

Environmental monitoring result to be reported to JICA (construction phase)

PACKAGE J3

Site Environmental Compliance Inspection and Monitoring Form

Project : North-South Expressway Construction Project (Ben Luc-Long Thanh) **Executing Agency** : Vietnam Expressway Corporation (VEC)

Section and Location : Package J3 construction site **Supervision Consultant** : KEI-NE-OC-TEDI

Date : August 2018 **Contractor(s) for Reporting** : SMCC – CIENCO 04 JO

Reporting Period : 2nd Quarter of 2018 **Monitoring Agency** : CEECO - TRECO JO

1. Mitigation Compliance Inspection

Mitigation Measure	Mitigations Implemented (Yes, No)	Mitigations Effective? (1 to 5)*	Current situation	Action required	Contractor's action taken
1. Completion of detailed design in accordance with EMP requirements	Yes	1	1	None	None
2. Preparation of tender document included detailed requirements in pollution control and protection of natural ecosystems.	Yes	1	1	None	None
3. Proper preparation of CEMP by contractors	Yes	1	1	None	None
4. Evidence of marking of work site boundaries	Yes	1	1	None	None
5. No cutting trees outside the project ROW	Yes	1	1	None	None
6. Replanting vegetation damaged by site clearance	Not yet implemented	-	-	None	None
7. No dumping of all kinds of wastes and cut trees in rivers, canals, ponds and field	Yes	2	1	None	None
8. General site condition and cleanliness	Yes	1	1	None	None

9. Covering of all trucks moving to and from site	Yes	2	1	None	None
10. Watering road, construction site on rainless day	Yes	2	1	None	None
11. Registration papers and compliance certificates of construction vehicles with Vietnam Register Authority of Police approved environmental emissions standards	Yes	2	2	None	None
12. Installation of temporary waste storage areas at each construction site including segregation of hazardous and non-hazardous wastes.	Yes	2	2	None	None
13. Sanitation conditions at construction worker camps, included sewage treatment facilities (toilets), domestic solid wastes management, house keeping etc.	Yes	1	1	None	None
14. Clean water and safe food supply for workers	Yes	2	2	None	None
15. Requirements for vegetation waste (cut trees) burning met	Yes	2	2	None	None
16. Proper organization of material transport to minimize environmental pollution and community disturbance	Yes	2	2	None	None
17. Condition and effectiveness of erosion controls	Yes	2	2	None	None
18. Condition and effectiveness of construction waste management	Yes	2	2	None	None
19. Evidence of soil and/or water acidification due to leakage of acidic water from construction site to surrounding field, canals	Not	1	1	None	None
20. Evidence of direct or indirect disturbance of mangroves and other vegetation outside defined worksite boundaries	Not occurred	1	1	None	None
21. Stabilization, rehabilitation and landscaping of all land surfaces affected by construction activities	Yes	2	2	None	None
22. Installation of noise and dust control walls	Yes	1	1	None	None
23. Dust generation during windy conditions	Yes	1	1	None	None
24. Number and type of community complaints on environmental issues received	No community complaints on environmental issues received	1	1	None	None
25. Mangrove replanting for compensation of mangrove area lost by the project at the Thi Vai river, Long Tau and Soai Rap river banks	Not yet implemented	-	-	None	None

* Mitigation Effectiveness Rating Criteria (Indicative examples)

Very Good (all required mitigations implemented)
Good (the majority of required mitigations implemented)
Fair (some mitigations implemented)
Poor (few mitigations implemented)
Very Poor (very few mitigations implemented)

