



Environmental Monitoring Report

Project Number: 42513-013
May 2017

Period: July 2016 – March 2017

IND: Karnataka State Highway Improvement Project

Submitted by

Karnataka State Highway Improvement Project, PIU, Bangalore

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GOVERNMENT OF KARNATAKA
KARNATAKA STATE HIGHWAYS IMPROVEMENT PROJECT
(Public Works, Ports & Inland Water Transport Department)

No.PIU:KSHIP-II:ADB Status Report:Env.2017 18/381

O/o the Project Implementation Unit
Karnataka State Highways
Improvement Project
K R Circle,
Bangalore - 560 001
Date: **22 APR 2017**

To,

Ms. Kenichi Yokoyama,
The Country Director,
Asian Development Bank,
South Asian Development,
Indian Resident Mission
San Martin Marg, Chanakyapuri,
New Delhi-10021 India




Sir,

Sub: Sixth Semi -Annual Environmental Safeguards Implementation Report of the Karnataka State Highways Improvement Project with financial Assistance from the Asian Development Bank- Report for the Period from July 2016 to Dec-2016 (updated till 30th March 2017)- reg

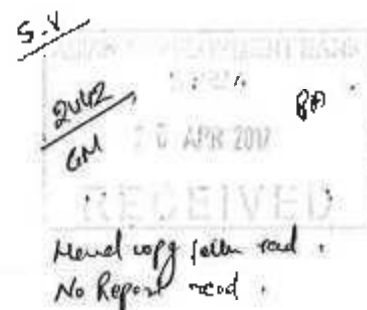
Ref: Loan ID: 2705 IND: Karnataka State Highway Improvement Project Status of Loan Covenants Compliance.

With reference to the above, Environmental Safeguards Implementation Report of KSHIP for the period July 2016 to Dec-2016 updated till **30th March 2017** is herewith submitted for favor of further needful action.

Yours Faithfully,


Project Director
PIU KSHIP,
Bangalore.

Encl: As Above in CD



**KARNATAKA STATE HIGHWAYS IMPROVEMENT
PROJECT-II
WITH
ASIAN DEVELOPMENT BANK ASSISTANCE**

**Sixth Semi -Annual Environmental
Safeguards Implementation Report for the
Period from
July 2016 to Dec-2016
(updated till 30th March 2017)
Loan ID: 2705 IND**

**Prepared By
ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION
UNIT,
PIU, KSHIP, PWD ANNEXE BUILDING, KR CIRCLE, BANGALORE**

Sixth Semi -Annual Environmental Safeguards Implementation Report of the Karnataka State Highways Improvement Project with financial Assistance from the Asian Development Bank- Report for the Period July 2016 to Dec 2016 (updated till 30th March 2017)
Loan ID: 2705 IND

Introduction:

The Karnataka Public Works Department (KPWD) through the Government of India has received financial assistance from the Asian Development Bank (ADB) for **Capacity Building of Karnataka Road Sector**. Under this assistance, the KPWD through its wing 'Karnataka State Highways Improvement Project' (KSHIP) has taken up **up-gradation for 615 kms of existing State Highways (SH) in the State of Karnataka**. The Up-gradation works include strengthening and widening of the existing State Highways (SH) from single/intermittent lane to Two Lane Carriage Way with paved/un-paved Shoulder. The project falls under the **category 'B'** as per the ADB Safeguard Policy Statement 2009 (SPS 2009). Accordingly, Initial Environmental Examination Reports (IEER) including Environmental Management Plans (EMP) was prepared for each sub-project road and approval of the ADB has been received. The IEERs & EMPs have been uploaded in KSHIP web site.

Status of Up-gradation Work

The up-gradation work is being carried through civil works contract service. As originally envisaged works were contracted in nine (9) packages in January 2012 and four (4) Rail Over Bridges (ROBs) were awarded between Dec 2013 to Sept 2014 respectively. Due to dismal performance shown by contractors of AEP3, AEP6 and AEP9 these contracts were terminated in July/Oct 2014 and fresh tenders were invited by splitting these into seven (7) sub- packages viz., AEP3A & AEP3B, AEP6A & AEP6B and AEP9A, AEP9B & AEP 9C. The new contracts were signed during June to November 2015. In all there are thirteen (13) Road and Four (4) Rail over Bridge contracts under the ADB assistance.

Works in Six (6) original contracts viz. AEP1, AEP2, AEP4, AEP5, AEP7 & AEP8 are complete. In the balance Seven (7) rebid contracts, contractors have already mobilized and commenced the work. Work in RoB-3 and ROB-4 is complete. Work in ROB-1 and ROB-2 are in various stages.

