

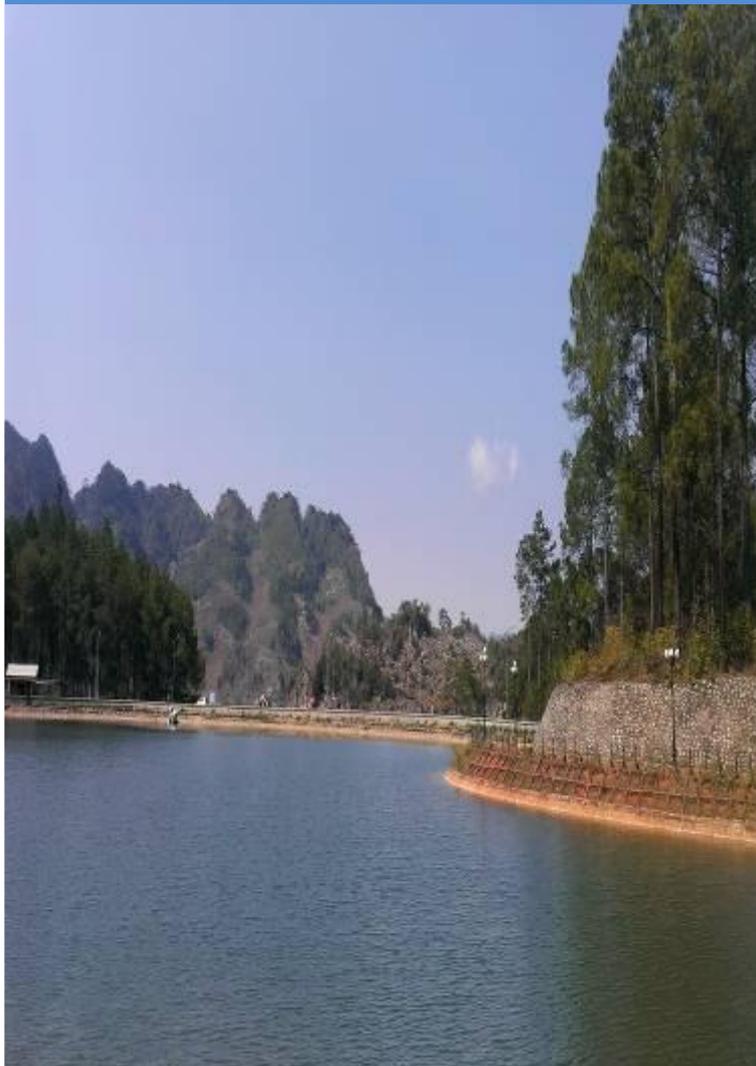
MINISTRY OF TRANSPORT
DIRECTORATE FOR ROADS OF VIETNAM
PROJECT MANAGEMENT UNIT 3

June 2013

VIETNAM ROAD ASSET MANAGEMENT PROJECT
Component B: Road Asset Preservation

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

**B2-3: National Highway No. 18 Section of Noi Bai – Bac Ninh &
Bac Ninh - Chi Linh**



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PROJECT'S OWNER

Hanoi, June 2013

CONTENTS

Acronyms 5

1. Introduction 6

2. EMP Organization and Structure 6

3. Project Description 7

 3.1. Subproject Objectives..... 7

 3.2. Location 7

 3.3. Main components of the Subproject..... 10

 3.4. Work Volume 10

4. Environmental and Social Impacts..... 11

 4.1. Environmental Impacts..... 11

 4.2. Social Impacts..... 12

5. Mitigation Measures..... 13

Chance Find Procedures..... 16

6. Roles and Responsibilities of Environmental Management Stakeholders 16

7. Compliance Framework on Environmental 19

 7.1. Environmental Duties of the Contractor..... 19

 7.2. Contractor’s Safety and Environment Officer (SEO)..... 19

 7.3. Environmental Supervision during Construction 20

 7.4. Compliance with Legal and Contractual Requirements 20

8. EMP Implementation Plan 21

 8.1. Contractor’s EMP Implementation Plan..... 21

 8.2. Project Initiation and Staffing..... 21

 8.3. Capacity Building and Training 22

9. Monitoring Program..... 22

 9.1. Objectives 22

 9.2. Site Inspections..... 22

 9.3. Monitoring Indicators 23

 9.4. Monitoring Report System 24

 9.5. Environmental Claims and Penalty System..... 26

10. Estimated Budget for EMP Implementation 26

10.1. Implementation of Mitigation Measures by Contractor	26
10.2. Supervision of EMP Implementation by CSC.....	26
10.3. EMP Estimation Budget for Independent Environmental Monitoring and Capacity Building	26
11. Public Consultation and Information Disclosure	27
11.1. Objectives	27
11.2. Results of Public Consultation Meetings were Organized	27
11.3. Disclosure of the EMP	29
12. Appendices	30
Appendix 1. Environmental Standard and Regulations	30
Appendix 2. Specific Impacts, Location and Proposed Mitigation Measures for Each Route Segment.....	31
Appendix 3: Environmental and Social Specification for Contractors	39
Appendix 4: Environmental Supervision for the Preservation of the NH18.....	51
Appendix 5: Training demands and proposals for a training program	56
Appendix 6: Budget estimate	59

List of Figure

Figure 1. Project Location	9
Figure 2. Environmental Management System	17

List of Table

Table 1. Volume of Materials for the Project.....	10
Table 2. Potential Impact on Environmental and Society of Project	11
Table 3. Site-specific Mitigation Measures along the NH18	13
Table 4. The Role of Responsible Stakeholder	17
Table 5. System of Environmental Monitoring Report.....	25
Table 6. Total Cost for Capacity building	27
Table 7. Time of Public Consultation Meetings	27
Table 8. Description of NH18	31
Table 9. Analysis And Determination of Training Demands.....	56
Table 10. Proposed Programs On Capacity Building On Environmental Management	57
Table 11. Cost estimation for implementation of capacity building and training.....	59

Acronyms

CSC	Construction Supervision Consultant
CEMP	Community Environmental Monitoring Program
DRVN	Directorate for Roads of Vietnam
DUNRE	District Unit Natural Resource and Environment
DONRE	Department of Natural Resources and Environment
EPC	Environmental Protection Commitment
EO	Environmental officer of the Environmental Unit (under PMU3)
EMP	Environmental Management Plan
EMS	Environmental Management System
GoV	Vietnam Government
IEMC	Independent Environmental Monitoring Consultant
MOT	Ministry of Transport
PR	Provincial Road
NH	National Highway
OP	Operation policies
PMU3	Project Unit Management No.3
RAP	Resettlement Action Plan
SEMP	Site Environmental Monitoring Program
SEO	Safety and Environment Officer
SES	Workplace Safety and Environment Supervisor
WB	World Bank

1. Introduction

The Subproject “Periodic Maintenance of NH18 - Sections of Noi Bai – Bac Ninh & Bac Ninh - Chi Linh is one of the subprojects under Component B of the Vietnam Road Asset Management Project (VRAMP) funded by the World Bank. The subproject will be implemented in nineteen communes of the three districts of Bac Ninh province and Hai Duong province.

The periodic maintenance activities of subproject include strengthening the pavement, repairing the damaged road surfaces and the road drainage system, and improving traffic safety and protection facilities of the selected sections of the National Highway No.18 (NH18). These activities may cause negative impacts on the local environment and communities during pre-construction, construction, and operation phases.

An environmental screening was undertaken in line with the World Bank safeguards policy requirements and it showed that the World Bank’s policy on Environmental Assessment (OP 4.01) will be triggered for the subproject. The implementation of the subproject would mainly cause, increased dust generation, air pollution, and domestic wastes, and traffic safety. However, these impacts are not significant, temporary, localized, and can be mitigated with available mitigation measures. Therefore, the subproject is assessed as B environmental category and eligible for funding by the World Bank.

The Government’s regulation on environmental assessment requires submission of an Environmental Protection Commitment (EPC) for the subproject. An EPC report has been prepared and submitted to Chi Linh Township People’s Committee of Hai Duong Province. In addition to fulfilling the government requirements, an Environmental Management Plan (EMP) that complies with the World Bank OP 4.01 has also been prepared for the subproject.

The main objective of this EMP is to establish a set of mitigation and monitoring measures to minimize the adverse social and environmental impacts that can take place during the implementation stage of the subproject. The measures especially focus on sensitive receptors or sensitive locations. The EMP also provides specific information about the monitoring program during construction stage including locations, frequency and reporting process. The EMP contains guiding environmental principles and procedures for communication, reporting, training, monitoring and plan review to which all staff, consultants, supervisors, Contractors and sub-Contractors are required to comply with throughout the pre-construction, and constructions stages of the Subproject.

The EMP addresses all issues identified in the EPC: i) organizes all measures to mitigate environmental impacts during the construction and operation; and (ii) establishes an organizational structure, procedures, institutional responsibilities for implementation, and a budget and source of financing for each activity

The EMP will also assist different stakeholders in managing the environmental issues of NH18: (a) The PMU3 - to help with the management and implementation of the EMP; (b); supervisors – to ensure that the EMP is properly implemented; (c) environmental engineers – to assist them to work with the Contractors to implement the EMP; and (d) Contractors – to help them develop project-specific EMP implementation plans.

In addition to the project-specific mitigation measures included in the EPC and EMP, the NH18 VRAMP Sub-project will be also in compliance with Vietnamese Standard (TCVN) and National Technical Regulation (QCVN) and the World Bank Safeguard Policies. Appendix 1 presents the most relevant environmental standards of the Socialist Republic of Vietnam.

2. EMP Organization and Structure

The EMP is structured as follows:

Introduction: describes EMP objectives and structure of EMP.

Overview of Environmental and Social Issues: summarizes the project description and main environmental and social impacts, the approach for identification of environmental issues along the road alignment and summarizes the main mitigation measures.

Roles and Responsibilities for Environmental Management during Construction: This part will define the roles and responsibilities for environmental management for all actors involved in the project, and the process of control and reporting.

Compliance Framework: This part will define the environmental duties of the contractor (s), and the environmental compliance framework that will be put in place, the environmental standards for all mitigation measures, the environmental supervision of civil works, and the independent monitoring consultant.

EMP Implementation Plan: describes the requirements and staffing needs for initiation of the works, for the Contractor and supervision consultant. It also includes the capacity building and training programs that will need to be implemented for all actors involved in the environmental management of the project.

Monitoring Program: an environmental monitoring program for the project identifies the parameters, frequency, and responsibilities for monitoring environmental impacts during construction and operation of the road.

Budget: budget estimates for the implementation of the EMP will be presented.

Appendices: related to the project and the contents of the EMP.

3. Project Description

3.1. Subproject Objectives

The NH18 Subproject sections of Noi Bai to Bac Ninh and Bac Ninh to Chi Linh are important roads to develop the socio-economic in the North of Vietnam. Base on the analysis results on traffic flow and traffic forecast, the traffic flow on NH18 will increase more higher in the future. In addition, intensive exploitation is the main reason that leads to the current damage to the NH18 pavement of the Bac Ninh - Chi Linh section. Traffic flow includes many heavy trucks (transporting goods from Mong Cai Border Gate). The level of damaged pavement is serious and immediate maintenance is required.

3.2. Location

NH18 is an important connecting road of the road network. NH18 plays the role as main transport road connecting to the South of China from Hanoi and the North of Vietnam. NH18 is considered strategic ring road running from West to East. At present, NH18 is one of three major highways to China. The following sections are part of the VRAMP project:

NH18, Section Noi Bai - Bac Ninh (Km1+590 ÷ Km31+650) and section Bac Ninh - Chi Linh (Km0 ÷ Km46) are located in the North Eastern, including

- Exiting section of Noi Bai - Bac Ninh (Km1+590 ÷ Km31+650) which is plain road standard with grade II; it is being studied for an upgrade according to the Noi Bai - Ha Long Expressway Project.
- Section from Km0 ÷ Km3+300 belonging to section of Bac Ninh - Chi Linh (Km0 – Km46) is being exploited by Bac Ninh Province as urban road of the Bac Ninh City,

Thus, the scope of the Project study was limited on the section of Bac Ninh - Chi Linh (Km3 ÷ Km46 +300) with a total length of about 42.7 km (Figure 1):

- Starting point (Km3+300): at the new NH1A Intersection, belonging to Dai Phuc Ward, Bac Ninh City, Bac Ninh Province;
- Ending point: belonging to the territory of Hoang Tien Commune, Chi Linh District, Hai Duong Province.

Project passes through territories of three districts/towns belonging to two provinces, including Bac Ninh City, Que Vo District (of Bac Ninh Province) and Chi Linh Town (of Hai Duong Province).

The section running through the territory of Bac Ninh Province passes mainly through agricultural land, sparsely populated areas and mainly concentrated areas such as Duc Long Ward, Van Duong Ward and Pho Moi Town. Section running through the territory of Hai Duong Province passes densely populated areas. In addition, there are many factories and some industrial zones.