2. Ambient air monitoring

Parameter	Result* ¹ (µg/m ³)		Countries standards* ² (µg/m ³)	Reference Standard* ³ (µg/m ³)	Baseline* ⁴ (µg/m ³)	Action required (Y/N)	Contractor's action taken		Date/ Location* ⁵
TSP	51(KK4)	247 (KK2)	300	-	87-269	No	None	None	Date: 13 th -14 th June 2018 Location: KK1: Residential area at Binh Khanh commune, Can Gio district, HCM (Near Pier P1) KK2: Concrete batching plant area, Nhon Trach district, Dong Nai province KK3: Residential area at Binh Khanh commune, Can Gio district, HCM (near Rung Sac st, endpoint of pk J2). KK4: Residential area at Phuoc Khanh commune, Nhon Trach district, Dong Nai (Near Pier P24)
PM10	14 (KK3)	98 (KK2)	150*	150*	18-127	No	None	None	
CO	1040 (KK1)	5450 (KK2)	30,000	-	810-3540	No	None	None	
NO _x	23(KK3)	73 (KK3)	200	200	17-62	No	None	None	
SO ₂	31(KK1)	79(KK2)	350	N/A	28-73	No	None	None	

*1 The monitoring results of all monitoring points shall be attached to this form every time.

*2 National Technical Regulation for TSP and ambient air quality QCVN 05:2013/BTNMT, 1h average, except *PM10, 24h average.

*3 Reference Standard is WB/IFC (WHO) guideline for ambient air quality.

*4 The Baseline data is the measured data in 2015 (dry season).

*5 The location of the monitoring points shall be attached to this form.

3. Noise and vibration

Parameter	Unit	Result		Country standards* ²	Reference Standard	Baseline* ⁴	Action required (Y/N)	Contractor's action taken		Date/ Location* ⁵	
Noise (Leq)	6:00- 21:00	dBA	47.1 (KK3)	60.9 (KK2)	70	70	45.0-67.9	No	None	None	Date: 13 th -14 th June 2018 Location: KK1: Residential area at Binh Khanh commune, Can Gio district, HCM (Near Pier P1) KK2: Concrete batching plant area, Nhon
	21:00- 6:00		45.4 (KK4)	52.7(KK2)	55	70	44.4-52.8	No	None	None	

Vibration	6:00-21:00	dB	38.3 (KK4)	48.6(KK2)	75	N/A	38.4-51.3	No	None	None	Trach district, Dong Nai province KK3: Residential area at Binh Khanh commune, Can Gio district, HCM (near Rung Sac st, endpoint of pk J2). KK4: Residential area at Phuoc Khanh commune, Nhon Trach district, Dong Nai (Near Pier P24)
	21:00-6:00		35.2 (KK3)	43.4(KK2)	Baseline Level	N/A	35.4-45.7	No	None	None	

*1 The monitoring results of all monitoring points shall be attached.

*2 Noise: National Technical Regulation QCVN 26:2010/BTNMT, Vibration: National Technical Regulation QCVN 27:2010/BTNMT

*3 Reference Standard is WB/IFC (WHO) guideline for noise.

*4 The Baseline data is the measured data in 2014 (dry season).

*5 The location of the monitoring points shall be attached to this form.

