E1193
v 6

ENVIRONMENTAL ASSESSMENT FOR HUNG YEN

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introduction

The RT3 programme will rehabilitate 4,500 km of rural roads in 33 provinces over 4 years. During the first year of RT3 project preparation, the TA will identify 1,500 km of rural roads for rehabilitation in 33 provinces. In the RT3 project design four provinces (Hung Yen, Quang Nam, Thanh Hoa, Tuyen Quang) have been identified as pilot projects in which about 100 km of roads will be rehabilitated.

Project-level EAs will be required as a part of the Feasibility Study and must address World Bank guidelines on the environment. Environmental impact prevention and mitigation measures to avoid or minimize impacts are to be presented in an Environmental Management Plan (EMP) which is to be enforced during construction.

the ea process

The EA uses methodology that has been developed for RT3 and is expressed in the Model 1 and 2 Framework that contains the environmental safeguard measures for RT3.

During the review of the RT2 roads environmental impacts for rural road rehabilitation projects where the road location was not being changed were noted to only significant during construction. Accordingly a simplified impact assessment procedure has been developed which can be used at provincial level while strict environmental procedures have been developed for construction. These are included in the EMP. Thus Annex 10.3A which deals with impact assessment mainly considers those impacts resulting from construction related activities. Annex 10.4 addresses the construction impacts in a standard form as the EMP. The EA consists of two documents; Annex 10.3 A the EA; and Annex 10.4 the EMP. These are attached as Annex A and B.

hung yen province

Hung Yen is one of the pilot provinces and will rehabilitate six roads.

Hung Yen was established as a province in 1997; and consists of 10 districts.

Hung Yen Province is located in the Red river Delta with an area of 923.09 km2. In 2004, Hung Yen had a population of 1,098,800 people with a density of over 1,200 people/km2, making Hung Yen one of the densest settled areas in Vietnam.

The majority of people (approx. 90 percent) live in rural areas and are rice farmers. Hung Yen has fertile alluvial soils that are derived from the Red River. The main crops grown in the province are irrigated rice and dryland maize. Due to its proximity to Hanoi, industry is now being established in Hung Yen. In Hung Yen 39 percent of the rural population is afflicted by poverty. The province is ranked 28 in 41 provinces included in the RT3 TDSI prioritised provinces study

Project description

In the First Year Work Plan, six roads are proposed for rehabilitation. These are shown in Table 1.

Table 1 : List of Pilot Roads included for Rehabilitation in Hung Yen Province

Road No.	Road code	District	Terrain	Road Type		Surface		From	To	Length (km)
				Existing	New	Existing	New			
1	07-03-01	Khoai Chau	Flat	District	Class VI	CS	C/S + DBST	Kenh Ha	De Son Hong	2.4
2.1	07-03-01	Khoai Chau	flat	District	Class VI	CS	C/S + DBST	District Border	Bo thoi	2.0
2.2		Khoai Chau	flat	District	Class VI	CS	C/S + DBST	Bo thoi	Tieu Quan	4.1
3	07-06-01	Tien Lu	flat	District	Class VI	CS	C/S + DBST	Tien Xa	Dd Song Luoc	5.7
4	07-02-011-01	Khoai Chau	flat	Commune	Type A	CS	C/S + DBST	De Son Hong	Nghi Xuyen	3.1
5	07-05-010-01	Phu Cu	flat	Commune	Type A	CS/Brick	C/S + DBST	Ba Dong	38B Jct.	6.0
6	07-03-019-01	Kim Dong	flat	Commune	Type A	CS	C/S + DBST	208B Jct.	Ngo Xa	2.0
										25.3

Road No.	Length of road (km)			Design Top width(m)	Length of Road (km)		Material required (m3)			
	<3 %	3-10%	> 10%		Width ok	Widened	Disposed	Earth Fill	Rock	Bitumen (kg)
1	2.4	0.0	0.0	6.5	2.2	0.2	0	6,000	4,000	30,000
2.1	2.0	0.0	0.0	6.5	1.9	0.1	0			
2.2	4.1	0.0	0.0	6.5	0.8	3.3	0	4,000	10,000	80,000
3	5.7	0.0	0.0	6.5	1.1	4.6	0	4,000	10,000	70,000
4	3.1	0.0	0.0	5.0	2.8	0.3	0	neg	4,000	35,000
5	6.0	0.0	0.0	5.0	3.0	3.0	0	neg	8,000	60,000
6	2.0	0.0	0.0	5.0	1.0	1.0	0	neg	2,000	20,000

survey methodology and approach

The EA survey was undertaken on April 15, 2005 using a windshield survey method where roads were accessible by car. Where it was not possible to use a car the roads were walked or a motor cycle was used. Notes were taken along the length of the road of the various features such as drainage, settlements and services that may need to be removed. The survey was undertaken together with staff from the Hung Yen PPMU so as to use them as a reference and to familiarize them with the EA process. During the survey data was also gathered through indirect interviews with local people.

- **Road No.1: 07-03-01**

  This road is 2.4 km long and is a District road that will be upgraded to a Class VI road. The pavement is crushed stone in poor condition which will be upgraded to a bitumen surface. The road is to be widening for about 0.2 km of its length. Widening will be carried out on the side of the road that minimises disturbance. However, the households living along this alignment are not necessary to remove. As all materials for road base and rock for pavements have to be brought into Hung Yen by river any excavated waste material will be reused in the road formation.

- **Road No. 2: 07-03-01**

  This road consists of two independent sections, one 2.0 km long and the other 4.1 km. The road is a district road that will be upgraded to Class VI and will be bitumen paved. Only 100 m length of proposed road is required to be widened up to the width of 6,5 m as regulated in the technical design. However, it is not required to remove any households living in the project area. As all materials for road base and rock for pavements have to be brought into Hung Yen by river any excavated waste material will be reused in the road formation.

- **Road No. 3: 07-06-01**

  The total length of proposed road is 5.7 km and is a District road that will be upgraded to a Class VI road. The pavement is crushed stone in poor condition which will be upgraded to a bitumen surface. This alignment is required to be widened for approx. 4.6 km length as regulated in the technical design to meet the pavement width of 6.5 m. Even so, the households are not required to remove in widening process. As all materials for road base and rock for pavements have to be brought into Hung Yen by river any excavated waste material will be reused in the road formation.

- **Road No. 4: 07-02-011-01**

  The proposed road with total length of 3.1 km is started at the cross-section between this with dyke road No. 195 in Chi Tan commune, runs to the end point located at Ninh Tap Irrigation Pumping Station. This alignment is a Communal road that will be upgraded to a Class A road. The pavement is crushed stone in poor condition which will be upgraded to a bitumen surface. This road is necessary to be widened for approx. 0.3 km length as regulated in the technical design to meet the pavement width of 6.5 m. Even so, the households are not required to remove in widening process. Widening will be carried out on the side of the road that minimises disturbance. As all materials for road base and rock for pavements have to be brought into Hung Yen by river any excavated waste material will be reused in the road formation.

- **Road No. 5: 07-05-010-01**

  The total length of proposed road is 6.0 km. The proposed road runs via the communes of Quang Hung, Phan Sao Nam and Minh Tan under the Phu Cu district. The starting point is crossed with National Highway No. 39B located on Quang Hung commune, the ending point is on the borderline between two districts of Phu Cu and An Thi (on the Minh Tan commune location). This alignment is a Communal road that will be upgraded to a Class A road. The pavement is crushed stone/brick in poor condition which will be upgraded to a bitumen surface. The alignment direction is to be maintained and the proposed road will still be lying on the former road foundation. This alignment is required to be widened for approx. 3,000 m length as regulated in the technical design to meet the pavement width of 5 m. Even so, the households are not required to remove in widening process. Widening will be carried out on the side of the road that minimises disturbance. As all materials for road base and rock for

pavements have to be brought into Hung Yen by river any excavated waste material will be reused in the road formation.

- **Road No. 6: 07-03-019-01**

  The proposed road is located and run through the communes of Vinh Xa and Toan Thang belong the Kim Dong district. The starting point is crossed with road No. 208B that positioned in Toan Thang commune, and the ending point is crossed with the communal concrete road. The total length of road is L=2.0 km. This alignment is a Communal road that will be upgraded to a Class A road. The pavement is crushed stone in poor condition which will be upgraded to a bitumen surface. It is required to be widened for approx. 1.0 km length as regulated in the technical design to meet the pavement width of 5 m. However, the households are not required to remove in widening process. Widening will be carried out on the side of the road that minimises disturbance. As all materials for road base and rock for pavements have to be brought into Hung Yen by river any excavated waste material will be reused in the road formation. After construction completion, it is predicted that the traffic volume will increase significantly.

public consultation

Public consultation was carried out by PDoT as an informal process during road identification and property assessment. At this time the community leaders was informed of the objectives of proposed road to be rehabilitated and the work that would be conducted at this time.

The Hung Yen PDoT state that the community was supportive of the projects as they considered that rehabilitation of these roads will improve access by providing all weather roads. Other benefits that the community identified including dust reduction due to the bitumen pavement.

- **Road No. 1: 07-03-01**
  - Date: from 15 to 16 April 2005
  - Number of persons attending: 60 persons
  - Name of commune that they live in: Dai Tap and Lien Khe
  - Purpose of meeting: Provide the RTP3 information
  - Points discussed:
    a) Project scope
    b) Land Acquisition
  - Main concerns expressed by the local community and: Local people have agreed and supported the project implementation.
- **Road No. 2: 07-03-01**
  - Date: from 17 to 20 April 2005
  - Number of persons attending: 120 persons
  - Name of commune that they live in: Khoai Chau Town, Dan Tien, Hong Tien and Phung Hung
  - Purpose of meeting: Provide the RTP3 information
  - Points discussed:
    a) Project scope
    b) Land Acquisition
  - Main concerns expressed by the local community and: Local people have agreed and supported the project implementation.
- **Road No. 3: 07-06-01**
  - Date: from 15 to 18 April 2005
  - Number of persons attending: 35 persons
  - Name of commune that they live in: Vuon Town and communes of Di Che, Duc Thang and Hai Trieu
  - Purpose of meeting: Provide the RTP3 information
  - Points discussed:
    c) Project scope
    d) Land Acquisition
  - Main concerns expressed by the local community and: Local people have agreed and supported the project implementation.
- **Road No. 4: 07-02-011-01**
  - Date: from 15 to 16 April 2005
  - Number of persons attending: 40 persons
  - Name of commune that they live in: Chi Tan and Dai Tap
  - Purpose of meeting: Provide the RTP3 information

- Points discussed:
  e) Project scope
  f) Land Acquisition
- Main concerns expressed by the local community and: Local people have agreed and supported the project implementation.

Road No. 5: 07-05-010-01

- Date: from 15 to 17 April 2005
- Number of persons attending: 15 persons
- Name of commune that they live in: Quang Hung, Minh Tan and Phan Sao Nam
- Purpose of meeting: Provide the RTP3 information
- Points discussed:
  g) Project scope
  h) Land Acquisition
- Main concerns expressed by the local community and: Local people have agreed and supported the project implementation.

Road No. 6: 07-03-019-01

- Date: from 15 to 16 April 2005
- Number of persons attending: 30 persons
- Name of commune that they live in: Toan Thang and Vinh Xa
- Purpose of meeting: Provide the RTP3 information
- Points discussed:
  i) Project scope
  j) Land Acquisition
- Main concerns expressed by the local community and: Local people have agreed and supported the project implementation.

findings and conclusions

For all of these roads the construction impacts will include disposal of excavated material, site clean up and disposal of waste, removal and reinstatement of services, dust control, noise and vibration control, handling of fuel and lubricants, employment of unskilled workers, worker health and safety issues and road safety. Other concerns may include discovery of cultural artefacts, while disturbed areas may require revegetation. All of these issues are addressed by the EMP and are included in Annex 10.4. Following the adoption of these measures all impacts will be satisfactorily mitigated.

No household have to remove when the proposed roads is required to widen.

The environmental quality and human life standard in project areas will be improved significantly after completing the construction phase, because the road pavement surface had been rehabilitated, and as a result, this will promote the goods and cultural exchange of local people with other regions.

It is recommended that these six roads be included in the AWP road rehabilitation program for Hung Yen province.

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

EA FOR ROAD 1 (07-03-01)

Road Code
07-03-01

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

SUB-PROJECT : REHABILITATION WORKS UNDER RURAL TRANSPORT III PROJECT FINANCED BY THE WORLD BANK

ANNUAL WORK PLAN:

THE EMPLOYER : DEPARTMENT OF TRANSPORT (PROJECT MANAGEMENT UNIT) PROVINCE

ADDRESS :

TELEPHONE : FACSIMILE:

I - ROAD LOCATION DETAILS:

1. Road Location Details

i. Province: Hung Yen
ii. District: Khoai Chau
iii. Type of road: District
iv. Road starts at Commune: Dai Tap
v. Road finishes at Commune: Lien Khe

2. Need for Road

i. Briefly justify why the road is required:
   i. The road plays an important role for economic and social development in Khoai Chau District of Hung Yen Province.
   ii. At present the road is on bad condition and road surface is waste crushed stone, which is usually muddy in rain.
   iii. The road rehabilitation makes resident's travels and production convenient, especially in crop seasons; create momentum to economic and social development.

ii. Provide population details for each of the communes that the road will service.

	Name of Commune	Population
1	Dai Tap	7620
2	Lien Khe	6245

iii. The year that population data refers to is: 2004

iv. State how many days in the year (on average) that the road is impassable due to; (a) mud: 4 months ;(b) flooding…….. no. of days; (c) other problems (identify what these are)…… no. of days.

3. New Road Alignment:

i. Do any sections of the road require a new alignment?: No

If "Yes" specify location (km + m): (i) From (ii) To:

ii. Does the new alignment pass through any of the environmentally critical areas listed in Annex 10.2A i.e. protected areas, etc?. Yes or No.
If "Yes" explain.
If "No" detail the type of land use that the new alignment will pass through.

II - DESIGN AND CONSTRUCTION:

1. Road Design Details:

	Item	Unit	Specification or Quantity	Details or Remarks
5.1	Class of road	class	VI	
5.2.4	Total road length	km	*2.40*	
5.2.1	Total road length[1]: < 3%	km	*2.40*	
5.2.2	Total road length: 3 -10 %	km	*0.0*	
5.2.3	Total road length > 10 %	km	*0.0*	
5.4.1	Design width (= pavement width + side drains)	m	*6.5*	
5.4.2	Length of existing road that meets design width.	km	*2.2*	
5.4.2	Length of existing road that does not meet design width (urban areas)	km av. width (m)	*0.0*	
5.4.3	Length of existing road that does not meet design width (all other areas)	km av. width (m)	*0.2* *4*	
5.4.4	Design pavement width	m	*6.5*	
5.5.1	Existing pavement material	(a) type (b) km	*Waste crushed stone* *2.40*	
5.5.2	Proposed pavement material (i)	(a) type (b) km	*Crushed stone with double bituminous surface treatment* *2.40*	
5.5.3	Proposed pavement material (ii)	(a) type (b) km		
5.6	Volume of material to be excavated and disposed of away from road site.	m^3	*0.0*	i. Specify location where the material is to be disposed. ii. Address in EMP.

[1] Length of road. The total road length is to be separated into these three categories. Any sections less than 30 m may be disregarded and included in the previous category.

5.7	Volume of fill required for roadbed.	m^3	*6,000*	i. Specify location of borrow pit: ii. New or existing borrow pit? ii. Address in EMP.
5.8	Volume of crushed rock required for pavement.	m^3	*4,000*	i. Specify location of quarry: ii. New or existing quarry? Existing iii. Address in EMP.
5.9.1	Volume of bitumen required for pavement	kgs	*30,000*	
5.9.2	Type of bitumen to be used.	i. emulsion or ii. non emulsion	*non emulsion*	i. If emulsion type, specify method to clean and dispose of drums. ii. Address in EMP.

2. Services:

When the road is widened will any of the following services require relocation? This includes substantial and not easily moved services such as concrete power poles that may be inside the existing road alignment. (Installations which can be easily moved e.g bamboo supported power lines are not included).