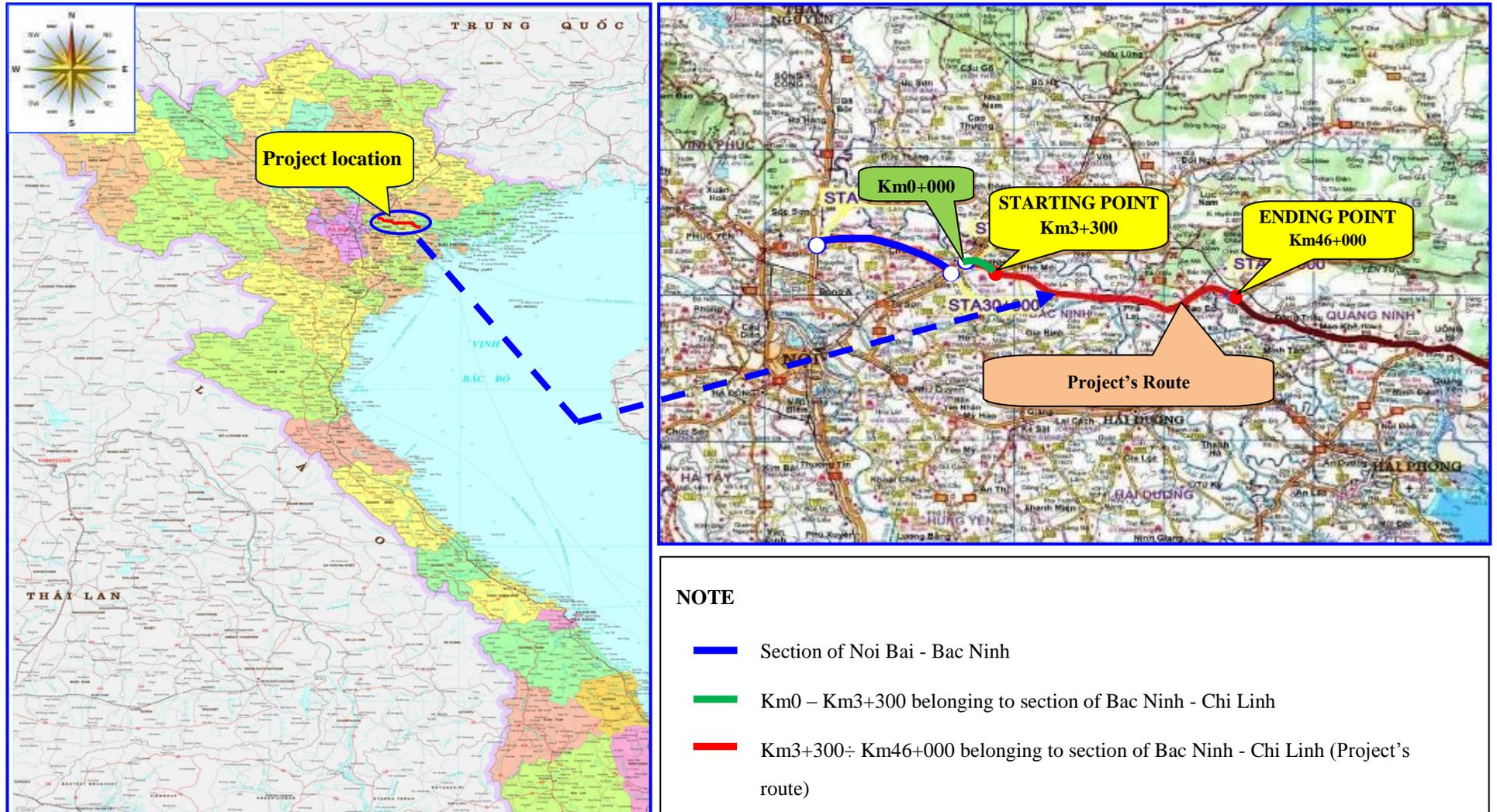


Figure 1. Project Location

3.3. Main components of the Subproject

NH18, section from Bac Ninh - Sao Do was improved to secure the standard of level-III plain road.

The following items are expected to be implemented:

(1) Initial rehabilitation

– Repair and strengthen pavement:

- Treatment of road-bed and pavement and strengthen asphalt concrete pavement with a total length of about 39.4km (including (Km3+300 - Km25+850; Km25+850 - Km26+800; Km28+930 - Km42+850; Km43+350 - Km43+500; Km44+180 - Km46);
- Repair of cement concrete pavement with a total length of about 1.9km (Km26+800 - Km28+930);
- A tapered section shall be constructed to connect the route with the local cross roads.

– Repair and add the system of auxiliary works on the route (drainage and traffic security system and protective works) as follows:

- Repairing 16 positions of box culverts and pipe culverts (rebuilt headwall of culvert with motor stone work);
- Reinforcing, adding the ditches (830m of open ditches, 820m of closed ditches), 2800m of guardrail.

(2) Make plans of maintenance of NH18, section from Bac Ninh - Sao Do (Km3+300 - Km46+000) according to the contract based on the result and execution quality (PBC).

- Maintenance will be performed for five years. The maintenance includes the following items: maintenance and management of pavement (including asphalt concrete and cement concrete pavement), management and maintenance of bridge $L > 25\text{m}$ (including clearing for river flow, repairing quarter-cones of abutment, approach roads, etc), protection of road corridor, and maintenance of electrical system.
- Emergency repair: include excavation, filling, repairing drainage, slope protection, auxiliary works and repairing roadbed and pavement.

3.4. Work Volume

The Subproject will conduct the following work items: Buckled offsetting construction, reinforcing the old pavement etc. to ensure the standards; designing longitudinal grooves at the flooding sections; reinforcing the slopes at non-stability section to stabilize the road-bed; and adding and supplementing the paint mark system, milestones, etc. on the all of road.

Table 1. Volume of Materials for the Project

No.	Items	Unit	Volume	No.	Items	Unit	Volume
1	Digging out pavement	m ³	958	5	Asphalt concrete	m ³	41,182
2	Dug soil	m ³	212	6	Reinforced concrete	m ³	89
3	Backfilled soil	m ³	212	7	Cement concrete	m ³	793
4	Aggregate	m ³	2,562	8	Replace concrete panels	m ³	943

The material quantity that will be used for the subproject is not much; therefore, the construction materials will be bought from the borrow pits, quarries, and construction material sources that authorized by the local authorities (e.g. soil, stone, bitumen, concrete, asphalt, etc.). When construction starts, the contractor shall require these companies submit the certificate for environmental protection commitment for these borrow pits, quarries, and other material sources.

Since this is a road maintenance subproject, there would not be many workers on the construction site, with each maintenance package usually requiring about fifteen workers.

4. Environmental and Social Impacts

4.1. Environmental Impacts

Table 1 below describes potential environmental and social impacts in two phases including (1) Construction - Initial rehabilitation (repair and strengthen pavement, repair and add the system of auxiliary works on the route) and (2) Maintenance according to PBC contract.

Table 2. Potential Impact on Environmental and Society of Project

Activity	Potential Impact	Location
I . Initial rehabilitation		
<ul style="list-style-type: none"> - Strengthen pavement (creating rough surface and dust cleaning) - Treatment of damaged pavement (excavation of damaged pavement layer and excavation and filling of road-bed) - Embankment of pedestrial road for tapering to the NH18 . 	Air pollution caused by dust and impact on community heath	<ul style="list-style-type: none"> - Sections of strengthen asphalt concrete pavement (Km3+300 - Km25+850; Km25+850 - Km26+800; Km28+930 - Km42+850; Km43+350 - Km43+500; Km44+180 - Km46) - Residential areas, schools, hospitals, etc along the route.
Operation of concrete mixing station (if arranged)		Surrounding concrete mixing station (Its location is not fixed in the FS stage)
Transportation of soil from excavation and filling		<ul style="list-style-type: none"> - Along the transportation roads (NH3, NH23, NH35, NH18, PR332, PR317 etc and local roads). - At the residential areas along the transportation roads.
Operation of construction machines	Noise pollution	Residential areas and special areas is near construction locations.
<ul style="list-style-type: none"> - Excavation of old pavement. - Excavation of road-bed (road-bed treatment with ruberized matter, subsidence, potholes, deflection) 	<ul style="list-style-type: none"> worsening landscape due to solid waste Interruption of businesses and utility services 	At the locations of bed-road and pavement treatment.
<ul style="list-style-type: none"> - Oil change, machine maintenance. - Operation of concrete mixing station (if arranged) 	<ul style="list-style-type: none"> - Surface water pollution caused by waste oil and oil-containing wastes 	<ul style="list-style-type: none"> - At the location of oil change, machine maintenance. - At the source of surface water is near

Activity	Potential Impact	Location
	- Surface water pollution caused by TSS generated from waste water of concrete mixing station.	concrete mixing station.
- Arranging construction machines - Transportation of material and waste	Cause traffic unsafely and traffic obstruction on the route.	- At the construction locations (especial at the intersections). - Along the transportation roads (NH3, NH23, NH35, NH18, PR332, PR317 etc and local roads).
Construction of box ditch passess through residential area.	Obstructing resident comes from their house to the road .	At the location of box ditch construction passess through residential area.
Material exploitation	Pollution of dust, noise, landscape change, water flow, etc	At the locations of brorrowpits.
Transportation of material and waste	Cause damages to the public utilities.	Local roads used for Transportation of material and waste.
Worker concentration	Tensions between outside workers and local communities, increase of theft, drug and alcohol abuse, transfer of epidemic disease	At the location of construction and worker's accommodation
II. Maintenance according to PBC contract		
- Maintenance and management of pavement, bridge, protection of road corridor and maintenance of electrical system. - Emergency repair: include excavation, filling, repairing drainage, slope protection, auxiliary works and repairing roadbed and pavement.	The same as impacts of initial rehabilitation phase. Interruption of businesses and utility services	The same as locations of initial rehabilitation phase

4.2. Social Impacts

The subproject does not acquire land, therefore there are not any social impacts due to land acquisition and resettlement.

The main social impacts would potentially be caused by workers who may bring in infectious diseases to the subproject site and the community and practice unhealthy sexual behavior. Community relations and safety may also be affected due to conflicts between local people and workers.

5. Mitigation Measures

Main mitigation activities are described in Table 3. Since this is a road maintenance sub-project good practice and standard mitigation measures are required along the road. Mostly waste, noise, dust, and traffic safety mitigation measures are required.

Site-specific mitigation measures along the NH18 are presented in the following table:

Table 3. Site-specific Mitigation Measures along the NH18

Location	Sensitive Area or Activity	Mitigation Measures
Km3+300 - Km8+100	<ul style="list-style-type: none"> - The route mainly passes through agricultural land. - Sparsely populated areas are located along the route and mainly concentrate at the section of Van Duong Ward. - There are Que Vo Industrial Zone and many factories, enterprises (Nga Bridge brick factory, Cannon Company, Viet - Nhat Float Glass Factory, etc) along the route. - Project route crosses over the river at the Nga Bridge. 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the residential area of Van Duong Ward, especially near Viet Nhat College of Language and Technology. - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour and office finish. - It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water. - When the ditches construction pass through residential areas, it is necessary to ensure the safety for the residents if they come from their houses to the road.
Km8+100 - 14+000	<ul style="list-style-type: none"> - Agricultural land and concentration areas of residents are located along the route (including the hamlets of Mao Doc, Pho Moi, Dinh, Nghiem Xa, Trai Lua, Guot). - There is Pho Moi Industrial Zone. - Project route crosses over the river at the Dung Quyet Bridge. 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the residential areas, especially near Lua Pagoda. - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour. - It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water. - When the ditches construction passes through residential areas, it is necessary to ensure the safety for the resident if they come from their houses to the road.
14+000 - Km19+250	<ul style="list-style-type: none"> - The route mainly goes through agricultural land. There are some concentration areas of resident (including Trai Tron Hamlet, Dong Du 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the residential areas, especially near Que Vo Secondary School No2.

Location	Sensitive Area or Activity	Mitigation Measures
	<p>Hamlet) along the route.</p> <ul style="list-style-type: none"> - Que Vo Secondary School and Dong Du Market are located along the route. 	<ul style="list-style-type: none"> - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour. - It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water. - When the ditches construction pass through residential areas, it is necessary to ensure the safety for the residents if they come from their houses to the road.
<p>Km19+250 - Km24+600</p>	<ul style="list-style-type: none"> - The alignment runs parallel to and near the river Duong. - The route mainly passes through agricultural land. There are some concentration areas of resident (including the hamlets of Ngoc Son, Ve Xa, Kieu Luong, Pha Lai) along the route. 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the residential areas, especially near schools. - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour. - It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water. - When the ditches construction passes through residential areas, it is necessary to ensure the safety for the resident if they come from their houses to the road. - Buy the materials at the pits have been licensed.
<p>Km24+600 - Km30+000</p>	<ul style="list-style-type: none"> - Project route passes through concentration areas of resident of Duc Long and Pha Lai communes. - There are some factories, enterprises (Pha Lai Thermal Power Joint Stock Company, Cuong Thach Cement Factory, Pha Lai Cinder Selection Enterprise, etc) along the route. - Project route crosses over the Pha Lai River. 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the residential areas. - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour and office finish. - It is necessary to collect the waste, no waste to be discharged to Pha Lai River. - Managing and training the workers in order to avoid the conflicts that may arise between the labor force and local resident. - In case of cement concrete mixing station is installed, it is necessary to

Location	Sensitive Area or Activity	Mitigation Measures
		<p>treat preliminary water for washing materials before discharging into the surface water.</p>
<p>Km30+000 - Km35+400</p>	<ul style="list-style-type: none"> - Project route passes through rather densely populated areas of Van An, Chi Minh and Sao Do communes. - There are some factories, enterprises (Sao Do Steel Pipe Factory, Dong A Aluminum Factory) along the route. 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the residential areas. - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour and office finish. - It is necessary to collect the waste, no waste to be discharged to Pha Lai River. - Managing and training the workers in order to avoid the conflicts that may arise between the labor force and local resident.
<p>Km35+400 - Km46+000</p>	<ul style="list-style-type: none"> - Project route passes through densely populated areas of Sao Do, Cong Hoa and Hoang Tan Wards. - On the ending section, Project route passes through agricultural land of Hoang Tien Commune. - There are some schools, hospitals along the route. - Project route crosses over some rivers at the locations of Dai Tan and Vang Gian bridges. 	<ul style="list-style-type: none"> - It is necessary to restrict the dust, noise when construction is near the especial areas (hospital and school). - When pavement strengthening is constructed, it is necessary to ensure traffic, especially in rush hour and office finish. - It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water. - Managing and training the workers in order to avoid the conflicts that may arise between the labor force and local resident.
<p>Along the road</p>	<ul style="list-style-type: none"> - Private businesses and utility companies that will be affected. 	<ul style="list-style-type: none"> - Planned and unplanned interruptions to water, gas, power, internet services: the Contractor must undertake prior consultation and contingency planning with local authorities about the consequences of a particular service failure or disconnection. - Coordinate with relevant utility providers to establish appropriate construction schedules. - Provide information to affected households on working schedules as well as planned disruptions (at least 5 days in advance).

Location	Sensitive Area or Activity	Mitigation Measures
		<ul style="list-style-type: none"> - The contractor should ensure alternative water supply to affected residents in the event of disruptions lasting more than one day. - Any damages to existing utility systems of cable shall be reported to authorities and repaired.