M/s. SMEC International Pvt Ltd Australia has been appointed as consultants for supervision and contract administration for road and ROB works.

Contract wise details of sub project roads and RoBs given in the table below.

Table 1.Details of Sub Project Roads and ROBs

Sl. No.	Road Name & Package No	Link ID	Total Length Kms	Name of the Contractor	Remarks
Road Contracts					
1	Magadi- NH48-Koratagere AEP-1	64C, 64D, 64E	68.20	KNR Construction Pvt. Ltd. Hyderabad	Work complete

Sl. No.	Road Name & Package No	Link ID	Total Length Kms	Name of the Contractor	Remarks
2	Pavagada- AP Border AEP-2	64H	23.21	GVR-RMN(JV)	Work complete
3	Gubbi-Beergonahalli near Yediyur AEP 3A	57A & Part of 57B	49.03	DRN Infrastructure, Hubli	work under Progress
4	Beergonahalli (near Yediyur)- Mandya AEP 3B	57B Part & 57C	59.59	DP Jain & Co. Infrastructure Ltd. Nagpur	work under Progress
5	Jagalur-NH-13(T13)& SH-19- Molakalmururu(T17) AEP-4	T13,T17	14.38	GVR-RMN(JV)	Work complete
6	Padubidri-Karkala AEP-5	48A	27.8	RNS Infrastructure Ltd.	Work complete
7	Davangere-Channagiri AEP-6 A	42A	53.65	JMC Projects Ltd. Mumbai	Work under progress
8	Channagiri-Birur AEP-6 B	42B	51.98	DP Jain & Co. Infrastructure Ltd. Nagpur	Work under progress
9	Shelvadi-Gadag-Mundargi AEP-7	27A,27B	63.44	KNR Constructions Pvt. Ltd. Hyderabad	Work complete
10	Mudgal-Tavareker-Gangawathi AEP-8	31A,31B	74.10	KNR Constructions Pvt. Ltd. Hyderabad	Work complete.
11	Saundatti-Ramdurga(Halagatti Jn) AEP-9A	21C& 21D(Part)	42.065	DP Jain & Co. Infrastructure Ltd. Nagpur	Work under progress
12	Ramdurga(Halagatti Jn)-Badami Bypass AEP 9B	21D, 21E (Part)	45.00	RNS Infrastructure Ltd.	Work under progress
13	Badami Bypass- Pattadakallu- Kamatagi AEP 9C	21E,21F	43.13	Ashok Buildcon , Nagpur	Work under progress
Rail Over Bridges Contracts					
1	ROB 1 @ km 7+695	42A	-	KNR construction Pvt. Ltd. Hyderabad	Work in progress
2	ROB 2 @km 44.855	42B	-	KVR Engineers & Contractors, Vijayawada.	Work in progress
3	ROB 3 @km 25.922	27A	-	KNR construction Pvt.ltd. Hyderabad	Work complete.
4	ROB 4 @ 42.214	21D	-	KNR constructions Pvt.ltd. Hyderabad	Work complete.