	Service	Yes	No	Detail by section (km + m)
6.1	Electricity		□	
6.2	Water pipelines		□	
6.3	Telephone		□	
6.4	Irrigation channels		□	
6.5	Drainage channels		□	
6.6	Other		□	

3. Construction:

All materials for road base will be sourced from approved borrow pits that are closest to the road and transported to the Site by the Contractor.
Main construction equipment include:

- Trucks
- Watering tank truck
- Bitumen spraying machine
- Roller
- Compaction machine .

Total costs : 79,396 USD

4. Public Consultation

Provide a separate statement of details of meetings that have been held with the local community that includes the following;

i. Date: 15/4 ; 16/4/2005
ii. number of persons attending: 30 persons/commune
iii. name of commune that they live in: Dai Tap, Lien Khe

iv. purpose of meeting: Informing project information to residents
v. points discussed: Project scope, land acquisition and other relative information
vi. main concerns expressed by the local community and: Residents here are informed of the project and entirely agree with the project implementation
vii. how were these concerns resolved:

III - SOURCES OF POLLUTION :

1. People relocation:

If the road requires 0.2 km widening. The widening is on both side of the road involving land acquisition and people relocation. Quality of environment and the people's quality of life will improve considerably when the road construction will complete. The improved road surface will provide better access to trade and cultural services for the local community.

2. Occurrence of pollution during construction :

Roads under the RTP3 are expected to be small road rehabilitation projects having minor impacts on environment and impact occur mainly during construction and be easily understood and contained, which include:

- Dust and exhaust:

Sources of occurrence :

- Dust generated from burning waste materials
- Dust generated from materials transport activities, excavation activity
- Dust generated from worker's camps due to unsuitable conditions of accommodation.
- Dust generated from construction equipment operating on the Site
- Dust generated from heating bitumen.

Pollution level and impacts :

- Dust and exhaust generation is expected to be minor and temporary as the magnitude of the projects are small. However, exhaust generated may have adverse impacts on an area within a radius of 200-300 m with wind.
- Dust generated from traffic will reduced as the rehabilitation will complete.

- Waste water:

Sources of waste water :

Waste water occur from the following sources:

- Waste water occur during operation of asphalt plants on the Site which provide cement concret for construction of stone embankment and culverts.
- Lubricant contained water occur during cleaning of construction equipment and tools.
- Waste water from daily life of workers.
- Waste water occur as a result of rain water brushing materials on the Site.
- Waste water from cooling water for machine engines and turbines.

Pollution level and impacts:

- A daily average volunme of $3m^3$ waste water is produced as a result of construction activities

- Cooling water which can be reused.

- Solid waste:

Main sources of occurrence

- Excavated materials which cannot be reused.
- Waste materials (rubbles, waste bitumen)
- Gabbages from daily life of workers.

Pullotion level and impacts:

- About 30kg is produced as a result of construction activities

- Noise:

Main source of occurrence

- Noise coming from operation of construction equipment and machine.
- Noise and vibration coming from operation of old and unrepaired equipment and machine (unscrewed bolts, lack of lubricant for machine)

Pollution level and impacts

- Pollution occurrence and impacts can be controled and mitigated.

- Forecasting hazards during construction activities:
  - Accidents (fire, explosion) and traffic accident to users.
  - Chemical spillage and leakage due to a lack of compliance with precaution procedures.
  - Runoff erosion and sedimentation

IV- MITIGATION MEASURES:

- Noise and exhaust:

  - Water tank shall be used by the Contractor to spray water to control dust in roads under construction to the extent that sub-base materials is not wash off.
  - Under dusty work place conditions workers shall be provided with face masks, gloves.
  - The Contractor shall turn off construction equipement when no construction activity is required.
  - The Contractor shall provide check and repair for equipment if necessary to ensure compliance with environmental standards and work safety.
  - The Contractor shall ensure that all equipment and materials loaded on trucks shall be covered during transportation.

- Waste water:
  - The Contractor shall ensure that waste water from cleaning of equipment is not stored or disposed of in water courses.
  - The Contractor shall ensure that rain runoff water does not flow directly into surface water sources using sedimentation storage or mudguard system.
  - The Contractor shall ensure that waste water is collected and treated suitably before being disposed of in water courses.
  - The Contractor shall ensure that waste solid is not disposed of in water courses.

- Solid waste:

- The Contractor shall ensure that all waste earth and rock materials or waste materials associated with transporting activities are not disposed of in public or private land without prior consent of the owner.
- Daily life rubbish and waste materials associated with construction activities shall be daily collected and disposed of in suitable place that has been approved by the local government.

- Noise:
  - The Contractor shall ensure that equipment used in construction have effective silencing features.
  - The Contractor shall ensure that all construction equipment are equipped with effective silencers.
  - The Contractor is not to carry out excessive noise produced activities at night time and shall inform the local people in advance of their work at night if required.

- Emergency environmental situation
  - Procedures for dealing with emergency environmental situation such as chemical spillage shall be seriously studied and all staff shall be trained in appropriate action.
  - In case of environmental emergency, the Contractor shall immediately notify the Consultant who will instruct the Contractor on the next course of action. The Contractor shall immediately respond to the instruction from the Consultant to rectify the situation.

The Contractor shall also follow other activities included in the Environmental Management Plan to comply with environmental protection and the Environmental Management Plan forms part of the Bidding Documents.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Labour
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood
49 EN Road Safety

V - ENVIRONMENTAL MANAGEMENT RECORDS

The Employer, Consultant and the Contractor is responsible severally for the moniroting activities of environmental management during construction phase. The Consultant shall assign Site engineer and keep environmental management records, which include the following:

- Monitoring date and time
- Monitoring items (depending on environmental situation)

- Method of monitoring: Vietnamese Standards on Air Quality promulguated by Minitry of Sciences, Technology and Environment in 1999.
- Current environmental conditions, particularly in construction phase.
- Recommendations of the environmental supervision and management group on solutions for solving environmental issues.
- Comments collected from local people if any
- The Engineer shall be responsible for daily supervision of the Contractor and ensuring his compliance with the EMD and RMES as condition of the Contract. If the requested activities is not completed, Engineer will organize to complete those activities and total cost will deduce from final payment of contractor.

VI - COMMITMENT OF ENVIRONMENTAL COMPLIANCE

- Vietnamese environmental standards applicable: The Environmental Protection Law of Vietnam ratified by the National Assembly on 27th December 1993 and the Government Decree No.175CP dated 18th October 1994 providing the guidance for the implementation the Environmental Protection Law and Vietnamese Environmental Standards promulguated by the Ministry of Sciences, Technology and Environment in 1995.
- EMP contractual requirement of the World Bank.
- The Sie Engineer of the Contractor, PPMU Site Engineer is responsible for permanent supervision for the environmental compliance. Upon conpletion of construction we undertake that all waste materials and unused materials will be removed from the Site and be disposed of on suitable place.
- I acknowledge to be held responsible before the Law of the Socialist Repbublicv of Viet Nam in case of non-compliance with the above-mentioned conditions.

Date …..
THE EMPLOYER'S REPRESENTATIVE
(Signature and seal)

EA FOR ROAD 2 (07-03-01)

Road Code 07-03-01

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

SUB-PROJECT : REHABILITATION WORKS UNDER RURAL TRANSPORT III PROJECT FINANCED BY THE WORLD BANK

ANNUAL WORK PLAN:

THE EMPLOYER : DEPARTMENT OF TRANSPORT (PROJECT MANAGEMENT UNIT) PROVINCE

ADDRESS :

TELEPHONE : FACSIMILE:

I - ROAD LOCATION DETAILS:

1. Road Location Details

i. Province: Hung Yen
ii. District: Khoai Chau
iii. Type of road: District
iv. Road starts at Commune: Binh Kieu
v. Road finishes at Commune: Hong Tien

2. Need for Road

i. Briefly justify why the road is required:
   i. The road plays an important role for economic and social development in Khoai Chau District of Hung Yen Province.
   ii. At present the road is on bad condition and road surface is waste crushed stone, which is usually muddy in rain.
   iii. The road rehabilitation makes resident's travels and production convenient, especially in crop seasons; create momentum to economic and social development.

ii. Provide population details for each of the communes that the road will service.

	Name of Commune	Population
1	Binh Kieu	6718
2	TT Khoai Chau	7176
3	Dong Tien	7643
4	Phung Hung	11590
5	Hong Tien	9960

iii. The year that population data refers to is: 2004

iv. State how many days in the year (on average) that the road is impassable due to; (a) mud: 4 months ;(b) flooding…….. no. of days; (c) other problems (identify what these are)…… no. of days.

3. New Road Alignment:

i. Do any sections of the road require a new alignment?: No
If "Yes" specify location (km + m): (i) From (ii) To:

ii. Does the new alignment pass through any of the environmentally critical areas listed in Annex 10.2A i.e. protected areas, etc?. Yes or No.
If "Yes" explain.
If "No" detail the type of land use that the new alignment will pass through.

II - DESIGN AND CONSTRUCTION:

1. Road Design Details:

	Item	Unit	Specification or Quantity	Details or Remarks
5.1	Class of road	class	VI	
5.2.4	Total road length	km	*6.10*	
5.2.1	Total road length[2]: < 3%	km	*6.10*	
5.2.2	Total road length: 3 -10 %	km	*0.0*	
5.2.3	Total road length > 10 %	km	*0.0*	
5.4.1	Design width (= pavement width + side drains)	m	*6.5*	
5.4.2	Length of existing road that meets design width.	km	*2.7*	
5.4.2	Length of existing road that does not meet design width (urban areas)	km av. width (m)	*0.0*	
5.4.3	Length of existing road that does not meet design width (all other areas)	km av. width (m)	*3.4* *4*	
5.4.4	Design pavement width	m	*6.5*	
5.5.1	Existing pavement material	(a) type (b) km	*Waste crushed stone* *6.10*	
5.5.2	Proposed pavement material (i)	(a) type (b) km	*Crushed stone with double bituminous surface treatment* *6.10*	
5.5.3	Proposed pavement material (ii)	(a) type (b) km		
5.6	Volume of material to be excavated and disposed of away from road site.	m^3	*0.0*	i. Specify location where the material is to be disposed. ii. Address in EMP.

[2] Length of road. The total road length is to be separated into these three categories. Any sections less than 30 m may be disregarded and included in the previous category.

5.7	Volume of fill required for roadbed.	m^3	*4,000*	i. Specify location of borrow pit: ii. New or existing borrow pit? ii. Address in EMP.
5.8	Volume of crushed rock required for pavement.	m^3	*10,000*	i. Specify location of quarry: ii. New or existing quarry? Existing iii. Address in EMP.
5.9.1	Volume of bitumen required for pavement	kgs	*80,000*	
5.9.2	Type of bitumen to be used.	i. emulsion or ii. non emulsion	*non emulsion*	i. If emulsion type, specify method to clean and dispose of drums. ii. Address in EMP.

2. Services:

When the road is widened will any of the following services require relocation? This includes substantial and not easily moved services such as concrete power poles that may be inside the existing road alignment. (Installations which can be easily moved e.g bamboo supported power lines are not included).

	Service	Yes	No	Detail by section (km + m)
6.1	Electricity		□	
6.2	Water pipelines	□		Km2+700 to 3+263
6.3	Telephone	□		Km0+200 to 0+700 and km5+400 to end of road
6.4	Irrigation channels		□	
6.5	Drainage channels		□	
6.6	Other		□	

3. Construction:

All materials for road base will be sourced from approved borrow pits that are closest to the road and transported to the Site by the Contractor.
Main construction equipment include:

- Trucks
- Watering tank truck
- Bitumen spraying machine
- Roller
- Compaction machine .

Total costs : USD

4. Public Consultation

Provide a separate statement of details of meetings that have been held with the local community that includes the following;

i. Date: 17/4 ; 18/4 ; 19/4 ; 20/4/2005
ii. number of persons attending: 30 persons/commune

iii. name of commune that they live in: TT Khoai Chau, Dong Tien, Phung Hung, Hong Tien
iv. purpose of meeting: Informing project information to residents
v. points discussed: Project scope, land acquisition and other relative information
vi. main concerns expressed by the local community and: Residents here are informed of the project and entirely agree with the project implementation
vii. how were these concerns resolved:

III - SOURCES OF POLLUTION :

1. People relocation:

If the road requires 0.1 km widening. The widening is on both side of the road involving land acquisition and people relocation. Quality of environment and the people's quality of life will improve considerably when the road construction will complete. The improved road surface will provide better access to trade and cultural services for the local community.

2. Occurrence of pollution during construction :

Roads under the RTP3 are expected to be small road rehabilitation projects having minor impacts on environment and impact occur mainly during construction and be easily understood and contained, which include:

- Dust and exhaust:

Sources of occurrence :

- Dust generated from burning waste materials
- Dust generated from materials transport activities, excavation activity
- Dust generated from worker's camps due to unsuitable conditions of accommodation.
- Dust generated from construction equipment operating on the Site
- Dust generated from heating bitumen.

Pollution level and impacts :

- Dust and exhaust generation is expected to be minor and temporary as the magnitude of the projects are small. However, exhaust generated may have adverse impacts on an area within a radius of 200-300 m with wind.
- Dust generated from traffic will reduced as the rehabilitation will complete.

- Waste water:

Sources of waste water :

Waste water occur from the following sources:

- Waste water occur during operation of asphalt plants on the Site which provide cement concret for construction of stone embankment and culverts.
- Lubricant contained water occur during cleaning of construction equipment and tools.
- Waste water from daily life of workers.
- Waste water occur as a result of rain water brushing materials on the Site.
- Waste water from cooling water for machine engines and turbines.

Pollution level and impacts:

- A daily average volunme of $3m^3$ waste water is produced as a result of construction activities
- Cooling water which can be reused.

- Solid waste:

Main sources of occurrence

- Excavated materials which cannot be reused.
- Waste materials (rubbles, waste bitumen)
- Gabbages from daily life of workers.

Pullotion level and impacts:

- About 30kg is produced as a result of construction activities

- Noise:

Main source of occurrence

- Noise coming from operation of construction equipment and machine.
- Noise and vibration coming from operation of old and unrepaired equipment and machine (unscrewed bolts, lack of lubricant for machine)

Pollution level and impacts

- Pollution occurrence and impacts can be controled and mitigated.

- Forecasting hazards during construction activities:
  - Accidents (fire, explosion) and traffic accident to users.
  - Chemical spillage and leakage due to a lack of compliance with precaution procedures.
  - Runoff erosion and sedimentation

IV- MITIGATION MEASURES:

- Noise and exhaust:
  - Water tank shall be used by the Contractor to spray water to control dust in roads under construction to the extent that sub-base materials is not wash off.
  - Under dusty work place conditions workers shall be provided with face masks, gloves.
  - The Contractor shall turn off construction equipement when no construction activity is required.
  - The Contractor shall provide check and repair for equipment if necessary to ensure compliance with environmental standards and work safety.
  - The Contractor shall ensure that all equipment and materials loaded on trucks shall be covered during transportation.

- Waste water:
  - The Contractor shall ensure that waste water from cleaning of equipment is not stored or disposed of in water courses.
  - The Contractor shall ensure that rain runoff water does not flow directly into surface water sources using sedimentation storage or mudguard system.
  - The Contractor shall ensure that waste water is collected and treated suitably before being disposed of in water courses.
  - The Contractor shall ensure that waste solid is not disposed of in water courses.

- Solid waste:
  - The Contractor shall ensure that all waste earth and rock materials or waste materials associated with transporting activities are not disposed of in public or private land without prior consent of the owner.
  - Daily life rubbish and waste materials associated with construction activities shall be daily collected and disposed of in suitable place that has been approved by the local government.

- Noise:
  - The Contractor shall ensure that equipment used in construction have effective silencing features.
  - The Contractor shall ensure that all construction equipment are equipped with effective silencers.
  - The Contractor is not to carry out excessive noise produced activities at night time and shall inform the local people in advance of their work at night if required.

- Emergency environmental situation
  - Procedures for dealing with emergency environmental situation such as chemical spillage shall be seriously studied and all staff shall be trained in appropriate action.
  - In case of environmental emergency, the Contractor shall immediately notify the Consultant who will instruct the Contractor on the next course of action. The Contractor shall immediately respond to the instruction from the Consultant to rectify the situation.