4. Surface water quality

Parameter	Result*1 (mg/L)		Limited values*2 (mg/L)**		Reference Standard*3 (mg/L)	Baseline*4 (mg/L)	Action required (Y/N)	Contractor's action taken		Date/ Location*5
	B1	B2	B1	B2						
pH	6.96 (NM2-2)	7.24 (NM4-1)	5.5-9	5.5-9	6.5-8.5	6.65-6.78	No	None	None	Date: 13 th -14 th June 2018 Location: NM1: Long Tau river (upstream) NM2: Long Tau river (downstream) NM3: Canal at the site in Binh Khanh commune, Can Gio district, HCM city (near Pipe Culvert No.2) NM4: Canal at the site in Phuoc Khanh commune, Nhon Trach district, Dong Nai (near Pipe Culvert No.4)
SS	19 (NM1-1)	52 (NM2-2)	50	100	-	20-68	No	None	None	
TDS	5529 (NM1-2)	9874 (NM2-1)	-	-	-	-	No	None	None	
BOD	10 (NM4-1)	15 (NM3-2)	15	25	5	4-13	No	None	None	
COD	17 (NM4-1)	25 (NM1-2)	30	50	-	7-25	No	None	None	
NO ₂ ⁻ -N	NDT	NDT	0.05	0.05	-	0.012-0.024	No	None	None	
NO ₃ ⁻ -N	0.271 (NM1-1)	0.624 (NM2-1)	10	15	-	0.056-0.921	No	None	None	
NH ₄ ⁺ -N	0.062 (NM4-1)	0.226 (NM1-2)	0.9	0.9	-	0.047-0.095	No	None	None	
Zn	0.034 (NM4-1)	0.071 (NM3-1)	1.5	2	-	-	No	None	None	
Mn	0.054 (NM2-1)	0.086 (NM1-1)	-	-	-	-	No	None	None	
Fe	0.236 (NM3-1)	0.529 (NM4-2)	1.5	2	-	-	No	None	None	
As	NDT	NDT	0.5	1	-	-	No	None	None	
Al	NDT	NDT	-	-	-	-	No	None	None	
PO ₄ ³⁻ -P	0.014 (NM2-1)	0.029 (NM1-2)	0.3	0.5	-	0.015-0.024	No	None	None	

Turbidity (NTU)	13.6 (NM4-1)	47.5 (NM3-2)	-	-	-	15.9-85.1	No	None	None
Oil & grease	0.18 (NM3-1)	0.42 (NM2-2)	1	1	-	0.00-0.08	No	None	None
Coliform (MPN/100ML)	240 (NM4-1)	930 (NM4-2)	7500	10000	-	4-70	No	None	None

*1 Please attach the list of results of all monitoring points.

*2 National Technical Regulation for surface water quality QCVN 08MT:2015/BTNMT. ** Unit: N/A for pH, MPN/100ML for coliforms

*3 Japan Standards for river water quality (Class C)

*4 The Baseline data is the measured data in 2014 (dry season).

*5 The location of the monitoring points shall be attached to this form.

*6 NDT: not detective.

5. Groundwater quality

Parameter	Result *1		Limited values*2 (mg/L)**	Reference Standard*3 (mg/L)	Baseline*4 (mg/L)	Action required (Y/N)	Contractor's action taken		Date/ Location*5
pH	4.49	4.52	5.5-8.5	-	3.30-4.15	The baseline values did not meet the standard	None	None	Date: 13 th -14 th June 2018 Location: At Concrete batching plant (Nhon Trach - Dong Nai), near Pier P17
COD	1.12	1.24	4	-	1.2-1.4	No	None	None	
TDS	NDT	NDT	1500	-	-	No	None	None	
NH ₄ ⁺ -N	0.041	0.058	1	-	0.049-0.057	No	None	None	
NO ₂ ⁻ -N	NDT	NDT	1	-	0	No	None	None	
NO ₃ ⁻ -N	1.66	1.73	15	-	0.051-0.083	No	None	None	
PO ₄	NDT	NDT	-	-	-	-	None	None	
Fe	4.78	5.34	5	-	15.1-23.9	No	None	None	
Al	0.017	0.023	-	-	0.058-0.062	No	None	None	
As	0.005	0.008	0.05	-	0.026-0.037	No	None	None	
Mn	1.72	1.58	0.5	-	6.65-7.61	The baseline values did not meet the standard	None	None	
Zn	0.038	0.041	3	-	0.593-0.601	No	None	None	
EC (mS/cm)	1437	1528	-	-	3570-3650	No	None	None	
Oil	NDT	NDT	-	-	0	No	None	None	
E. Coli (MPN/100ML)	0	0	0	-	0	No	None	None	

*1 Please attach the list of results of all monitoring points

*2 National Technical Regulation for surface water quality QCVN 09MT:2015/BTNMT. ** Unit: N/A for pH, MPN/100ML for coliforms

*3 Japan Ground Water Environmental Standard (1999) as a specified Reference Standard is not available.

*4 The Baseline data is the measured data in 2014 (dry season).

