Review and approve the Road Safety Plan submitted by the construction contractors, and include comments and recommendations in the Monthly Reports related to the execution of such Road Safety Plan;

44) Verify and monitor the environmental auditing processes executed by the Ministry of Environment and Natural Resources (MARN as in Spanish);

45) Verify and monitor the process for releasing the Environmental Guarantee of the Project, as well as any guarantee for disposal sites, borrow pits and camp yards, that the Contractor or the MOPTVDU have submitted to MARN in relation with the Project.

46) The Quality Assurance Plan (QAP) of the CPM shall consider as minimum the following content:

1. Introduction (General Approach)
2. Personnel
 - 2.1 Organization
 - 2.2 Tasks and responsibilities
3. Construction Control
 - 3.1 Schedule Control and tracking
 - 3.2 Physical Control
 - 3.3 Financial Control
 - 3.3.1 Monthly Statements for Payments
 - 3.3.2 Liquidation
 - 3.4 Control of design changes during construction
4. Quality Assurance of Materials and Construction Processes.
 - 4.1 Establishment of Acceptance Criteria
 - 4.2 Work inspections

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- 4.3 Technical documentation (standards, specifications, others)
- 4.4 Laboratory Equipment
- 4.5 Verification of tests performed by the Contractor
- 4.6 Verification tests performed by the CPM
- 4.7 Statistical control
- 5. Interrelation between Contractors and Employer
 - 5.1 Information Flow
 - 5.2 Correspondence and communication control
 - 5.3 Meetings
 - 5.4 Technical and financial reports

At commencement of the each one of the construction contracts, the QAP (presented as part of the technical proposal) shall be complemented and made compatible with the scope of works of the corresponding construction contract and submitted for approval to FOMILENIO.

Final

APPENDIX B – REPORTING REQUIREMENTS

The CPM is required to provide the reports described below. All reports will be submitted with two original copies in Spanish and with its corresponding electronic file. The reports will be submitted first for technical review of UIPC, followed by approval of FOMILENIO. Once FOMILENIO has issued its approval, the CPM shall proceed to prepare an English version of such documents and submit them to FOMILENIO. These documents shall include (but not be limited to):

Project Management (Initial documents to be submitted in form and substance acceptable to FOMILENIO)

- a) Project Management Plan (within the first 2 months after the effective date)
- b) Project Management Information System according to section 8.1.1.c of Appendix A of this contract (within the first 3 months after the effective date)
- c) All information related to the project management activities, as indicated in Appendix A shall be reported by the CPM as part of the monthly reports established in this Appendix or as a separate report if the situation requires an immediate action or analysis or when FOMILENIO requires. In the event that the technical services are finished Project Management report shall continue to be submitted monthly.
- d) An Initial Report that will include(within the first ten day after the signing of this Contract):
 - i. A detailed methodological approach to supervise the compliance of the Project's Contractors with the Resettlement Action Plan, all environmental mitigation measures established in the Environmental Management Plans, in the Archeological Impact Assessments and in the HIV- AIDS Awareness Plans.

ii. Mobilization Plan

Supervision of Design Consultants

(i) Inception Report

Within four weeks from the effective date of the contract, the CPM shall present to the FOMILENIO the Inception Report with a consolidated work plan outlining critical milestones, methodologies, staffing and a plan to ensure the quality of these services. The roles of the key personnel shall be clarified and the deliverables and their schedule reviewed. Contracting of required work outside of the CPM firm or those subcontractors identified in their proposal shall be minimal and in such cases shall be presented to FOMILENIO for its consideration and approval. At this time, points of contact shall be identified and procedures for communications and exchange of information discussed and decided upon. Coordination of work efforts, definition of FOMILENIO's requirements and establishment of future roles and participation shall also be presented and discussed. The Inception Report will include but not be limited to:

- o Methodology

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- Scope
- A statement defining the proposed services, including:
 - methods and parameters
 - any changes to the composition of the Consultant's team and specialists needed
 - methods of consultation, through the Connectivity Project Coordinator at FOMILENIO with MOPTVDU, different GoES authorities, local authorities, local population and other concerned parties
 - methods of consultation with the FOMILENIO's Officials, with the Procurement Agent and with the Fiscal Agent
- Detailed program of work, showing time, duration and personnel as well as the inter-relationship between activities
- List of applicable environmental laws, regulations, and standards
- List of required environmental, construction, or other permits
- List of documents to be kept in document library²
- Proposed methodology for tracking compliance with MCC Environmental Guidelines, applicable GoES environmental laws and regulations, and site-specific EMPs and RAPs
- Proposed schedule
- Proposed flow of funds
- Projected staffing
- A detailed cost breakdown and resources allocations for management of the implementation.

Consultant shall provide timely written comments to FOMILENIO on all design submittals received throughout the course of the NTH final design work within the time specified in the Terms of Reference for those works.³ The Consultant is advised that delays in the delivering of its responses and services are unacceptable, and will constitute a basis for withholding payment or reducing the amount of payment due as specified in the payment schedule enclosed in this RFP.

(ii) Monthly Progress Reports

The CPM shall prepare and submit Monthly Progress Reports to FOMILENIO. The Monthly Progress Reports shall address the status of work measured as "percent completion" against the schedule submitted by the CPM and approved by FOMILENIO. The Monthly Progress Reports shall contain an accurate, up to date, account of all work accomplishments, work scheduled and outstanding issues of consultants. The reports shall also include description of problems and proposed solutions, details of any change order, possible delays and effect on the work schedule, time extensions, cost overruns, and any other important technical or administrative aspect that could affect the work progress. These reports shall be submitted to the FOMILENIO no later than the 10th day of the month following the end of the monthly period covered by each report. FOMILENIO will base the payment according to the negotiated payment schedule.

(iii) Special Reports

² Such list shall be supplied by FOMILENIO.

³ On average this is generally within 2 to 3 weeks of receipt of the document but will need to be verified against the time periods negotiated in the final contracts.

Other special reports that may be required from time to time as directed by FOMILENIO or UIPC for such issues as significant change requests, prompt remedial actions recommendations, accidents with injuries, and any other important technical or administrative aspect that requires a special attention.

(iv) Annual Report

Annual report summarizing all issues related to the works undertaken in the foregoing year.

(v) Final Report

The Final Report shall include all documents and information collected during the period of services, and also a special section of "lessons learned" on the whole project.

(vi) Communications

All communications concerning the Connectivity Project between the various consultants, contractors, UIPC and other interested or effected parties and the Connectivity Project Manager shall be copied to the FOMILENIO's Connectivity Project Coordinator with a note as to its importance and whether it is for information only or requires action. This applies to all correspondence, technical documents, minutes or any other hard copy or electronic materials. The Consultant shall incorporate such communications in a web-based project information system discussed in Section 8.1.7.

(vii) Other Regular Reports

The CPM shall provide the ESID of FOMILENIO with regular reports to update the status of the supervision of the environmental and social (impact where necessary) assessments and that design activities are in compliance with applicable environmental requirements of the Government of El Salvador and MCC guidelines and those defined in the EMPs of the EIAs. The proposed frequency, format, and content of these reports shall be described in the methodology of the Technical Proposal and reconfirmed by the selected Consultant in the Inception Report. Each report should indicate as a minimum:

- Discuss progress made and outcomes of implementing environmental and social mitigation measures contained in the EMPs, RAPs, or other related plans. Particular attention should be given to the information related to Right of Way and Resettlement;
- Summarize the results of any field or laboratory analyses performed to support environmental monitoring requirements (such as water quality sampling, air quality monitoring, and any other test result.);
- Identify any environmental and social issues that could affect Project performance, particularly any unforeseen impacts, and recommended measures for resolving the issue(s);
- Identify any planned or actual modifications to the EMPs, including changes to environmental-related budgets or disbursement schedules; and,
- Outline the primary environmental and social management activities planned for the following reporting period, including proposed measures for resolving key issues.

Construction Supervision

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Deliverables

The CPM shall provide as part of its services the following deliverables. These documents shall be prepared in Spanish and submitted for approval of FOMILENIO. If there are significant technical issues in a particular report, the CPM shall submit it first for review by UIPC, followed by approval of FOMILENIO. Otherwise, it shall be submitted directly for FOMILENIO's approval with a copy to UIPC. Once FOMILENIO has issued its approval, the CPM shall proceed to prepare an English version of such documents and submit them to FOMILENIO.

(i) Inception Report

Within four weeks from the effective date of the contract, the CPM shall present to FOMILENIO in FOMILENIO's offices in San Salvador, a consolidated work plan outlining critical milestones, methodologies, staffing and a plan to ensure the quality of these services. The roles of the key personnel shall be clarified and the deliverables and their schedule reviewed. Contracting of required work outside of the CPM firm or those subcontractors identified in their proposal shall be minimal and any efforts so identified shall be presented to FOMILENIO for their consideration and approval. Coordination of work efforts, definition of needs from FOMILENIO and establishment of future roles and participation shall also be presented and discussed. It is anticipated that some exchange of existing information may occur before this meeting but the majority of information exchange will take place at this time. The Inception Report will include but not be limited to:

- Methodology
- Scoping
- A statement defining the proposed services, including:
 - methods and parameters;
 - any changes to the composition of the Consultant's team and specialists needed;
 - methods of consultation, through the Connectivity Project Coordinator, with MOPTVDU; other GoES authorities, local authorities, local population and other concerned parties;
 - methods of consultation with the FOMILENIO's Procurement Agent and the Fiscal Agent
- Detailed program of work, showing time, duration and resources as well as the inter-relationship between activities.
- List of applicable environmental laws, regulations, and standards
- List of required environmental, construction, or other permits
- List of documents to be kept in document library⁴
- Proposed methodology for tracking compliance with MCC Environmental Guidelines, applicable GOES environmental laws and regulations, and site-specific EMPs and RAPs
- Proposed schedule
- Proposed flow of funds
- Projected staffing

⁴ Such list shall be supplied by FOMILENIO through its Connectivity Project Coordinator.