Chance Find Procedures

If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find.
- Delineate the discovered site or area.
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Department of Culture and Information takes over.
- Notify the Construction Supervision Consultant who in turn will notify responsible local or national authorities in charge of the Cultural Property of Viet Nam (within 24 hours or less).
- Relevant local or national authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values.
- Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.
- If the cultural sites and/or relics are of high value and site preservation is recommended by the professionals and required by the cultural relics authority, the Project’s Owner will need to make necessary design changes to accommodate the request and preserve the site.
- Decisions concerning the management of the finding shall be communicated in writing by relevant authorities

6. Roles and Responsibilities of Environmental Management Stakeholders

Proper environmental management during construction requires the involvement of several stakeholders and agencies, each with different roles and responsibilities including:

- Project owner: DRVN, PMU3;
- DUNREs (District Unit of Natural Resources and Environment) of 3 districts/cities (including Bac Ninh City, Que Vo District and Chi Linh Township) belonging to Bac Ninh and Hai Duong Provinces and relative agencies;
- Contractor; and Local communities;

The relationship and interaction among different stakeholders in environmental management of the subproject are presented in the figure below.

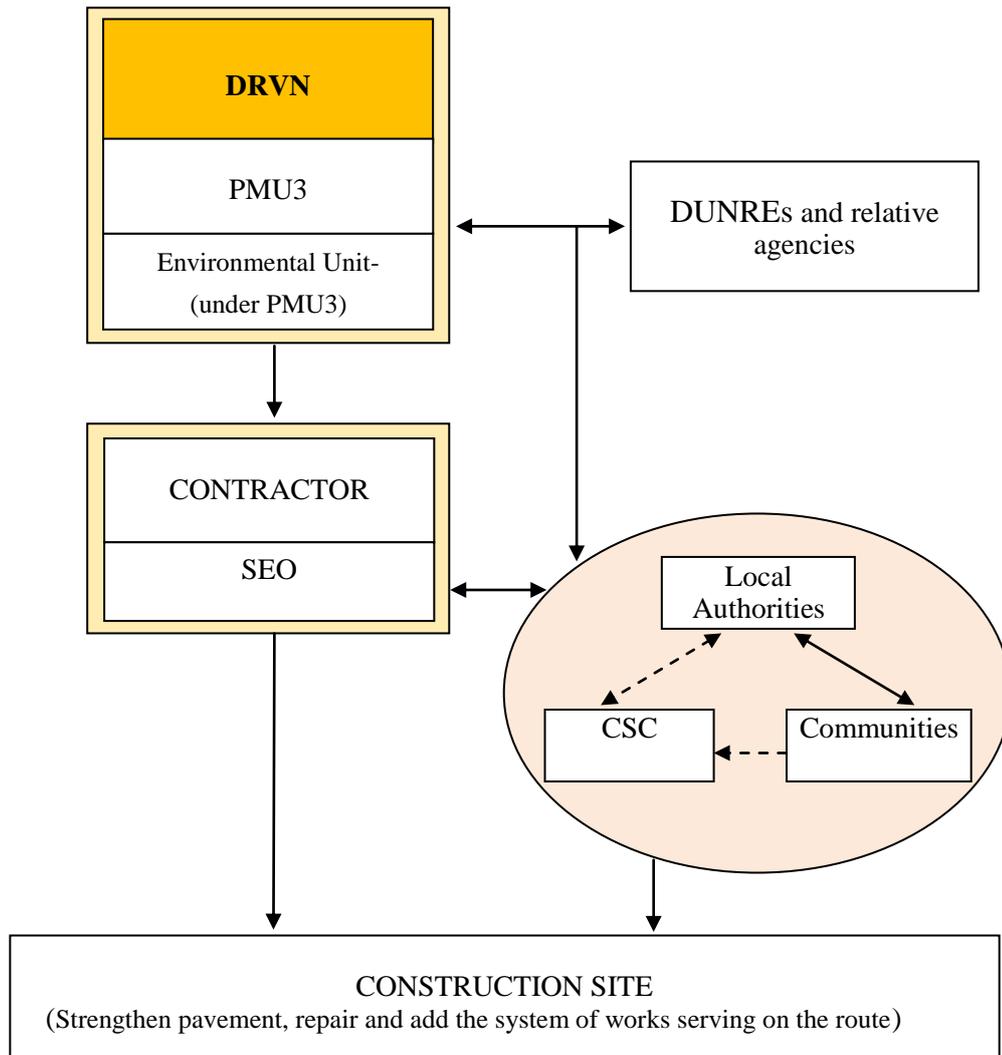


Figure 2. Environmental Management System

Specific responsibilities of the stakeholders are presented in Table 4 below:

Table 4. The Role of Responsible Stakeholder

No.	Company/ Unit	Responsibilities
1	DRVN/ PMU3	<p>DRVN, the Project implementing agency, will be responsible for overseeing the project implementation.</p> <p>PMU3, representative of the DRVN, will be responsible for monitoring the overall project implementation, including environmental compliance of the project. PMU3 will have the final responsibility for environmental performance of the project during both the construction and operational phases.</p> <p>Specifically PMU3 will: i) closely coordinate with local authorities in the participation of the community during project preparation and implementation; ii) monitor and supervise EMP implementation including incorporation of EMP into the detailed technical designs and bidding and contractual documents; iii) ensure that an environmental management system, as indicated in Figure 2, is set up and functions</p>

No.	Company/ Unit	Responsibilities
		<p>properly; iv) be in charge of reporting on EMP implementation to the DRVN and the World Bank.</p> <p>In order to get effectiveness in the implementation process, PMU3 will establish an environmental unit with at least two environmental staff to help with the environmental aspects of the project.</p>
2	Environmental Unit (under PMU3)	<p>The Environmental Unit is responsible for monitoring the implementation of WB's environmental safeguard policies in all stages and process of the project. Specifically, this unit will be responsible for:</p> <p>i) reviewing the subproject EPCs and EMPs prepared by consultants to ensure quality of the documents; ii) helping PMU3 incorporate EMPs into the detailed technical designs and civil works bidding and contractual documents; iii) helping PMU3 incorporate responsibilities for EMP monitoring and supervision into the TORs, bidding and contractual documents for CSC and IEMC; iv) providing relevant inputs to the consultant selection process; v) reviewing reports submitted by the CSC and IEMC; vi) conducting periodic site checks; vii) advising PMU3's leaders on solutions to environmental issues of the project; and viii) preparing environmental performance section on the progress and review reports to be submitted to the DRVN and the Bank.</p>
3	CSC	<p>The Construction Supervision consultant (CSC) will be responsible for supervising and monitoring all construction activities and for ensuring that Contractors comply with the requirements of the contracts and the EMP. The CSC shall engage sufficient number of qualified staff (e.g. Environmental Engineers) with adequate knowledge on environmental protection and construction project management to perform the required duties and to supervise the Contractor's performance. The Environmental Engineers shall be lead by a <i>Workplace Safety and Environment Supervisor (SES)</i> who shall have extensive experience (at least 5 years experience is required) in environmental management, supervision and monitoring on construction projects and be familiar with Viet Nam environmental legislatives requirements.</p> <p>The terms of reference for the CSC shall be clearly stipulated in the contract signed between CSC and PMU3.</p>
4	Contractor	<p>Based on the approved EMP, the Contractor will be responsible for establishing a site-specific EMP for each construction site area, submit the plan to PMU3 and CSC for review and approval before commencement of construction. In addition, it is required that the Contractor get all permissions for construction (traffic control and diversion, excavation, labor safety, etc) following current regulations.</p> <p>The contractor shall be required to appoint a competent individual as the contractor's on-site <i>Safety and Environment Officer (SEO)</i> who will be responsible for monitoring the contractor's compliance with the EMP requirements and the environmental specifications.</p>
5	DUNREs (District Unit of Resources and Environmental Agency)	<p>With the role of state management in the environmental field, DUNREs will be responsible for monitoring and management environmental issues from project implementation process in district area.</p>

7. Compliance Framework on Environmental

7.1. Environmental Duties of the Contractor

The Contractor, and his sub-contractor and employees firstly shall adhere to minimize the impact that be may result of the project construction activities and secondly, the mitigation measures set down in these EMP to prevent harm and nuisances on local communities, impacts in construction and operation on the environment.

Remedial actions that cannot be effectively carried out during construction should be carried out on completion of the works (and before issuance of the acceptance of completion of works)

The duties of the Contractor and his Sub-Contractors include but not limiting to:

- Compliance with relevant legislative requirements governing the environment, public health and safety;
- Work within the scope of contractual requirements and other tender conditions;
- Organize representatives of the construction team to participate in the joint site inspections undertaken by the SES;
- Carry out any corrective actions instructed by the environmental officer of the Environmental Unit (under PMU3) or the SES;
- Provide and update information to the Environment Team regarding works activities which may contribute, or be continuing to the generation of adverse environmental conditions;
- In case of non-compliances/discrepancies, carry out investigation and submit proposals on mitigation measures, and implement remedial measures to reduce environmental impact;
- Stop construction activities, which generate adverse impacts upon receiving instructions from the environmental officer of the Environmental Unit (under PMU3) or the SES. Propose and carry out corrective actions and implement alternative construction method, if required, in order to minimize the environmental impacts; Major non-compliance by the Contractor will be cause for suspension of works and other penalties until the non-compliance has been resolved to the satisfaction of the environmental officer of the Environmental Unit (under PMU3).

Detailed Environmental specifications for Contractors are included in Appendix 3.

7.2. Contractor's Safety and Environment Officer (SEO)

The Contractor shall be required to appoint a competent individual as the Contractor's on-site *Safety and Environment Officer (SEO)*. The SEO must be appropriately trained in environmental management and must possess the skills necessary to transfer environmental management knowledge to all personnel involved in the contract. The SEO will be responsible for monitoring the Contractor's compliance with the EMP requirements and the environmental specifications. The duties of the SEO shall include but not be limited to the following:

- Carry out environmental site inspections to assess and audit the Contractors' site practice, equipment and work methodologies with respect to pollution control and adequacy of environmental mitigation measures implemented;
- Monitor compliance with environmental protection measures, pollution prevention and control measures and contractual requirements;
- Monitor the implementation of environmental mitigation measures;
- Prepare audit reports for the environmental monitoring data and site environmental

conditions;

- Investigate complaints and recommend any required corrective measures;
- Advise the Contractor on environment improvement, awareness and proactive pollution prevention measures;
- Follow the procedures in the EMP and recommend suitable mitigation measures to the Contractor in the case of non-compliance. Carry out additional monitoring of noncompliance within the specified timeframe instructed by the environmental officer (under PMU3);
- Liaison with the Contractor and environmental officer (under PMU3) on all environmental performance matters; and Contractor's submission of EMP Implementation Plan reports to the environmental officer (under PMU3), SES, and relevant administrative authorities, if required;
- Keep detailed records of all site activities that may pertain to the environment.

7.3. Environmental Supervision during Construction

During construction, the environmental supervision shall be carried out by a qualified Construction Supervision Consultant (CSC) reporting to the PMU3. The CSC is responsible for inspecting, and supervising all construction activities to ensure that mitigation measures adopted in the EMP are properly implemented, and that the negative environmental impacts of the project are minimized. The CSC shall engage sufficient number of qualified staff (e.g. Environmental Supervision Engineers) with adequate knowledge on environmental protection and construction project management to perform the required duties and to supervise the Contractor's performance.

The Environmental Engineers shall be led by a *Workplace Safety and Environment Supervisor (SES)* who shall have extensive knowledge and experience (at least 5 years experience is required) in environmental management, supervision and monitoring on construction projects to provide, objective and professional advice to the client on the environmental performance of the project. The SES shall be familiar with the environmental legislatives requirements of the Socialist Republic of Viet Nam. Depending on the project requirements, the SES may be required to work full-time on-site.

The SES shall:

- Review and assess on behalf of the PMU3 whether the construction design meets the requirements of the mitigation and management measures of the EPC and EMP,
- Supervise site environmental management system of Contractors including their performance, experience and handling of site environmental issues, and provide corrective instructions;
- Review the EMP implementation by the Contractors and Sub-Contractors, verify and confirm environmental supervision procedures, parameters, monitoring locations, equipment and results;
- Report EMP implementation status to PMU3 and prepare the environmental supervision statement during the construction period; and
- Approve invoices or payments.

Terms of reference for the Environmental Supervision Engineers are included in Appendix 4.

7.4. Compliance with Legal and Contractual Requirements

The constructions activities shall comply not only with contractual environmental protection

and pollution control requirements but also with environmental protection and pollution control laws of the Socialist Republic of Viet Nam.

All the works method statements submitted by the Contractor to the environmental officer (under PMU3) for approval shall also be sent to the SES to see whether sufficient environmental protection and pollution control measures have been included.

The SES shall also review the progress and program of the works to check that relevant environmental laws have not been violated, and that any foreseeable potential for violating the laws can be prevented.

The Contractor(s) shall regularly copy relevant documents to the SEO and the SES. The document shall at least include the updated Work Progress Reports, the updated Works Program, and the application letters for different license/permits under the environmental protection laws, and all the valid license/permit. The SES and the SEO shall also have access, upon request, to the Site Log-Book.

After reviewing the documents, the SEO or the SES shall advise the environmental officer (under PMU3) and the Contractor of any non-compliance with the contractual and legislative requirements on environmental protection and pollution control for them to take follow-up actions. If the SEO or the SES concludes that the current status on license/permit application and any environmental protection and pollution control preparation works may not comply with the works program or may result in potential violation of environmental protection and pollution control requirements by the works in due course, they shall advise the Contractor and the environmental officer (under PMU3) accordingly.

8. EMP Implementation Plan

8.1. Contractor's EMP Implementation Plan

Prior to commencement of construction, the Contractor will be required to submit an EMP Implementation Plan to the PMU3 based on the Contractor's actual construction methodologies, work program, and management of construction activities and management of the workforce during construction. The EMP Implementation Plan shall demonstrate compliance with Vietnamese environmental requirements, the mitigation measures set down in these specifications and The World Bank environmental policies. The content of the Contractor's EMP shall be in line with the project specific EMP and shall be enhanced by the Contractor's works practices, implementation procedures and program. The Plan shall be certified by the SEO and approved by the SES and PMU3. .