*5 The location of the monitoring points shall be attached to this form.

*6 NDT: not detective

6. Waste Water

Parameter	Result (mg/L)*1		Limited values*2 (mg/L)**		Reference Standard*3 (mg/L)	Baseline*4 (mg/L)	Action required (Y/N)	Contractor's action taken		Date/ Location*5
			domestic	Industrial						
pH	6.65 (NT1-1)	8.35 (NT2-1)	5-9	5.5-9	-		No	None	None	Date: 13 th -14 th June 2018 NT1: Worker camp (Can Gio side) NT2: Clarifier outlet of concrete batching plant (Nhon Trach side and Can Gio side) NT3: Office and staff accommodation (Nhon Trach side) NT4: Worker camp (Nhon Trach side)
BOD	16 (NT2-2)	46 (NT4-1)	50	50	-		No	None	None	
TSS	5 (NT2-2)	53 (NT4-1)	100	-	-		No	None	None	
TDS	223 (NT3-1)	249 (NT2-2)	1000	-	-		No	None	None	
H ₂ S	-	-	-	None malodourous			Requested to analysis next quarter	Agreed		
NH ₃ -N	1.48 (NT2)	8.35 (NT1)	10	10	-		No	None	None	
NO ₃ -N	-	-	50	-	-		Requested to analysis next quarter	Agreed		
PO ₄ -P	-	-	10	-	-					
Oil & Grease	0.57 (NT2)	4.51 (NT1)	-	-	-		No	None	None	
T. Coliform	20 (NT2)	4600 (NT4)	5000	5000	-		No	None	None	

*1 Please attach the list of results of monitoring sites;

A. at construction site; at least 01 ample at discharging point of each concrete batching plant,

B. Workers camp: at least 01 sample at discharging point of septic tank of each workers camp

*2 National Technical Regulation on domestic waste water QCVN 14:2008/BTNMT. National Technical Regulation on industrial waste water QCVN 24:2009/BTNMT.

** Unit: N/A for pH, MPN/100ML for coliforms

*3 Japan Ground Water Environmental Standard (1999) as a specified Reference Standard is not available.

*4 The Baseline data is the measured data in 2014 (dry season).

*5 The location of the monitoring points shall be attached to this form.

7. Waste

Monitoring Item	Monitoring Results during Reporting Period			
	Creating volume (kg/week)	Collecting Proportion (%)	Collecting Measure	Disposal Method
Domestic waste				
Organic component	75	100%	- Covered containers - Separated storage area	- Contracting with functional unit
Inorganic Component	37.5	100%		
Reusable Component	62.5	30%	Separated storage area	- Concrete wasted from batching plant is used for surface levelling. - Steel is just recycled partially, the rest will be given to demanding units
Hazardous waste				
Oily waste	2.5	100%	Separated storage area	Not yet
Asbestos waste	0	0%		
Waste contaminated by heavy metals	0	0%		

*Solid and hazardous wastes disposal monitoring will be carried out at all work sites.

8. Environmental Incidents During Reporting Period (if relevant)

Environmental Incidents (accidents, spills, complaint)	Date / Location	Reported by	Description	Action Taken	Further Action Required
Accidents	NONE				
Oil/Chemical spills	NONE				
People Complaint	NONE				

9. Natural environment monitoring:

Aquatic Organism Monitoring	Site 1	Site 2	Site 3	Site 4	Assessment	Action Taken
Aquatic organism						
Location	Soai Rap River	Soai Rap River	Long Tau (at J3 bridge construction)	Long Tau downstream		