The Contractor shall also follow other activities included in the Environmental Management Plan to comply with environmental protection and the Environmental Management Plan forms part of the Bidding Documents.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Labour
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood
49 EN Road Safety

V - ENVIRONMENTAL MANAGEMENT RECORDS

The Employer, Consultant and the Contractor is responsible severally for the moniroting activities of environmental management during construction phase. The Consultant shall assign Site engineer and keep environmental management records, which include the following:

- Monitoring date and time
- Monitoring items (depending on environmental situation)

- Method of monitoring: Vietnamese Standards on Air Quality promulguated by Minitry of Sciences, Technology and Environment in 1999.
- Current environmental conditions, particularly in construction phase.
- Recommendations of the environmental supervision and management group on solutions for solving environmental issues.
- Comments collected from local people if any
- The Engineer shall be responsible for daily supervision of the Contractor and ensuring his compliance with the EMD and RMES as condition of the Contract. If the requested activities is not completed, Engineer will organize to complete those activities and total cost will deduce from final payment of contractor.

VI - COMMITMENT OF ENVIRONMENTAL COMPLIANCE

- Vietnamese environmental standards applicable: The Environmental Protection Law of Vietnam ratified by the National Assembly on 27th December 1993 and the Government Decree No.175CP dated 18th October 1994 providing the guidance for the implementation the Environmental Protection Law and Vietnamese Environmental Standards promulguated by the Ministry of Sciences, Technology and Environment in 1995.
- EMP contractual requirement of the World Bank.
- The Sie Engineer of the Contractor, PPMU Site Engineer is responsible for permanent supervision for the environmental compliance. Upon conpletion of construction we undertake that all waste materials and unused materials will be removed from the Site and be disposed of on suitable place.
- I acknowledge to be held responsible before the Law of the Socialist Repbublicv of Viet Nam in case of non-compliance with the above-mentioned conditions.

Date …..
THE EMPLOYER'S REPRESENTATIVE
(Signature and seal)

EA FOR ROAD 3 (07-06-01)

Road Code
07-06-01

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

SUB-PROJECT : REHABILITATION WORKS UNDER RURAL TRANSPORT III PROJECT FINANCED BY THE WORLD BANK

ANNUAL WORK PLAN:

THE EMPLOYER : DEPARTMENT OF TRANSPORT (PROJECT MANAGEMENT UNIT) PROVINCE

ADDRESS :

TELEPHONE : FACSIMILE:

I - ROAD LOCATION DETAILS:

1. Road Location Details

i. Province: Hung Yen
ii. District: Tien Lu
iii. Type of road: District
iv. Road starts at Commune: TT Vuong
v. Road finishes at Commune: Hai Trieu

2. Need for Road

v. Briefly justify why the road is required:
- The road runs through the populous areas.
- At present the road is on bad condition and road surface is waste crushed stone, which is usually muddy in rain and there are much dust in dry weather.
- The road rehabilitation makes resident's travels and production convenient, especially in crop seasons; create momentum to economic and social development.

vi. Provide population details for each of the communes that the road will service.

	Name of Commune	Population
1	TT Vuong	4976
2	Di Che	7536
3	Duc Thang	3378
4	Hai Trieu	6010

vii. The year that population data refers to is: 2004

viii. State how many days in the year (on average) that the road is impassable due to; (a) mud: 2 of months ;(b) flooding ……..no. of days; (c) other problems (identify what these are)…… no. of days.

3. New Road Alignment:

i. Do any sections of the road require a new alignment?: No
If "Yes" specify location (km + m): (i) From (ii) To:

ii. Does the new alignment pass through any of the environmentally critical areas listed in Annex 10.2A i.e. protected areas, etc?. Yes or No.
If "Yes" explain.
If "No" detail the type of land use that the new alignment will pass through.

II - DESIGN AND CONSTRUCTION:

1. Road Design Details:

	Item	Unit	Specification or Quantity	Details or Remarks
5.1	Class of road	class	VI	
5.2.4	Total road length	km	*5.70*	
5.2.1	Total road length[3]: < 3%	km	*5.70*	
5.2.2	Total road length: 3 -10 %	km	*0.0*	
5.2.3	Total road length > 10 %	km	*0.0*	
5.4.1	Design width (= pavement width + side drains)	m	*6.5*	
5.4.2	Length of existing road that meets design width.	km	*1.1*	
5.4.2	Length of existing road that does not meet design width (urban areas)	km av. width (m)	*0.0*	
5.4.3	Length of existing road that does not meet design width (all other areas)	km av. width (m)	*4.6* *5.5*	
5.4.4	Design pavement width	m	*5.5*	
5.5.1	Existing pavement material	(a) type (b) km	*Waste crushed stone* *5.70*	
5.5.2	Proposed pavement material (i)	(a) type (b) km	*Crushed stone with double bituminous surface treatment* *5.70*	
5.5.3	Proposed pavement material (ii)	(a) type (b) km		
5.6	Volume of material to be excavated and disposed of away from road site.	m^3	*0.0*	i. Specify location where the material is to be disposed. ii. Address in EMP.
5.7	Volume of fill required for	m^3	*4,000*	i. Specify location of borrow pit:

[3] Length of road. The total road length is to be separated into these three categories. Any sections less than 30 m may be disregarded and included in the previous category.

	roadbed.			ii. New or existing borrow pit? ii. Address in EMP.
5.8	Volume of crushed rock required for pavement.	m^3	*10,000*	i. Specify location of quarry: ii. New or existing quarry? Existing iii. Address in EMP.
5.9.1	Volume of bitumen required for pavement	kgs	*70.000*	
5.9.2	Type of bitumen to be used.	i. emulsion or ii. non emulsion	*non emulsion*	i. If emulsion type, specify method to clean and dispose of drums. ii. Address in EMP.

2. Services:

When the road is widened will any of the following services require relocation? This includes substantial and not easily moved services such as concrete power poles that may be inside the existing road alignment. (Installations which can be easily moved e.g bamboo supported power lines are not included).

	Service	Yes	No	Detail by section (km + m)
6.1	Electricity		□	
6.2	Water pipelines		□	
6.3	Telephone		□	
6.4	Irrigation channels		□	
6.5	Drainage channels		□	
6.6	Other		□	

3. Construction:

All materials for road base will be sourced from approved borrow pits that are closest to the road and transported to the Site by the Contractor.
Main construction equipment include:

- Trucks
- Watering tank truck
- Bitumen spraying machine
- Roller
- Compaction machine .

Total costs : 264,374.55 USD

4. Public Consultation

Provide a separate statement of details of meetings that have been held with the local community that includes the following;

i. Date: 15/4 ; 16/4 ; 17/4 ; 18/4/2005
ii. number of persons attending: 35 persons
iii. name of commune that they live in: TT Vuong, Di Che, Duc Thang, Hai Trieu
iv. purpose of meeting: Informing project information to residents
v. points discussed: Project scope, land acquisition and other relative information

vi. main concerns expressed by the local community and: Residents here are informed of the project and entirely agree with the project implementation

vii. how were these concerns resolved:

III - SOURCES OF POLLUTION :

1. People relocation:

If the road requires 4.6 km widening. The widening is on both side of the road involving land acquisition and people relocation. Quality of environment and the people's quality of life will improve considerably when the road construction will complete. The improved road surface will provide better access to trade and cultural services for the local community.

2. Occurrence of pollution during construction :

Roads under the RTP3 are expected to be small road rehabilitation projects having minor impacts on environment and impact occur mainly during construction and be easily understood and contained, which include:

- Dust and exhaust:

Sources of occurrence :

- Dust generated from burning waste materials
- Dust generated from materials transport activities, excavation activity
- Dust generated from worker's camps due to unsuitable conditions of accommodation.
- Dust generated from construction equipment operating on the Site
- Dust generated from heating bitumen.

Pollution level and impacts :

- Dust and exhaust generation is expected to be minor and temporary as the magnitude of the projects are small. However, exhaust generated may have adverse impacts on an area within a radius of 200-300 m with wind.
- Dust generated from traffic will reduced as the rehabilitation will complete.

- Waste water:

Sources of waste water :

Waste water occur from the following sources:

- Waste water occur during operation of asphalt plants on the Site which provide cement concret for construction of stone embankment and culverts.
- Lubricant contained water occur during cleaning of construction equipment and tools.
- Waste water from daily life of workers.
- Waste water occur as a result of rain water brushing materials on the Site.
- Waste water from cooling water for machine engines and turbines.

Pollution level and impacts:

- A daily average volunme of $3m^3$ waste water is produced as a result of construction activities
- Cooling water which can be reused.

- Solid waste:

Main sources of occurrence

- Excavated materials which cannot be reused.
- Waste materials (rubbles, waste bitumen)
- Gabbages from daily life of workers.

Pullotion level and impacts:

- About 30kg is produced as a result of construction activities

- Noise:

Main source of occurrence

- Noise coming from operation of construction equipment and machine.
- Noise and vibration coming from operation of old and unrepaired equipment and machine (unscrewed bolts, lack of lubricant for machine)

Pollution level and impacts

- Pollution occurrence and impacts can be controled and mitigated.

- Forecasting hazards during construction activities:
  - Accidents (fire, explosion) and traffic accident to users.
  - Chemical spillage and leakage due to a lack of compliance with precaution procedures.
  - Runoff erosion and sedimentation

IV- MITIGATION MEASURES:

- Noise and exhaust:
  - Water tank shall be used by the Contractor to spray water to control dust in roads under construction to the extent that sub-base materials is not wash off.
  - Under dusty work place conditions workers shall be provided with face masks, gloves.
  - The Contractor shall turn off construction equipement when no construction activity is required.
  - The Contractor shall provide check and repair for equipment if necessary to ensure compliance with environmental standards and work safety.
  - The Contractor shall ensure that all equipment and materials loaded on trucks shall be covered during transportation.

- Waste water:
  - The Contractor shall ensure that waste water from cleaning of equipment is not stored or disposed of in water courses.
  - The Contractor shall ensure that rain runoff water does not flow directly into surface water sources using sedimentation storage or mudguard system.
  - The Contractor shall ensure that waste water is collected and treated suitably before being disposed of in water courses.
  - The Contractor shall ensure that waste solid is not disposed of in water courses.

- Solid waste:
  - The Contractor shall ensure that all waste earth and rock materials or waste materials associated with transporting activities are not disposed of in public or private land without prior consent of the owner.

- Daily life rubbish and waste materials associated with construction activities shall be daily collected and disposed of in suitable place that has been approved by the local government.

- Noise:
  - The Contractor shall ensure that equipment used in construction have effective silencing features.
  - The Contractor shall ensure that all construction equipment are equipped with effective silencers.
  - The Contractor is not to carry out excessive noise produced activities at night time and shall inform the local people in advance of their work at night if required.

- Emergency environmental situation
  - Procedures for dealing with emergency environmental situation such as chemical spillage shall be seriously studied and all staff shall be trained in appropriate action.
  - In case of environmental emergency, the Contractor shall immediately notify the Consultant who will instruct the Contractor on the next course of action. The Contractor shall immediately respond to the instruction from the Consultant to rectify the situation.

The Contractor shall also follow other activities included in the Environmental Management Plan to comply with environmental protection and the Environmental Management Plan forms part of the Bidding Documents.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Labour
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood
49 EN Road Safety

V - ENVIRONMENTAL MANAGEMENT RECORDS

The Employer, Consultant and the Contractor is responsible severally for the moniroting activities of environmental management during construction phase. The Consultant shall assign Site engineer and keep environmental management records, which include the following:

- Monitoring date and time
- Monitoring items (depending on environmental situation)
- Method of monitoring: Vietnamese Standards on Air Quality promulguated by Minitry of Sciences, Technology and Environment in 1999.
- Current environmental conditions, particularly in construction phase.

- Recommendations of the environmental supervision and management group on solutions for solving environmental issues.
- Comments collected from local people if any
- The Engineer shall be responsible for daily supervision of the Contractor and ensuring his compliance with the EMD and RMES as condition of the Contract. If the requested activities is not completed, Engineer will organize to complete those activities and total cost will deduce from final payment of contractor.

VI - COMMITMENT OF ENVIRONMENTAL COMPLIANCE

- Vietnamese environmental standards applicable: The Environmental Protection Law of Vietnam ratified by the National Assembly on 27th December 1993 and the Government Decree No.175CP dated 18th October 1994 providing the guidance for the implementation the Environmental Protection Law and Vietnamese Environmental Standards promulguated by the Ministry of Sciences, Technology and Environment in 1995.
- EMP contractual requirement of the World Bank.
- The Sie Engineer of the Contractor, PPMU Site Engineer is responsible for permanent supervision for the environmental compliance. Upon conpletion of construction we undertake that all waste materials and unused materials will be removed from the Site and be disposed of on suitable place.
- I acknowledge to be held responsible before the Law of the Socialist Repbublicv of Viet Nam in case of non-compliance with the above-mentioned conditions.

Date …..
THE EMPLOYER'S REPRESENTATIVE
(Signature and seal)

EA FOR ROAD 4 (07-02-011-01)

Road Code
07-02-011-01

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

SUB-PROJECT : REHABILITATION WORKS UNDER RURAL TRANSPORT III PROJECT FINANCED BY THE WORLD BANK

ANNUAL WORK PLAN:

THE EMPLOYER : DEPARTMENT OF TRANSPORT (PROJECT MANAGEMENT UNIT) PROVINCE

ADDRESS :

TELEPHONE : FACSIMILE:

I - ROAD LOCATION DETAILS:

1. Road Location Details

i. Province: Hung Yen
ii. District: Khoai Chau
iii. Type of road: Commune
iv. Road starts at Commune: Chi Tan
v. Road finishes at Commune: Dai Tap

2. Need for Road

i. Briefly justify why the road is required:
   iv. At present the road is on bad condition and road surface is waste crushed stone, which is usually muddy in rain and there are much dust in dry weather.
   v. The road rehabilitation makes resident's travels and production convenient, especially in crop seasons; create momentum to economic and social development.

ii. Provide population details for each of the communes that the road will service.

	Name of Commune	Population
1	Chi Tan	5203
2	Dai Tap	7620

iii. The year that population data refers to is: 2004

iv. State how many days in the year (on average) that the road is impassable due to; (a) mud: 6 of months ;(b) flooding 90 of days; (c) other problems (identify what these are)…… no. of days.

3. New Road Alignment:

i. Do any sections of the road require a new alignment?: No
If "Yes" specify location (km + m): (i) From (ii) To:

ii. Does the new alignment pass through any of the environmentally critical areas listed in Annex 10.2A i.e. protected areas, etc?. Yes or No.
If "Yes" explain.

If "No" detail the type of land use that the new alignment will pass through.

II - DESIGN AND CONSTRUCTION:

1. Road Design Details:

	Item	Unit	Specification or Quantity	Details or Remarks
5.1	Class of road	class	A	
5.2.4	Total road length	km	*3.10*	
5.2.1	Total road length[4]: < 3%	km	*3.10*	
5.2.2	Total road length: 3 -10 %	km	*0.0*	
5.2.3	Total road length > 10 %	km	*0.0*	
5.4.1	Design width (= pavement width + side drains)	m	*5*	
5.4.2	Length of existing road that meets design width.	km	*2.80*	
5.4.2	Length of existing road that does not meet design width (urban areas)	km av. width (m)	*0.0*	
5.4.3	Length of existing road that does not meet design width (all other areas)	km av. width (m)	*0.3* *4*	
5.4.4	Design pavement width	m	*5*	
5.5.1	Existing pavement material	(a) type (b) km	*Waste crushed stone* *3.10*	
5.5.2	Proposed pavement material (i)	(a) type (b) km	*Crushed stone with double bituminous surface treatment* *3.10*	
5.5.3	Proposed pavement material (ii)	(a) type (b) km		
5.6	Volume of material to be excavated and disposed of away from road site.	m^3	*0.0*	i. Specify location where the material is to be disposed. ii. Address in EMP.
5.7	Volume of fill required for roadbed.	m^3	*0.0*	i. Specify location of borrow pit: ii. New or existing borrow pit? ii. Address in EMP.