The Contractor's EMP Implementation Plan shall provide details such as commitment to environmental protection by the Contractor's Project Management Team; methodology of implementing the project EMP; detailed designs and installation of pollution control facilities (e.g. drainage channel, settling tank, temporary noise barrier, etc); environmental control mechanism; detailed earthworks management plans and site operation plans outlining the measures that are proposed to minimize, mitigate and manage the effects, for the duration of the construction works; and environmental monitoring program during different stages of construction period.

8.2. Project Initiation and Staffing

It is anticipated that the CSC and the SES, will be mobilized one month before the start of the construction activities. The one month start up time will be utilized by the SES to review and familiarize itself with the project, the project design, the technical specifications, contract documents, the EPC, EMP and RAP reports and other project relevant documents and reports. Following the review, the SES will prepare a brief report on the potential issues and challenges arising from the implementation of the EMP and the condition of contracts and

make recommendations to the PMU3 about how best to improve the implementation of the EMP. The SES is expected to be mobilized at the beginning of the contract, to prepare the necessary guidelines, documentation, training, etc.

8.3. Capacity Building and Training

Actual implementation of projects shows that coordination in environmental management is not always effective because of the following reasons:

- Local staff do not master loans borrowing process of project but carry out practices involving and following those of domestic projects with limited participation;
- The community does not have obvious awareness on their rights and obligations on environmental protection or in spite of understanding, there is a lack of regime to provide feedback;
- Relevant agencies were not always ready in coordinating works during project implementation. Some agencies assigned their functional staff to coordinate with the project but this assignment is only temporary and appointed staffs do not master the coordination method as well as necessary procedures for discussion and contact with PMU2.

In order to overcome these matters, it is necessary to analyze and assess the capability and demands of relevant departments/divisions in environmental management and analyze actual demands for project implementation. Accordingly, a capacity building and training program will be established to increase the effective operation of environmental management systems in the future. Some assessments on training demands in environmental management as well as proposals for a training program are presented in Appendix 5.

9. Monitoring Program

9.1. Objectives

It is essential to design the monitoring program and monitoring frequency appropriately to be able to demonstrate both the overall performance of the project works as well as the short-term impact due to peak construction activities. More specifically, as the integral and critical part of the EMP, the environment monitoring program should have the following objectives:

- Determine the actual extent of the impacts;
- Control impacts which are generated from construction process and mentioned in EPC report;
- Check environmental pollution standards applied to the project during construction;
- Check and supervise implementation of environmental protection solutions during construction based on EPC report which was registered;
- Suggest mitigation measures in case of unexpected impacts;
- Suggest to the Client to coordinate with central and local environmental organizations to solve pending issues relating to environmental protection under the scope of the Project;
- Assess the effect of mitigation measures in pre-construction, construction and operation stages;
- Confirm the impacts forecasted in the EPC.

9.2. Site Inspections

The SEO and the SES shall carry out a monitoring program on a daily or as needed basis at the designated monitoring locations and the regular site inspections. The monitoring program

shall include:

- Monitoring of the noise level at the sensitive receptor by portable monitoring kit; the monitoring shall take place during the heavy construction activities, such as excavation, piling, power generation, material transportation and night time construction, if any and shall be conducted near villages, schools, and other sensitive receptors along the project alignment;
- Visual inspection to check the air-borne dust, during demolition, bulk material handling and storage, transportation routes near the resident areas;
- Visual inspection to check the water quality in the receiving rivers, fish ponds and lakes affected by the construction activity such as turbid, smell, color, etc. particular at the receiving areas of the water bodies from the construction sites and construction camps.
- During the peak construction period or at the request from PMU3, once non-compliance with environmental quality performance criteria is identified, additional monitoring shall be carried out.

The SEO and the SES shall refer to the following information/documentation in conducting the inspection:

- The contractor's environmental performance, and EMP Implementation program;
- Good practices and general environmental mitigation measures;
- Compliance with the EMP requirements, contractual specification and Vietnamese legislation;
- Protection to sensitive locations and control mechanism of the restricted areas;
- The contractor's construction methodologies and condition of construction plant;
- Individual works methodology proposals (which shall include proposal on associated pollution control measures);
- Works progress and program;
- The adequacy and efficiency of the contractor's pollution control measures/ treatment facilities for minimizing environmental impacts;
- Landscaping and soil erosion controls;
- Location, management and pollution control at the waste/material storage areas, borrow pits and access roads;
- Previous site inspection results.

The Contractor shall update the SEO and the SES with all relevant information of the construction contract to carry out the site inspections. The inspection results and its associated recommendations on improvements to the environmental protection and pollution control works shall be timely submitted to PMU3 and the Contractor for reference and for taking immediate action.

9.3. Monitoring Indicators

The environmental monitoring program will be implemented during construction and operation process at 3 levels:

- (i) Monitoring project completion Indicator
- (ii) Monitoring the level of compliance with mitigation measures
- (iii) Community-based Monitoring

Details of the monitoring program proposed are presented below.

▪ ***Monitoring project completion indicator***

A system of monitoring indicators are proposed to assess implementation of some project stages. These monitoring indicators which represent characteristics of sub-project activities can be collected easily based on experiences obtained from similar WB funded infrastructure investment projects in Viet Nam. Based on initial objectives, the following activities will be established, including socio-economic effect, environment, and sustainable development.

These indicators will be stated in the manuals which provides guidance on project implementation. The main environmental indicators related to project investment effect includes but not be limited by the following matters:

+ Decrease in the level of pollution load on NH18 and related axis roads.

+ Decrease in the level of accidents on NH18 and related axis roads.

This monitoring will be implemented after road completion. PMU3 will be responsible for collecting the information necessary to prepare periodical reports on project completion indicators with the help of a technical consultant.

▪ ***Monitoring compliance with mitigation measures***

The monitoring assignments for the Contractor, CSC shall be clearly indicated in their terms of reference and contract documents shall be approved by the World Bank. CSC will be responsible for submitting monthly reports which state environmental problems, actions and updated monitoring results. Based on monthly reports and field monitoring trips, CSC will be responsible for preparing and submitting every three months reports to PMU3, which shall include conclusions on environmental problems and the key implemented mitigation measures. Quarterly reports, prepared by PMU3, shall comprise the following aspects:

+ A priority list of issues as determined in monitoring reports of the previous months.

+ Methods taken by the Contractor to solve relevant.

+ Pending matters, proposed solutions and explanation of special circumstances for non-compliance.

▪ ***Community-based Monitoring***

The communities will monitor the project along its construction process in order to ensure that the contractors will comply with all environmental and social regulations as well as to reduce the risks on their properties and economic activities, human health and the environment. According to the information phase, the community helps to assess the mitigation measures as well as interested in the aspirations of the people, to contribute to a better environment management mechanism.

Community-based monitoring will form the spirit of voluntary report and mention the urgent issues. When there is damage to the environment, the community and local authorities will report to stakeholders.

9.4. Monitoring Report System

In order to exchange information effectively, establish a database for monitoring the implementation of mitigation measures, and create an effective implementation of EMP, it is essential to adopt a system of standard report at all levels of management as shown in the table below.

Table 5. System of Environmental Monitoring Report

No.	Issues to be reported	Monitoring at 1 st level	Monitoring at 2 nd level	Monitoring at 3 rd level (One duplicate must be sent to DUNREs)
Construction phase				
1	Implement mitigation measures on site in accordance with the EMP and contract clauses	Implemented by: Contractor Frequency of report submission: Monthly Report sent to: PMU3	Implemented by: PMU3 Frequency of report submission: once every three months Report sent to: DRVN	Implemented by: DRVN Frequency of report submission: once every three months Report sent to: MOT.
2	Monitoring and supervision of the EMP compliance in accordance with the contract clauses	Implementation Unit: Construction Supervision Team (CSC) Frequency of report submission: Monthly – Quarterly Report sent to: PMU3	Implemented by: PMU3 Frequency of report submission: once every three months Report sent to: DRVN	Implemented by: DRVN Frequency of report submission: once every three months Report sent to: MOT.
3	Community monitoring of EMP implementation	Implemented by: Monitoring Group Frequency of report submission: In cases of reflection/complaints. Send report to: Local authority	Implemented by: Local authority Frequency of report submission: In cases of reflection/complaints. Report sent to: PMU3	
Phase of Maintenance according to PBC contract				
1	Implement mitigation measures on site		Implemented by: Functional company of DRVN Frequency of report submission: once every six months Report sent to: DRVN	Implemented by: DRVN Frequency of report submission: once every six months Report sent to: MOT
2	Community monitoring of EMP implementation			Implemented by: Functional company of DRVN Frequency of report submission: once every six months Report sent to: MOT

No.	Issues to be reported	Monitoring at 1 st level	Monitoring at 2 nd level	Monitoring at 3 rd level (One duplicate must be sent to DUNREs)
		Implemented by: Monitoring Group Frequency of report submission: In cases of reflection/complaints. Send report to: Local authority	Implemented by: Local authority Frequency of report submission: In cases of reflection/complaints. Report sent to: PMU3	

9.5. Environmental Claims and Penalty System

As part of the compliance framework, if non-compliance with environmental regulations are discovered by CSC during the site supervision, 2% values of interim payment of the contractor of this month will be held back. The Contractor will be given a grace period (determined by CSC) to repair the violation. If the Contractor performs the repairs within the grace period (confirmed by CSC), no penalty is incurred and keeping money will be pay for next month. However, if the Contractor fails to successfully make the necessary repairs within the grace period, the Contractor will pay the cost for a third party to repair the damages (deduction from keeping money).

In case of CSC not detected of non-compliance with environmental regulations of the contractor, they will be responsibility payment to repair the violation.

10. Estimated Budget for EMP Implementation

10.1. Implementation of Mitigation Measures by Contractor

The cost for organization, training, dissemination, procurement, operation of equipment, and labor for implementation of mitigation measures in and out of the site in accordance with the EMP and the subproject bidding and contractual document requirements are integrated in the construction package. Contractors will be responsible to study, prepare alternatives and offer cost estimation for these activities. It is considered as one of the criteria for assessing the capability of the Contractor in the future and compliance level of the Contractor.

10.2. Supervision of EMP Implementation by CSC

The cost for the CSC to supervise EMP implementation in accordance with the EMP and the subproject bidding and contractual documents is integrated in the contract package with the CSC. Potential bidder for this package will be responsible to study environmental management requirements of the EPC and EMP to prepare and offer cost estimation for EMP supervision during the construction. It is considered as one of the criteria for assessing the capability of the potential CSC in supervising EMP implementation.

10.3. EMP Estimation Budget for Independent Environmental Monitoring and Capacity Building

Apart from costs, which have been calculated in relevant packages/contracts, one more cost element will be required for EMP as follows:

Table 6. Total Cost for Capacity building*Unit: VND*

No	Contents	Cost (VND)
1	Cost for capability building and training	56,000,000
2	Contingency (10%)	5,600,000
	Total	61,600,000

Exchange Rate dated on June 21, 2013 of VCB: 1USD = 21,036 VND

EMP estimated budget for independent environmental monitoring and capacity building is 61,600,000VND (2,928 USD).

The above cost rate is estimated based on current unit price and Consultant's experiences. Because the project will be implemented over many years, price fluctuation will be unavoidable. A contingency amount should be prepared for any unavoidable price or cost increase during project implementation

Detailed costs are presented in Appendix 6.

11. Public Consultation and Information Disclosure

11.1. Objectives

According the safeguard policy of World Bank (OP 4.01), the subproject shall organize public consultation and disclosure of information on the project to the local communities.

The main objectives of the public consultation and disclosure include:

- Provide information on the subproject to the affected people and local communities.
- Collect opinions and comments of the subproject-affected-people and local communities on the subproject design, location, alternatives, positive and negative potential impacts, and proposed mitigation measures.
- Address concerns of the local communities and people on the subproject and promote active participation of the subproject-affected-people and local communities into the subproject implementation from the early stage of the subproject planning.

11.2. Results of Public Consultation Meetings were Organized

The project owner (PMU3) has organized five (5) public consultation meetings at 5 communes in the Subproject area. Time of the meeting are present as follows:

Table 7. Time of Public Consultation Meetings

No.	Time	Locality	Number of participant
1	08h – March 18, 2013	Pho Moi Town, Que Vo district, Bac Ninh Province	25
2	14h – March 18, 2013	Van Duong ward, Bac Ninh city, Bac Ninh Province	25
3	14h – March 19, 2013	Pha Lai ward, Chi Linh Township, Hai Duong Province	29
4	09h – March 20, 2013	Hoang Tan ward, Chi Linh Township, Hai Duong Province	24
5	14h – March 20, 2013	Sao Do ward, Chi Linh Township, Hai Duong Province	20

After listening to the representative of Project owner introducing main item of Project the participants put forward many comment as well as contributions to Project owner, mainly focusing on the issues as follows:

- The issue of traffic safety: project need to ensure traffic safety on the NH18 in the construction process. The Project should put the signs of under construction, and appointing somebody on duty there to regulate the traffic. Limit the activities of construction in the rush hour (06h-08h and 16h-18h). Add traffic signs at intersection, and residential areas.
- The issue of drainage system: Add and repair culverts along the route to avoid flooding occurs. After repairing culverts, the Project should clean up the generated waste inside the culverts.
- The issue of waste management: Construction waste should be collected and transported to the dumping place. No waste to be discharged indiscriminately to surface water source as irrigation canal, river. Do not dump the solid waste and oil waste into the agricultural area.
- The issue of social security and order: Project should register temporary residence for workers with local authority. Register the list of workers and machines to management of safety and fire prevention.
- The issue of noise: The Project should reduce the noise level arising from construction activities when working through the residential areas. No using power equipment causing high noise level or activities which can generate high noise level for construction at night.