	Upstream (GIS point)	Downstream (GIS point)	section)	(GIS point)		
Frequency	Bi-Quarter					
Species composition (species)					<p>- The section of the J3 bridge construction on Long Tau river belongs to the transitional ecosystem, which is poor in both species composition and quantity, due to the particular ecological conditions of salinity fluctuation in rainy season and dry season.</p> <p>- The water quality is rich in nutrients and contaminated with organic matter. The pollution is caused by the domestic waste water coming from of upstream sources</p>	<p>Contractor is requested to analyze separated the upstream and downstream water samples in next sampling session</p>
Density	J1 construction site		Phytoplankton:	2,354 cells per liter		
			Zooplankton:	800 cell per m3		
			Benthos animal	30 individuals per m2		
Bio-indexes species			Phytoplankton:	<i>Aulacoseira granulata</i>		
			Zooplankton:	<i>Acartia clausi Giesbrecht</i>		
			Benthos animal	<i>Melanoides triberculatus</i>		
Density of predomina nt species			Phytoplankton:	562 cells per liter (<i>Aulacoseira granulata</i>)		
			Zooplankton:	130 cell per m3 (<i>Acartia clausi Giesbrecht</i>)		
			Benthos animal	12 individuals per m2 (<i>Melanoides triberculatus</i>)		

10. Natural environment monitoring (Mangrove)*: Will be implemented by EEMC

Mangroves and Wild terrestrial animals Monitoring	Site 1	Site 2	Assessment	Action Taken
Mangroves Monitoring				
Location	Phuoc Khanh commune (Can Gio district)	Thi Vai river bank (Dong Nai province)		
Frequency	annually	annually		
Date				
Total area (ha) of reforestation				
Biomass of mangroves (kg/m ²)				
Density of predominant species (individuals/m ²)				
Species diversity measured by Shannon Weaver index				
Average height and stem diameter				
Wild terrestrial animals (species composition and density)				
Aquatic organisms (planktons, fish; species composition, density and Bioindexes)				

* In case there is any report of monitoring result which covers all monitoring parameters shown above, it is acceptable to attach the report to this form instead of filling this table.

Signature

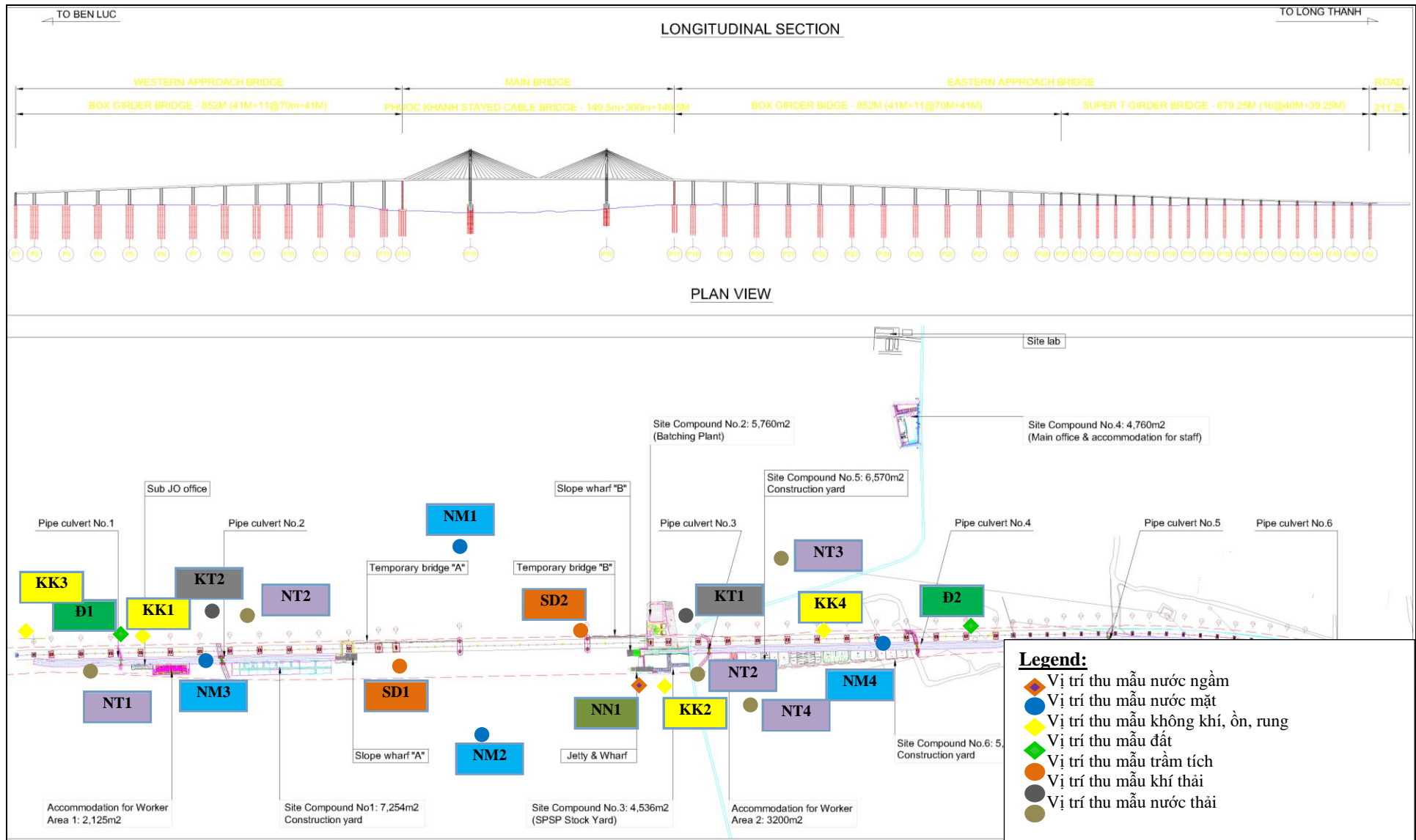
A handwritten signature in blue ink, appearing to read 'Luan', with a long horizontal stroke underneath.