**APPENDIX C
KEY PROFESSIONAL PERSONNEL**

Nombre	Experiencia en general (mínimo 10 años)	Experiencia con proyectos similares (mínimo 5 años)	Título de grado Máster o más	Fluidez en inglés	Fluidez en Español	EXPERIENCIA						Supervisión de Construcción	Meses de Asignación	
						Gerente de Proyectos	Diseño de Carreteras	Rehabilitación/Pantallas	Experiencia regional en LA o países similares (mínimo 3 años)	Experiencia en Rehabilitación	Experiencia en Diseño de Carreteras			Experiencia en Supervisión de Construcción
Fase 1														
Coordinador de Proyecto, Especialista de Caminos CTN	28	22	MS	X	X									18
Ingeniero de Puentes (Estructuras)	42	20	MS	X	X									8
Especialista Ambiental y Social (RAIP)	28	9	DSc, MS	X	X									18
Disenador e Ingeniero de Drenaje	35	35		X	X									8
Fase 2														
Gerente de Proyecto	18	15	MBA	X	X									24
Especialista de Sistemas de Información	20	18	Ing	X	X									12
Coordinador de Proyecto, Especialista de Caminos MTH	34	30	MS	X	X									24
Ingeniero de Puentes (Estructuras)	22	20	Ing	X	X									4
Ingeniero de Pavimentos	20	20	Ing	X	X									0
Especialista Ambiental y Social (RAIP)	17	6	MS	X	X									4
Ingeniero de diseño de Drenaje	21	15	MS	X	X									2
Ingeniero Costero	28	9	MS	X	X									6
Ingeniero Residente 1	37	12	Posgrado	X	X									24
Ingeniero Residente 2	38	38	MS	X	X									24
Ingeniero Residente 3	20	13	MS	X	X									24
Fase 3														
Gerente de Proyecto	18	15	MBA	X	X									21
Especialista de Sistemas de Información	20	18	Ing	X	X									10
Coordinador de Proyecto, Especialista de Caminos MTH	34	30	MS	X	X									21
Ingeniero de Puentes (Estructuras)	22	20	Ing	X	X									2
Ingeniero de Pavimentos	20	20	Ing	X	X									6
Especialista Ambiental y Social (RAIP)	17	6	MS	X	X									4
Ingeniero de diseño de Drenaje	21	15	MS	X	X									2
Ingeniero Residente 1	28	9	MS	X	X									6
Ingeniero Residente 2	37	12	Posgrado	X	X									24
Ingeniero Residente 3	20	13	MS	X	X									24

Note: PMC = Program Management Certificate
DSc = Doctor en ciencias
MS = Master

Los tiempos de asignación incluyen:
Horario de trabajo:
Feriados:
Vacaciones y enfermedad:
Lunes a Viernes de 8am a 5pm
Sábados de 8am a 12m
Oficiales del Gobierno de El Salvador
Según políticas de la empresa

**APPENDIX D
BREAKDOWN OF BASE AND OPTION CONTRACT PRICE IN US\$**

FORMULARIOS

Paquete I
Formulario FIN-2 (A)

Paquete	Monto US\$
(A) Contrato Base (precio fijo de la firma)	6,116,800.00

Formulario FIN-2 (B)

Equipo	Estimado Hombre - mes requerido	Tarifa mensual FLMR	Precio propuesto US\$
a) Equipo requerido			
Gerente de Proyecto	24	33,000.00	792,000.00
Coordinador de Proyecto, especialista de construcción de carreteras	24	25,000.00	600,000.00
Especialista de manejo de sistemas de información	12	8,000.00	96,000.00
Ingeniero residente principal para construcción (3 Ingenieros)	72	15,500.00	1,116,000.00
Ingeniero geotécnico y materiales	6	13,500.00	81,000.00
Ingeniero de puentes y estructuras	4	10,000.00	40,000.00
Ingeniero de pavimentos	6	16,600.00	99,600.00
Ingeniero de diseño de drenaje	2	8,000.00	16,000.00
Líder ambiental y especialista social - RAP	4	11,500.00	46,000.00
b) Otro personal técnico (no requerido)	36	8,500.00	306,000.00
c) Otro personal de apoyo administrativo (no requerido)	26	3,000.00	108,000.00
TOTAL (B)			3,300,600.00

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Paquete I

Formulario FIN-2(C)

Equipo	Estimado Hombre - mes requerido	Tarifa mensual FLMR	Precio propuesto US\$
a) Equipo requerido			
Gerente de Proyecto	21	33.000,00	693.000,00
Coordinador de Proyecto, especialista de construcción de carreteras	21	25.000,00	525.000,00
Especialista de manejo de sistemas de información	10	8.000,00	80.000,00
Ingeniero residente principal para construcción (3 ingenieros)	36	15.500,00	558.000,00
Ingeniero geotécnico y materiales	6	13.500,00	81.000,00
Ingeniero de puentes y estructuras	2	10.000,00	20.000,00
Ingeniero de pavimentos	6	16.600,00	99.600,00
Ingeniero de diseño de drenaje	2	8.000,00	16.000,00
Líder ambiental y especialista social - RAP	4	11.500,00	46.000,00
b) Otro personal técnico (no requerido)	36	8.500,00	306.000,00
c) Otro personal de apoyo administrativo (no requerido)	36	3.000,00	108.000,00
TOTAL (C)			2.532.600,00

Resumen propuesta de precio para el Paquete I

Paquete	Precio de Propuesta US\$
A. Formulario Financiero 2 A	6.116.800,00
B. Formulario Financiero 2 B	3.300.600,00
C. Formulario Financiero 2 C	2.532.600,00
Total de Paquete I	11.950.000,00

RFP FOMILENIO QCBS 2008-08 "Administración de Proyecto, Supervisión de Diseños y Construcción de la Carretera Longitudinal del Norte"

NOTAS ACLARATORIAS AL PRECIO FINAL

12 de Septiembre, 2008

El precio presentado en el Formulario FIN-2 (A) incluye lo siguiente:

- ✓ Especialistas para la Supervisión y Revisión de Diseños:
 - Coordinador de Diseños
 - Especialista en Diseño Vial
 - Especialista en Estructuras
 - Especialista Ambiental y Planes de Reasentamiento
 - Especialista en Hidrología y Drenaje
- ✓ Personal técnico de apoyo para la Supervisión y Revisión de Diseños:
 - Ingeniero de Costos
 - Ingenieros de Campo
 - Cuadrilla de Revisión de Topografía
 - Responsable de Revisión de Geotecnia
 - Ingenieros Auxiliares
 - Administrativos
- ✓ Todos los costos directos para la logística del programa por un periodo máximo de 45 meses calendario
- ✓ El costo de las garantías para el precio de la "solución base", compuesto por los precios incluidos en:
 - Formulario FIN-2 (A)
 - FIN-2 (B)

Las Tarifas Mensuales (FLMR) presentadas en el Formulario FIN-2 (B) y FIN-2 (C) incluyen:

- ✓ Salario del especialista
- ✓ Gastos Generales (Over-Heads)
- ✓ Ganancias (Fee)
- ✓ IVA

Los meses incluidos en los formularios FIN-2 (B) y FIN-2 (C) son considerados como un estimado para iniciar el proyecto. Se acuerda que las necesidades de Meses-Hombre adicionales se irán analizando a medida que avanza el proyecto. WSA-TYPSA propone que esta programación se haga de una manera trimestral.

NOTA FINAL: el Sistema de Información Gerencial que se utilizará será MS PROJECT para facilitar compatibilidad con los sistemas ya implantados en FOMILENO.

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APPENDIX D1
BREAKDOWN OF MAN-MONTH FOR PHASE I IN US\$

PHASE I							
1. EQUIPO HUMANO - Design Supervision							
	Unidad	Cantidad	Cobro unitario US\$	Cobro total US\$	IVA 13%	Total	
Personal clave							
Coordinador diseños	mes	16	\$22,124	\$353,982	\$46,018	\$400,000	
Espec. Estructuras	mes	8	\$8,850	\$70,796	\$9,204	\$80,000	
Espec. Ambiental y RAC	mes	16	\$10,177	\$162,832	\$21,168	\$184,000	
Espec. Hidrología y drenaje	mes	8	\$7,080	\$56,637	\$7,363	\$64,000	
	Subtotal			\$644,248	\$83,752	\$728,000	
Otros profesionales							
Ingeniero de campo 2	mes	8	\$7,522	\$60,177	\$7,823	\$68,000	
Espec. Diseño vial	mes	8	\$7,522	\$56,416	\$7,334	\$63,750	
Espec. Costos	mes	8	\$7,522	\$60,177	\$7,823	\$68,000	
Respons. revisión topografía	mes	7	\$7,522	\$52,656	\$6,845	\$59,500	
Respons. revisión geotecnia	mes	8	\$7,522	\$60,177	\$7,823	\$68,000	
Apoyo oficina matriz		4	\$16,108	\$64,425	\$8,375	\$72,800	
	Subtotal		\$0	\$354,027	\$46,023	\$400,050	
Personal de apoyo							
Ingenieros auxiliares (4)	mes	32	\$7,522	\$240,708	\$31,292	\$272,000	
Administrativos (2)	mes	32	\$2,655	\$84,958	\$11,044	\$96,000	
	Subtotal			\$325,664	\$42,336	\$368,000	
	SUBTOTAL			\$1323,938	\$172,112	\$1496,050	

Note: Only the staff inputs for Design Supervision provided above (No. 1) shall be revised to address any overrun on design schedule not attributable to the Consultant. The Consultant shall put its best efforts to achieve the goals within the timeframe expected of 18 months.

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APPENDIX E
PAYMENT SCHEDULE

CONTRACTUAL ITEMS	PHASE 1	PHASE 2	PHASE 3	TOTAL
BASE CONTRACT	\$ 5296,872	\$ 3300,600	\$ -	\$ 8597,472
OPTION CONTRACT	\$ -	\$ -	\$ 3352,528	\$ 3352,528
TOTAL CONTRACT				\$ 11950,000

AMOUNT TO SCHEDULE	\$ 5296,872			\$ 5296,872
AMOUNT TO PROGRAM LATER		\$ 3300,600	\$ 3352,528	\$ 6653,128
				\$ 11950,000

	ITEM	% of PH 1	TOTAL
0	INITIAL REPORT	5.0%	\$ 264,844
1	INCEPTION REPORT	5.0%	\$ 264,844
2	MONTHLY REPORT	3.2%	\$ 167,902
3	MONTHLY REPORT	3.2%	\$ 167,902
4	MONTHLY REPORT	3.2%	\$ 167,902
5	MONTHLY REPORT	3.2%	\$ 167,902
6	MONTHLY REPORT	3.2%	\$ 167,902
7	MONTHLY REPORT	3.2%	\$ 167,902
8	MONTHLY REPORT	3.2%	\$ 167,902
9	MONTHLY REPORT	3.2%	\$ 167,902
10	MONTHLY REPORT	3.2%	\$ 167,902
11	MONTHLY REPORT	3.2%	\$ 167,902
12	ANNUAL REPORT	3.2%	\$ 167,902
13	MONTHLY REPORT	3.2%	\$ 167,902
14	MONTHLY REPORT	3.2%	\$ 167,902
15	MONTHLY REPORT	3.2%	\$ 167,902
16	MONTHLY REPORT	3.2%	\$ 167,902
17	MONTHLY REPORT	3.2%	\$ 167,902
18	MONTHLY REPORT	3.2%	\$ 167,902
19	MONTHLY REPORT	1.3%	\$ 66,892
20	MONTHLY REPORT	1.3%	\$ 66,892
21	MONTHLY REPORT	1.3%	\$ 66,892
22	MONTHLY REPORT	1.3%	\$ 66,892
23	MONTHLY REPORT	1.3%	\$ 66,892
24	ANNUAL REPORT	1.3%	\$ 66,892
25	MONTHLY REPORT	1.3%	\$ 66,892
26	MONTHLY REPORT	1.3%	\$ 66,892
27	MONTHLY REPORT	1.3%	\$ 66,892
28	MONTHLY REPORT	1.3%	\$ 66,892
29	MONTHLY REPORT	1.3%	\$ 66,892
30	MONTHLY REPORT	1.3%	\$ 66,892

Once the Option Phase III is activated the cash flow under PHASE I will be adjusted to incorporate the US\$819,928 reserved here

Once the Phase II an Optional Phase III are activated it will also be paid based on FLMR and the actual man-months used.

The man-months level of effort for Phase II and III will be reviewed every three months for any reasonable adjustments.