In addition, the project owner and socio-environmental experts have conducted the interview with local people by questionnaire forms. The overall result of interview are as follows:

- Most affected households known information of the project through various sources: from the local authority, from radios and from others.
- Environmental status: Almost local people living along the roadside of NH18 are affected by noise, vibration caused by the vehicles, not affected by water pollution. Due to large traffic density, the accident usually occurs on this road.
- Positive impact of Project: The project contributes to regional economic development, increasing business opportunities during construction and operation phase.
- Negative impact of Project: Almost interviewed households said that the construction process would affect the socio-economic and natural environment due to dust, noise and vibration generated from machinery. Local people proposed Project side to early deploy and apply measures to minimize the negative impact.
- Mitigation measures of Project: Almost households agree with the mitigation measures which proposed by Project as: spraying water to prevent dust, using canvas cover to prevent dust generated by material transportation. They proposed the project and the construction units should coordinate with the police to regulate the traffic, put the sign under construction.
- Other issue: Some households want the project to thoroughly survey the existing drainage system on NH18 to avoid flooding.

In the public consultation meetings and EPC report, the project owner has committed on environmental protection during implementation of the subproject. Specially, the commitments of the project owner as following:

- About the traffic safety issue: The measures to ensure traffic safety have present in EPC report, the subproject commits following the measures and coordinate with local authorities to solve the raising issues during project implementing.
- About the drainage system: The subproject has receipted comments and recommendation from local communities, the project owner and design consultant have been researching to prepare an appropriate drainage system for this road.

- About the waste management issue: Environmental protection requirements for contractor will be included in bidding documents. In which, there are requirements on waste management including do not dumping wastes and construction wastes in to fields, ponds, and on the transporting roads etc. If there are any spillages of wastes, the contractor shall timely clean to don not effect on community.
- The issue of social security and order: The subproject commits to carry out fully the environmental protection and social security training to workers. In additional, all of workers and experts of the subproject will be registered temporary residence in local authorities.
- The issue of noise: The subproject will not use the old machineries that do not ensure the requirements on noise in construction. In addition, contractor will not construct in rest time of people (at noon and at night).
- All recommendations and concerns of the affected people, local communities and authorities have been taken into account and incorporated in the subproject designs and in the EIA and EMP of the subprojects.

11.3. Disclosure of the EMP

The EMP in Vietnamese and will be disclosed in the country at PMU3, as well as in at the communes belonging to 2 provinces of Hai Duong and Bac Ninh in the project area.

The EMP copies in Vietnamese and English will be sent to the Vietnam Development Information Center at 63 Ly Thai To street, Hanoi City for disclosure of information. The EMP copies in English will also be disclosed in the Infoshop of the World Bank.

12. Appendices

Appendix 1. Environmental Standard and Regulations

Standards and regulations on water environment

- + QCVN 09: 2008/BTNMT - National technical regulation on underground water quality;
- + QCVN 08: 2008/BTNMT - National technical regulation on surface water quality;
- + QCVN 14: 2008/BTNMT- National technical regulation on domestic wastewater quality.
- + QCVN 40:2011/BTNMT: National Technical Regulation on industrial wastewater.

Standards and regulations on air environment

- + QCVN05:2009/BTNMT. National technical regulation on ambient air quality;
- + QCVN06:2009/BTNMT. National technical regulation on hazardous substance in ambient air.

Standards on solid waste

- + QCVN 07:2009/BTNMT The national technical regulation on hazardous waste thresholds;
- + TCVN 6707:2009 - Prevention and warning signs for hazardous waste;
- + TCVN 6705:2009 - Non-hazardous waste;
- + TCVN 6706:2009 - Separation of hazardous wastes.

Standards and regulations on soil environment and sediment

- + QCVN03:2008/BTNMT, National technical regulation on the allowable limits of heavy metals in the soils;
- + QCVN 43:2012/BTNMT, National Technical Regulation on Sediment Quality

Standards and regulations on noise and vibration

- + QCVN26:2010/BTNMT, National technical regulation on noise;
- + QCVN 27:2010/BTNMT, National technical regulation on vibration.
- + TCVN7210:2002, Vibration and shock – Vibration caused by construction works and factories – Maximum permitted levels in the environment of public and residential areas.

Standards on labor sanitation

- + Decision No. 3733/2002/QĐ-BYT dated 10th October 2002 issued by Health Care Department on application of 21 standards on labor sanitation

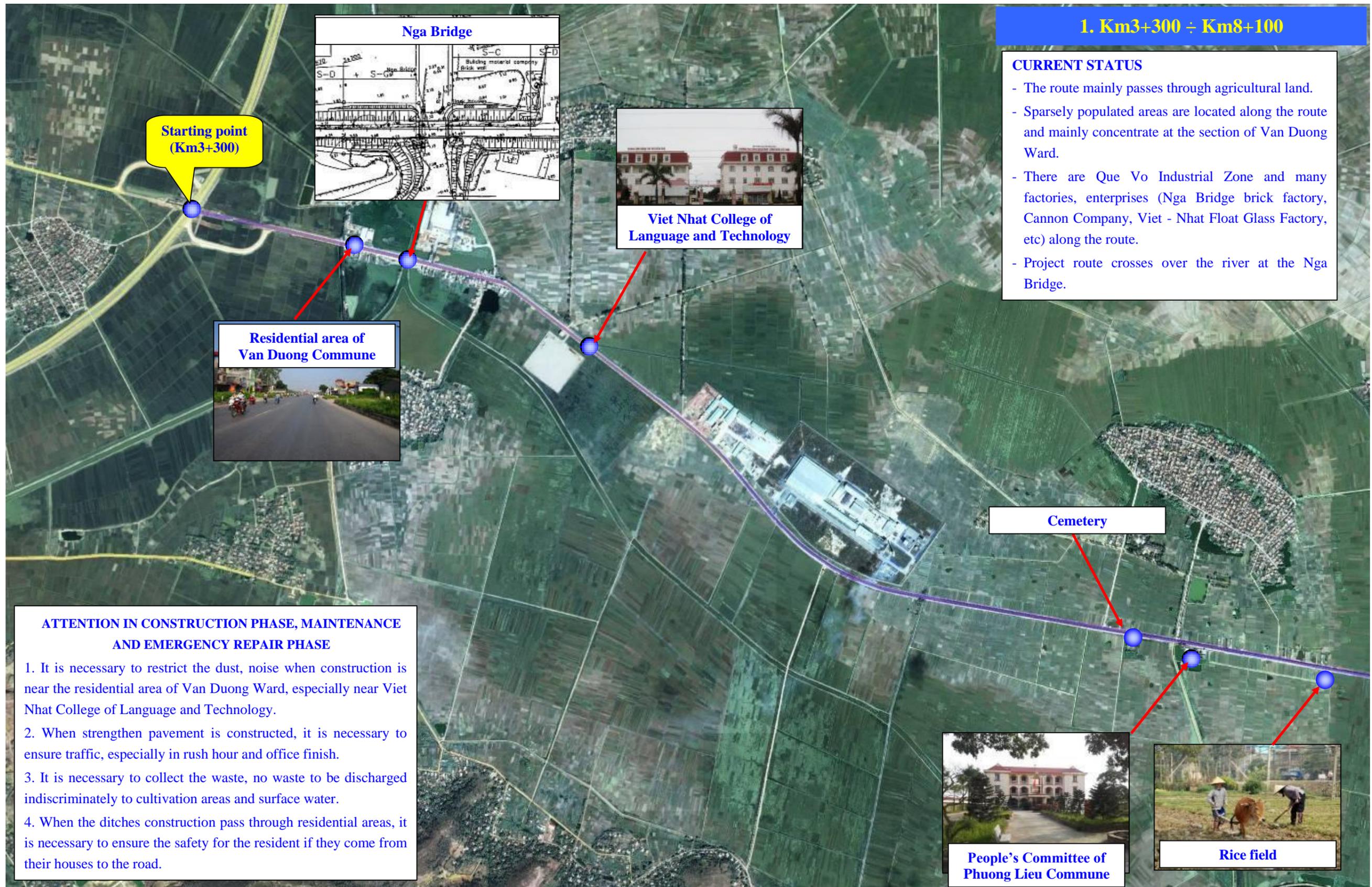
Safety standards and regulations for construction:

- + TCVN 5308-1991, TCVN 4086-1995 & TCVN 4244-1986: Safety in construction
- + Decision No. 955/1998/QĐ-BLĐTBXH: regulations on labor safety

Appendix 2. Specific Impacts, Location and Proposed Mitigation Measures for Each Route Segment

Table 8. Description of NH18

No	From station (Km) to station (Km)	Commune / Ward
1	3+300 ÷ 8+100	Dai Phuc Ward, Van Duong Ward, Nam Son Commune, Phuong Lieu Commune.
2	8+100 ÷ 14+000	Phuong Mao Commune, Pho Moi Town, Viet Hung Commune.
3	14+000 ÷ 19+250	Cach Bi Commune, Dao Vien Commune, Ngoc Xa Commune.
4	19+250 ÷ 24+600	Chau Long Commune, Duc Long Commune.
5	24+600 ÷ 30+000	Duc Long Commune, Pha Lai Ward.
6	30+000 ÷ 35+400	Van An Ward, Chi Minh Ward, Sao Do Ward.
7	35+400 ÷ 46+000	Sao Do Ward, Cong Hao Ward, Hoang Tan Ward, Hoang Tien Commune.



1. Km3+300 ÷ Km8+100

- CURRENT STATUS**
- The route mainly passes through agricultural land.
 - Sparsely populated areas are located along the route and mainly concentrate at the section of Van Duong Ward.
 - There are Que Vo Industrial Zone and many factories, enterprises (Nga Bridge brick factory, Cannon Company, Viet - Nhat Float Glass Factory, etc) along the route.
 - Project route crosses over the river at the Nga Bridge.

ATTENTION IN CONSTRUCTION PHASE, MAINTENANCE AND EMERGENCY REPAIR PHASE

1. It is necessary to restrict the dust, noise when construction is near the residential area of Van Duong Ward, especially near Viet Nhat College of Language and Technology.
2. When strengthen pavement is constructed, it is necessary to ensure traffic, especially in rush hour and office finish.
3. It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water.
4. When the ditches construction pass through residential areas, it is necessary to ensure the safety for the resident if they come from their houses to the road.

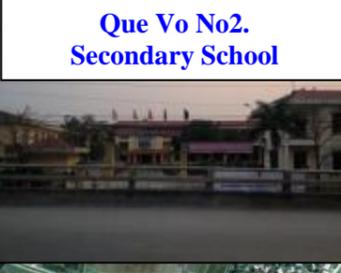




3. Km14+000 ÷ Km19+250



Dong Du Market



ATTENTION IN CONSTRUCTION PHASE, MAINTENANCE AND EMERGENCY REPAIR PHASE

1. It is necessary to restrict the dust, noise when construction is near the residential areas, especially near Que Vo Secondary School No2.
2. When strengthen pavement is constructed, it is necessary to ensure traffic, especially in rush hour.
3. It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water.
4. When the ditches construction pass through residential areas, it is necessary to ensure the safety for the resident if they come from their houses to the road.

CURRENT STATUS

- The route mainly goes through agricultural land. There are some concentration areas of resident (including Trai Tron Hamlet, Dong Du Hamlet) along the route.
- Que Vo Secondary School and Dong Du Market are located along the route.

CURRENT STATUS

- The alignment runs parallel to and near the river Duong.
- The route mainly passes through agricultural land. There are some concentration areas of resident (including the hamlets of Ngoc Son, Ve Xa, Kieu Luong, Pha Lai) along the route.

ATTENTION IN CONSTRUCTION PHASE, MAINTENANCE AND EMERGENCY REPAIR PHASE

1. It is necessary to restrict the dust, noise when construction is near the residential areas, especially near schools.
2. When strengthen pavement is constructed, it is necessary to ensure traffic, especially in rush hour.
3. It is necessary to collect the waste, no waste to be discharged indiscriminately to cultivation areas and surface water.
4. When the ditches construction pass through residential areas, it is necessary to ensure the safety for the resident if they come from their houses to the road.
5. Buy the materials at the pits have been licensed.

4. Km19+250 ÷ Km24+600





5. Km24+600 ÷ Km30+000

CURRENT STATUS

- Project route passes through concentration areas of resident of Duc Long and Pha Lai communes.
- There are some factories, enterprises (Pha Lai Thermal Power Joint Stock Company, Cuong Thach Cement Factory, Pha Lai Cinder Selection Enterprise, etc) along the route.
- Project route cross over the Pha Lai River.



ATTENTION IN CONSTRUCTION PHASE, MAINTENANCE AND EMERGENCY REPAIR PHASE

1. It is necessary to restrict the dust, noise when construction is near the residential areas.
2. When strengthen pavement is constructed, it is necessary to ensure traffic, especially in rush hour and office finish.
3. It is necessary to collect the waste, no waste to be discharged to Pha Lai River.
4. Managing and training the workers in order to avoid the conflicts that may arise between the labor force and local resident.
5. In case of cement concrete mixing station is installed, it is necessary to treat preliminary water for washing materials before discharging into the surface water.