[4] Length of road. The total road length is to be separated into these three categories. Any sections less than 30 m may be disregarded and included in the previous category.

5.8	Volume of crushed rock required for pavement.	m^3	*4,000*	i. Specify location of quarry: ii. New or existing quarry? Existing iii. Address in EMP.
5.9.1	Volume of bitumen required for pavement	kgs	*35.000*	
5.9.2	Type of bitumen to be used.	i. emulsion or ii. non emulsion	*non emulsion*	i. If emulsion type, specify method to clean and dispose of drums. ii. Address in EMP.

2. Services:

When the road is widened will any of the following services require relocation? This includes substantial and not easily moved services such as concrete power poles that may be inside the existing road alignment. (Installations which can be easily moved e.g bamboo supported power lines are not included).

	Service	Yes	No	Detail by section (km + m)
6.1	Electricity		□	
6.2	Water pipelines		□	
6.3	Telephone		□	
6.4	Irrigation channels		□	
6.5	Drainage channels		□	
6.6	Other		□	

3. Construction:

All materials for road base will be sourced from approved borrow pits that are closest to the road and transported to the Site by the Contractor.
Main construction equipment include:

- Trucks
- Watering tank truck
- Bitumen spraying machine
- Roller
- Compaction machine .

Total costs : 123,063.49 USD

4. Public Consultation

Provide a separate statement of details of meetings that have been held with the local community that includes the following;

i. Date: 15/4 ; 16/4/2005
ii. number of persons attending: 20 persons/commune
iii. name of commune that they live in: Chi Tan, Dai Tap
iv. purpose of meeting: Informing project information to residents
v. points discussed: Project scope, land acquisition and other relative information
vi. main concerns expressed by the local community and: Residents here are informed of the project and entirely agree with the project implementation

vii. how were these concerns resolved:

III - SOURCES OF POLLUTION :

1. People relocation:

If the road requires 0.3 km widening. The widening is on both side of the road involving land acquisition and people relocation. Quality of environment and the people's quality of life will improve considerably when the road construction will complete. The improved road surface will provide better access to trade and cultural services for the local community.

2. Occurrence of pollution during construction :

Roads under the RTP3 are expected to be small road rehabilitation projects having minor impacts on environment and impact occur mainly during construction and be easily understood and contained, which include:

- Dust and exhaust:

Sources of occurrence :

- Dust generated from burning waste materials
- Dust generated from materials transport activities, excavation activity
- Dust generated from worker's camps due to unsuitable conditions of accommodation.
- Dust generated from construction equipment operating on the Site
- Dust generated from heating bitumen.

Pollution level and impacts :

- Dust and exhaust generation is expected to be minor and temporary as the magnitude of the projects are small. However, exhaust generated may have adverse impacts on an area within a radius of 200-300 m with wind.
- Dust generated from traffic will reduced as the rehabilitation will complete.

- Waste water:

Sources of waste water :

Waste water occur from the following sources:

- Waste water occur during operation of asphalt plants on the Site which provide cement concret for construction of stone embankment and culverts.
- Lubricant contained water occur during cleaning of construction equipment and tools.
- Waste water from daily life of workers.
- Waste water occur as a result of rain water brushing materials on the Site.
- Waste water from cooling water for machine engines and turbines.

Pollution level and impacts:

- A daily average volunme of $3m^3$ waste water is produced as a result of construction activities
- Cooling water which can be reused.

- Solid waste:

Main sources of occurrence

- Excavated materials which cannot be reused.
- Waste materials (rubbles, waste bitumen)
- Gabbages from daily life of workers.

Pullotion level and impacts:

- About 30kg is produced as a result of construction activities

- Noise:

Main source of occurrence

- Noise coming from operation of construction equipment and machine.
- Noise and vibration coming from operation of old and unrepaired equipment and machine (unscrewed bolts, lack of lubricant for machine)

Pollution level and impacts

- Pollution occurrence and impacts can be controled and mitigated.

- Forecasting hazards during construction activities:
  - Accidents (fire, explosion) and traffic accident to users.
  - Chemical spillage and leakage due to a lack of compliance with precaution procedures.
  - Runoff erosion and sedimentation

IV- MITIGATION MEASURES:

- Noise and exhaust:
  - Water tank shall be used by the Contractor to spray water to control dust in roads under construction to the extent that sub-base materials is not wash off.
  - Under dusty work place conditions workers shall be provided with face masks, gloves.
  - The Contractor shall turn off construction equipement when no construction activity is required.
  - The Contractor shall provide check and repair for equipment if necessary to ensure compliance with environmental standards and work safety.
  - The Contractor shall ensure that all equipment and materials loaded on trucks shall be covered during transportation.

- Waste water:
  - The Contractor shall ensure that waste water from cleaning of equipment is not stored or disposed of in water courses.
  - The Contractor shall ensure that rain runoff water does not flow directly into surface water sources using sedimentation storage or mudguard system.
  - The Contractor shall ensure that waste water is collected and treated suitably before being disposed of in water courses.
  - The Contractor shall ensure that waste solid is not disposed of in water courses.

- Solid waste:
  - The Contractor shall ensure that all waste earth and rock materials or waste materials associated with transporting activities are not disposed of in public or private land without prior consent of the owner.

- Daily life rubbish and waste materials associated with construction activities shall be daily collected and disposed of in suitable place that has been approved by the local government.

- Noise:
  - The Contractor shall ensure that equipment used in construction have effective silencing features.
  - The Contractor shall ensure that all construction equipment are equipped with effective silencers.
  - The Contractor is not to carry out excessive noise produced activities at night time and shall inform the local people in advance of their work at night if required.

- Emergency environmental situation
  - Procedures for dealing with emergency environmental situation such as chemical spillage shall be seriously studied and all staff shall be trained in appropriate action.
  - In case of environmental emergency, the Contractor shall immediately notify the Consultant who will instruct the Contractor on the next course of action. The Contractor shall immediately respond to the instruction from the Consultant to rectify the situation.

The Contractor shall also follow other activities included in the Environmental Management Plan to comply with environmental protection and the Environmental Management Plan forms part of the Bidding Documents.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
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41 EN Dust Control
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43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Labour
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood
49 EN Road Safety

V - ENVIRONMENTAL MANAGEMENT RECORDS

The Employer, Consultant and the Contractor is responsible severally for the moniroting activities of environmental management during construction phase. The Consultant shall assign Site engineer and keep environmental management records, which include the following:

- Monitoring date and time
- Monitoring items (depending on environmental situation)
- Method of monitoring: Vietnamese Standards on Air Quality promulguated by Minitry of Sciences, Technology and Environment in 1999.
- Current environmental conditions, particularly in construction phase.

- Recommendations of the environmental supervision and management group on solutions for solving environmental issues.
- Comments collected from local people if any
- The Engineer shall be responsible for daily supervision of the Contractor and ensuring his compliance with the EMD and RMES as condition of the Contract. If the requested activities is not completed, Engineer will organize to complete those activities and total cost will deduce from final payment of contractor.

VI - COMMITMENT OF ENVIRONMENTAL COMPLIANCE

- Vietnamese environmental standards applicable: The Environmental Protection Law of Vietnam ratified by the National Assembly on 27th December 1993 and the Government Decree No.175CP dated 18th October 1994 providing the guidance for the implementation the Environmental Protection Law and Vietnamese Environmental Standards promulguated by the Ministry of Sciences, Technology and Environment in 1995.
- EMP contractual requirement of the World Bank.
- The Sie Engineer of the Contractor, PPMU Site Engineer is responsible for permanent supervision for the environmental compliance. Upon conpletion of construction we undertake that all waste materials and unused materials will be removed from the Site and be disposed of on suitable place.
- I acknowledge to be held responsible before the Law of the Socialist Repbublicv of Viet Nam in case of non-compliance with the above-mentioned conditions.

Date …..
THE EMPLOYER'S REPRESENTATIVE
(Signature and seal)

EA FOR ROAD 5 (07-05-010-01)

Road Code
07-05-010-01

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

SUB-PROJECT : REHABILITATION WORKS UNDER RURAL TRANSPORT III PROJECT FINANCED BY THE WORLD BANK

ANNUAL WORK PLAN:

THE EMPLOYER : DEPARTMENT OF TRANSPORT (PROJECT MANAGEMENT UNIT) PROVINCE

ADDRESS :

TELEPHONE : FACSIMILE:

I - ROAD LOCATION DETAILS:

1. Road Approval

This road has been approved in the Final AWP

i. AWP year: First Year
ii. The road is identified in the AWP as road: Commune

2. Road Location Details

i. Province: Hung Yen
ii. District: Phu Cu
iii. Type of road: Commune
iv. Road starts at Commune: Quanh Hung
v. Road finishes at Commune: Phan Sao Nam

3. Need for Road

i. Briefly justify why the road is required:
   vi. The road runs through the populous areas. The people transport construction's materials on the road from their house to the river watering place and conversion.
   vii. At present the road is on bad condition and road surface is waste crushed stone, which is usually muddy in rain and there are much dust in dry weather.
   viii. The road rehabilitation makes resident's travels and production convenient, especially in seasons; create momentum to economic and social development.

ii. Provide population details for each of the communes that the road will service.

	Name of Commune	Population
1	Quang Hung	6952
2	Minh Tan	5566
3	Phan Sao Nam	5358

iii. The year that population data refers to is: 2004

iv. State how many days in the year (on average) that the road is impassable due to; (a) mud: 4 of months ;(b) flooding ……..no. of days; (c) other problems (identify what these are)…… no. of days.

4. New Road Alignment:

i. Do any sections of the road require a new alignment?: No
If "Yes" specify location (km + m): (i) From (ii) To:

ii. Does the new alignment pass through any of the environmentally critical areas listed in Annex 10.2A i.e. protected areas, etc?. Yes or No.
If "Yes" explain.
If "No" detail the type of land use that the new alignment will pass through.

II – DESIGN AND CONSTRUCTION

1. Road Design Details:

	Item	Unit	Specification or Quantity	Details or Remarks
5.1	Class of road	class	A	
5.2.4	Total road length	km	*6.00*	
5.2.1	Total road length[5]: < 3%	km	*6.00*	
5.2.2	Total road length: 3 -10 %	km	*0.0*	
5.2.3	Total road length > 10 %	km	*0.0*	
5.4.1	Design width (= pavement width + side drains)	m	*5*	
5.4.2	Length of existing road that meets design width.	km	*3.0*	
5.4.2	Length of existing road that does not meet design width (urban areas)	km av. width (m)	*0.0*	
5.4.3	Length of existing road that does not meet design width (all other areas)	km av. width (m)	*3.0* *4*	
5.4.4	Design pavement width	m	*5*	
5.5.1	Existing pavement material	(a) type (b) km	*Waste crushed stone* *6.00*	
5.5.2	Proposed pavement material (i)	(a) type	*Crushed stone with double bituminous surface treatment* *6.00*	

[5] Length of road. The total road length is to be separated into these three categories. Any sections less than 30 m may be disregarded and included in the previous category.

		(b) km		
5.5.3	Proposed pavement material (ii)	(a) type (b) km		
5.6	Volume of material to be excavated and disposed of away from road site.	m^3	*0.0*	i. Specify location where the material is to be disposed. ii. Address in EMP.
5.7	Volume of fill required for roadbed.	m^3	*0.0*	i. Specify location of borrow pit: ii. New or existing borrow pit? ii. Address in EMP.
5.8	Volume of crushed rock required for pavement.	m^3	*8,000*	i. Specify location of quarry: ii. New or existing quarry? Existing iii. Address in EMP.
5.9.1	Volume of bitumen required for pavement	kgs	*60,000*	
5.9.2	Type of bitumen to be used.	i. emulsion or ii. non emulsion	*non emulsion*	i. If emulsion type, specify method to clean and dispose of drums. ii. Address in EMP.

2. Services:

When the road is widened will any of the following services require relocation? This includes substantial and not easily moved services such as concrete power poles that may be inside the existing road alignment. (Installations which can be easily moved e.g bamboo supported power lines are not included).

	Service	Yes	No	Detail by section (km + m)
6.1	Electricity		□	
6.2	Water pipelines		□	
6.3	Telephone		□	
6.4	Irrigation channels		□	
6.5	Drainage channels		□	
6.6	Other		□	

3. Construction:

All materials for road base will be sourced from approved borrow pits that are closest to the road and transported to the Site by the Contractor.
Main construction equipment include:

- Trucks
- Watering tank truck
- Bitumen spraying machine
- Roller
- Compaction machine .

Total costs : 238,187.4 USD

4. Public Consultation

Provide a separate statement of details of meetings that have been held with the local community that includes the following;

i. Date: 15/4 ; 16/4 ; 17/4/2005
ii. number of persons attending: Quang Hung, Minh Tan, Phan Sao Nam
iii. name of commune that they live in: 15 persons
iv. purpose of meeting: Informing project information to residents
v. points discussed: Project scope, land acquisition and other relative information
vi. main concerns expressed by the local community and: Residents here are informed of the project and entirely agree with the project implementation
vii. how were these concerns resolved:

III - SOURCES OF POLLUTION :

1. People relocation:

If the road requires 3.0 km widening. The widening is on both side of the road involving land acquisition and people relocation. Quality of environment and the people's quality of life will improve considerably when the road construction will complete. The improved road surface will provide better access to trade and cultural services for the local community.

2. Occurrence of pollution during construction :

Roads under the RTP3 are expected to be small road rehabilitation projects having minor impacts on environment and impact occur mainly during construction and be easily understood and contained, which include:

- Dust and exhaust:

Sources of occurrence :

- Dust generated from burning waste materials
- Dust generated from materials transport activities, excavation activity
- Dust generated from worker's camps due to unsuitable conditions of accommodation.
- Dust generated from construction equipment operating on the Site
- Dust generated from heating bitumen.

Pollution level and impacts :

- Dust and exhaust generation is expected to be minor and temporary as the magnitude of the projects are small. However, exhaust generated may have adverse impacts on an area within a radius of 200-300 m with wind.
- Dust generated from traffic will reduced as the rehabilitation will complete.

- Waste water:

Sources of waste water :

Waste water occur from the following sources:

- Waste water occur during operation of asphalt plants on the Site which provide cement concret for construction of stone embankment and culverts.
- Lubricant contained water occur during cleaning of construction equipment and tools.
- Waste water from daily life of workers.

- Waste water occur as a result of rain water brushing materials on the Site.
- Waste water from cooling water for machine engines and turbines.

Pollution level and impacts:

- A daily average volunme of $3m^3$ waste water is produced as a result of construction activities
- Cooling water which can be reused.

- Solid waste:

Main sources of occurrence

- Excavated materials which cannot be reused.
- Waste materials (rubbles, waste bitumen)
- Gabbages from daily life of workers.

Pullotion level and impacts:

- About 30kg is produced as a result of construction activities

- Noise:

Main source of occurrence

- Noise coming from operation of construction equipment and machine.
- Noise and vibration coming from operation of old and unrepaired equipment and machine (unscrewed bolts, lack of lubricant for machine)

Pollution level and impacts

- Pollution occurrence and impacts can be controled and mitigated.

- Forecasting hazards during construction activities:
  - Accidents (fire, explosion) and traffic accident to users.
  - Chemical spillage and leakage due to a lack of compliance with precaution procedures.
  - Runoff erosion and sedimentation

IV- MITIGATION MEASURES:

- Noise and exhaust:
  - Water tank shall be used by the Contractor to spray water to control dust in roads under construction to the extent that sub-base materials is not wash off.
  - Under dusty work place conditions workers shall be provided with face masks, gloves.
  - The Contractor shall turn off construction equipement when no construction activity is required.
  - The Contractor shall provide check and repair for equipment if necessary to ensure compliance with environmental standards and work safety.
  - The Contractor shall ensure that all equipment and materials loaded on trucks shall be covered during transportation.

- Waste water:
  - The Contractor shall ensure that waste water from cleaning of equipment is not stored or disposed of in water courses.
  - The Contractor shall ensure that rain runoff water does not flow directly into surface water sources using sedimentation storage or mudguard system.

- The Contractor shall ensure that waste water is collected and treated suitably before being disposed of in water courses.
- The Contractor shall ensure that waste solid is not disposed of in water courses.