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31	MONTHLY REPORT	1.3%	\$ 66,892
32	MONTHLY REPORT	1.3%	\$ 66,892
33	MONTHLY REPORT	1.3%	\$ 66,892
34	MONTHLY REPORT	1.3%	\$ 66,892
35	MONTHLY REPORT	1.0%	\$ 52,969
36	ANNUAL REPORT	1.0%	\$ 52,969
37	MONTHLY REPORT	1.0%	\$ 52,969
38	MONTHLY REPORT	1.0%	\$ 52,969
39	MONTHLY REPORT	1.0%	\$ 52,969
40	MONTHLY REPORT	1.0%	\$ 52,969
41	MONTHLY REPORT	1.0%	\$ 52,969
42	MONTHLY REPORT	1.0%	\$ 52,969
43	MONTHLY REPORT	1.0%	\$ 52,969
44	MONTHLY REPORT	1.0%	\$ 52,969
45	MONTHLY REPORT	0.9%	\$ 48,041
	APPROVED FINAL REPORT	5.0%	\$ 264,844
		100%	\$ 5296,872

- NOTE 1. THE CASH FLOW FOR PHASE I PRESENTED HERewith IS FOR THE PURPOSE OF CREATING A PAYMENT PLAN ONLY; IT IS NOT TO BE VIEWED AS AN ACTUAL DISTRIBUTION OF COSTS.
- NOTE 2. THE PARTIES AGREE THAT IN THE EVENT OF A CANCELLATION OF THE CONTRACT A REASONABLE DEMOBILIZATION FEE WILL BE NEGOTIATED.
- NOTE 3. THE CONSULTANT WILL RECEIVE THE COMPLETE PAYMENT CONSIDERED FOR THE SUPERVISION OF DESIGN IN PHASE I UPON ITS COMPLETION AND TO FOMILENIO SATISFACTION WHENEVER ITS DELIVERED BEFORE THE 18 MONTH PERIOD.

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APPENDIX F
SERVICES AND FACILITIES PROVIDED BY FOMILENIO

Medios materiales y recursos a suministrar por la empresa constructora al equipo de supervisión de las obras

Oficina

La empresa contratista de las obras construirá e instalará a su costa una oficina para el equipo de supervisión de las obras que estará constituido como mínimo por 10 técnicos y 3 administrativos como personal con necesidad de espacio de oficina.

La oficina debe disponer de un despacho de 10 m² para el Ingeniero Residente, dos despachos más de 14 m² cada uno para el equipo técnico principal, una sala de reuniones de 30 m², un despacho de 14 m² para el equipo administrativo, una sala para el equipo técnico auxiliar y de campo de aproximadamente 25 m², un área de almacén de los equipos topográficos, un área de almacén de material de papelería y otros consumibles, un área de cocina y comedor, y dos aseos completos (uno para hombres y otro para mujeres). El total estimado para cubrir esas necesidades será de 140 m² aproximadamente.

El exterior de la oficina debe estar acondicionado para permitir el parqueo de 11 vehículos bajo una marquesina o un techo.

La oficina puede ser construida con módulos prefabricados o con bloques de concreto, pero en cualquier caso, deberá ser construida sobre una losa bien nivelada y estar dotada de un techo con cámara de aire para favorecer su aislamiento.

Todos los despachos y áreas de trabajo, así como los aseos y la cocina deberán tener ventanas que permitan la iluminación natural y la ventilación.

Todas las ventanas deberán llevar reja de protección.

La oficina debe estar dotada de suministro e instalación eléctrica, equipos de aire acondicionado en todas las dependencias excepto la zona de aseos, suministro de agua y saneamiento, y servicio telefónico de dos líneas fijas.

La oficina debe disponer de un generador de emergencia para las ocasiones en que falle el suministro de la red.

El contratista de obra asumirá el costo de alojar al equipo de la supervisión en un local provisional de su propiedad o alquilado a terceros durante el tiempo que dure la construcción y acondicionamiento de la oficina de obra que será la permanente y hasta el momento en que dicha instalación de oficina esté preparada para su ocupación.

Igualmente asumirá el traslado de todo el mobiliario y equipo de la oficina provisional a la definitiva.

La oficina provisional tendrá las mismas características de espacio y dotaciones que la definitiva.

Mobiliario para la oficina

El contratista de las obras equipará la oficina con muebles de trabajo de calidad suficiente para garantizar su uso durante la duración de todo el Proyecto.

El mobiliario será el necesario para 13 puestos de trabajo y, sin carácter limitativo, cada uno de

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ellos estará dotado de una mesa de despacho de 1,60 x 0,70 metros con cajones archivadores, una mesa auxiliar de 1,00 x 0,60 metros, un mueble estantería para archivar documentos, un sillón de trabajo y dos sillas adicionales.

El salón de reuniones estará dotado de una mesa dimensionada para un grupo de 10 personas como mínimo y las sillas correspondientes.

Los aseos y la cocina estarán equipados con todos sus elementos funcionales para que estén plenamente operativos, incluyendo en la cocina un refrigerador de volumen adecuado para el equipo de trabajo para el que se dimensiona la oficina, así como una mesa, sillas y utensilios de cocina.

Todos los despachos y elementos de la oficina tendrán iluminación artificial de techo y cada puesto de trabajo también una lámpara individual.

Servicios de la oficina

El contratista de las obras se responsabilizará a su costa de todas las tareas de mantenimiento, limpieza y vigilancia de la oficina.

También asumirá los costos del consumo eléctrico, agua, teléfono e Internet durante toda la duración del Proyecto.

Equipos para la oficina

El contratista de las obras equipará todos los puestos de trabajo con medios informáticos suficientes para el desarrollo del trabajo de la empresa supervisora.

De forma no limitativa, cada uno de los 10 puestos de trabajo para el equipo técnico dispondrá de una computadora personal con características mínimas de microprocesador Quad Core 2.4 Ghz, disco duro de 160 Gb, memoria RAM 4 Gb, con sistema operativo Windows Xp-64 bits.

Cada uno de los 3 puestos de trabajo para el equipo administrativo dispondrá de una computadora personal con características mínimas de microprocesador Core Duo 2 Ghz, disco duro de 160 Gb, memoria RAM 2 Gb, con sistema operativo Windows XP-32 bits.

El equipo de computadoras se completará con una unidad de alimentación ininterrumpida UPS para cada computadora, así como los periféricos necesarios para el trabajo de impresión y escaneo de documentos.

Como mínimo se dispondrá de 2 impresoras laser de blanco y negro, otras 2 impresoras de color de tipología chorro de tinta y tamaño de papel A3 o tabloide, y 1 scanner.

El equipo informático anterior se complementará con todo el software necesario para la labor de la supervisión de las obras incluyendo las licencias correspondientes.

Las computadoras de los 10 técnicos estarán dotadas como mínimo con el paquete Office de Microsoft, Project de Microsoft, y Autocad.

Las computadoras de los 3 administrativos estarán dotadas como mínimo con el paquete Office de Microsoft y un programa de contabilidad a definir.

Se instalará una red local de 100-1000 Mbit/seg. que conecte todos los equipos y se pueda trabajar de forma conjunta por parte de todos los miembros del equipo.

Igualmente se aportará un servidor general para todo el equipo con almacenamiento de 500 Gb en Reid 5 y sistema automático de back-up en cinta Vitrium.

El equipo de oficina a suministrar y mantener por el contratista de las obras se compondrá también por una fotocopidora para copias en color y clasificador, 4 cámaras fotográficas digitales de 10 Pxl., y teléfonos celulares en un número de 17 unidades plenamente operativas.

Saga

Latuk

Vehículos

El contratista de las obras facilitará al equipo de la supervisión el siguiente equipo de vehículos para su uso exclusivo.

- Un vehículo tipo camioneta todo terreno 4x4 para el Ingeniero Residente.
- Cinco vehículos tipo pick-up de doble cabina y tracción 4x4 para el resto del equipo de ingenieros e inspectores de obra.
- Microbús de capacidad para doce pasajeros.

Los vehículos podrán ser de motor diesel o gasolina pero de potencia mínima 120 HP y dotados de aire acondicionado.

Los vehículos deberán ser nuevos y estarán en perfecto estado de conservación y el contratista de las obras asumirá el costo de su operación y el total mantenimiento y conservación durante toda la duración del Proyecto, incluyendo el seguro con una cobertura que deje totalmente exento de responsabilidad al usuario.

Equipo topográfico

El contratista de las obras suministrará los siguientes equipos para permitir el control topográfico de las obras por parte de la supervisión:

- Dos estaciones totales de reflexión directa (DR) servoasistida de 3" (1 mgon) de precisión, con reconocimiento automático del prisma (ATR), plomada laser, mínimo 256 Mb de memoria interna y programas para el control de carreteras (Estacionamiento libre, introducción de ejes, secciones tipo, replanteos) completas con prismas, jalones, trípodes, cuatro juegos de baterías y una maleta de transporte para cada estación total.
- Un equipo (unidad móvil + unidad fija) receptor topográfico GPS de doble frecuencia para medición cinemática en tiempo real (RTK) con controladora operable bajo Windows (mismos programas que en la estación total) y tecnología bluetooth.
- Dos niveles digitales electrónicos de 1,5 mm de precisión con posibilidad de lectura óptica completo con sus trípodes, miras digitales y maletas de transporte.

Equipo de laboratorio y control de calidad de materiales

El contratista construirá o dispondrá de un laboratorio de ensayos de control de calidad de materiales para su utilización por parte del equipo de supervisión de las obras.

Igualmente, suministrará los dispositivos necesarios para que el equipo de supervisión de obras realice los ensayos de campo necesarios para comprobar el cumplimiento de las especificaciones del Proyecto.

El equipamiento con el que estará dotado el laboratorio y los dispositivos que se suministrarán para los ensayos in situ serán como mínimo los que se indican en la relación adjunta.

El laboratorio estará ubicado en la zona de la obra, en un lugar que sea lo más cercano posible al punto medio del tramo de carretera que se va a construir y en las proximidades de la oficina de la supervisión y del campamento de obra.

Sam

Holmes

El laboratorio contará con un despacho que estará aislado de la sala de ensayos y al que se dotará de las mismas facilidades que los despachos de la oficina de campo, incluyendo una computadora, una impresora, y teléfono.

El edificio del laboratorio también estará dotado de un aseo.
 Todo el edificio tendrá suministro de electricidad, agua e Internet.

El contratista de las obras se responsabilizará a su coste del mantenimiento y conservación del laboratorio durante toda la duración del Proyecto, así como también asumirá todos los costos de los servicios públicos necesarios y los consumibles para todas las actividades del control de la calidad que realizará la empresa supervisora.

El laboratorio indicado y los medios para el control de la obra se han dimensionado para los ensayos que se van a requerir para la verificación de la calidad de las obras de suelos, concretos hidráulicos y productos bituminosos para la pavimentación de la carretera.

El contratista deberá hacer provisión de un presupuesto adicional para realizar ensayos de otro tipo de materiales como aceros, pinturas, juntas, etc. que por su singularidad no está justificado disponer de equipos en el laboratorio de obra y es habitual contar con el apoyo de un laboratorio externo.

La cantidad presupuestaria que se debe prever como parte del presupuesto total ofertado por el contratista es del 1% para estas acciones de control adicional.