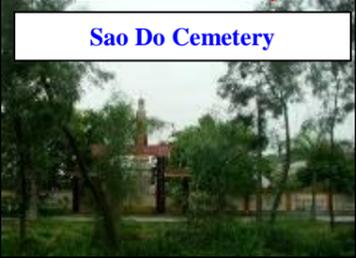
CURRENT STATUS

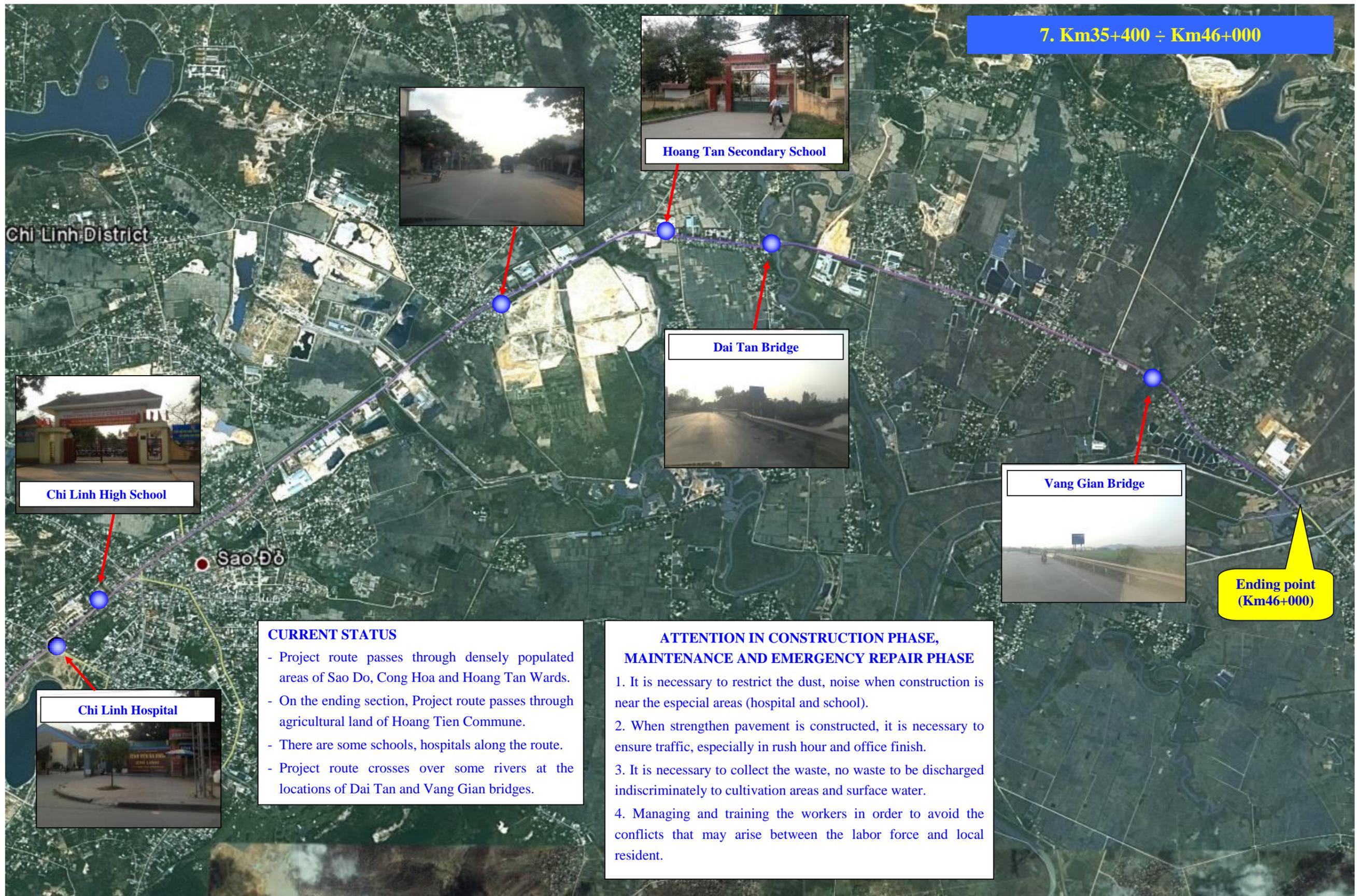
- Project route passes through rather densely populated areas of Van An, Chi Minh and Sao Do communes.
- There are some factories, enterprises (Sao Do Steel Pipe Factory, Dong A Aluminum Factory) along the route.

**ATTENTION IN CONSTRUCTION PHASE,
MAINTENANCE AND EMERGENCY REPAIR PHASE**

1. It is necessary to restrict the dust, noise when construction is near the residential areas.
2. When strengthen pavement is constructed, it is necessary to ensure traffic, especially in rush hour and office finish.
3. It is necessary to collect the waste, no waste to be discharged to Pha Lai River.
4. Managing and training the workers in order to avoid the conflicts that may arise between the labor force and local resident.

6. Km30+000 ÷ Km35+400





Appendix 3: Environmental and Social Specification for Contractors

The following are the environmental and social specifications that must be included in both the bidding documents and construction contracts to ensure an adequate management of environmental and social issues during all the phases of the road project. However, this information is intended solely as broad guidance to be used in conjunction with local and national regulations

The Contractor and his employees shall adhere to the mitigation measures set down in:

- + The Environmental Management Plan of the this subproject including site specific measures identified in Table 3 and Appendix 2 of the EMP;
- + The mitigation measures included in the subproject design and bill of quantities;
- + The specifications, procedures, and best practices included in these specifications. These specifications complement any technical specifications included in the work quantities and the requirements of any Vietnamese regulations and standards.

WORKFORCE AND SITE MANAGEMENT PLAN

Workforce

Site installation

Prohibitions

Environmental Training for Construction Workers

CONSTRUCTION IMPACT MANAGEMENT PLAN

Emissions and Dust

Noise and Vibration

Earthworks, Cut and Fill Slopes

Disposal of Debris

WASTE MANAGEMENT PLAN

Drainage System

Solid Waste

Hazardous Waste

MATERIALS HANDLING, USE AND STORAGE MANAGEMENT PLAN

Transportation

Hazardous Substances

Surfacing Materials

Cement and Concrete Batching

Maintenance of Construction Equipment

ECOLOGICAL MANAGEMENT PLAN

Protection of Natural Vegetation

Protection of Fauna

SAFETY MANAGEMENT PLAN

Construction Site Safety

Fire Control

Traffic Management

Environmental Emergency Procedures

COMMUNITY RELATIONS AND HEALTH MANAGEMENT PLAN

Community Relations

Health Management Plan

The details of these plans are as follows:

WORKFORCE AND SITE INSTALLATION MANAGEMENT PLAN

Workforce

Workforce includes all personnel hire by the Contractors to work in the constructions, rehabilitation or improvement of roads. The workers shall, whenever possible, rent houses nearby.

The Contractors shall:

- + Give priority to hire local labor for the works;
- + Engineers and workers shall register their temporary residence with the local authority;
- + Provide work safety training to those local labors upon their hiring;
- + The construction workers and staff shall need to have appropriate certificates as required (for example, health checks, labor contracts, insurance, occupational safety training, etc);
- + Provide education classes on HIV and sexually transmitted diseases.
- + Establish a Code of Conduct to outline the importance of appropriate behavior, drug and alcohol abuse, respect for local communities, and compliance with relevant laws and regulations. Each employee shall be informed of The Code of Conduct and bound by it while in the employment of the PMU3 or its Contractors;
- + The Code of Conduct shall address issues such as the prohibition to possess illegal substances, fire arms, pornographic materials, gambling, disturbances in or near communities, etc. Failure to follow the Code of Conduct should result in disciplinary actions;
- + Ensure adequate use of resources and proper waste management.

Site Installation

In order to minimize adverse environmental impacts due to construction and location of areas/facilities for the complexion of the project, the following measures should be put into place:

- + To the extent possible, the project shall utilize the existing mixing stations and asphalt plants of local area;
- + The workforce shall be provided with safe, suitable and comfortable accommodations. They have to be maintained in clean and sanitary conditions;
- + A medical and first aid facilities and first aid boxes shall be provided for all workers.

Prohibitions

The following activities are prohibited on or near the project site:

- + Cutting of trees for any reason outside the approved construction area;

- + Hunting, fishing, wildlife capture, or plant collection;
- + Buying of wild animals for food;
- + Use of unapproved toxic materials, including lead-based paints, asbestos, etc.;
- + Disturbance to anything with architectural or historical value;
- + Building of fires;
- + Use of firearms (except authorized security guards);
- + Use of alcohol by workers in office hours;
- + Washing cars or machinery in streams or creeks;
- + Doing maintenance (change of oils and filters) of cars and equipment outside authorized areas:
- + Disposing trash in unauthorized places;
- + Driving in an unsafe manner in local roads;
- + Having caged wild animals (especially birds) in camps;
- + Working without safety equipment (including boots and helmets);
- + Creating nuisances and disturbances in or near communities;
- + The use of rivers and streams for washing clothes;
- + Indiscriminate disposal of rubbish or construction wastes or rubble;
- + Littering the site;
- + Spillage of potential pollutants, such as petroleum products;
- + Collection of firewood;
- + Poaching of any description;
- + Explosive and chemical fishing;
- + Burning of wastes and/or cleared vegetation.

Any construction worker, office staff, Contractor's employees, the PMU3's employees or any other person related to the project found violating these prohibitions will be subject to disciplinary actions that can range from a simple reprimand to termination of his/her employment depending on the seriousness of the violation.

Environmental Training for Construction Workers

The Contractor shall prepare an Environmental Training Plan for all construction workers and staff to ensure that all concerned staff is aware of the relevant environmental requirements as stipulated in the Vietnamese environmental legislation and the Contract specifications.

- + The Contractor shall distribute to the key staff, including newly joined key staff members, (1) the Contractor's Environmental Policy; and (2) Copies of relevant extracts from environmental laws, standards and regulations.
- + The Contractor is responsible for providing appropriate training to all staff according to their level of responsibility for environmental matters. Managerial staff shall receive additional training.
- + All Contractor's employees shall be required to comply with environmental protection procedures and they shall be able to provide evidence that they attended the training

sessions detailed in the Plan;

- + Training materials and methods - which shall include formal training sessions, posters, data in newsletters, signs in construction area and 'tool box' meetings - shall be reviewed by the SES and submitted to the PMU3 for approval.
- + The Plan shall educate all construction workers on the following issues but not limited to them: fire arm possession, traffic regulations, illegal logging and collection of non-timber forestry products, non-disturbance of resettlement communities, hunting and fishing restrictions, waste management, erosion control, health and safety issues, all prohibited activities, the Code of Conduct requirements and disciplinary procedures, general information on the environment in which they will be working and living; and establishment of penalties for those who violate the rules;
- + Periodic training shall be provided when necessary.
- + Records shall be maintained (e.g. attendance records for environmental awareness training, topics covered) and submitted to the PMU3 upon request.

CONSTRUCTION IMPACT MANAGEMENT PLAN

Emissions and Dust

In order to ensure that the generation of dust due to the constructions activities is minimized, the following activities should be put into place:

- + The Contractor shall be responsible for compliance with relevant Vietnamese legislation with respect to ambient air quality;
- + The Contractor shall ensure that the generation of dust is minimized and shall implement a dust control program to maintain a safe working environment, minimize nuisance for surrounding residential areas / dwellings and protect damage to natural vegetation, crops, etc;
- + The Contractor shall implement dust suppression measures (e.g. water spray vehicles, covering of material stockpiles, etc.) if and when required;
- + Construction vehicles shall comply with speed limits and haul distances shall be minimized;
- + It is encouraged to use vehicles and machinery which would cause less pollution like gasoline without lead. Limit the use of materials which may have high risk of pollution such as coal and black oil;
- + Transport and construction vehicles shall abide by the Standard TCVN 6438-2005 with respect to maximum exhaust fumes allowed;
- + Material loads shall be suitably covered and secured during transportation to prevent the scattering of soil, sand, materials or dust.

Noise and Vibration

To minimize noise and vibration during construction, the Contractor shall:

- + Be responsible for compliance with the relevant Vietnamese legislation with respect to noise;
- + Ensure that all instruments, machinery and construction equipment meet quality standards before they are put into use;
- + Try to keep noise generating activities to a minimum;

- + Restrict all operations that result in undue noise disturbance to local communities and/or dwellings to daylight hours on weekdays or as agreed with the Environmental Officer of PMU3;
- + Use temporary noise barriers to minimize the noise caused by the construction equipment;
- + Provide ear pieces to workers who must work with highly noisy machines such as piling, explosion, mixing, etc., for noise control and workers protection
- + Maintain the construction equipment in its best operating conditions and lowest noise levels possible;
- + In sensitive areas (including residential neighborhoods, hospitals, rest homes, schools, etc.) more strict measures may need to be implemented to prevent undesirable noise levels;
- + To the extent possible, nighttime operations shall be kept to a minimum and banned near sensitive receptors;

Earthworks, Cuts and Fill Slopes

Earthworks, cuts and fill slopes shall be carefully managed to minimize negative impacts on the environment

- + All earthworks shall be properly controlled, especially during the rainy season.
- + The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the works.
- + Any excavated cut or unsuitable material shall be disposed of in designated disposal areas as agreed to by the EO.
- + Disposal sites should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips, as directed by the SEO or SES and to the satisfaction of the EO

Disposal of Debris

The Contractor shall carry out the following activities:

- + Establish and enforce daily site clean-up procedures, including maintenance of adequate disposal facilities for debris;
- + Debris generated due to the dismantling of existing structures shall be suitably reused, to the extent feasible, in the proposed rehabilitation program. The disposal of remaining debris shall be carried out only at sites identified and approved by the EO. The contractor should ensure that these sites (a) are not located within designated forest or cultivated areas; (b) do not impact natural drainage courses; and (c) do not impact endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.
- + In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of the EO.
- + Water courses shall be cleared of debris and drains and culverts checked for clear flow paths;
- + Include provisions for incorporating the most appropriate stabilization techniques for each disposal site and determine that the selected spoil disposal sites do not cause unwanted surface drainage;

- + Assess risk of any potential impact regarding leaching of spoil material on surface water;
- + Once the job is completed, all rehabilitation -generated debris should be removed from the site.

Demolition of Existing Infrastructures

The following measures shall be implemented in order to protect workers and the public from falling debris and flying objects:

- + Set aside a designated and restricted waste drop or discharge zones, and/or a chute for safe movement of wastes from upper to lower levels;
- + Conduct sawing, cutting, grinding, sanding, chipping or chiseling with proper guards and anchoring as applicable;
- + Maintain clear traffic ways to avoid driving of heavy equipment over loose scrap;
- + Provide all workers with safety glasses with side shields, face shields, hard hats, and safety shoes.

WASTE MANAGEMENT PLAN

During the construction phase, the Contractor shall prepare a Waste Management Plan before commencement of project works. The Plan shall include the following Sub-Plans:

Wastewater

- + The Contractor shall be responsible for compliance with the relevant Vietnamese legislation relevant to wastewater discharges into watercourses
- + The Contractor shall submit a method statement to the EO detailing how wastewater would be collected from all wastewater generating areas, as well as storage and disposal methods. If the Contractor intends to carry out any on-site wastewater treatment, this should also be included;
- + Runoff from fuel depots/workshops/machinery washing areas and concrete batching areas shall be collected into a conservancy tank and disposed off at a site approved by the EO or SES;
- + Wastewater shall not be disposed in watercourses without treatment.