- Solid waste:
  - The Contractor shall ensure that all waste earth and rock materials or waste materials associated with transporting activities are not disposed of in public or private land without prior consent of the owner.
  - Daily life rubbish and waste materials associated with construction activities shall be daily collected and disposed of in suitable place that has been approved by the local government.

- Noise:
  - The Contractor shall ensure that equipment used in construction have effective silencing features.
  - The Contractor shall ensure that all construction equipment are equipped with effective silencers.
  - The Contractor is not to carry out excessive noise produced activities at night time and shall inform the local people in advance of their work at night if required.

- Emergency environmental situation
  - Procedures for dealing with emergency environmental situation such as chemical spillage shall be seriously studied and all staff shall be trained in appropriate action.
  - In case of environmental emergency, the Contractor shall immediately notify the Consultant who will instruct the Contractor on the next course of action. The Contractor shall immediately respond to the instruction from the Consultant to rectify the situation.

The Contractor shall also follow other activities included in the Environmental Management Plan to comply with environmental protection and the Environmental Management Plan forms part of the Bidding Documents.

35 EN Site Revegetation
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37 EN Site Clean up and Disposal of Waste
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43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Labour
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood
49 EN Road Safety

V - ENVIRONMENTAL MANAGEMENT RECORDS

The Employer, Consultant and the Contractor is responsible severally for the moniroting activities of environmental management during construction phase. The Consultant shall

assign Site engineer and keep environmental management records, which include the following:

- Monitoring date and time
- Monitoring items (depending on environmental situation)
- Method of monitoring: Vietnamese Standards on Air Quality promulguated by Minitry of Sciences, Technology and Environment in 1999.
- Current environmental conditions, particularly in construction phase.
- Recommendations of the environmental supervision and management group on solutions for solving environmental issues.
- Comments collected from local people if any
- The Engineer shall be responsible for daily supervision of the Contractor and ensuring his compliance with the EMD and RMES as condition of the Contract. If the requested activities is not completed, Engineer will organize to complete those activities and total cost will deduce from final payment of contractor.

VI - COMMITMENT OF ENVIRONMENTAL COMPLIANCE

- Vietnamese environmental standards applicable: The Environmental Protection Law of Vietnam ratified by the National Assembly on 27th December 1993 and the Government Decree No.175CP dated 18th October 1994 providing the guidance for the implementation the Environmental Protection Law and Vietnamese Environmental Standards promulguated by the Ministry of Sciences, Technology and Environment in 1995.
- EMP contractual requirement of the World Bank.
- The Sie Engineer of the Contractor, PPMU Site Engineer is responsible for permanent supervision for the environmental compliance. Upon conpletion of construction we undertake that all waste materials and unused materials will be removed from the Site and be disposed of on suitable place.
- I acknowledge to be held responsible before the Law of the Socialist Repbublicv of Viet Nam in case of non-compliance with the above-mentioned conditions.

Date …..
THE EMPLOYER'S REPRESENTATIVE
(Signature and seal)

EA FOR ROAD 6 (07-03-019-01)

Road Code
07-03-019-01

REGISTRATION FOR MEETING ENVIRONMENTAL STANDARDS

SUB-PROJECT : REHABILITATION WORKS UNDER RURAL TRANSPORT III PROJECT FINANCED BY THE WORLD BANK

ANNUAL WORK PLAN:

THE EMPLOYER : DEPARTMENT OF TRANSPORT (PROJECT MANAGEMENT UNIT) PROVINCE

ADDRESS :

TELEPHONE : FACSIMILE:

I - ROAD LOCATION DETAILS:

1. Road Location Details

i. Province: Hung Yen
ii. District: Kim Dong
iii. Type of road: Commune
iv. Road starts at Commune: Toan Thang
v. Road finishes at Commune: Vinh Xa

2. Need for Road

i. Briefly justify why the road is required:
   ix. The road runs through the populous areas.
   x. At present the road is on bad condition and road surface is waste crushed stone, which is usually muddy in rain and there are much dust in dry weather.
   xi. The road rehabilitation makes resident's travels and production convenient, especially in crop seasons; create momentum to economic and social development.

ii. Provide population details for each of the communes that the road will service.

	Name of Commune	Population
1	Toan Thang	6929
2	Vinh Xa	6678

iii. The year that population data refers to is: 2004

iv. State how many days in the year (on average) that the road is impassable due to; (a) mud: 3.5 of months ;(b) flooding ……..no. of days; (c) other problems (identify what these are)…… no. of days.

3. New Road Alignment:

i. Do any sections of the road require a new alignment?: No
If "Yes" specify location (km + m): (i) From (ii) To:

ii. Does the new alignment pass through any of the environmentally critical areas listed in Annex 10.2A i.e. protected areas, etc?. Yes or No.
If "Yes" explain.

If "No" detail the type of land use that the new alignment will pass through.

II - DESIGN AND CONSTRUCTION:

1. Road Design Details:

	Item	Unit	Specification or Quantity	Details or Remarks
5.1	Class of road	class	A	
5.2.4	Total road length	km	*2.00*	
5.2.1	Total road length[6]: < 3%	km	*2.00*	
5.2.2	Total road length: 3 -10 %	km	*0.0*	
5.2.3	Total road length > 10 %	km	*0.0*	
5.4.1	Design width (= pavement width + side drains)	m	*5*	
5.4.2	Length of existing road that meets design width.	km	*1.0*	
5.4.2	Length of existing road that does not meet design width (urban areas)	km av. width (m)	*0.0*	
5.4.3	Length of existing road that does not meet design width (all other areas)	km av. width (m)	*1.0* *4*	
5.4.4	Design pavement width	m	*5*	
5.5.1	Existing pavement material	(a) type (b) km	*Waste crushed stone* *2.00*	
5.5.2	Proposed pavement material (i)	(a) type (b) km	*Crushed stone with double bituminous surface treatment* *2.00*	
5.5.3	Proposed pavement material (ii)	(a) type (b) km		
5.6	Volume of material to be excavated and disposed of away from road site.	m^3	*0.0*	i. Specify location where the material is to be disposed. ii. Address in EMP.
5.7	Volume of fill required for roadbed.	m^3	*0.0*	i. Specify location of borrow pit: ii. New or existing borrow pit?

[6] Length of road. The total road length is to be separated into these three categories. Any sections less than 30 m may be disregarded and included in the previous category.

				ii. Address in EMP.
5.8	Volume of crushed rock required for pavement.	m^3	*2,000*	i. Specify location of quarry: ii. New or existing quarry? Existing iii. Address in EMP.
5.9.1	Volume of bitumen required for pavement	kgs	*20.000*	
5.9.2	Type of bitumen to be used.	i. emulsion or ii. non emulsion	*non emulsion*	i. If emulsion type, specify method to clean and dispose of drums. ii. Address in EMP.

2. Services:

When the road is widened will any of the following services require relocation? This includes substantial and not easily moved services such as concrete power poles that may be inside the existing road alignment. (Installations which can be easily moved e.g bamboo supported power lines are not included).

	Service	Yes	No	Detail by section (km + m)
6.1	Electricity		□	
6.2	Water pipelines		□	
6.3	Telephone		□	
6.4	Irrigation channels		□	
6.5	Drainage channels		□	
6.6	Other		□	

3. Construction:

All materials for road base will be sourced from approved borrow pits that are closest to the road and transported to the Site by the Contractor.
Main construction equipment include:

- Trucks
- Watering tank truck
- Bitumen spraying machine
- Roller
- Compaction machine .

Total costs : USD

4. Public Consultation

Provide a separate statement of details of meetings that have been held with the local community that includes the following;

i. Date: 15/4 ; 16/4/2005
ii. number of persons attending: 30 persons
iii. name of commune that they live in: Toan Thang, Vinh Xa
iv. purpose of meeting: Informing project information to residents
v. points discussed: Project scope, land acquisition and other relative information

vi. main concerns expressed by the local community and: Residents here are informed of the project and entirely agree with the project implementation

vii. how were these concerns resolved:

III - SOURCES OF POLLUTION :

1. People relocation:

If the road requires 1.0 km widening. The widening is on both side of the road involving land acquisition and people relocation. Quality of environment and the people's quality of life will improve considerably when the road construction will complete. The improved road surface will provide better access to trade and cultural services for the local community.

2. Occurrence of pollution during construction :

Roads under the RTP3 are expected to be small road rehabilitation projects having minor impacts on environment and impact occur mainly during construction and be easily understood and contained, which include:

- Dust and exhaust:

Sources of occurrence :

- Dust generated from burning waste materials
- Dust generated from materials transport activities, excavation activity
- Dust generated from worker's camps due to unsuitable conditions of accommodation.
- Dust generated from construction equipment operating on the Site
- Dust generated from heating bitumen.

Pollution level and impacts :

- Dust and exhaust generation is expected to be minor and temporary as the magnitude of the projects are small. However, exhaust generated may have adverse impacts on an area within a radius of 200-300 m with wind.
- Dust generated from traffic will reduced as the rehabilitation will complete.

- Waste water:

Sources of waste water :

Waste water occur from the following sources:

- Waste water occur during operation of asphalt plants on the Site which provide cement concret for construction of stone embankment and culverts.
- Lubricant contained water occur during cleaning of construction equipment and tools.
- Waste water from daily life of workers.
- Waste water occur as a result of rain water brushing materials on the Site.
- Waste water from cooling water for machine engines and turbines.

Pollution level and impacts:

- A daily average volunme of $3m^3$ waste water is produced as a result of construction activities
- Cooling water which can be reused.

- Solid waste:

Main sources of occurrence

- Excavated materials which cannot be reused.
- Waste materials (rubbles, waste bitumen)
- Gabbages from daily life of workers.

Pullotion level and impacts:

- About 30kg is produced as a result of construction activities

- Noise:

Main source of occurrence

- Noise coming from operation of construction equipment and machine.
- Noise and vibration coming from operation of old and unrepaired equipment and machine (unscrewed bolts, lack of lubricant for machine)

Pollution level and impacts

- Pollution occurrence and impacts can be controled and mitigated.

- Forecasting hazards during construction activities:
  - Accidents (fire, explosion) and traffic accident to users.
  - Chemical spillage and leakage due to a lack of compliance with precaution procedures.
  - Runoff erosion and sedimentation

IV- MITIGATION MEASURES:

- Noise and exhaust:
  - Water tank shall be used by the Contractor to spray water to control dust in roads under construction to the extent that sub-base materials is not wash off.
  - Under dusty work place conditions workers shall be provided with face masks, gloves.
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  - The Contractor shall ensure that waste water is collected and treated suitably before being disposed of in water courses.
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  - The Contractor shall ensure that equipment used in construction have effective silencing features.
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  - Procedures for dealing with emergency environmental situation such as chemical spillage shall be seriously studied and all staff shall be trained in appropriate action.
  - In case of environmental emergency, the Contractor shall immediately notify the Consultant who will instruct the Contractor on the next course of action. The Contractor shall immediately respond to the instruction from the Consultant to rectify the situation.

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The Employer, Consultant and the Contractor is responsible severally for the moniroting activities of environmental management during construction phase. The Consultant shall assign Site engineer and keep environmental management records, which include the following:

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- EMP contractual requirement of the World Bank.
- The Sie Engineer of the Contractor, PPMU Site Engineer is responsible for permanent supervision for the environmental compliance. Upon conpletion of construction we undertake that all waste materials and unused materials will be removed from the Site and be disposed of on suitable place.
- I acknowledge to be held responsible before the Law of the Socialist Repbublicv of Viet Nam in case of non-compliance with the above-mentioned conditions.

Date …..
THE EMPLOYER'S REPRESENTATIVE
(Signature and seal)

ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) has been prepared as a general document that is intended to be applied to construction and maintenance activities for road and bridge situations in RT3.

The EMP addresses specific impacts identified in Annex 3A and B and is supplemented by Activities that the Contractor[7] must address which are included in Division 5 – Environmental Activities of the Technical Guidelines.

While the EMP has been prepared as a document to cover probable impacts that may result from construction or maintenance activities it is possible that other impacts may be identified that are not covered by this EMP. Should this happen the EMP must be extended to address the missing impact.

The EMP is to be attached to the Contract Document and forms the contract's environmental conditions.

[7] The Contractor is the person who has been awarded the contract for the works.

Where an RMES has been issued by DONRE this is also attached to the Contract Document and forms part of the contract's environmental conditions.

The Engineer[8] has overall responsibility for ensuring that the Contractor carries out the work stated in the EMP and RMES so as to satisfy the contract conditions. Should the work not be carried out to a state that is approved by the Engineer, the Engineer will arrange for the work to be completed and the costs of re-instating the work to the approved standard will be recovered from the Contractor's final payment.

Work must be carried out to meet strict environmental requirements and should issues arise between the Contractor and the Engineer these may be referred to the PDoT and/or DONRE who may in turn inspect the works and instruct the Engineer as required.

All instructions to the Contractor are given via the Engineer; similarly the Contractor must first direct all issues to the Engineer. If the Engineer is unable to resolve these issues then the Engineer may direct these to PDoT and/or DONRE as required for their resolution.

A. Conditions of the EMP

A.1 Site Revegetation

Description: See Technical Guideline Activity 35 EN "Site Revegetation". Applies to the revegetation of all disturbed areas where suitable conditions exist for re-establishing vegetal cover.
Mitigation Procedure: Specified in "Procedures" in the relevant Activity Sheet[9].
Clearances and Approvals Needed: Soil nutrient sampling may be required as well as advice on grass, shrub and tree species from the provincial office of MARD.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The contractor is responsible for the daily supervision of work. The Engineer will inspect and approve the revegetation work as required.
Monitoring Criteria: Revegetation must be successful over at least 75 percent of the area 2 weeks after using planting materials or 1 month after seeding.

A.2 Disposal of Excavated Material

Description: See Technical Guideline Activity 36 EN "Off-site Disposal of Excavated Material". Applies to the off-site disposal of excavated earth and rock materials that cannot be re-used in the road formation.
Mitigation Procedure: Specified in "Procedures" in the relevant Activity Sheet.
Clearances and Approvals Needed: Specified in the relevant Activity Sheet. Approval must be obtained from owners of sites where material is disposed. All sites must be approved by the Engineer.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The contractor is responsible for the daily supervision of work. The Engineer will inspect and approve as required and when the off-site disposal area is no longer required.
Monitoring Criteria: Specified in the relevant Activity Sheet in Construction Methods.

[8] The Engineer means the Director of the Provincial Department of Transport of the province in which the contract is let. This person is responsible for arranging the technical supervision of the contract and the Contractor.
[9] The relevant Activity Sheet refers to the Activity Sheet in the Technical Guidelines that describes the activity.

A.3 Site Clean up and Disposal of Waste

Description: See Technical Guideline Activity 37 EN "Site Clean up and Disposal of Waste". Applies to areas where waste material remain from the Contractor's activities. These could be construction sites, camp sites or other areas that the Contractor has occupied. These areas require clearing and closing.
Mitigation Procedure: Specified in "Procedures" in the relevant Activity Sheet
Clearances and Approvals Needed: Specified the relevant Activity Sheet. All sites must be approved by the Engineer.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the clean up of work areas and closing sites. The Engineer will inspect and approve the Contractor's clearing and closing of sites.
Monitoring Criteria: As specified in Construction Methods for this Activity.

A4. Rehabilitation of Borrow Pits

Description: See Technical Guideline Activity 38 EN "Use and Closure of Borrow Pits". Applies to off-site areas that are excavated for materials for the road formation. These areas are termed borrow pits.
Mitigation Procedure: Specified in "Procedures" in the relevant Activity Sheet
Clearances and Approvals Needed: Specified in the relevant Activity Sheet. All sites must be approved by the Engineer.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of work. The Engineer will inspect and approve the Contractor's operations in the borrow pit and when the borrow pit is closed.
Monitoring Criteria: As specified in Construction Methods for this Activity.

A.5 Rehabilitation of Quarries

Description: See Technical Guideline Activity 39 EN "Use and Closure of Quarries". Applies to off-site areas that are excavated for rock materials. These areas are termed quarries.
Mitigation Procedure: Specified in "Procedures" in the relevant Activity Sheet
Clearances and Approvals Needed: Specified in the relevant Activity Sheet. All sites must be approved by the Engineer.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of work. The Engineer will inspect and approve the Contractor's operations in the quarry and when the quarry is closed.
Monitoring Criteria: As specified in Construction Methods for this Activity.