Unidades	Ensayo	DESCRIPCIÓN DEL EQUIPO
1	Concretos	APARATO VICAT COMPLETO
1	Concretos	BANO "LE CHATELIER" COMPLETO
1	Concretos	BIDON PLASTICO 5 L. CON TAPA SIFONICA PARA EQUIVALENTE DE ARENA
1	Concretos	BROCA CON CORONA DIAMANTE D.100
1	Concretos	BROCA D.60 MM.
1	Concretos	BROCA DIAMANTE D.75 MM
1	Concretos	CALENTADOR DE AZUFRE 12L
1	Concretos	CAMARA HUMEDA COMPLETA CON HUMIDIFICADORES, CALENTADORES Y REGISTROR
1	Concretos	CESTILLO LATON CON ASA 0.6 LTS.
1	Concretos	CESTILLO LATON CON ASA 1.8 LTS.
2	Concretos	CESTILLO METALICO D. 20x20 CM.
2	Concretos	CONO ABRAMS CON LANCETA
1	Concretos	CRISOL DE HIERRO CON TAPA
1	Concretos	DISPOSITIVO 4x4 ENSAYO COMPRESION
1	Concretos	DISPOSITIVO 4x4x16 ENSAYO FLEXION
1	Concretos	DISPOSITIVO ENSAYO BRASILENO
1	Concretos	EMBUDO DE LLENADO PARA EQUIVALENTE DE ARENA
1	Concretos	ESCLEROMETRO
3	Concretos	ESPATULA FLEXIBLE 10 cm
1	Concretos	GALGA PARA COEFICIENTE DE FORMA
1	Concretos	GRUPO ELECTROGENO PORTATIL PARA SONDA SACATESTIGOS
1	Concretos	HORNO DE MUFLA 120x160x200 MM.
1	Concretos	MACHACADORA MANDIBULAS
1	Concretos	MAQUINA CORTADORA PROBETAS
1	Concretos	MAQUINA LOS ANGELES
1	Concretos	MEDIDOR DE AIRE OCLUIDO HORMIGON FRESCO
60	Concretos	MOLDE ACERO D.15x30 CM.
6	Concretos	MOLDE LE CHATELIER
3	Concretos	MOLDES TRIFLES
1	Concretos	PHMETRO PORTATIL DIGITAL
1	Concretos	PRENSA COMPRESION 1500 Kn Informatizada
6	Concretos	PROBETA PLASTICO CON TAPON EQUIVALENTE ARENA

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1	Concretos	RECIPIENTE ACERO INOXIDABLE HERMETICO
5	Concretos	RECIPIENTE HERMETICO
1	Concretos	REFRENTADOR PARA PROBETAS GRAVA-CEMENTO
1	Concretos	REFRENTADOR PARA PROBETAS SUELO-CEMENTO
1	Concretos	REFRENTADOR PROBETAS D.15x30 cm
1	Concretos	TAMIZ D.8" UNE 8
1	Concretos	TUBO SACAMUESTRAS
1	Concretos	VARILLA DE MEDIDA CON PIE CONICO
1	Concretos	YUNQUE TARADO PARA ESCLEROMETRO
2	Materiales Bituminosos	AGUJA PENETROMETRO
1	Materiales Bituminosos	APARATO MICRODEVAL
1	Materiales Bituminosos	APARATO NUCLEAR PARA MEZCLAS BITUMINOSAS TROXLER MOD. 4640-B
1	Materiales Bituminosos	APARATO ROCIADOR DE EMULSIONES BITUMINOSAS
1	Materiales Bituminosos	APARATO TAGLIA BUE COMPLETO
1	Materiales Bituminosos	APARATO TOMAMUESTRAS BACON PARA LIGANTES
1	Materiales Bituminosos	BANO TERMOSTATICO 10 LTS.
1	Materiales Bituminosos	BANO TERMOSTATICO 20 LTS. MARSHALL
1	Materiales Bituminosos	CENTRIFUGA CON VASO DE D.18.5x20.00
1	Materiales Bituminosos	CENTRIFUGA ELECTRICA PARA 6 TUBOS DE ENSAYO MOD. ANGULAR 6
1	Materiales Bituminosos	DESTILADOR 300x30 CM. CON SERPENTIN
1	Materiales Bituminosos	EQUIPO ACCIONAMIENTO MANUAL ANILLO Y BOLA
1	Materiales Bituminosos	EXTRACTOR HIDRAULICO 5 TM. MARSHALL MANUAL
1	Materiales Bituminosos	EXTRACTORA DE TESTIGOS HILTI
1	Materiales Bituminosos	HORNO DE IGNICION POR INFRARROJOS TROXLER
1	Materiales Bituminosos	MAQUINA ABRASION PARA VIA HUMEDA
1	Materiales Bituminosos	MARTILLO COMPACTADOR MARSHALL
1	Materiales Bituminosos	MATRAZ DESTILACION
1	Materiales Bituminosos	MECHERO ANULAR PARA EMPLEAR CON LA RETORTA
10	Materiales Bituminosos	MOLDE INMERSION-COMPRESION
6	Materiales Bituminosos	MOLDE MARSHALL CON BASE Y COLLAR
1	Materiales Bituminosos	MOLDE TRONCO CONICO Y BASE
1	Materiales Bituminosos	MONITOR GEYGER-MULLER PARA LECTURA DIRECTA DE RADIACION GAMMA Y X
1	Materiales Bituminosos	PENETROMETRO MANUAL
1	Materiales Bituminosos	PICNOMETRO 1000 CC. COMPLETO
1	Materiales Bituminosos	PICNOMETRO 2000 CC. COMPLETO
1	Materiales Bituminosos	PISTON INFERIOR EQUIPO INMERSION-COMPRESION
1	Materiales Bituminosos	PLACA VIALIT CON RODILLO Y BOLA
1	Materiales Bituminosos	RETORTA METALICA 1000 ML.

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1	Materiales Bituminosos	SOPORTE PIE FLATO 315x200 MM. CON VARILLA INOX. 12x800
1	Materiales Bituminosos	TUBO DESFRENAMIENTO
1	Materiales Bituminosos	UNIDAD REFRIGERACION BANO ENSAYO
1	Materiales Bituminosos	VISCOSIMETRO SAYBOLT COMPLETO
1	Suelos	AGITADOR MECANICO PARA EQUIVALENTE DE ARENA
1	Suelos	APARATO CASAGRANDE MANUAL Y ACANALADORES
1	Suelos	BASE SIN ORIFICIO PARA MOLDES PROCTOR MODIFICADO
1	Suelos	CALIBRADOR DE BARRAS
2	Suelos	COLLAR PARA MOLDES
1	Suelos	COMPACTADOR AUTOMATICO PARA PROCTOR
1	Suelos	COMPARADOR DE 0.001"
2	Suelos	COMPARADOR DE 0.01x10 MM
1	Suelos	DENSIMETRO TROXLER MOD. 4340
1	Suelos	DISCO ESPACIADOR
1	Suelos	LONA Y BARRAS 2.2M
1	Suelos	MAZA COMPACTACION PROCTOR NORMAL ARMY
1	Suelos	MAZA PROCTOR MODIFICADO TIPO ARMY
2	Suelos	MOLDE ACERO D.102 MM. CON PALOMILLA
15	Suelos	MOLDES DE C.B.R.
2	Suelos	MOLDES PROCTOR MODIFICADO
10	Suelos	PESASUSTANCIAS 0.25x50
1	Suelos	PISTON DE PENETRACION C.B.R. ROSCA LARGA
9	Suelos	PLACA CON VASTAGO PARA C.B.R.
1	Suelos	PLACA DE CARGA COMPLETA
1	Suelos	PRENSA MULTIENSAYO 20 TN. INFORMATIZADA
15	Suelos	SOBRECARGAS ANULARES DE 10 LB.
15	Suelos	SOBRECARGAS ANULARES DE 5 LB.
15	Suelos	SOBRECARGAS RANURADAS DE 10 LB.
15	Suelos	SOBRECARGAS RANURADAS DE 5 LB.
2	Suelos	TRIPODE C.B.R.
1	Varios	AGITADOR CON HELICE REEMPLAZABLE Y VASO
1	Varios	AGITADOR ELECTRICO RZR1 DE 35 A 2000 RPM
1	Varios	BALANZA ANALITICA 0.1 MG. 200 g
1	Varios	BALANZA ELECTRONICA 0-30000 GR.
1	Varios	BALANZA ELECTRONICA 0-3100 GR.
5	Varios	BANDEJA 100x100x5 CM.
10	Varios	BANDEJA 20x20x5 CM.
10	Varios	BANDEJA 40x20x5 CM.
10	Varios	BANDEJA 40x40x5 CM.
10	Varios	BANDEJA 60x40x5 CM.
1	Varios	BAROMETRO
1	Varios	BASCULA ROMANA 100 KG.
1	Varios	BOMBA DE VACIO
1	Varios	CALIBRADOR PIE DE REY 0.02 200/157
1	Varios	CAMPANA PARA GAS 1200x600 CON LAMAS
5	Varios	CAPSULA PORCELANA STAATLICH AG-11
1	Varios	CRISOL DE PLATINO D.85x42 MM.
2	Varios	CRONOMETRO DIGITAL
1	Varios	CUARTEADOR 12 PASOS 3.8 CM
1	Varios	CUARTEADOR 14 PASOS 1.25 CM
1	Varios	CUARTEADOR 14 PASOS 2.54 CM
1	Varios	DESECADOR DE VIDRIO Y LLAVE VACIO D.300 MM. SIN PLACA
1	Varios	DESECADOR DE VIDRIO Y LLAVE VACIO D.300 MM. SIN PLACA
1	Varios	ESTUFA 288 LTS. CON BANDEJA ADICIONAL
1	Varios	ESTUFA 80 L.
2	Varios	JUEGOS DE TAMICES COMPLETOS CON FONDO Y TAPA
1	Varios	MARTILLO KANGO
1	Varios	MATRAZ FONDO REDONDO 5", 100, 2000 CM3
1	Varios	MECHERO BUTANO, MANORREDUCTOR, BOQUILLAS

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1	Varios	MORTERO DE AGATA
1	Varios	MORTERO PORCELANA
1	Varios	NUJZ DE FIJACION DOBLE DE BURETAS
1	Varios	TAMIZADORA AUTOMATICA
6	Varios	TERMOMETRO DE MERCURIO
2	Varios	TERMOMETRO DIGITAL
1	Varios	TERMOMETRO DIGITAL -40°C A 650°C POR TERMOPAR TIPO K
1	Varios	VOLUMENOMETRO LE CHATELIER

All assets considered in this Appendix are subject to the General Condition of this Contract number 3.12.

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Bellini

APPENDIX G
ADDITIONAL PROVISIONS

Capitalized terms that are used but not defined in this Appendix shall have the meaning given to them in the agreement to which this Appendix is attached (the "*Agreement*") and that certain Millennium Challenge Compact by and between the United States of America, acting through MCC, and the Government, signed on November 29, 2006, as may be amended from time to time (the "*Compact*").

FOMILENIO is responsible for the oversight and management of the implementation of the Compact on behalf of the Government. The Government of El Salvador has received a grant from MCC pursuant to the Compact and intends to apply a portion of the proceeds of the Compact to eligible payments under this Contract, provided that (i) such payments will only be made at the request of and on behalf of the FOMILENIO and as authorized by the Fiscal Agent, (ii) MCC shall have no obligations to the Consultant (for the purposes of this Appendix, the "*Consultant*") under the Compact or this Agreement, (iii) such payments will be subject, in all respects, to the terms and conditions of the Compact, and (iv) no party other than the FOMILENIO shall derive any rights from the Compact or have any claim to MCC Funding.

INSURANCE: The Consultant shall obtain insurance, performance bonds, guarantees or other protections appropriate to cover against risks or liabilities associated with performance of the Agreement. The Consultant shall be named as payee on any such insurance and the beneficiary of any such guarantee, including performance bonds. MCC and the FOMILENIO shall be named as additional insured on any such insurance or other guarantee, to the extent permissible under applicable laws. The Consultant shall ensure that any proceeds from claims paid under such insurance or any other form of guarantee shall be used to replace or repair any loss or to pursue the procurement of the covered goods, services or works, provided, however, at MCC's election, such proceeds shall be deposited in an account as designated by the FOMILENIO and acceptable to MCC or as otherwise directed by FOMILENIO.