Solid waste

- + The Contractor shall submit a method statement detailing a solid waste control system to the EO for approval.
- + The Contractor shall ensure that all facilities are maintained in a neat and tidy condition and the site shall be kept free of litter;
- + Measures shall be taken to reduce the potential for litter and negligent behavior with regard to the disposal of all refuse. At all places of work, the Contractor shall provide litter bins, containers and refuse collection facilities for later disposal;
- + Solid waste may be temporarily stored on site in a designated area approved by the EO prior to collection and disposal as regulation.
- + No burning, on-site burying or dumping of waste shall occur;
- + Random disposal of solid waste in scenery areas shall be strictly prohibited.

Hazardous waste

- + All hazardous waste shall be disposed of at an approved hazardous landfill site and in
-

accordance with local legislative requirements. The Contractor shall provide disposal certificates to the EO;

- + The removal of asbestos-containing materials or other toxic substances shall be performed and disposed of by specially trained workers;
- + Used oil and grease shall be removed from site and sold to an approved used oil recycling company;
- + Under no circumstances shall the spoiling of tar or bituminous products be allowed on the site, over embankments or any burying;
- + Unused or rejected tar or bituminous products shall be returned to the supplier's production plant;
- + Used oil, lubricants, cleaning materials, etc. from the maintenance of vehicles and machinery shall be collected in holding tanks and sent back to the supplier or removed from site by a specialist oil recycling company for disposal at an approved hazardous waste site.
- + Inform the EO of any accidental spill or incident;
- + Initiate a remedial action following any spill or incident;
- + Provide a report explaining the reasons for the spill or incident, remedial action taken, consequences/damage from the spill, and proposed corrective actions.

MATERIALS HANDLING, USE AND STORAGE MANAGEMENT PLAN

Environmental considerations shall be taken into account in the location of any material storage areas.

Transportation

- + The Contractor shall ensure that all suppliers and their delivery drivers are aware of procedures and restrictions (e.g. restricted areas);
- + Material shall be appropriately secured to ensure safe passage between destinations during transportation;
- + Loads shall have appropriate cover to prevent them spilling from the vehicle during transit;
- + The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

Hazardous Substances

The Contractor shall provide a method statement detailing the hazardous substances / material that are to be used during construction, as well as the storage, handling, and disposal procedures for each substance / material and emergency procedures in the event of misuse or spillage that might negatively affect the environment. In general terms, the following activities shall be carried out:

- + Make the Hazardous Waste Management Plan available to all persons involved in operations and transport activities
- + All hazardous material / substances shall be stored on site only under controlled conditions;
- + All hazardous material / substances shall be stored in a secured, appointed area that is fenced and has restricted entry. All storage shall take place using suitable containers to the approval of the EO;
- + Hazard signs indicating the nature of the stored materials shall be displayed on the storage

facility or containment structure;

- + Fuel shall be stored in a steel tank supplied and maintained by the fuel suppliers. The tank shall be located in a secure, demarcated area.

Surfacing Materials

- + Over spray of bitumen products outside of the road surface and onto roadside vegetation shall be prevented using a method approved by the SES;
- + When heating of bitumen products, the Contractor shall take appropriate fire control measures; Stone chip / gravel excess shall not be left on road / paved area verges. This shall be swept /raked into piles and removed to an area approved by the SES;
- + Water quality from runoff from any fresh bitumen surfaces shall be monitored by the SES and remedial actions taken where necessary.

Cement and Concrete Batching

- + Concrete mixing directly on the ground shall not be allowed and shall take place on impermeable surfaces to the satisfaction of the SES;
- + All runoff from batching areas shall be strictly controlled, and cement-contaminated water shall be collected, stored and disposed of at a site approved by the SES;
- + Unused cement bags shall be stored out of the rain where runoff won't affect it;
- + Used (empty) cement bags shall be collected and stored in weatherproof containers to prevent windblown cement dust and water contamination. Used cement bags shall not be used for any other purpose and shall be disposed of on a regular basis via the solid waste management system;
- + All excess concrete shall be removed from site on completion of concrete works and disposed of washing of the excess into the ground is not allowed. All excess aggregate shall also be removed.

Maintenance of Construction Equipment

The Contractor shall:

- + Identify and demarcate equipment maintenance areas (>15m from rivers, streams, lakes or wetlands). Fuel storage shall be located in proper areas and approved by the EO;
- + Ensure that all instruments, machines, and construction equipment meet quality standards before they are put into use;
- + Ensure that all equipment maintenance activities, including oil changes, are conducted within demarcated maintenance areas; never dispose spent oils on the ground, in water courses, drainage canals or in sewer systems.
- + All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 300m from all cross drainage structures and important water bodies or as directed by the EO.

ECOLOGICAL MANAGEMENT PLAN

Protection of Natural Vegetation

- + The Contractor shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the rehabilitation site as a result of their activities;

- + Clearing of natural vegetation shall be kept to a minimum.
- + The removal, damage and disturbance of natural vegetation without the written approval of the EO are prohibited;
- + The use of herbicides shall be approved by the EO;
- + Regularly check the work site boundaries to ensure that they are not exceeded and that no damage occurs to surrounding areas;
- + Prohibit and prevent open fires during upgrading/rehabilitation and provide temporary firefighting equipment in the work areas, particularly close to forest areas;

Protection of Fauna

- + The Contractor shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place.
- + The feeding of any wild animals shall be prohibited;
- + The use of pesticides shall be approved by the EO;
- + No domestic pets or livestock shall be permitted on site.

SAFETY MANAGEMENT PLAN

Construction Site Safety

The Contractor's responsibilities include the protection of every person and nearby property from construction accidents. The Contractor shall be responsible for complying with all national and local safety requirements and any other measures necessary to avoid accidents, including the following:

- + Provide personal protective equipment and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed boots, etc.) for construction workers and enforce their use;
- + During heavy rains, accidents, or emergencies of any kind, suspend all work;
- + Brace electrical and mechanical equipment to withstand seismic events during the construction.
- + Establish safe sight distance in construction areas;
- + Limit the speed of vehicles moving within the construction site;
- + Place signs around the construction areas to facilitate traffic movement, provide directions to various components of the works, and provide safety advice and warning. All signs shall be constructed according to Vietnamese specifications;
- + Provide post Material Safety Data Sheets for each chemical present on the worksite;
- + Require that all workers read, or are read, all Material Safety Data Sheets. Clearly explain the risks to them and their partners, especially when pregnant or planning to start a family. Encourage workers to share the information with their physicians, when relevant;
- + Ensure that the removal of asbestos-containing materials or other toxic substances be performed and disposed of by specially trained workers;

Fire Control

- + The Contractor shall submit a fire control and fire emergency method statement to the EO for approval. The method statement shall detail the procedures to be followed in the event of fire;

- + The contractor shall take all reasonable steps to avoid increasing the risk of fire through activities on site;
- + The contractor shall ensure that basic fire-fighting equipment is available at all camp areas and facilities;
- + The contractor shall appoint a fire officer who shall be responsible for ensuring immediate and appropriate action in the event of a fire;
- + The contractor shall ensure that all site personnel are aware of the procedure to be followed in the event of a fire;
- + Any work that requires the use of fire may only take place at a designated area approved by the EO and must be supervised at all times. Fire-fighting equipment shall be available.

Traffic Management

The Contractor shall:

- + Estimate maximum concentration of traffic (number of vehicles/hour);
- + Construction vehicles shall comply with speed limits;
- + Use selected routes to the project site, as agreed with the EO, and appropriately sized vehicles suitable to the class of roads in the area, and restrict loads to prevent damage to local roads and bridges used for transportation purposes;
- + Maintain adequate traffic control measures throughout the duration of the construction activities and such measures shall be subject to prior approval of the EO;
- + Promote and disseminate traffic safety information to local residents;
- + If school children are in the vicinity, include traffic safety personnel to direct traffic during school hours;
- + Ensure traffic safety at intersections, especially near sensitive areas (schools, markets, hospitals, and historical, cultural and religious places).
- + Maintain a supply for traffic signs (including paint, easel, sign material, etc.), road marking, and guard rails to maintain pedestrian safety during construction;
- + Use signs and flagmen for traffic control;
- + Materials leaving or entering the construction site shall be transported during non-peak hours in order to minimize traffic noise due to the increase in traffic volume;

Environmental Emergency Procedures

Environmental Emergency procedures are unforeseen events that can occur during the construction or rehabilitation of a road. The Contractor shall be prepared to take any necessary measures to solve such emergencies on a case-by-case basis. Events related to adverse weather conditions shall be addressed as part of the Contractor's Safety Plan, which shall be submitted to the EO before commencement of project construction works.

The following environmental emergency procedures shall be implemented during the construction of the Road:

- + Training shall be provided to all construction workers and site staff to ensure that they are fully aware of the various possible emergency situations in construction activities, the danger and potential damages caused by the emergency to the environment and the people, as well as the emergency response procedures to be followed;
- + If explosive materials are detected during the clearing of construction areas, earthwork

movements, or any other construction activity, the Contractor shall secure the area and inform the local authorities immediately, which in turn shall contact the local army unit for support;

- + If a person identifies a leakage/spillage, she/he shall immediately check if anyone is injured and shall then inform the Contractor, the SEO and SES;
- + The Contractor shall ensure any injured persons are treated and assess what has been spilled/leaked;
- + If the accidents/incidents generate serious environmental pollution or the SEO or the SES consider that the incident has the potential of resulting in serious environmental pollution problems (eg. spillage/leakage of toxic or chemicals, large scale spillage/leakage, or spillage/leakage into the nearby water bodies which are used for irrigation/portable water), the SES or SEO shall inform the EO immediately.
- + In such cases, the Contractor shall take immediate action to stop the spillage / leakage and divert the spilled / leaked liquid to a nearby non-sensitive areas;
- + The Contractor shall arrange maintenance staff with appropriate protective clothing to clean up the chemicals/chemical waste. This may be achieved through soaking with sawdust (if the quantity of spillage/leakage is small), or sand bags (if the quantity is large); and/or using a shovel to remove the topsoil (if the spillage/leakage occurs on bare ground); and
- + Depending on the nature and extent of the chemical spill, evacuation of the activity site may be necessary.
- + Spilled chemicals must not be flushed to local surface drainage systems. Instead, sawdust or sandbags used for clean-up and removed contaminated soil shall be disposed of by following the procedures for chemical waste handling and disposal already described.
- + The Contractor(s) shall prepare and present a report to the EO on the incident detailing the accident, clean-up actions taken, any pollution problems and suggested measures to prevent similar accidents from happening again in future.

COMMUNITY RELATIONS AND HEALTH MANAGEMENT PLAN

Community Relations

The Contractor shall:

- + Maintain open communications between the local government and concerned communities;
- + Have a mailing list to include agencies, organization, and residents that are interest in the project;
- + Disseminate project information to affected parties through community meetings before construction commencement;
- + Provide a list of community relations contact from whom interested parties can receive information on site activities, project status and project implementation results;
- + Provide all information, especially technical findings, in a language that is understandable to the general public and in a form of useful to interested citizens and elected officials through the preparation of fact sheets and news release, when major findings become available during project phase;
- + Monitor community concerns and information requirements as the project progresses;

- + Respond to telephone inquiries and written correspondence in a timely and accurate manner;
- + Inform local residents about construction and work schedules, interruption of services, traffic detour routes and provisional as appropriate;
- + Provide technical documents and drawings to PC's community, especially a sketch of the construction area and the EMP of the construction site;
- + Notification boards shall be erected at all construction sites providing information about the project, as well as contact information about the site managers, environmental staff, health and safety staff, telephone numbers and other contact information so that any affected people can have the channel to voice their concerns and suggestions;
- + Limit construction activities at night. When necessary ensure that night work is carefully scheduled and the community is properly informed so they can take necessary measures;

Health Management Plan

The Contractor shall prepare and enforce a Health Management Plan to address matters regarding the health and wellbeing of construction workers, project staff and nearby communities. The Contractor shall include in his proposal the outline of the Health Plan. The EO will issue a certificate of compliance to the Contractor prior to the initiation of Construction. The Contractor shall:

- + Implement a vaccination program including but not limited to vaccination against yellow fever, hepatitis A and B, tetanus, polio, etc.
- + Provide periodical health check to construction workers to ensure their health and well being.
- + Provide appropriate information and education to the workforce on basic personal hygiene, prevention of diseases, including respiratory diseases, vector-borne diseases such as malaria and dengue, water and food borne diseases such as diarrhea, tuberculosis, etc;
- + Implement preventive measures against malaria, if applicable.
- + Ensure correct maintenance of water sources to prevent the breeding of mosquitoes.

Appendix 4: Environmental Supervision for the Preservation of the NH18

(to be included in the scope of works for the Construction Supervision Consultant)

General

In order to prevent harm and nuisances on local communities, and to minimize the impacts on the environment during the construction and operation of NH18, the following documents have been prepared which should be adhered to by all Contractors and his employees:

- + The Environmental Protection Commitment (EPC) for NH18 Subproject;
- + The Environmental Management Plan (EMP) of NH18 Subproject including site specific measures identified in Table 3 and Appendix 2 of the EMP;
- + The mitigation measures included in Subproject design and bill of quantities;
- + The specifications, procedures, and best practices included in the EMP. These specifications complement any technical specifications included in the work quantities and the requirements of any Vietnamese regulations and standards;

Objective of the Assignment

The Consultant is to provide professional technical services (“the Services”) to help ensure effective implementation of the Environmental Management Plan (EMP), mitigation measures included in the Information Page, and the Environmental Specifications during the construction of this Subproject.

In order to achieve the goal of minimizing the negative environmental impacts of the project, the EMP has been integrated in the design of the Road, and in the technical specifications and contract documents. It will need to be closely followed and implemented by the contractors. The implementation of the EMP will therefore involve three parties:

- + The Contractor’s Workplace Safety and Environment Officer (SEO) responsible for implementing the EMP and other construction related environmental and safety issues;
- + The Construction Supervision Consultant (CSC) who are responsible for supervising and monitoring all construction activities and for ensuring that contractors comply with the requirements of the contracts and the EMP. The CSC will include Environmental Engineers led by a Workplace Safety and Environment Supervisor (SES).

Scope of Services:

The general services to be provided by the SES are to inspect, monitor and audit the construction activities to ensure that mitigation measures adopted in the EMP are properly implemented, and that the negative environmental impacts of the project are minimized.