A.6 Removal and Reinstatement of Services

Description: See Technical Guideline Activity 40 EN "Removal and Re-instatement of Services". Applies to those services that the Contractor can safely relocate where the road requires widening.
Mitigation Procedure: Removal and relocation of services that can be safely relocated by Contractor.
Clearances and Approvals Needed: Specified in the relevant Activity Sheet. Removal of any services must be approved by the Engineer.
Monitoring Required: Monitoring of the Contractor's work is required.

Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of work. The Engineer will inspect and approve the Contractor's operations.
Monitoring Criteria: The re-instatement of the removed service in working condition.

A.7 Dust Control

Description: See Technical Guideline Activity 41 EN "Dust Control". Applies to areas where dust generated from the Contractor's activities becomes a nuisance to the surrounding community or workers in a work place situation.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of work. The Engineer will inspect and approve the Contractor's operations.
Monitoring Criteria: Community and worker satisfaction with Contractor's dust control procedures.

A.8 Noise and Vibration Control

Description: See Technical Guideline Activity 42 EN "Noise and Vibration Control". Applies to areas where noise and vibration generated by the Contractor's activities becomes a nuisance and a hazard to the surrounding community or workers in a work place situation.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of work. The Engineer will inspect and approve the Contractor's operations.
Monitoring Criteria: Community and worker satisfaction with Contractor's noise and vibration control procedures.

A.9 Handling of Fuel, Lubricants and Bitumen

Description: See Technical Guideline Activity 43 EN "Handling of Fuel, Lubricants and Bitumen". Applies to the safe handling of fuel, lubricants and bitumen so as to avoid contamination of the surrounding environment.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of the handling of fuel, lubricants and bitumen. The Engineer will inspect and approve the Contractor's operations.
Monitoring Criteria: Fuel, oil and bitumen spills cleaned up and removed. No pollution occurrences of soil and/or water resources.

A.10 Employment of Unskilled Workers

Description: See Technical Guideline Activity 44 EN "Employment of Unskilled Workers". Applies to the recruitment, housing, welfare and site management of facilities that are required for unskilled labour.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of unskilled labour and their facilities.

The Engineer will approve the Contractor's labour recruitment scheme and approve and inspect facilities for unskilled labour.
Monitoring Criteria: Community and worker satisfaction with the Contractor's procedures.

A.11 Worker Health and Safety Issues

Description: See Technical Guideline Activity 45 EN "Worker Health and Safety Issues". Applies to the provision of workplace safety procedures.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of unskilled labour and their facilities. The Engineer will approve and inspect the Contractor's workplace safety procedures.
Monitoring Criteria: Work place accident record.

A.12 AIDS and HIV Awareness

Description: See Technical Guideline Activity 46 EN "AIDS and HIV Awareness". Applies to the need to raise worker awareness of AIDS and HIV.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's awareness program is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for implementing the program which has been identified by the Engineer.
Monitoring Criteria: Existence of an AIDS/HIV awareness program, records of the number of awareness raising visits and attendance records.

A. 13 Discovery of Cultural Artefacts

Description: See Technical Guideline Activity 47 EN "Discovery of Cultural Artefacts". Applies to the unexpected finding of rare antiquities.
Mitigation Procedure: Specified in "Procedure" in the relevant Activity Sheet.
Monitoring Required: Monitoring of excavation activity is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible for the daily supervision of excavated areas and is to report any discoveries to the Engineer.
Monitoring Criteria: Safe removal and transfer of any unexpected discoveries of antiquities to the Ministry of Culture.

A.14 Use of Wood Fuel

Description: See Technical Guideline Activity 48 EN "Use of Wood Fuel". Applies to harvesting and use of wood for heating for bitumen heating and in worker camps for cooking and heating. This Activity regulates the unsustainable harvesting of wood in wood deficient areas.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: Monitoring of the Contractor's work is required.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. The Contractor is responsible monitoring wood fuel requirements. The Engineer will approve the Contractor's fuel needs and approve and inspect these as required.
Monitoring Criteria: Community satisfaction with the Contractor's wood fuel use and gathering activities.

A.15 Road Safety

Description: See Technical Guideline Activity 49 EN "Road Safety". Applies to road safety issues that arise during construction and operation of the road. This Activity is designed to reduce road accidents and hazards.
Mitigation Procedure: Specified in "Mitigation Methods" in the relevant Activity Sheet.
Monitoring Required: During construction the Contractor's work practices are monitored. During operation road accidents are monitored.
Person Responsible for Monitoring: Specified in the relevant Activity Sheet. During construction the Contractor is responsible for monitoring construction practices for road safety hazards. The Engineer will also monitor the Contractor's practices.
During operation PDoT monitors road safety conditions.
Monitoring Criteria: Road accidents that occur during (i) construction and (ii) operation.

Technical Guidelines: Division 5 Environmental Activities

The following activities are included in this section:

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Labour
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood
49 EN Road Safety

Several of the activities may support other activities and these inter-relationships are noted for each activity under the heading SUPPORTING ACTIVITIES.

E1. ENVIROMENTAL ACTIVITIES

E1.1 ACTIVITY No 35 ENSITE REVEGETATION

DESCRIPTION

This work comprises methods of revegetating excavated or disturbed areas by the use of; (i) re-seeding, (ii) vegetative cuttings. (iii) grass sods or (iv) trees or shrubs. Planting of these materials is used to provide a seasonally stable vegetative covering so as to reduce erosion and stabilise the site on which it is planted. Revegetation will be required on large excavated areas and to a lesser extent on smaller excavated areas.

SUPPORTING ACTIVITIES

This activity may be used in conjunction with any of the following activities.

36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants

44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues
47 EN Discovery of Cultural Artefacts

MATERIALS

The vegetative material used shall be suitable for the area where it will not become an invasive or noxious species to livestock or agricultural activities. It shall be free of disease and other noxious and invasive weeds, deep-rooted and able to spread rapidly over the planted area to give complete cover. The material to be planted is to be approved by either the Provincial Agricultural or the Provincial Forestry Officer for grasses and for shrub and tree species respectively.

An “excavated area” is an area that has had topsoil removed from it so that nutrient deficient subsoils are exposed. Soils which have become compacted will need to be ripped to promote plant growth.

A “disturbed area” is an area that has been substantially affected so that the pre-existing vegetation has been removed by construction activities. A disturbed area may or may not have topsoil available. Soils which have become compacted will need to be ripped to promote plant growth.

Fertiliser includes lime or mixtures of plant nutrients or both. If the local site conditions are not well understood soil tests will be required to establish the correct application rates for lime or plant nutrients. The Provincial Agricultural Officer will need to be consulted to establish the suitable mixes and application rates. Care must be taken during application of fertilisers to prevent excessive quantities being washed into watercourses.

CONSTRUCTION METHODS

Where directed by the Engineer or as shown in the drawings excavated areas are to have topsoil spread over them. Where this has been stockpiled or is available this is to be spread over the excavated areas to a depth of at least 5cm so that a suitable seed bed is formed. Disturbed areas may require ripping to loosen the soil so as to promote plant growth.

Re-seeding includes the sowing of seeds (normally grass seeds) over the excavated or disturbed area so as to provide a quickly established ground cover. Seeds are hand broadcast over the area and then raked in with the appropriate fertiliser mix.

Cuttings are short sections of a self-propagating grass, shrub or tree species that grow from a node that has been pushed into the ground. The contractor is to discuss how these are to be obtained with the Engineer who will approve the method and inspect the material to ensure that it is viable. Any non viable material will be rejected and the contractor will be required to replace this will viable planting material.

Grass sodding is done by excavating shallow holes and placing recently dug sods of grass with soil still attached around its roots in the holes. The sod is then tamped in and packed around with moist earth. Sods may be held in position by inserting small wooden stakes to pin them to the earth face. The contractor will be required to source a supply of grass sods. The Engineer will approve the source and the viability of grass sods. Any non viable material will be rejected.

Trees and shrubs shall be provided in rooting tubes. Shallow holes are dug in moist soil, the plastic is removed from the roots and the tree or shrub immediately planted in the hole. Material is tamped in around the plant so that good contact is made between the roots and moist earth. The Engineer will approve the source of the plant material and will inspect it on arrival at the site. Any non viable material will be rejected and the Contractor will be required to replace this.

The Engineer will advise which revegetation method is to be used for a particular site and situation. Revegetation shall be undertaken at such a time and the work shall be done in such a way that at the time of the final construction inspection all areas to be revegetated are substantially covered with healthy, well established, firmly rooted grass or trees and the planted area is free from erosion channels.

The Contractor shall be responsible for the satisfactory establishment of the ground cover and shall water and fertilise the plant materials until the completed works have been

accepted. The area will be inspected after 2 weeks where established planting materials have been used and 1 month after seeding. Where vegetation has failed to establish over 25 percent of the area, this will not be approved by the Engineer and will require re-treatment.

At the completion of work all waste materials including bags and plastic is to be removed from the site and disposed of so as to meet DONRE standards. The Engineer will approve the site clean up and that the material has been disposed of so as to meet environmental requirements.

CONSTRUCTION EQUIPMENT

Revegetation work is labour intensive. Hand tools will be used to spread and smooth the topsoil, spread fertilisers, dig holes and plant grass sods and to tamp the planted cuttings, trees or shrubs into place. Transportation of planting materials between the points of excavation is likely to be in light vehicles or by hand.

MEASUREMENT

The quantity measured for payment shall be the number of square metres of surface that has been revegetated whether horizontal or sloping.

This work measured as provided above shall be paid for at the Contract unit price per square metre. The payment will be full compensation for furnishing all materials, labour, equipment, tools and incidentals necessary to complete the work to the satisfaction of the Engineer. Final payment to the Contractor may be withheld until the revegetation work has been successfully completed.

Pay items shall be:	Unit
Seeding	m^2
Use of Cuttings	m^2
Grass sods	m^2
Tree and shrub planting	m^2
Topsoil	m^3
Fertilizer	kg

E1.2 ACTIVITY No 36EN OFF-SITE DISPOSAL OF EXCAVATED MATERIALS

DESCRIPTION

Excavation may result in earth and rock materials that need to be disposed of off-site. This Activity deals with how to dispose of material that requires off-site disposal.

MATERIALS

This includes all materials resulting from excavation that cannot be re-used on-site.

PROCEDURES

All excavated material to be disposed of can only be disposed of in an approved site. If this is on private land the Contractor is to obtain approval from the occupier. If the site is on public land approval must be obtained from the government organisation that is responsible for overseeing the site. This may be the PPC or DPC. For disposal on public property the Contractor must obtain a copy of the site approval which is issued by the relevant governmental agency. A copy of the approval is be handed to the Engineer and retained for his records. For disposal either on private or public land the Engineer is required to approve the site.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN	Site Revegetation
37 EN	Site Clean up and Disposal of Waste
38 EN	Use and Closure of Borrow Pits
39 EN	Use and Closure of Quarries
41 EN	Dust Control
42 EN	Noise and Vibration Control

43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues
47 EN Discovery of Cultural Artefacts

CONSTRUCTION METHODS

When all material is removed, the disposal area must be suitably shaped and finished so that the disposed site is stable and will not erode. This will normally require levelling and smoothing the heaped material so that an acceptable finish is achieved that allows the site to drain correctly.

Where the site will not have any immediate alternative use e.g. as a building site, the Engineer will direct the Contractor to revegetate the site as described by Activity 9D.

CONSTRUCTION EQUIPMENT

The Contractor may use hand labour or machinery to level and smooth the site. Hand labour will be required for revegetation work.

MEASUREMENT AND PAYMENT

Removal, disposal and stabilisation of excavated waste to an off-site area is the Contractor's responsibility and is not costed separately. The cost is to be included as part of the activity that generates the excavated waste material. Final payment to the Contractor may be withheld until the waste disposal sites have been stabilised.

E1.3 ACTIVITY No 37 EN SITE CLEAN UP AND DISPOSAL OF WASTE

DESCRIPTION

When any construction activity is completed the site is to be cleaned up and all waste removed. This applies to both large and small work items. Waste may include rock and soil, plastic bags, cardboard, cement bags, reinforcing steel off-cuts, unused or spilt mortar and concrete, bitumen and fuel drums, abandoned machinery and equipment etc. The site is to be cleaned and re-instated and all of these materials and items removed and disposed of in a proper fashion. This Activity deals with how to clean up the site and dispose of material so that the site is left clean.

MATERIALS

This includes all items and materials that remain on site when a construction activity is completed.

PROCEDURES

Where material cannot be recycled or collected by scrap dealers all material that is to be disposed of can only be disposed of to an approved site. If this is on private land the Contractor is to obtain approval from the occupier. If the site is on public land approval must be obtained from the government organisation that is responsible for overseeing the site. This may be the PPC or DPC. For disposal on public property the Contractor must obtain a copy of the site approval which is issued by the relevant governmental agency. A copy of the approval is be handed to the Engineer and retained for his records. For disposal either on private or public land the Engineer is required to approve the site.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44EN Employment of Unskilled Workers

45 EN Worker Health and Safety Issues
47 EN Discovery of Cultural Artefacts

CONSTRUCTION METHODS

The site must be cleared of all material that has been brought on-site by the Contractor. This includes the removal of all loose material and material that has bonded with the earth e.g. concrete and mortar, and fuel and lubricant spills (contaminated areas). All areas are to be cleaned or contaminated areas dug up and the soil removed. The site is to be left in a stable and non-erodible condition. Where required the site may require smoothing so that an acceptable finish is achieved that re-establishes the site drainage. Where the site is extensively disturbed the Engineer will direct the Contractor to revegetate the site as described by Activity 9D. The Engineer will inspect and approve that the site has been cleaned and cleared of all materials to his satisfaction.

All waste material that cannot be recycled is to be removed and disposed of at a suitable waste site. The Engineer will approve the site where the waste material is to be dumped.

CONSTRUCTION EQUIPMENT

Site clean up is suitable for hand labour.

MEASUREMENT AND PAYMENT

Clean up and removal, disposal and stabilisation of work areas is the Contractor's responsibility and is not costed separately. The cost is to be included as part of the activity that requires clean up and disposal of waste material. Final payment to the Contractor may be withheld until all sites have been cleaned and waste disposed of.

E1.4 ACTIVITY No 38 EN USE AND CLOSURE OF BORROW PITS

DESCRIPTION

Borrow pits will be a source of material for road base material. This Activity deals with procedures required to open and use borrow pits and is to be used in conjunction with Activity 3E Earth Fill in Roadway. Where borrow pits are privately owned and the Contractor buys material from the borrow pit this Activity does not apply and Contractor is not required to rehabilitate these areas. The Contractor however is still obliged to show that the owner has the necessary DONRE approvals for operating the borrow pit.

CLEARANCES REQUIRED

The Contractor is to only use material from borrow pits that have been approved by DONRE. The Contractor is required to provide copies of the necessary approval licenses for the borrow pit and to give these to the Engineer for his records. The Engineer will approve the location of the borrow pit and inspect the Contractor's activities in the borrow pit so that it is worked safely.

Borrow pits should be at least 500 m from residential areas so as to reduce dust and noise from these sites. Dust in borrow pits can be a concern especially to workers. The Contractor will need to apply dust suppression in any borrow pit where the Contractor employs labour. In dusty conditions the Contractor will need to provide workers with face masks.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues
47 EN Discovery of Cultural Artefacts

CONSTRUCTION METHODS

Where a borrow pit is opened for the contract the Contractor is to strip and remove topsoil to a suitable site so that it is available for re-use when the site is to be closed and the area rehabilitated. Where slopes are excessive and topsoils have not formed the Engineer will waive this requirement. The Contractor is to plan his work in the borrow pit so that the opened area is minimised by being progressively rehabilitated.

Rehabilitation includes the reshaping of the excavated area so that it drains and does not allow pools of water to accumulate in the bottom of the borrow pit. Topsoil is then re-spread over these areas and the area revegetated as described in Activity 50. Long slopes that will be susceptible to erosion will need to have small level bunds constructed across the slope to break up and redirect runoff away from the re-establishment area. Should the area not stabilise the Contractor will be required to repair the damage. The Engineer will inspect and approve the rehabilitation of the borrow pit when the Contractor has finished using it.