A. MCC Status; Reserved Rights; Third-Party Beneficiary

1. MCC Status. MCC is a United States Government corporation acting on behalf of the United States Government in the implementation of the Compact. As such, MCC has no liability under this Contract, and is immune from any action or proceeding arising under or relating to this Contract. In matters arising under or relating to this Contract, MCC is not subject to the jurisdiction of the courts or any other juridical or other body of any jurisdiction.

2. MCC Reserved Rights.

- (a) Certain rights are expressly reserved to MCC under this Contract, the Compact and other related Compact documents, including the right to approve the terms and conditions of this Contract, as well as any amendments or modifications hereto, and the right to suspend or terminate this Contract.

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- (b) MCC, in reserving such rights under this Contract, the Compact or other related Compact documents, has acted solely as a funding entity to assure the proper use of United States Government funds, and any decision by MCC to exercise or refrain from exercising these rights shall be made as a funding entity in the course of funding the activity and shall not be construed as making MCC a party to this Contract.
- (c) MCC may, from time to time, exercise its rights, or discuss matters related to this Contract with the Parties or the Government, as appropriate, jointly or separately, without thereby incurring any responsibility or liability to any party.
- (d) Any approval (or failure to approve) or exercise of (or failure to exercise) any rights by MCC shall not bar the Government, the MCA Entity, MCC or any other person or entity from asserting any right against the Consultant, or relieve the Consultant of any liability which the Consultant might otherwise have to the Government, the MCA Entity, MCC, or any other person or entity. For the purposes of this clause (d), MCC shall be deemed to include any MCC officer, director, employee, affiliate, contractor, agent or representative.

3. Third-Party Beneficiary. MCC shall be deemed to be a third party beneficiary under this Contract.

B. Limitations on the Use or Treatment of MCC Funding

The use and treatment of MCC Funding in connection with this Contract does not, and shall not, violate any limitations or requirements specified in the Compact or any other relevant agreement or Implementation Letter or applicable law or United States Government policy. A summary of the applicable provisions referenced in this paragraph may be found on the MCC website at www.mcc.gov/guidance/compact/funding_limitations.pdf

C. Procurement

The Consultant shall ensure that all procurements of goods, services or works under, related to or in furtherance of this Contract shall be consistent with the general principles set forth in the Compact and in the MCC Program Procurement Guidelines from time to time in effect as posted on the MCC website at www.mcc.gov. The Consultant shall comply with the eligibility requirements related to prohibited source or restricted party provisions in accordance with U.S. law, regulations and policy, applicable World Bank policies or guidelines and in accordance with other eligibility requirements as may be specified by MCC or the MCA Entity. A summary of the applicable provisions referenced in this paragraph may be found on the MCC website at www.mcc.gov/guidance/compact/procurement_awards_provisions.pdf

D. Reports and Information; Access; Audits; Reviews

1. Reports and Information. The Consultant shall maintain such books and records and provide such reports, documents, data or other information to the MCA Entity in the manner and to the

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extent required by the Compact or related documents and as may be reasonably requested by the MCA Entity from time to time in order to comply with its reporting requirements arising under the Compact or related documents. MCC may freely use any information it receives in any report or document provided to it in any way that MCC sees fit. The provisions of the Compact and the Governing Documents that are applicable to the Government in this regard shall apply, *mutatis mutandis*, to the Consultant as if the Consultant were the Government under the Compact. A summary of the applicable provisions referenced in this paragraph may be found on the MCC website at www.mcc.gov/guidance/compact/audits_reviews_provisions.pdf

2. Access: Audits and Reviews. Upon MCC's request, the Consultant shall permit such access, audits, reviews and evaluations as provided in the Compact or related documents. The provisions of the Compact and the Governing Documents that are applicable to the Government with respect to access and audits shall apply, *mutatis mutandis*, to the Consultant as if the Consultant were the Government under the Compact. A summary of the applicable provisions referenced in this paragraph may be found on the MCC website at www.mcc.gov/guidance/compact/audits_reviews_provisions.pdf

3. Application to Providers. The Consultant shall ensure the inclusion of the applicable audit, access and reporting requirements in its contracts or agreements with other providers in connection with this Contract. A summary of the applicable requirements may be found on the MCC website at www.mcc.gov/guidance/compact/audits_reviews_provisions.pdf

E. Compliance with Anti-Corruption, Anti-Money Laundering and Terrorist Financing Statutes and Other Restrictions

1. The Consultant shall ensure that no payments have been or will be made by the Consultant to any official of the Government, the MCA Entity, or any third party (including any other government official) in connection with this Contract in violation of the United States Foreign Corrupt Practices Act of 1977, as amended (15 U.S.C. 78a et seq.) (the "FCPA") or that would otherwise be in violation of the FCPA if the party making such payment were deemed to be a United States person or entity subject to the FCPA, or similar statute applicable to this Contract, including any local laws. The Consultant affirms that no payments have been or will be received by any official, employee, agent or representative of the Consultant in connection with this Contract in violation of the FCPA or that would otherwise be in violation of the FCPA if the party making such payment were deemed to be a United States person or entity subject to the FCPA, or similar statute applicable to this Contract, including any local laws.

2. The Consultant shall not provide material support or resources directly or indirectly to, or knowingly permit MCC Funding to be transferred to, any individual, corporation or other entity that the Consultant knows, or has reason to know, commits, attempts to commit, advocates, facilitates, or participates in any terrorist activity, or has committed, attempted to commit, advocated, facilitated or participated in any terrorist activity, including, but not limited to, the individuals and entities (i) on the master list of Specially Designated Nationals and Blocked Persons maintained by the U.S. Department of Treasury's Office of Foreign Assets Control, which list is available at www.treas.gov/offices/enforcement/ofac, (ii) on the consolidated list of individuals and entities maintained by the "1267 Committee" of the United

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Nations Security Council, (iii) on the list maintained on www.epls.gov or (iv) on such other list as the MCA Entity may request from time to time. For purposes of this provision, "material support and resources" includes currency, monetary instruments or other financial securities, financial services, lodging, training, expert advice or assistance, safe houses, false documentation or identification, communications equipment, facilities, weapons, lethal substances, explosives, personnel, transportation, and other physical assets, except medicine or religious materials.

3. The Consultant shall ensure that its activities under this Contract comply with all applicable U.S. laws, regulations and executive orders regarding money laundering, terrorist financing, U.S. sanctions laws, restrictive trade practices, boycotts, and all other economic sanctions promulgated from time to time by means of statute, executive order, regulation or as administered by the Office of Foreign Assets Control of the United States Treasury Department or any successor governmental authority, including 18 U.S.C. § 1956, 18 U.S.C. § 1957, 18 U.S.C. § 2339A, 18 U.S.C. § 2339B, 18 U.S.C. § 2339C, 18 U.S.C. § 981, 18 U.S.C. § 982, Executive Order 13224, 15 C.F.R. Part 760, and those economic sanctions programs enumerated at 31 C.F.R. Parts 500 through 598 and shall ensure that its activities under this Contract comply with any policies and procedures for monitoring operations to ensure compliance, as may be established from time to time by MCC, the MCA Entity, the Fiscal Agent, or the Bank, as may be applicable. The Consultant shall verify, or cause to be verified, appropriately any individual, corporation or other entity with access to or recipient of funds, which verification shall be conducted in accordance with the procedures set out in the MCC Program Procurement Guidance paper entitled "Excluded Parties Verification Procedures in MCA Entity Program Procurements" that can be found on MCC's website at www.mcc.gov. The Consultant shall (A) conduct the monitoring referred to in this paragraph on at least a quarterly basis, or such other reasonable period as the MCA Entity or MCC may request from time to time and (B) deliver a report of such periodic monitoring to the MCA Entity with a copy to MCC.

4. Other restrictions on the Consultant shall apply as set forth in the Compact or related documents with respect to any activities in violation of other applicable U.S. laws, regulations, executive orders or policies, any misconduct injurious to MCC or the MCA Entity, any activity contrary to the national security interests of the United States or any other activity that materially and adversely affects the ability of the Government or any other party to effectively implement, or ensure the effective implementation of, the Program or any Project or to otherwise carry out its responsibilities or obligations under or in furtherance of the Compact or any related document or that materially and adversely affects the Program assets or any Permitted Account.

F. Publicity, Information and Marking

1. The Consultant shall cooperate with the MCA Entity and the Government to provide the appropriate publicity to the goods, works and services provided under this Contract, including identifying Program activity sites and marking Program assets as goods, works and services funded by the United States, acting through MCC, all in accordance with the MCC Standards for Corporate Marking and Branding, available on the MCC website at <http://www.mcc.gov/documents/mcc-marking-corporate-v2.pdf> provided, however, that any press release or announcement regarding MCC or the fact that MCC is funding the Program or any other publicity materials referencing MCC, shall be subject to MCC's prior written approval.

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and must be consistent with any instructions provided by MCC from time to time in relevant Implementation Letters.

2. Upon the termination or expiration of the Compact, the Consultant shall, upon MCC's request, cause the removal of any such markings and any references to MCC in any publicity materials.

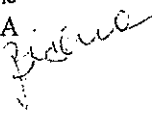
G. Insurance

The Consultant shall obtain insurance or other protections appropriate to cover against risks or liabilities associated with performance of this Contract. The Consultant shall be named as payee on any such insurance. The MCA Entity and, at MCC's request MCC, shall be named as additional insured on any such insurance or other guarantee, to the extent permissible under applicable laws. The Consultant shall ensure that any proceeds from claims paid under such insurance or any other form of guarantee shall be used to replace or repair any loss or to pursue the procurement of the covered goods, works and services; provided, however, that at MCC's election, such proceeds shall be deposited in an account as designated by the MCA Entity and acceptable to MCC or as otherwise directed by MCC.

H. Conflict of Interest

The Consultant shall ensure that no officer, director, employee, affiliate, contractor, subcontractor, agent, advisor or representative of the Consultant participates in the selection, award, administration or oversight of a contract, grant or other benefit or transaction funded in whole or in part (directly or indirectly) by MCC Funding in connection with this Contract, in which (i) the entity, the person, members of the person's immediate family or household or his or her business partners, or organizations controlled by or substantially involving such person or entity, has or have a financial or other interest or (ii) the person or entity is negotiating or has any arrangement concerning prospective employment, unless such person or entity has first disclosed in writing to the parties under this Contract and MCC the conflict of interest and, following such disclosure, the parties to this Contract agree in writing to proceed notwithstanding such conflict. The Consultant shall ensure that none of its officers, directors, employees, affiliates, contractors, subcontractors, agents, advisors or representatives involved in the selection, award, administration, oversight or implementation of any contract, grant or other benefit or transaction funded in whole or in part (directly or indirectly) by MCC Funding in connection with this Contract shall solicit or accept from or offer to a third party or seek or be promised (directly or indirectly) for itself or for another person or entity any gift, gratuity, favor or benefit, other than items of *de minimis* value and otherwise consistent with such guidance as MCC may provide from time to time. The Consultant shall ensure that none of its officers, directors, employees, affiliates, contractors, subcontractors, agents, advisors or representatives engage in any activity which is, or gives the appearance of being, a conflict of interest in connection with this Contract. Without limiting the foregoing, the Consultant shall comply, and ensure compliance, with the applicable conflicts of interest and ethics policies of the MCA Entity as provided by the MCA Entity to the Consultant.

I. Inconsistencies



In the event of any conflict between this Contract and the Compact and/or the Disbursement Agreement or the Procurement Agreement/Program Implementation Agreement, the term(s) of the Compact and/or the Disbursement Agreement or the Procurement Agreement/Program Implementation Agreement shall prevail.