The Contractor has the responsibility for ensuring compliance with the project EMP and contract conditions while undertaking the works. This is overseen by the SES. The SES is therefore to be an independent monitor to ensure compliance with the EMP and to ensure adequate performance of the Contractors on environmental issues.

The SES will inspect, monitor and carry out environmental review of all road and bridge contracts packages and lots. The SES shall have extensive knowledge and experience in environmental supervision, monitoring and auditing to provide independent, objective and professional advice to the client on the environmental performance of the project. The SES team leader shall be familiar with the project works through review of the relevant reports, including the EPC, EMP as well as project technical specifications and contract documents.

As part of the CSC, the SES is expected to perform the following duties:

Phase I: Preparation

The objective of Phase I is to lay the groundwork for the successful execution of the project. In this phase, the SES shall: (i) review the EPC, EMP, project designs and technical specifications and confirm that there have been no major omissions of mitigation measures; (ii) prepare guides for contractors on implementing the EMP; and, (iv) develop and execute a training program for all involved in construction activities.

The main tasks in this phase are:

Review of Project Documents: The SES shall review the EPC, EMP, project designs and technical specifications and confirm in writing that there have been no major omissions of mitigation measures. If any issues are identified, the SES shall propose to the PMU3 updates to the EMP and the design and technical specifications to address these issues. Once approved by PMU3, the SES shall update the EMP.

Environmental Supervision Checklist: The SES shall establish a comprehensive checklist which will be used during the construction of the project to monitor the contractor's performance. This shall cover major aspects of the project, required mitigation/control measures and their implementation schedule.

Log-Book: The SES shall keep a log-book of each and every circumstance or change of circumstances which may affect the environmental impact assessment and non-compliance with the recommendations made by the SES to remediate the non-compliance. The log-book shall be kept readily available for inspection by all persons assisting in the supervision of the implementation of the recommendations of the EPC and Contract. The CSC shall verify the log-book as part of his environmental audit.

Environmental Training: The SES shall design and execute a comprehensive training program for all actors: Supervision Engineers, EO of PMU3, PMU3, Contractor's SEOs (and workers as part of the trainings given to the SEO), on the environmental requirements of the project, and how they will be supervised, monitored and audited, giving particular attention to:

- + EMP: The requirements of the EMP, the agreed environmental monitoring checklist, the environmental monitoring form, how non-compliance with the EMP will be handled, and all other key issues shall be covered. Particular attention will be paid to the specific provisions in each contract's technical specifications indicating how the EMP is to be complied with;
- + Health and Safety: The health and safety requirements of the project shall be clearly identified and communicated with the Contractors and PMU3 (included in environmental specifications for contractors).

At the conclusion of the training Contractors will also sign a statement acknowledging their awareness of the environmental regulations, the EMP, the compliance framework, and health and safety obligations. The CSC shall sign a similar statement confirming their understanding of the supervision responsibilities.

Phase II: Supervision of Construction Activities

On behalf of the PMU3 and the Chief Supervision Engineer, the SES will:

- + Review, and inspect in an independent, objective and professional manner in all aspects of the implementation of the EMP;
- + Carry out random monitoring checks, and review on records prepared by the Contractor's SEO;
- + Conduct regular site inspections;

- + Review the status of implementation of environmental protection measures against the EMP and contract documents;
- + Review the effectiveness of environmental mitigation measures and project environmental performance;
- + As needed, review the environmental acceptability of the construction methodology (both temporary and permanent works), relevant design plans and submissions. Where necessary, the SES shall seek and recommend the least environmental impact alternative in consultation with the designer, the Contractor(s), and PMU3;
- + Verify the investigation results of any non-compliance of the environmental quality performance and the effectiveness of corrective measures; and
- + Provide regular feedback audit results to PMU3 and CSC according to the procedures of non-compliance in the EMP;
- + Provide training programs, including CSC and PMU3 staff, to appraise them of issues identified and how to improve environmental compliance;
- + Instruct the Contractor(s) to take remedial actions within a specified timeframe, and carry out additional monitoring, if required, according to the contractual requirements and procedures in the event of non-compliances or complaints;
- + Instruct the Contractor(s) to take actions to reduce impacts and follow the required EMP procedures in case of non-compliance / discrepancies identified;
- + Instruct the Contractor(s) to stop activities which generate adverse impacts, and/or when the Contractor(s) fails to implement the EMP requirements / remedial actions instructed by the SES.

Review of Site Plans: To ensure consistency across the project, the SES shall provide the final review of all site plans which may affect the environment. These include, but are not limited to: borrow pit and disposal sites plans. The SES will review and approve the EMP Implementation Plan and Landscape Implementation Plan presented by the Contractors. Where these plans are found not to comply with the EMP, EPC, the SES shall work with the CSC and Contractor to establish a suitable solution.

Health and Safety: To ensure consistency across the project, the SES shall provide the final review and recommend clearance of all Contractors' Safety Plans, and, based on these, with inputs from the CSC, the Contractor shall prepare an overall Subproject Safety Plan (PSP). The PSP shall include procedures such as management of explosions, safety during construction, the prevention of slope slide / soil erosion during the rainfall season, etc. These plans shall be reviewed on an annual basis and updated if necessary.

The SES shall ensure compliance with the requirements of the health and safety clauses in the contract documents. This shall include, but not be limited to: (i) construction activities; (ii) HIV/AIDS education campaign; (iii) compliance with Viet Nam's labor laws; and (iv) road traffic safety. For HIV/AIDS the focus shall not only be on the construction sites themselves, but also on assisting the nearby communities.

Site Inspections: The SES shall closely audit the construction activities through regular site inspections accomplished through daily site visits, walks and visual inspections to identify areas of potential environmental problems and concerns.

Inspections should be done independently from the Contractor's staff. It is expected that the SES shall have their own hand held and portable monitoring equipment such as cameras, transport and other resources. Where definitive monitoring is necessary to resolve contentious issues or to

impose penalties, the SES may contract third parties to carry out specific monitoring at the locations under review.

Where there is infringement of technical specifications, or condition of contracts, or non compliance with the EMP, the SES shall be immediately inform Contractor's Chief Engineer, Supervision Chief Engineer and PMU3. The SES shall also report all infringements to the PMU3 as part of the monthly reporting.

Regular joint environmental site inspections (e.g. weekly) should be organized by the SES and CSC, with participation from the Contractor's Environmental Officer (SEO). These should be used as an opportunity for the SES to further train the CSC and Contractor's staff.

SES field engineer's log-book shall be kept readily available for inspection by all persons assisting in project management.

The SES shall also regularly review the records of the contractors to ensure that they are up to date, factual and meet the EMP reporting requirements (e.g. environmental complaint monitoring records).

Complaints: Complaints will be received by the Contractor's Site Office from local residents with regard to environmental infractions such as noise, dust, traffic safety, etc. The Contractor's Chief Engineer or his deputy, and the SEO shall be responsible for processing, addressing or reaching solutions for complaints brought to them. The SES shall be provided with a copy of these complaints and shall confirm that they are properly addressed by the Contractors in the same manner as incidents identified during site inspections.

Unforeseen Impacts: In the event that an incident arises which was not foreseen in the EMP or EPC, the SES shall work closely with the CSC, the Contractors, and the PMU3 to confirm satisfactory resolution to the incident. The SES shall then update the EMP and the implementation guidelines, training the Contractors' staff accordingly.

Monthly Payments: The SES shall confirm the monthly payments for environmentally related activities as recommended by the SES to the client.

Site Restoration and Landscaping: The SES shall closely monitor all activities with regard to site restoration and landscaping in areas such as borrow pits, quarries, crushing plants, etc. to ensure that the activities are done to an appropriate and acceptable standard. The SES will agree with the Contractor on a Site Decommissioning and Restoration plan to be implemented before the completion of the construction.

Project Initiation and Staffing: It is anticipated that the CSC and the SES, will be mobilized one month before the start of the construction activities. The one month start up time will be utilized by the SES to review and familiarize itself with the project, the project design, the technical specifications, contract documents, the EPC, EMP reports and other project relevant documents and reports. Following the review, the SES will prepare a brief report on the potential issues and challenges arising from the implementation of the EMP and the condition of contracts and make recommendations to the PMU3 about how best to improve the implementation of the EMP.

The SES is expected to be mobilized at the beginning of the contract, to prepare the necessary guidelines, documentation, training, etc.

Reporting: As a minimum the SES shall prepare the following written reports:

- + Weekly report of non-compliance issues
- + Summary monthly report covering key issues and findings from reviewing and supervision activities
- + Consolidated summary report from contractor's monthly report

They shall also collect and report on data as requested by the PMU3.

At the end of the project the SES shall prepare a final report summarizing the key findings from their work, the number of infringements, resolutions, etc. as well as advice and guidance for how such assignments should be conducted in the future.

Appendix 5: Training demands and proposals for a training program

The table below presents an analysis of training demands

Table 9. Analysis And Determination of Training Demands

No.	Subject	Preliminary assessment on capability/awareness	Capacity building/training on environmental management
1	Environment Unit - PMU3	<ul style="list-style-type: none"> - Have most staff with University/post university education, thus it is easy to them to comprehend new contents - Have working experiences in previous projects but have not gone into details of the environmental field. - Have basic knowledge in information technology, thus, it will be convenient for data management and information process as well as cooperation with other agencies. 	<ul style="list-style-type: none"> - Should be further trained on environmental management process in project and implementation methods (from preparation stage of bidding documents, bid evaluation, contract signing, monitoring implementation and acceptance works, etc.). - Should increase awareness on critical roles of EMS - Should provide with more knowledge/legal regulations related to penalty for violations on the environment. - Should be provided with treatment solutions for arising problems on site.
3	Local leaders	<ul style="list-style-type: none"> - The communes have not been made sufficiently clear and understood about the project process. - Computer skills are still limited. - Awareness on community organization and monitoring is not clear. Community organization and monitoring have only been implemented for small projects which are invested by residents. - Have no experiences in community monitoring on a large scale. 	<ul style="list-style-type: none"> - Should be provided with preliminary knowledge on environmental laws and contents related to coordination in monitoring among ward/commune authorities in projects which are executed in the areas. - Should be trained on community monitoring. - Should have updated information on project progress and monitoring and information exchange regime. - Especially, environmental management process should be made clear and comprehended before, during and after construction.
4	Community representatives	<ul style="list-style-type: none"> - Not been established in the local area, Thus participants have not been determined - Most project areas are rural ones with cultivation works. Education is limited and working style is primarily spontaneous. - Income of residents is not 	<ul style="list-style-type: none"> - Should be provided with rights and responsibilities in environmental management (as well as legal regulations.) - Should be provided with clear simple methods which will be applied during project implementation process. - Increase the awareness of

No.	Subject	Preliminary assessment on capability/awareness	Capacity building/training on environmental management
		high; infrastructure system is not sufficient; awareness on rights and responsibilities of individuals and community on environmental issues are limited.	community on environmental management generally and potential impact of the project in particular. - Continuously utilize project information and important points in EMS as well as operation regime.
5	Contractor	<ul style="list-style-type: none"> - Contractor's leaders are qualified and experienced staffs who are competent in legal regulations. - Periodically organize training courses on environmental sanitation and labor safety. - Most Contractors consider environmental issues as arising ones with a separate cost and do not want to implement them or rectify the issues. - Awareness of Contractors on environmental issues during construction is limited. 	<ul style="list-style-type: none"> - Should learn about environmental law and focus on contents related to roles of local authority and community supervisors. - Should comprehend environmental management process following requirements of WB's safeguard policies. - However, for contractors these requirements will be followed through project documents and concrete criteria in bidding documents as well as construction contract.

Based on an analysis of current capabilities, experiences and actual demands in project implementation, a capacity building and training program for relevant agencies is established as shown in the table below:

Table 10. Proposed Programs On Capacity Building On Environmental Management

Training content	Subject to be trained	Number of trainees	Training time	Organization unit	Budget
Learning on Labor safety and environmental sanitation	Contractor's workers and technical staff	All workers and staff on site	Prior to construction and following legal regulations	Contractor in coordination with Institute of Labor, War invalids and Social Affairs	Paid by Contractor
Learning on general environmental management process	Staff of PMU3	3 persons	Prior to construction	PMU3	Paid by PMU3 or to be included in a package on training
Learning on Process of CEMP	Environmental staff under district/ commune PC in the project area	22 persons (3 district staff + 19 communes staffs)	Prior to construction	Training consultant under Contract on capacity building and training for relevant agencies.	Included in Contract on training consulting
Learning on Process of	Staff in charge of labor safety	5 trainees	Prior to construction	PMU3 in coordination with	In the Contract of

Training content	Subject to be trained	Number of trainees	Training time	Organization unit	Budget
SEMP	and environmental sanitation under CSC			CSC	CSC

Appendix 6: Budget estimate

Cost of Environmental Supervision carried out by CSC

The CSC will be responsible for proposing organization and monitoring plans on the Contractor's compliance with mitigation measures. In addition, CSC will be required to assign staff and prepared detailed working plans to monitor environmental sanitation and labor safety management on and around the site. The cost for this assignment will be proposed in the contract with CSC.

Cost for implementation of capacity building and training

The cost estimation for implementation of capacity building and training is presented in the following table:

Table 11. Cost estimation for implementation of capacity building and training

Unit: VND

Training contents	Subject to be trained	Number of trainees	Cost rate (VND)	Source of cost
Learning on labor safety and environment sanitation	Workers and technicians of Contractors	All workers and construction staff on site (100 turns of persons as expected)	$100 \times 200,000 = 20,000,000$	Paid by contractor, this cost is included in the contract of construction
Learning of general environmental management process	PMU3's staff in charge of construction packages	3 persons	$3 \times 3,000,000 = 9,000,000$	This cost should be included in the signed with training consultant
Learning on CEMP	Environmental staff under district/commune PC in the project area	22 persons (3 district staffs + 19 commune staffs)	$22 \text{ per, } \times 1,000,000/\text{per,} = 22,000,000$	Included in the contract signed with training consultant
Learning on SEMP	Staff in charge of labor safety and environmental sanitation under CSC	5 trainees	$5 \text{ per, } \times 1,000,000/\text{per,} = 5,000,000$	In the Contract of CSC
Total cost			56,000,000	