CONSTRUCTION EQUIPMENT

The site may be levelled with machinery while rehabilitation work may be carried out with hand labour.

MEASUREMENT AND PAYMENT

Closing and rehabilitation of the borrow pit is not a separate cost item and is to be included in the costing of excavating material from the borrow pit. Failure to re-instate any borrow pit areas to the required standard by the Contractor, may result in the Engineer undertaking the work using other resources and any payments made will be deducted from the Contractor.

E1.5 ACTIVITY No 39 EN USE AND CLOSURE OF QUARRIES

DESCRIPTION

Quarries will be required as a source of rock material for road surfacing or for use in other activities such as rock paving, rock walling and as mattress material. This Activity deals with procedures required to open, use and close quarries that the Contractor opens. Where quarries are privately owned and the Contractor buys material from the quarry this Activity does not apply and Contractor is not required to rehabilitate these areas. The Contractor however is still obliged to show that the owner has the necessary DONRE approvals for operating the quarry.

CLEARANCES REQUIRED

The Contractor is to only to draw rock from quarries that have been approved by DONRE. The Contractor is required to provide copies of the necessary approval licenses for the quarry and to give these to the Engineer for his records. The Engineer will approve the location of the quarry and where the Contractor opens and works the quarry by himself the Engineer will also inspect the Contractor's activities in the quarry so that it is worked safely.

Quarries should be at least 500 m from residential areas so as to reduce dust and noise from these sites. Dust in quarries can be a concern especially to workers. The Contractor will need to apply dust suppression in any quarry where the Contractor employs labour. In dusty conditions the Contractor will need to provide workers with face masks.

If the Contractor uses explosives the person handling the explosives must be licensed. The Engineer is to be given a copy of the explosives license together with a copy of the holder's ID.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants

44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues
47 EN Discovery of Cultural Artefacts

CONSTRUCTION METHODS

Where a quarry is opened by the Contractor, the Contractor is required to strip and remove topsoil to a suitable site so that it is available for re-use when the quarry is to be closed and the area rehabilitated. Where slopes are excessive and topsoils have not formed the Engineer will waive this requirement. The Contractor is to work the quarry so that the open area is minimised by progressively rehabilitating the disturbed areas.

Rehabilitation includes the reshaping of the excavated area so that it drains and does not allow pools of water to accumulate in the bottom of the quarry. Topsoil is then re-spread over these areas and the area revegetated with trees so that the disturbed area will eventually develop as a forest. The Provincial Department of Forests will advise on suitable tree species. Revegetation is carried out as described in Activity 50 E. Long slopes that will be susceptible to erosion will need to have small level bunds constructed across the slope to break up and redirect runoff away from the re-establishment area. Should the area not stabilise the Contractor will be required to repair the damage. The Engineer will inspect and approve the rehabilitation of the quarry when the Contractor has finished using it.

CONSTRUCTION EQUIPMENT

The site may be levelled with machinery while rehabilitation work may be carried out with hand labour.

MEASUREMENT AND PAYMENT

Closing and rehabilitation of the quarry pit is not a separate cost item and is to be included in the cost of material drawn from the quarry. Failure to reinstate any quarry areas to the required standard by the Contractor, may result in the Engineer undertaking the work using other resources and any payment made will be deducted from the Contractor.

E1.6 ACTIVITY No 40 EN RELOCATION OF SERVICES

DESCRIPTION

Services that may need to be removed and relocated electricity lines, water, telephone, irrigation channels, drains and any other installations along the road that may need to be moved and reinstated during road widening

CLEARANCES REQUIRED

In the event that services will need to be removed for road widening or other activities, the Contractor is to advise the Engineer of the services to be moved. The Engineer will advise and arrange this with the owner of the service.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

37 EN Site Clean up and Disposal of Waste
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues
48 EN Use of Fuel Wood

CONSTRUCTION METHODS

Relocation of services shall be undertaken by the appropriate statutory authority. In the event that any services are damaged by the Contractor, the Contractor is to (i) report this to the Engineer and (ii) where safety is not an issue the Contractor is carry out repairs to the damaged services as an immediate task. The owner will advise the Engineer when the

service has been adequately repaired. Should the service be unable to be immediately re-instated the Contractor may be required to replace the lost services with other means and at the Contractor's cost.

CONSTRUCTION EQUIPMENT

Not applicable.

MEASUREMENT AND PAYMENT

Payment for relocation of services is not made under the contract. All costs associated with the relocation of services incurred by the Contractor are deemed to be included in the rates.

E1.7 ACTIVITY No 41 EN DUST CONTROL

DESCRIPTION

Dust in residential areas can be a health problem and a nuisance to people living close to roads. Women and children who live in houses close to the road are most at risk. The Contractor is to suppress dust when it becomes a problem by regularly spraying water on the roads during construction. This is particularly important where the construction is being done within village areas or where the Contractor's vehicles are using unsealed roads through villages as haul roads.

Dust in work areas such as borrow pits and quarries can be a concern especially to workers. The Contractor will need to apply dust suppression in any borrow pit or quarry where the Contractor employs labour.

MITIGATION METHODS

Water tankers shall be used to spray water to control dust in roads and work places. In dusty work place conditions the Contractor will need to provide workers with face masks.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues

MONITORING

Monitoring of dust and dust suppression activities is the responsibility of the Contractor and shall be carried out to the required standard with regard to the community's interests. Should this not appear to be satisfactory, the Engineer can instruct the Contractor to spray water to suppress dust.

MEASUREMENT AND PAYMENT

Dust suppression is not a separate cost item and is to be included in the cost of road works.

E1.8 ACTIVITY No 42 EN NOISE AND VIBRATION CONTROL

DESCRIPTION

Noise and vibration from construction equipment is a particular nuisance for people who are living close to the road. This includes; houses, work and business areas, schools, medical centres etc.

MITIGATION METHODS

Noise. The Contractor is to maintain silencers on all equipment to the manufacturer's standard. The Contractor is not to work between the hours of 22.00 and 07.00 within 500 m of houses or other permanent places where people live. The Contractor is required to provide suitable protective ear mufflers to workers who operate excessively noisy equipment.

Vibration. The Contractor is to seek the approval of the Engineer if vibratory equipment is to be used within 50 m of a building. The Contractor will be responsible for the repair of any damage to buildings that may arise from the use of vibratory equipment.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues

MONITORING

Monitoring of machinery for noise and vibration is the responsibility of the Contractor and is monitored with regard to the community's interests.

MEASUREMENT AND PAYMENT

Noise and vibration suppression is not a separate cost item and is to be included in the cost of road works.

E1.9 ACTIVITY No 43 EN HANDLING OF FUEL, LUBRICANTS AND BITUMEN

DESCRIPTION

Fuel, lubricant and bitumen spills can contaminate soil and water resources.

MITIGATION METHODS

Fuel, lubricants and bitumen are to be stored in approved containers. No refuelling is allowed on farmland or close to water courses where spillage may contaminate soil and water resources. All waste oil is to be collected and disposed of according to oil industry standards. Any spillage of fuel, lubricants and bitumen is to be cleaned up and contaminated soil removed and disposed of in a suitable place. Serious spillages are to be reported to the Engineer.

After cleaning, the wash down waste from bitumen heaters and bitumen drums are not to be disposed of in water courses where this may pollute the environment. Bitumen heater and bitumen drum wash down waste may be disposed of in deep trenches and covered over. The Engineer is to approve the location and siting of waste trenches.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
44 EN Employment of Unskilled Workers
45 EN Worker Health and Safety Issues

MONITORING

Monitoring of fuel, lubricant and bitumen storage and handling is the responsibility of the Contractor. The Engineer will inspect and approve the Contractor's fuel, oil and bitumen handling procedures as needed.

MEASUREMENT AND PAYMENT

Handling and storage of fuel, lubricants and bitumen is not a separate cost item. Fuel and lubricant costs are to be included in the cost of operating machinery while bitumen costs are to be included in road construction costs.

E1.10 ACTIVITY No 44 EN EMPLOYMENT OF UNSKILLED WORKERS

DESCRIPTION

Large numbers of unskilled workers employed from outside the local community and brought into the community may create several adverse social issues with the local community, including gambling, drinking and sexual activities. This may lead to conflict with the local community. Furthermore if the local community have not been consulted and given the opportunities for employment that the immigrant workers enjoy this may also be an area of tension between the local community and immigrant labour.

MITIGATION METHODS

Preference for hiring unskilled workers shall be given to the surrounding community.

In the event that unskilled workers will be hired by the Contractor, the Contractor will need to first discuss this with the Engineer who will advise the Contractor on this issue. If issues will arise they should not be accommodated within the community and camps should be located well away from the community. The Contractor will be required to provide the workers with: suitable accommodation, potable water, cooking facilities, an energy source for cooking (gas or kerosene if wood is short in the area), sanitation facilities and solid and liquid waste collection and disposal facilities.

When the worker accommodation site is no longer required the Contractor will be responsible for closing and cleaning the campsite.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
45 EN Worker Health and Safety Issues
46 EN AIDS/HIV Awareness
48 EN Use of Fuel Wood

MONITORING

The Contractor will discuss worker hiring arrangements and accommodation sites with the Engineer who will approve the arrangements with regard to the location of the accommodation and the provision of facilities for the workers. When camps are closed the Engineer will be responsible for inspecting and approving the closed site.

MEASUREMENT AND PAYMENT

Labour accommodation and welfare costs are not a separate cost item and are to be included in the cost of employing labour.

E1.11 ACTIVITY No 45 EN WORKER HEALTH AND SAFETY

DESCRIPTION

The Contractor has a duty of care to ensure that safe and healthy work place conditions are provided for workers. Workers may be exposed to a range of adverse workplace conditions that includes, dust and smoke particles, noise, material handling and hazardous chemicals.

MITIGATION METHODS

Where required the Contractor is to provide workers with approved safety and protective equipment. This may include; safety helmets, dust masks, ear protection, eye protection and gloves for handling materials and hazardous chemicals.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
46 EN AIDS/HIV Awareness
47 EN Discovery of Cultural Artefacts
48 EN Use of Fuel Wood

MONITORING

The Contractor has the prime responsibility of monitoring worker and workplace health and safety conditions in accordance with the relative laws and standards.

MEASUREMENT AND PAYMENT

The cost of workplace health and safety equipment is not a separate cost item and is to be included in the cost of hiring labour.

E1.12 ACTIVITY No 46 EN AIDS AND HIV AWARENESS

DESCRIPTION

AIDS and HIV infection is increasing within Vietnam. Staff and workers that are employed by the Contractor may be knowingly or unknowingly infected and may pass the disease on to the community. This is more of a concern where itinerant staff and workers may be accommodated within the community and may pass the disease on to the community by unsafe sex practices.

MITIGATION METHODS

The Contractor shall ensure that his workforce is aware of HIV/AIDS. Several methods are available and in small rural road projects awareness can be raised by the use of posters that can be placed in campsites and by formal discussion sessions with health workers from surrounding health centres. The Contractor shall ensure that such methods are employed.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

44 EN Employment of Unskilled Labour

45 EN Worker Health and Safety Issues

MONITORING

The Contractor is required to monitor worker awareness and submit awareness programs for approval by the Engineer.

PAYMENT

The cost of AIDS/HIV awareness programs are not a separate cost item and are included in the cost of hiring labour.

E1.13 ACTIVITY No 47 EN DISCOVERY OF CULTURAL ARTEFACTS

DESCRIPTION

Excavation activities may uncover artefacts that are part of the nation's heritage and may be of particular interest to museums. If artefacts are discovered the law states that finds must be reported to the nearest office of the Ministry of Cultural Affairs.

PROCEDURE

If cultural artefacts are uncovered the Contractor must stop work at the site, secure the site and inform the Engineer. The Engineer will inform the provincial representative of the Ministry of Cultural Affairs who will inspect the discovery and advise the Engineer as to what action is to be taken. Following a discovery and after securing the site the Contractor should arrange with the Engineer to move his activities to another site.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

35 EN Site Revegetation
36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
44 EN Employment of Unskilled Workers

MONITORING

The Contractor has the prime responsibility of supervising excavation works. Should a discovery be made the Contractor is to cease work at that site and advise the Engineer.

PAYMENT

Any costs associated with the discovery whereby the Contractor is delayed or is unable to complete the work may be negotiated with the Engineer.

E1.14 ACTIVITY No 48 EN USE OF WOOD FUEL

DESCRIPTION

If wood resources are scarce in an area other methods for heating bitumen and work camp cooking and heating should be considered. Where wood is in short supply, excessive use of wood will impact most on the poorest members of the community who have the least ability to substitute alternatives for cooking and heating. The use of wood in such situations needs to be carefully considered as otherwise social hardship and unsustainable extraction of this resource may occur.

PROCEDURE

Where the Contractor proposes to use wood for road construction or worker camp activities the Engineer is to approve its use. Before approving its use the Engineer will verify with the local community that this will not create an excessive use on the surrounding forest resources to the detriment of the supply that is available for the local community's use.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

44 EN Employment of Unskilled Workers

MITIGATION METHODS

Where wood is in short supply the Engineer will instruct the Contractor to use an alternative heating and cooking source such as kerosene or gas.

The Contractor is to site all bitumen boilers downwind of buildings that are used for human habitation.

MONITORING

The Engineer will monitor the Contractor's compliance with this requirement.

PAYMENT

Any costs associated with the use of an alternative fuel to wood will be the Contractor's responsibility.

E1.15 ACTIVITY No 49 EN ROAD SAFETY

DESCRIPTION

Road safety concerns can arise during construction from construction activities and following construction when the road conditions may be altered. Construction activities may create a series of hazards to road users by altering road conditions while Contractor's vehicles will increase the volume of traffic travelling through urban areas. Following construction where the road conditions have been changed this will increase the traffic volume and vehicle speed. This will create road safety concerns which may become a particular concern in semi-urban and urban areas. School areas and school children who use the road are at particular risk.

PROCEDURE

The Engineer will identify areas of road safety concern and determine suitable methods for reducing the road hazard to the users during and after construction. This may include the erection of warning signs, traffic calming road measures, pull over areas, and road safety awareness campaigns that are conducted at schools. Driver education and enforcement methods may also need to be considered. The Engineer will determine the level of risk and instruct the Contractor to erect safety fencing and warning signs during construction. Where road conditions will be changed after construction the Engineer will arrange to discuss the various road safety methods that are proposed with the local community. Following this the Engineer will instruct the Contractor which methods are to be used and arrange with the Contractor where signs are to be erected and changes that will be required in the pavement conditions to reduce the hazards. During construction the Contractor will arrange for temporary road signage and safety fencing. Where road construction has been completed road signs shall be progressively erected within these sections.

SUPPORTING ACTIVITIES

This activity may be associated with any of the following activities.

36 EN Off-site Disposal of Excavated Material
37 EN Site Clean up and Disposal of Waste
38 EN Use and Closure of Borrow Pits
39 EN Use and Closure of Quarries
40 EN Removal and Re-instatement of Services
41 EN Dust Control
42 EN Noise and Vibration Control
43 EN Handling of Fuel and Lubricants
44 EN Employment of Unskilled Workers

MONITORING

The Contractor shall provide and erect permanent road signs in accordance with the Contract Document and drawings and/or as instructed by the Engineer.