J. Other Provisions

The Consultant shall abide by such other terms or conditions as may be specified by the MCA Entity or MCC in connection with this Contract.

K. Flow-Through Provisions

In any subcontract or sub-award entered into by the Consultant, as permitted by this Contract, the Consultant shall ensure the inclusion of all the provisions contained in paragraphs (A) through (J) above.

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Appendix H

Appendix H - Terms of Reference

Terms of Reference (TOR)

1. Definitions and Abbreviations

AIA: Archeological Impact Assessment

CPB: Joint Venture Consulta S.A. de C.V./Parsons Brinckerhoff Int. Inc.

CPM: Connectivity Project Manager

Connectivity Project: It has the meaning set forth in the Preamble of Schedule 3 to Annex I of the Compact.

Connectivity Project Coordinator: Person within FOMILENIO responsible for the institutional management of the Connectivity Project.

Connectivity Project Manager (CPM): Consulting Firm for rendering services under this contract.

Construction Contractors: Any contractor responsible for the construction of works under the Connectivity Project.

EIA: Environmental Impact Assessment

EMP: Environmental Management Plan

Environmental and Social Impact Director (ESID): Person within FOMILENIO responsible for environmental and social impact management and compliance with applicable environmental laws and guidelines.

FLMR: Fully Loaded Monthly Rate for personnel all inclusive of all and any direct and indirect costs.

FOMILENIO: Fondo del Milenio.

FOSEP: Fondo Salvadoreño para Estudios de Preinversión

FOVIAL: Road Maintenance Fund.

FS: Feasibility Study

GDP: Gross Domestic Product

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GOES: Government of El Salvador

MCC: Millennium Challenge Corporation

MOPTVDU: Ministry of Public Works, Transportation, and Housing and Urban Development.

NCR: Network of Connecting Roads

NTH: Northern Transnational Highway

PA: Procurement Agent of FOMILENIO

PAP: Project Affected Person

Project: Connectivity Project

RAP: Resettlement Action Plan

RFI: Request for Information

RFP: Request for Proposals

Resident Engineer: Principal on-site engineer and point of contact for the construction contractor.

ROW: Right of Way

Study and/or Design Consultants: Consulting firms preparing or which have prepared the feasibility studies (FS), environmental impact assessments (EIA), and/or final designs (FD) related to the Connectivity Project.

TOR: Terms of Reference

UIPC: Connectivity Project Implementation Unit (Unidad de Implementación del Proyecto de Conectividad) of the MOPTVDU

2. Introduction

El Salvador is a country of approximately 6.9 million people, located in Central America, bordering the North Pacific Ocean, between Guatemala and Honduras. Approximately 35 percent of its population lives in poverty, with a high incidence of extreme poverty in rural areas. El Salvador's civil conflict of the 1980s cost the lives of over 70,000 Salvadorans and destroyed much of the country's infrastructure. The rural areas, particularly in the northern region of the country, were most affected. During those war years, human capital formation lagged, GDP declined, public investment was deferred, deterioration of the natural resource base accelerated, and migration to the United States of America increased. By the end of the 1980s, about two-thirds of the Salvadoran population was living in poverty. In 1989, a new government embarked on a major stabilization and structural adjustment program and initiated peace negotiations, reaching a Peace Accord in early 1992. El Salvador has

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(the "Network of Connecting Roads" or NCR). The Network of Connecting Roads will provide reliable paved roads to foster the connection of remote municipalities and rural villages of the Northern Zone with the NTH and other regional and national traffic routes.

MCC Funding will support the following Project Activities:

- a) *Northern Transnational Highway*: To design and construct openings of approximately 50 km of secondary² roads; to improve approximately 160 km to secondary road standards; and to rehabilitate approximately 80 km to secondary road standards³; and
- b) *Network of Connecting Roads*: To improve approximately 240 km to modified tertiary road⁴ standards.

The map shown in Figure 1 indicates the tentative alignment of the NTH and the NCR.

It is important to remark that according to the Compact, in the case that the funds assigned from MCC for each activity are not enough to complete all the objectives of the Connectivity Project, the Government of El Salvador has committed to provide necessary additional funds to complete all services or works. In the same context, The Government of El Salvador has the responsibility to complete any contract obligation for any contract for services or works still on force in the case that the validity period of the Compact expires and there are still on going services or works.

The following summarizes each Project Activity under the Connectivity Project:

Project Activity: Northern Transnational Highway (the "Northern Transnational Highway Activity") - NTH

The Northern Transnational Highway (NTH) will provide contiguous and reliable access to communities in the Northern Zone, as well as to main transport corridors, thereby enabling the Northern Zone to participate more fully in the national and regional economy. When completed, the NTH will extend across El Salvador from Guatemala in the west to Honduras in the east, and will connect with roads to southern El Salvador, to the new Pacific Ocean port at La Union in eastern El Salvador and to the Caribbean ports in Guatemala (Puerto Barrios) and Honduras (Puerto Cortez). Primarily, the NTH will follow a course of existing roads; with only 50 km of new roads needed to connect the different sections of road to form a continuous transnational paved surface.

As El Salvador increases its participation in international and regional markets through the Central America-Dominican Republic-United States Free Trade Agreement (CAFTA-DR) and Plan Puebla-Panama activities, the NTH will provide valuable access to a wider range of opportunities for the

² "Secondary" roads are composed of a paved traveled way of two 3.25 m wide lanes (6.50 m traveled way) and 1.5 m wide shoulders, and include surface drainage.

³ The work to be performed on the NTH and the NCR can be classified by the following standard descriptions: (i) "improvement" means that the geometric characteristics of an existing road are changed to raise the standards of the road; this type of work implies widening of lanes, adding or widening shoulders, increasing the minimum radius of curvature, decreasing maximum slopes and paving unpaved roads; (ii) "rehabilitation" means that the general geometric characteristics, except width, of an existing paved road are maintained; this work requires improving pavement surface or pavement structure or drainage; and (iii) "opening" a new road means that no road exists; in connection with such work cuts often occur on the slopes in mountainous zones and significant modification of the topography often occurs, at least within the area of influence of the road.

⁴ "Modified tertiary roads" are roads that have a paved traveled way of 6.0 m and 1.0 m shoulders, and include drainage structures. These modified tertiary roads will contribute greatly to improving mobility in the Northern Zone and to the success of the Human Development Project and Productive Development Project.

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communities of the Northern Zone. Reliable and efficient transportation schemes are essential to El Salvador's participation in international and regional markets, and especially essential to small, local producers and suppliers. Currently, the Northern Zone has neither a reliable nor an efficient transport route for the goods and services of the communities in the Northern Zone. The Northern Transnational Highway Activity will provide wide-ranging benefits, including helping produce to arrive at markets undamaged and in a timely manner, allowing efficient access of public services such as ambulances and public transportation, and reducing vehicle operation and maintenance costs.

Related to the geometric characteristics of the roads, the NTH will be a Secondary road type. The Table 1 shows the main characteristics for this type.

Table 1 - Minimum Criteria for Secondary Road Type

Design Criteria	Plain Terrain	Waved Terrain	Mountainous Terrain
Design Speed	80 Km/h	70 Km/h	50 Km/h
Maximum Slope	5%	6%	8%
Minimum Radius	150.00 m	100.00 m	60.00 m
Minimum distance between horizontal curves	60.00 m	60.00 m	60.00 m
Minimum Distance for Speed	130.00 m	100.00 m	80.00 m
Road Width	9.50 m	9.50 m	9.50 m
Pavement Width	6.50 m	6.50 m	6.50 m
Shoulder Width	1.50 m	1.50 m	1.50 m
Road Width on Bridges	7.40 m	7.40 m	7.40 m
Right of Way Width	20.00 m	20.00 m	20.00 m
Width of Retirement Zone	10.00 m	10.00 m	10.00 m
Design Load for Bridges	1.25 HS20-44	1.25 HS20-44	1.25 HS20-44
Surface Type	To be defined	To be defined	To be defined

Subject to modifications based on findings of the feasibility study, the NTH can be described by road sections, as follows:

Table 2 - Sections of the Northern Transnational Highway

Sections of NTH	Description	Length (km)
Section 1	La Virgen to Metapan	19.22
Section 2	Metapan to Nueva Concepcion	37.05
Section 3	Chalatenango to La Trinidad	43.65
Section 4	La Trinidad to Nuevo Eden de San Juan	55.65
Section 5	Nuevo Eden de San Juan to Detour to Ciudad Barrios	38.85
Section 6	Detour to Ciudad Barrios to Corinto	53.32
Section 7	Corinto to Concepcion de Oriente	43.07
TOTAL		290.81

The map shown in Figure 2 indicates the tentative sections of the NTH according to the above table.

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Some sections of the NTH, mainly between La Virgen and Nuevo Eden de San Juan (Sections 1 to 4), include construction of new major bridges for crossing important rivers, such as the Lempa River, which would be the longest bridge in the country. Therefore for purposes of the preparation of the proposals, the possible bidder shall consider the supervision of these main structures as indicated in the following Table 3:

Table 3 - Main Bridges of the Northern Transnational Highway by Section

Sections of NTH	Length of Bridge	Number
Section 1	From 10 to 50 m	1
	From 50 to 100m	3
Section 2	From 50 to 100m	1
	210 m	1
Section 3	From 10 to 50 m	3
	From 50 to 100m	3
	210 m	1
Section 4	From 10 to 50 m	8
	From 50 to 100m	1
	360 m	1
Section 5	From 10 to 50 m	5
Section 6	---	---
Section 7	From 10 to 50 m	2
	From 50 to 100m	3

Specifically, MCC Funding will support the following on the NTH:

- i. Design; environmental assessment, as needed (to include, if necessary, supplemental EIAs, EMPs, and RAPs); and construction activities for the opening, improvement, or rehabilitation of approximately 290 km of the NTH;
- ii. Implementation of environmental and social mitigation measures as identified in the EIA, or as otherwise may be appropriate, to include compensation for physical and economic displacement of individuals, residences and businesses affected by such rehabilitation and construction, consistent with the World Bank's Operational Policy on Involuntary Resettlement (OP 4.12), and implementation of HIV/AIDS awareness plans satisfactory to MCC;
- iii. Design and construction of drainage structures, as may be required;
- iv. Design and construction of all necessary new bridges and rehabilitation of existing bridge structures, as may be required;
- v. Posting of signage and incorporating other safety improvements;

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- vi. Project management, supervision and auditing of such improvements and upgrades; and
- vii. Training in environmental management.

Project Activity: Strategic Network of Connecting Roads (the "Network of Connecting Roads Activity") - NCR

Under current conditions, many rural roads in the Northern Zone are virtually impassable without a four-wheel drive vehicle. In addition, considering the high rainfall and flooding levels common in the region, these roads are not only inefficient, but also dangerous.

By improving approximately 240 km of primarily dirt roads to modified tertiary road status, the Connecting Roads Activity will connect vast rural areas of the Northern Zone with the NTH and with the existing paved road network. The improvement of connecting roads will improve transportation linkage and reduce transportation costs and time. Northern Zone residents will have mobility within their hometowns and will have access to territories beyond their usual boundaries.

Related to the geometric characteristics of the roads, the NCR will be a Tertiary Modified road type. The following Table 4 shows the main characteristics for this type.