:

NGUYEN QUOC LUAN

Attachment:

1. Location of sampling points
2. Pictures captioned on construction site



Location map of sampling points

Ambient air, noise & vibration monitoring / Quan trắc không khí, tiếng ồn, độ rung



Location KK1 – day & night / Vị trí KK1 – ngày và đêm



Location KK2 – day & night / Vị trí KK2 – ngày và đêm



Location KK3 – day & night / Vị trí KK3 – ngày và đêm



Location KK4 – day & night / Vị trí KK4 – ngày và đêm

Surface water sampling / Lấy mẫu nước mặt



Location NM1 / vị trí NM1



Location NM2 / vị trí NM2



Location NM3 / vị trí NM3



Location NM4 / vị trí NM4

Ground water and sediment sampling / Lấy mẫu nước ngầm và trầm tích



Location NN1 / vị trí NN1

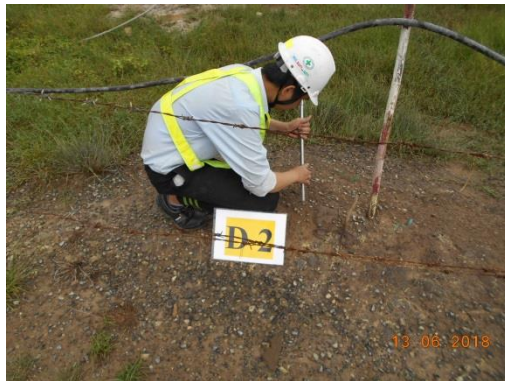


Location NN2 / vị trí NN2

Soil sampling / Lấy mẫu đất



Location Đ1 / Vị trí Đ1



Location Đ2 / Vị trí Đ2

Wastewater sampling / Lấy mẫu nước thải



Location NT1 / vị trí NT1



Location NT2 / vị trí NT2



Location NT3 / vị trí NT3



Location NT4 / vị trí NT4

Sediment/Trầm tích



Location SD1/ Mẫu trầm tích 1



Location SD2/ Mẫu trầm tích 2

Emissions measurement / Đo mẫu khí thải



Location KT1 / Vị trí KT1



Location KT2 / Vị trí KT2