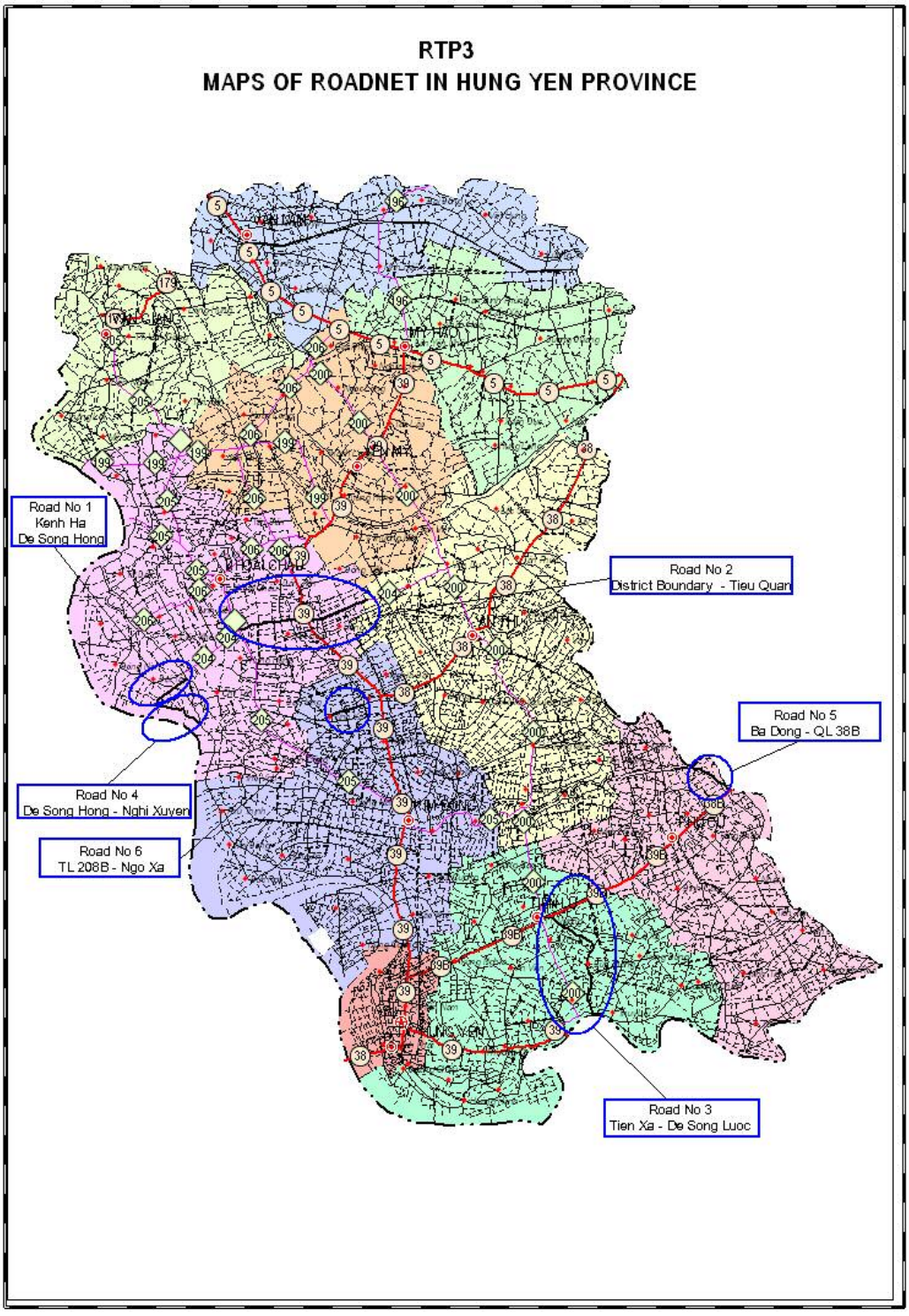
PAYMENT

During construction the Contractor will meet all costs associated with traffic control and road safety. For permanent traffic safety measures payment for these will be arranged with the Engineer as follows.

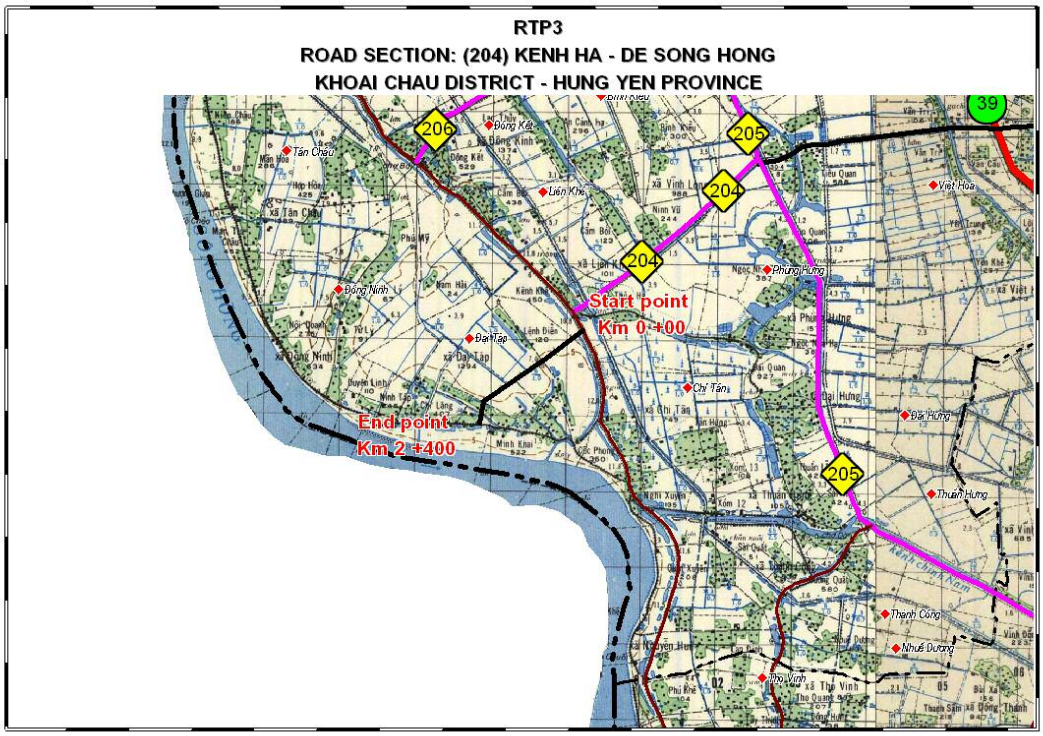
Pay items shall be:	Unit
Erection of road signs	No.
Construction of traffic calming measures	No.

Maps

Provincial Map with proposed alignments



Map of Road 1: 07-03-01



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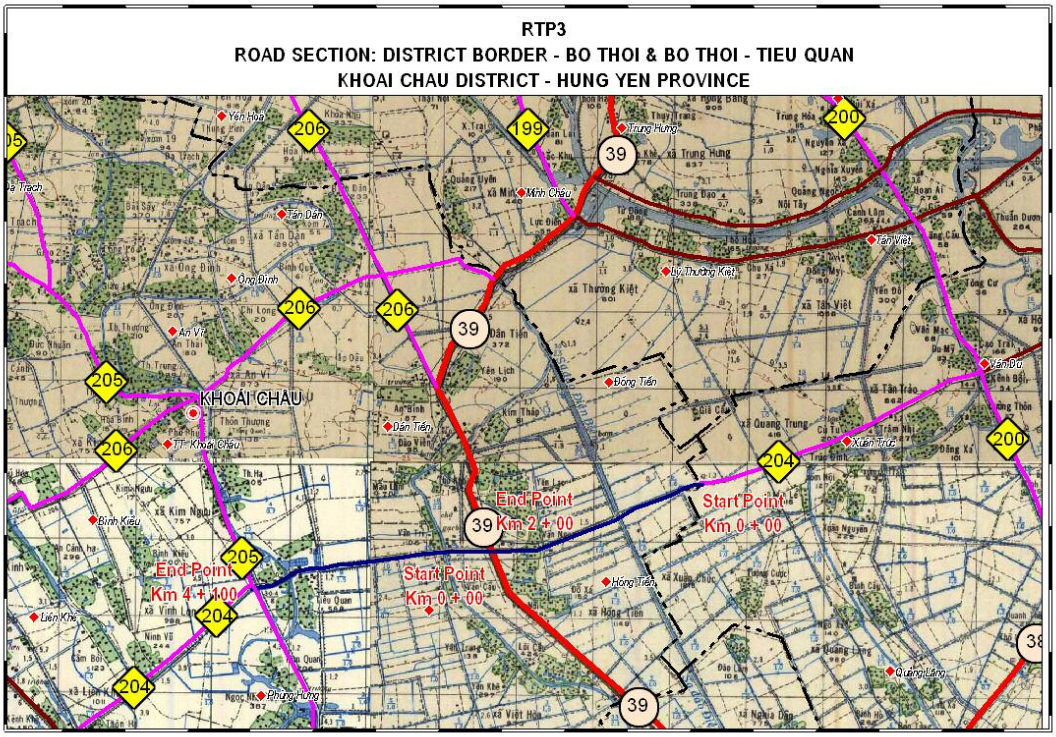

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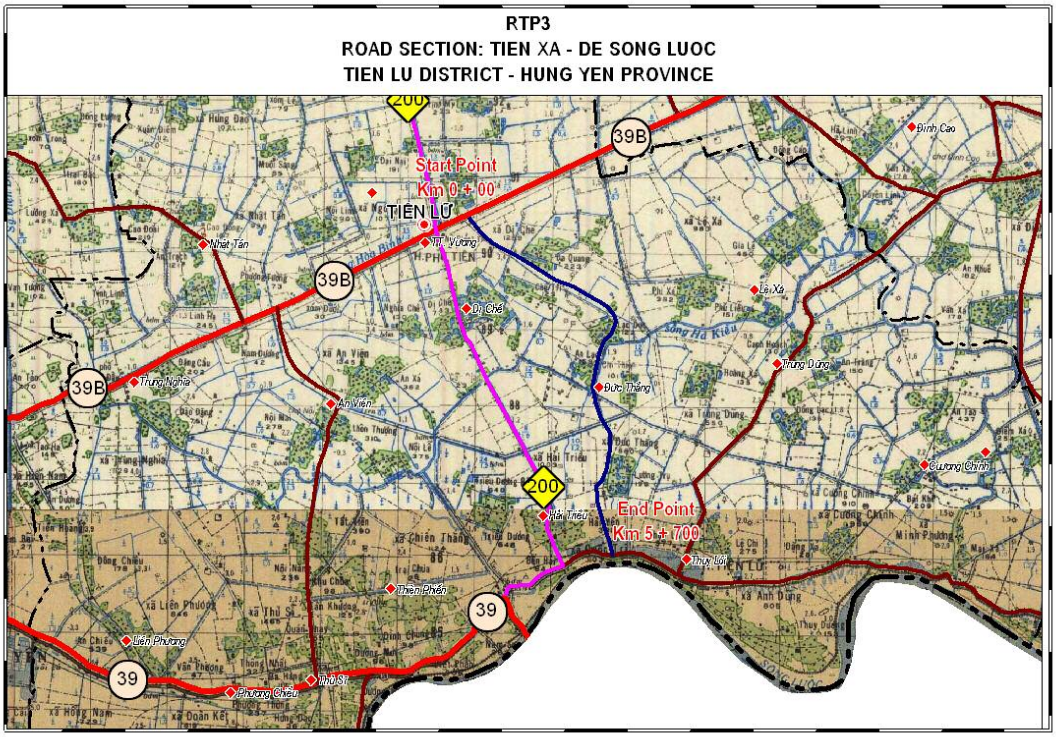
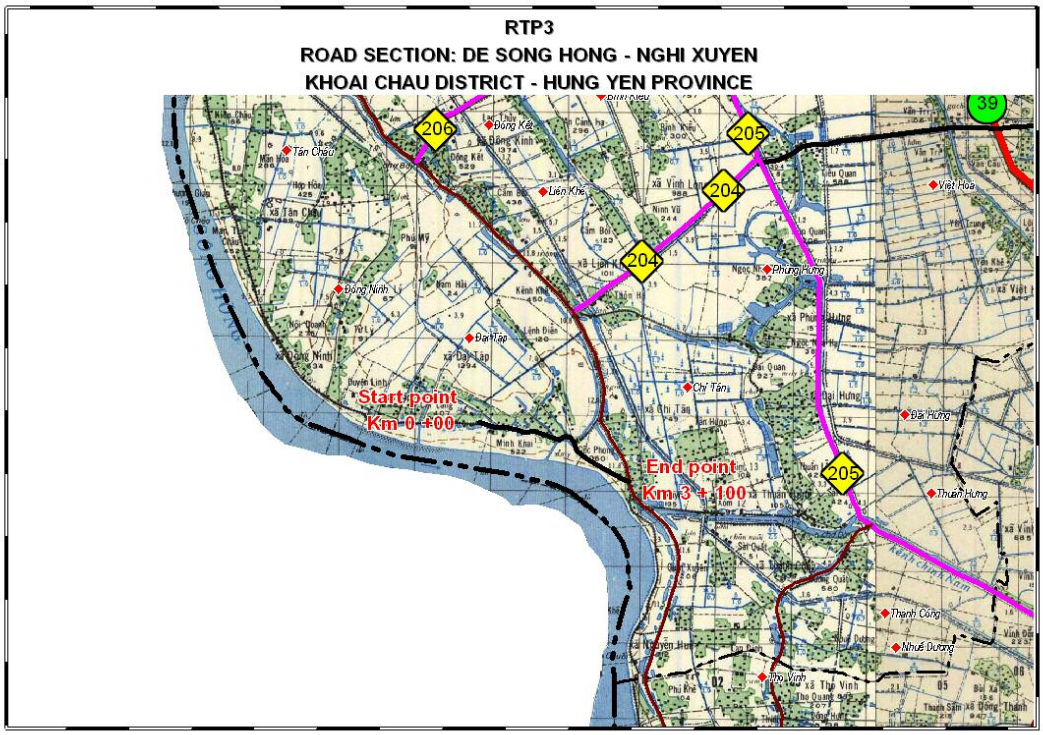
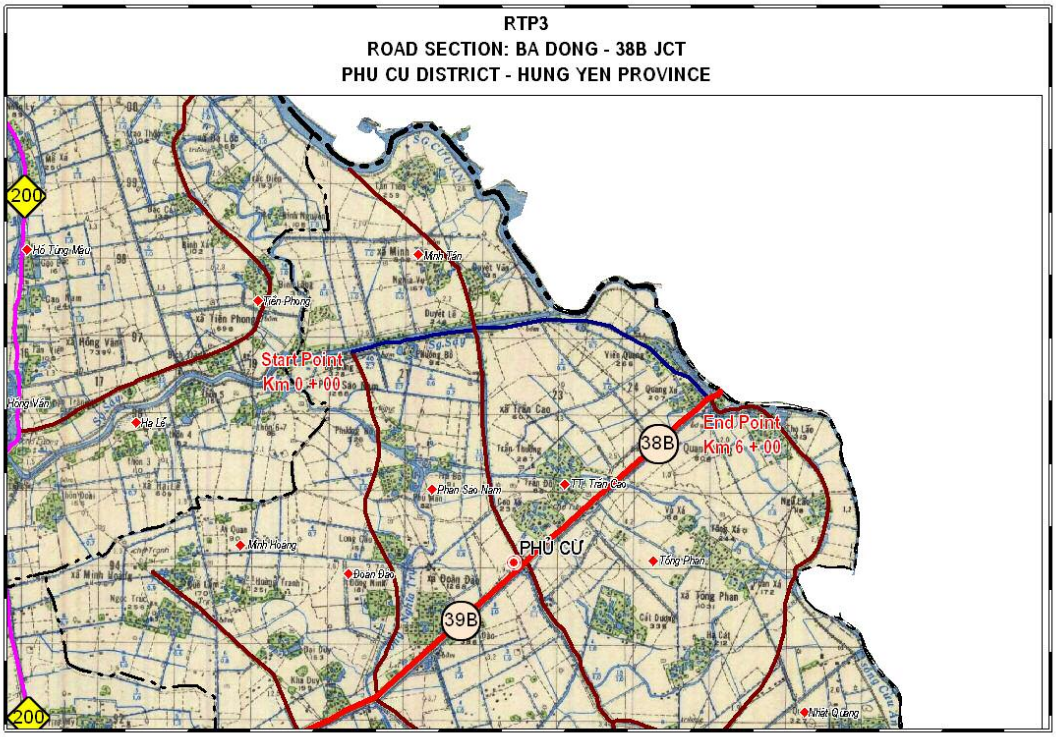


Map of Road 4: 07-02-011-01



Map of Road 5: 07-05-010-01



Map of Road 6: 07-03-019-01