Table 4 - Minimum Criteria for Tertiary Modified Road Type

Design Criteria	Plain Terrain	Waved Terrain	Mountainous Terrain
Design Speed	60 Km/h	50 Km/h	40 Km/h
Maximum Slope	6%	8%	10%
Minimum Radius	150.00 m	100.00 m	40.00 m
Minimum distance between horizontal curves	50.00 m	50.00 m	50.00 m
Minimum Distance for Speed	130.00 m	100.00 m	80.00 m
Road Width	8.00 m	8.00 m	8.00 m
Pavement Width	6.00 m	6.00 m	6.00 m
Shoulder Width	1.00 m	1.00 m	1.00 m
Road Width on Bridges	7.40 m	7.40 m	7.40 m
Right of Way Width	20.00 m	20.00 m	20.00 m
Width of Retirement Zone	10.00 m	10.00 m	10.00 m
Design Load for Bridges	1.25 HS20-44	1.25 HS20-44	1.25 HS20-44
Surface Type	To be defined	To be defined	To be defined

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Subject to modifications based on findings of the feasibility study, NCR can be described by road segments, as follows:

Table 5 - Sections of the Network of Connecting Roads

Description		Length (km)
Group 1	Connecting Roads of the Western Zone	85.57
VT-5	Masahuat – Santa Rosa Guachipilín	12.25
VT-6	Nueva Concepción - Texistepeque	27.29
VT-7	San Fernando – Dulce Nombre de María	31.00
VT-11	San Francisco Morazán – Tejutla – El Paraíso	15.03
Group 2	Connecting Roads of the Central Zone	87.24
VT-1	San José Cancasque – Potonico – Cerrón Grande – Jutiapa – Tejutepeque y Ramal	23.04
VT-4	Ilobasco – Presa 5 de Noviembre	32.40
VT-8	San Miguel de Mercedes – San Antonio Los Ranchos – Potonico	14.93
VT-16	Nombre de Jesús – Arcatao	16.87
Group 3	Connecting Roads of the Eastern Zone	65.57
VT-2	Sesóri – Et. SAM31E (San Luis de la Reina)	15.30
VT-3	Anamorós – Lislique	8.50
VT-13	Perquín – Paso del Mono	13.17
VT-15	CA:7 – Arambala – Joateca	17.80
VT-17	SAM33, Cantón El Carrizal – San Antonio	7.15
VT-18	MOR13W, San Simón – San Isidro	3.65
Total Length of NCR		238.38

Note: VT means Vialidad Transversal (connecting road)

The map shown in Figure 3 indicates the tentative groups of the NCR according to the above table.

The NCR also includes major structures as bridges which shall be considered for purposes of the preparation of the proposals in the supervision of these structures, as indicated in the following Table 6.

Table 6 - Main Bridges of the Network of Connecting Roads by Group

Group of NCR	Length of Bridge	Number
Group 1	From 10 to 50 m	1
	270 m	1
Group 2	From 10 to 50m	4
Group 3	From 10 to 50 m	1

Specifically, MCC Funding will support the following on the NCR:

- i. Design; environmental assessment, as needed (to include, if necessary, supplemental EIAs, EMPs, and RAPs); and construction activities for the improvement of approximately 240 km of the NCR
- ii. Implementation of environmental and social mitigation measures as identified in the EIA, or as otherwise may be appropriate, to include compensation for physical and economic displacement of individuals, residences and businesses affected by such rehabilitation and

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construction, consistent with the World Bank's Operational Policy on Involuntary Resettlement (OP 4.12), and implementation of HIV/AIDS awareness plans satisfactory to MCC;

- iii. Design and construction of drainage structures, as may be required;
- iv. Design and construction of all necessary new bridges and rehabilitation of existing bridge structures, as may be required;
- v. Posting of signage and incorporating other safety improvements;
- vi. Project management, supervision and auditing of such improvements and upgrades; and
- vii. Training in environmental management.

4. Consulting Services under way: "Mejoramiento de la Red Vial de la Zona Norte de El Salvador" – Consulta S.A. de C.V.-Parsons Brinckerhoff Int. Inc.

Since the Compact has a fixed five-years period for implementation, the GoES through the Ministry of Public Works, Transportation, and Housing and Urban Development (MOPTVDU, by its acronym in Spanish), in order to expedite the execution period of the Connectivity Project, prior the entry into force of the Compact decided to hire a consulting firm to carry out the studies named "*Mejoramiento de la Red Vial de la Zona Norte de El Salvador*" (Improvement of the Road Network of the Northern Zone of El Salvador) financed by the Fondo Salvadoreño para Estudios de Preinversión (FOSEP). The studies were awarded to the joint venture *Consulta S.A. de C.V. – Parsons Brinckerhoff Int. Inc.* (CPB) according to the contract and a Letter of Understanding No 1, the period for the execution of the study is from March 5, 2007 to June 28, 2008.

The studies to be done by CPB are:

For the NTH

- (i) Technical and economic feasibility for 290 km (Sections 1 to 7);
- (ii) Environmental impact assessment for 290 km (Sections 1 to 7) (environmental and social - RAP);
- (iii) Final engineering design for only 155 km (Sections 1 to 4)

For the NCR

- (i) Technical and economic feasibility for 240 km;
- (ii) Environmental impact assessment for 240 km; (environmental and social – RAP)

In more detail, the services to be provided by this firm correspond to:

- Feasibility Study – Technical and Economical - (FS) for 530 km (290 km on the NTH and 240 km on the NCR) corresponding to the MCC program
- Environmental Impact Assessment and RAP for 530 km (290 km on the NTH and 240 km on the NCR) corresponding to the MCC program.

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- Final Engineering Design for 155 km on the NTH (Sections 1 to 4 – from La Virgen to Nuevo Eden de San Juan)) only corresponding to the MCC program

The delivery dates of the different Final Reports, [prior to MOPTVDU approvals, for each of the studies are:

• Feasibility Study (NTH + NCR)	June 28, 2008
• Environmental Impact Assessment and RAP (NTH + NCR)	June 28, 2008
• Final Design of NTH (155 km)	
Section 2 (from Metapan to Nueva Concepcion)	May 30, 2008
Estimated:	
Section 1 (from La Virgen to Metapan)	August, 2008
Section 3 (from Chalatenango to La Trinidad)	August, 2008
Section 4 (from La Trinidad to Nuevo Eden de San Juan)	August, 2008

At the time to commence the consulting services for CPM, the objective of this RFP, it is expected that the final reports of the study "Mejoramiento de la Red Vial de la Zona Norte de El Salvador" will have been completed and approved by MOPTVDU as owner of the study, and will provide the basic inputs for the further steps in the implementation of the Project. The responsibilities of the CPM in relation to these reports are explained in Section 8 "Description of Services" of these TOR, covering the following three areas:

4.1 Feasibility Study (Technical-Economic)

The Feasibility Study of the Project including technical and economic evaluation, will determine the best route and the capacity of the road network in the northern zone of El Salvador, with a minimum construction cost and maximum operation level, establishing according to clearly defined criteria, a priority order for execution in such a way to secure that the project is technically and economically feasible. Besides, the selection of the best route shall consider the option with lower environmental and social impact.

The feasibility study shall conclude in the selection of the route for the whole project for which the final design will be prepared, defining the following project parameters:

- Topographic condition of the geometric axes of the route in plan and profile for each section of the Project.
- Cross section of each section of the project.
- According to the selected route, to determine the points for location of interchanges, accesses and exits, which shall be properly designed.
- Packages or sections for construction and a construction schedule.
- Total required investment for the project (by packages and sections).
- Estimation of cost for operation and maintenance and proposal of finance options to obtain necessary funds for sustainable operation and maintenance processes.

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The Final Report of the Feasibility Study will be presented in a format including an Executive Summary, Report, Drawings and Cost Estimate.

The main text of the report will include:

- Influence zone of the project
- Environmental impact assessment
- Socio-economic study of the influence zone
- Traffic study
- Geologic study
- Seismic study
- Geotechnical study
- Hydrology and hydraulic study
- Geometric specifications
- Proposal of pavement structure
- Pedestrian crossings
- Collective transport
- Intersections
- Rights of way
- Investment cost
- Maintenance cost
- Operation cost
- Savings in operation cost
- Savings in travel time
- Savings in reduction of accidents
- Economic and financial evaluation
- Sensibility analysis
- Optimization in time
- Distributed impact of benefits
- Description and justification of proposed alternatives
- Determination of recommended alternative
- Monitoring and evaluation plan and baseline data
- Risk management plan.

As minimum, this report will include also the following drawings:

- Route Plan
- Route Profile
- Typical cross sections
- Plan of intersections
- Plan for access to public transportation
- Plan of lots and utilities affected by the right of way
- Plan of signage and road safety
- Geologic drawings

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- Seismic zoning drawings
 - Geotechnical drawings
 - Digitalized aerial photos showing the alignment and explanation of all alternative routes

The study will also include preliminary cost estimation (at feasibility level) with work quantities and estimated unit prices for at least the following cost-items:

-
- Earthworks
 - Retention walls
 - Minor drainage structures
 - Major drainage structures and bridges
 - Pavement structure
 - Horizontal and vertical signage
 - Intersections
 - Rights of way
 - Implementation of environmental measures
 - Detour of affected utilities
 - Detour of accesses for affected properties
 - Plan for provisional detours and signage

4.2 Environmental Impact Assessment

This study will include the detailed qualitative and quantitative description of the subprojects and of the global project, characterization of the environment, identification of significant environmental and social impacts, positive or negative, the cumulative impacts and the prevention, reduction or compensation measures, which shall be structured into an *Environmental Management Plan (EMP)*. For subprojects which require the relocation of persons it will be necessary to include a *Resettlement Action Plan (RAP)* which shall be additional to the EMP.

The *Environmental Impact Assessment (EIA)* will include as minimum the following:

- Title and authors.
- Executive Summary of the Study.
- Introduction.
- Description of the global Project, subprojects and proposed sections.
- Legal considerations and environmental laws related to the Project.
- Baseline data: description, characterization and quantification of the existing environment (qualitative or quantitative), of the physical, biologic, socioeconomic and landscaping components of the site and influence to be studied.
- Identification, prioritization, forecasting and quantification of the direct and indirect environmental impacts, induced or cumulative social impacts due to the project: global, subprojects and proposed sections.
- Interpretation of the results of the cost-benefit analysis, feasibility and efficiency, considering technical, economic, social and environmental factors for the proposed alternatives for each, section, subproject and global project.

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- Analysis of alternatives
 - Preparation of the *Environmental Management Plan (EMP)* which shall also include and information and communication plan during the construction stage.
 - Preparation of the *RAP* according to the Operational Policy OP-4.12 of the World Bank.
 - Preparation of the *HIV/AIDS Awareness Plan*
 - Record of the public consultations, information meetings and meetings with local authorities, communitarian organizations and general public made during the study.
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- Appendixes:

4.3 Final Engineering Design (155 km of the Northern Trans national Highway)

The final design carried out under the study "Mejoramiento de la Red Vial de la Zona Norte de El Salvador" covers the portion of the NTH from La Virgen in Santa Ana province to Nuevo Eden de San Juan in San Miguel province (Sections 1 to 4), with an approximate length of 155 km.

The final design report shall include as minimum the following:

- Topographic study
- Geometric design
- Right of Way and Relocation of Utilities
- Geotechnical study
- Hydrologic and hydraulic studies
- Pavement design
- Drainage works
- Bridges design
- Intersections design
- Earthworks
- Road safety, pedestrian crossings and signage
- Work quantities
- Unit Cost
- Construction schedule
- Cost Estimation of the project
- Drawings
- Technical Specifications

5. Objectives of the TOR for the Consulting Services Requested

The Connectivity Project is an emblematic project for which the inhabitants of the Northern Zone have been waiting for more than 60 years for its realization. The efficient implementation of the Project is crucial for the success of the Compact as a whole.

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FOMILENIO's implementing framework considers the participation of consulting firms with the technical competence in designs, construction supervision and project management as a first step to increase the probability of success. However, project success cannot be achieved without the application of international best practice in project management.

This is why FOMILENIO has decided to hire consulting firms (named as *Connectivity Project Manager - CPM*) to provide project management and supervision services in order to achieve the best possible outcome of the Connectivity Project.

Project management is understood as the application of knowledge, skills, tools and techniques to project activities to meet project requirements in technical matters as well as managing the scope of implementation and timing of deliveries. FOMILENIO expects that the CPM would accomplish its tasks by means of an integrated project management process of planning, initiating, executing, monitoring supervising, and controlling. The CPM is expected to promptly advise FOMILENIO on any necessary adjustments to the road construction implementation plans resulting from real time response and rapid follow-up in the field on technical issues. The CPM is expected to apply best international practices in management of road projects to assure that project deliverables meet their accepted objectives according to the related contract(s).

Under the framework explained above, the objectives of this Terms of Reference are as follows:

- a) Provide potential consulting firms the geographic reference of where the project will be executed;
- b) Provide potential consulting firms an overview of the magnitude of the Connectivity Project and the type of services to be rendered under this procurement process;
- c) Describe the minimum scope of services required for the CPM;
- d) Define the period for the services under this procurement process;
- e) Define the minimum tasks to be performed by the CPM;
- f) Describe the implementing structure of the Connectivity Program;
- g) Define the minimum content and period for submission of deliverables by the CPM;
- h) Define the minimum requirements for key personnel.

In relation to the Connectivity Project, part of the funds of the Compact are assigned to finance the following activities:

- a) Pending studies for portions of the 530 km :
 - NTH: Final design of the remaining 135 km (Nuevo Eden de San Juan to Concepción de Oriente) – Sections 5 to 7
 - NCR: Final design of the 240 km (Groups 1, 2 and 3)
- b) Construction of the 290 km of the NTH and 240 km of the NCR

The pavement structure could be either flexible or rigid type, for the NTH and/or the NCR, depending

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on the results of the Feasibility Study and Final Design.

As a complement to the study "Mejoramiento de la Red Vial de la Zona Norte de El Salvador", FOMILENIO is also hiring a consultant to carry out an Archeological Impact Assessment (AIA) which will be carried out along the NTH and the NCR. The conclusions of this study will be considered as input for the final design works. The AIA includes:

- Archeological Assessment
- Archeological Prevention and Rescue Plan and activities
- Monitoring and contingency plan

Table 7 shows the status of the main activities for the NTH and NCR:

Table 7 – Status of Main Activities of NTH and NCR

Major activities	NTH-155km Sections 1, 2, 3, 4	NTH-135 km Sections 5, 6, 7	NCR-240 km Groups 1, 2 and 3
1. Feasibility Studies	In progress	In progress	In progress
2. Final Engineering Design	In progress	Future tender by FOMILENIO	Future tender by FOMILENIO
3. Design supervision	Pending (by CPM)	Pending (by CPM)	Pending (by CPM)
4. Environmental Impact Assessment	In progress	In progress	In progress
5. Right of Way and Resettlement	Future tender by FOMILENIO	Future tender by FOMILENIO	Future tender by FOMILENIO
6. Construction supervision	Pending (by CPM)	Pending (by CPM)	Pending (by CPM)
7. Construction contractors	Future tender by FOMILENIO	Future tender by FOMILENIO	Future tender by FOMILENIO

"In Progress" means that the consulting services are under way by CPM.

"Pending" means that these activities are to be performed by the CPM to be contracted.

"Future tender by FOMILENIO" means that the activity corresponds to works and consulting services to be tendered by FOMILENIO through the Procurement Agent.

6. Location for Services

The CPM is expected to maintain an office in San Salvador at a location acceptable to FOMILENIO, and shall house all key personnel in this office. This office shall be managed by the Chief of Party who shall be resident in El Salvador for the whole period of the services. It is expected that the same Chief of Party serve throughout both the base and optional contracts periods. Other ad-hoc experts shall work either for the whole period or short-term periods accordingly to the responsibilities assigned in the CPM's implementation strategy, to supervise and conduct activities of Phase 1, Phase 2 and optional Phase-3. During the construction phase, the CPM will be required to provide full time supervision of construction activities with suitable personnel at each of the construction sites where work is occurring. Office space at these sites for this activity is to be provided by the construction contractor

7. Overview of Scope of Services

Fig 9

Final

The intent of these Terms of Reference (TOR) is to retain the services of an experienced and reliable Consultant to manage the implementation of the Connectivity Project. The selected Consultant, called Connectivity Project Manager (CPM) shall provide the following main services for the Connectivity Project of the Compact, to be described in detail in the subsequent sections of this TOR:

4. Connectivity Project Management Services
- ~~5. Supervision of Design Consultants~~
6. Supervision of Construction Works

7.1 Institutional Roles and Responsibilities

FOMILENIO, the entity established by GoES to implement the Compact, is the Client for these services and is responsible for the institutional management of the Compact. FOMILENIO will be assisted by the Connectivity Project Implementation Unit (Unidad de Implementación del Proyecto de Conectividad - UIPC) of the MOPTVDU for technical support in managing the Connectivity Project; and will be supported by the Procurement Agent for procurement and contract administration of all related activities of the Compact. Therefore, in a general distribution of responsibility, the UIPC will support FOMILENIO on technical matters, where the UIPC serves as the Employer's Technical Representative; and, FOMILENIO (with the assistance of its PA) will manage the administrative aspects of the CPM contract.

The Ministry of Public Works, Transport and Housing and Urban Development (MOPTVDU), according to that which is established in the Highways and Rural Roads Law (Ley de Carreteras y Caminos Vecinales), is the government institution in charge of the planning, construction and improvements of the national road system, of which the Connectivity Project forms a part.

Within this context and in the aspects related to the Connectivity Project, MOPTVDU, as the normative and ruling entity in the transport and road sector, has the following main roles:

- a) Approve the technical standards which rule the design and construction of the national road network, and any variations thereof, required during implementation
- b) Verify the application of the referred standards
- c) Approve changes and variations in technical standards resulting from feasibility and design studies
- d) Accept the road works to be constructed within the scope of the Connectivity Project
- e) Represent the GOES for the acquisition and administration of the right of way related to the Connectivity Project
- f) Verify the application of road safety regulations on civil works
- g) Obtain the necessary environmental permits from MARN prior to construction
- h) Keep close coordination with FOVIAL to ensure the sustainability of the roads built with MCC's fund.

For this CPM contract the UIPC will serve as the representative of MOPTVDU.

FOMILENIO reserves the right to modify the management arrangements of the CPM Consultant as needed by FOMILENIO at any time, in general accordance with FIDIC contracting documents. For example, FOMILENIO may form a Project Technical Committee for certain decisions and approvals of

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matters related to the CPM services under these TOR. Such committee may include one representative of FOMILENIO, one representative of UIPC of MOPTVDU and one representative of the Procurement Agent. Such committee may be in charge of analyzing certain recommendations or proposals (and any reports thereof) submitted by the CPM, and making necessary decisions and approvals. In general accordance with the FIDIC contracting documents, such decisions and approvals may include only those not directly provided to the Engineer. Such decisions will then be communicated to CPM by FOMILENIO. The following list includes possible examples of such decisions and approvals which will be made by such committee:

- Change orders;
- Time extensions;
- Changes to Implementation Plan; or
- Changes in the Project Budget.

The CPM Consultant shall act as the Management and Supervisory Agent of FOMILENIO for the Connectivity Project, e.g., as Employer's Representative where FOMILENIO is considered the Employer (or the Client). FOMILENIO's Connectivity Coordinator, who also chairs the UIPC, shall be the primary point of contact for the CPM. The MOPTVDU, through UIPC, shall have authority to review all technical matters related to these services, including any reports submitted by the CPM. The CPM shall have full responsibility of providing approvals, in general accordance with FIDIC contract documents of any products prepared by the design consultants and construction contractors in the implementation of the Connectivity Project. The CPM shall also be fully responsible to provide technical and project management recommendations related to any and all products prepared by the design consultants and construction contractors in the implementation of the Connectivity Project.

The CPM shall work in close coordination with the Connectivity Project Coordinator, the Social Viability and Land Tenure Specialist and the Environmental and Social Impact Director (ESID) of FOMILENIO and with the UIPC to develop and execute appropriate management, supervision and monitoring procedures for assuring compliance with technical, environmental and social requirements. The CPM shall also coordinate with other FOMILENIO officials or FOMILENIO contractors, such as the PA, when necessary to properly coordinate related activities under its responsibility.

The CPM is solely responsible for the execution of all direct or implicit duties described herein, and shall be the only agent (Employer's Representative) authorized by FOMILENIO to provide such products or services.

7.2 General Timing of Services

Under the terms of the Compact, funding for the MCC program expires on September 20, 2012 and therefore all projects have been scheduled to be completed in advance of the deadline of the Compact term. The term of the contract for the CPM is expected to be for the remaining period until the Compact expires, from approximately August 2008 to September 2012 making an estimated 50-month total period for the services, including the phases described below.

For the NTH, the estimated period for the services of Phase-1 is of 18 months, for Phase-2 of 33 months) and for the optional Phase-3 of 18 months. However, for optional Phase-3, a three-month liquidation period for construction contracts will be added so that duration of Phase -3 is expected to be

George

Heidi

a total of 21 months.

For the NCR, the estimated period for the services of Phase-1 is of 18 months. For optional Phase-2 is planned for 18 months. However, for Phase-2, a three-month liquidation period for construction contracts will be added so that Phase-2 duration is expected to be a total of 21 months.

As a reference in the preparation of the proposals, the possible Consultants shall consider the following schedule for the design supervision activities and for the construction supervision activities, as approved in the Implementation Plan of FOMILENIO.

Table 8 – Tentative Schedule of Implementation Plan of the Connectivity Project

Sections of NTH	Design Period	Construction Period
Section 1	On going by CPB	March 2010 – August 2011
Section 2	On going by CPB	November 2008 – May 2010
Section 3	On going by CPB	April 2009 – April 2011
Section 4	On going by CPB	April 2009 – April 2011
Section 5 (*)	November 2008 to June 2009	March 2010 – August 2011
Section 6 (*)	November 2008 to June 2009	March 2010 – October 2011
Section 7 (*)	November 2008 to June 2009	March 2010 – October 2011
Groups of NCR	Design Period	Construction Period
Group 1 (*)	November 2008 to June 2009	March 2010 – August 2011
Group 2 (*)	November 2008 to June 2009	March 2010 – August 2011
Group 3 (*)	November 2008 to June 2009	March 2010 – August 2011

(*) Since design consulting services contracts will also include the implementation of the RAP for acquisition of the ROW, the period of design services is extended up to March 2010

It is important to note, that even though Section 1 (from La Virgen to Metapan) of the NTH is under design at this moment as part of the study "Mejoramiento de la Red Vial de la Zona Norte de El Salvador", it has been designated a low priority for construction, with final decisions about its inclusion to be based on results of the feasibility study and availability of funds. At this time Section 1 has been tentatively scheduled for construction at the same time as Sections 5, 6 and 7, if deemed feasible and subject to availability of funds.

7.3 Phases of the Services

FOMILENIO seeks to hire a consultant firm CPM, to provide the following services in two PACKAGES (NTH and NCR), as follows:

7.3.1 PACKAGE I: NTH

This PACKAGE for the NTH consists of a base contract including two Phases, and an optional contract including an optional Phase 3, as follows:

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