Salient of EMP Implementation Status of KSHIP during the reporting period

- **Prior Environmental Clearance (EC) and Consent for Establishment (CFE)** have been obtained by **KSHIP** for all sub-project roads from the **SEIAA** and **KSPCB** respectively. Details furnished in **Annexure 1**.
- **Regulatory Permits and licenses** from **District Revenue Administration** and **Department of Mines and Geology** and **KSPCB** required for **establishing and operation of Quarry, Crusher, Hot Mix Plant, and Wet Mix Macadam plant, Ready Mix Concrete Plant, DG Set** and other plant and machineries have been obtained by the Contractors. Details furnished in **Annexure 2**.
- **Road side Trees** coming under the Col have been removed. In all **24,072 nos of trees have been removed** out of 24085 nos identified. Action is initiated to cut balance 13 nos trees. Status of Tree cutting is given in **Annexure 3**.
- **Roadside Avenue Plantation** has been taken up since 2014 monsoon with the help of Karnataka Forest Department. During 2014 monsoon 3967 nos trees were planted in 26.4 kms of completed project road. During 2015 monsoon, 21,294 nos trees were planted in 111.72 kms of completed project road. During 2016 monsoon 10,200 nos trees planted in 51 kms of completed project road. In all 35,461 nos trees have been planted covering 189 kms of project road. It is planned to plant 64,500 plants to cover about 322 kms of road during 2017 monsoon. The program has been sent to Karnataka Forest Department. Status of Plantation is given in **Annexure 4**.
- **Forest Land for an extent of 12.5 Ha** is envisaged in four links viz., 57A (AEP3A), 42B (AEP6B), 21 C (AEP9A), and 21F (AEP9C) for road widening purpose. KSHIP has initiated diversion process with the Forest Department under the Forest Conservation Act 1980. Stage I & II clearance is received in respect of link 57 A and 21C. In link 42B and 21F Stage I proposal is under process. Details are furnished in **Annexure 5**.
- **Two Archaeological Protected Monuments** of national importance are located in regulated/prohibited area under the project in link 42 B and 21 E&F. Permission received for 42 B and awaited in link 21 E&F. Details furnished in **Annexure 6**.
- **KSHIP has taken up Noise abatement along project roads at environmentally sensitive locations along project roads. Solid Noise Barriers have been constructed for locations** such as schools, hospitals and religious places along project road. A total of 236 solid noise barriers have been constructed under the project. Details furnished in **Annexure 7**.
- **Development of Road Side Water Bodies: Eight Road Side water bodies are approved under the EMP of which six (6)** have been completed. Remaining two water bodies are yet to be taken up. Status furnished in **Annexure 8**.
- **The EMP is implemented through civil works contract. The implementation is monitored and reported by EMPIU at PIU level. One senior environmental engineer , one ACF along with two Assistant Environmental Engineers and one RFO at PIU and four Assistant Environmental Engineers and four RFOs at KSHIP division levels are part of EMPIU . One Environment and One Safety Officer in each contract are assisting the Contractor in the implementation of EMP. The implementation is supervised and reported to PIU by an Environmental Engineer through CSC. Details furnished in Annexure 9.**
- **CSC has conducted orientation Training on Environment Health and Safety to the new contracts in project area during Nov 2016 to Jan 2017.** Contractors' and KSHIP field staff participated in the training. Various topics on EMP were covered including a special session on procedures involved for obtaining regulatory permissions for establishing and

operating quarry, crusher, HMP, Wet Mix Macadam plant and Ready Mix Concrete plant etc . Details furnished in **Annexure 10.**

- **KSHIP is conducting environmental (pollution) monitoring on a quarterly basis through an independent agency.** Ambient Air quality, Noise, Water and Soil quality tests are included in the monitoring. M/s. Sneha Test House Bangalore an NABL Laboratory is engaged for this assignment initially for a period of four (4) years since **Jan 2012**. The contract is extended up to June 2018. Monitoring completed for the 1st (2012), 2nd (2013) , 3rd (2014) and 4th (2015) year . Wherever results have exceeded, CSC has been directed to take remedial measures. Result of monitoring during reporting period is furnished in **Annexure 11.**
- **Borrow Area:** Earth for sub-grade and embankment are sourced from nearby fields. The exhausted borrow areas are re-habilitated into useful purpose such as agriculture, ponds for small irrigation/fisheries etc. to suit the requirement of the land owner. A total of **227** nos of BA are taken up of which **204** nos have been exhausted of which **129** nos are converted into agriculture land and **6** nos into ponds and remaining into other useful purpose. The details are furnished in **Annexure 12.**
- **Public Consultations and Grievance Redressel** was held during reporting period. Details are provided in **Annexure 13.**
- **Health check-ups** for contractors' workers were conducted at all ongoing packages during reporting period.

**Statutory Environmental Clearances for the Sub Project Roads as obtained from KSHIP
(Project Proponent)**

Sl.No	Statutory Body SEIAA			Statutory Body KSPCB		
	Clearance No. Date	Link ID	Package	Consent No. Date	Link No.	Package
1	No. SEIAA: 19 IND:2010 dated 29 th Jan 2011	21C,21D,21E 21F	AEP 9	No. PCB 439-CFE-08- H.551dated22 July 2008	31A,31B	AEP8
2		27A,27B	AEP7		57A,57B 57C	AEP3
3		42A,42B	AEP6	No. PCB 05-CNP-09-558 H.551dated 29Jan 2010	21C,21D 21E,21F	AEP9
4		64C,64D,64E	AEP1		27A,27B	AEP7
5	No. SEIAA: 7 IND:2009 dated 1st Oct2009	31A,31B	AEP8		42A,42B	AEP6
6		57A,57B	AEP3		48A	AEP5
7		57C			64C,64D 64E	AEP1
8	-	-			64H	AEP2
9	-	-			T13,T17	AEP4

Regulatory Permissions for Quarry, Stone Crusher, Hot Mix Plant, Wet Mix Macadam Plant, DG set , Ready Mix Plant and other plants and Machinery for Ongoing packages

Contract Package	AEP 3A	AEP 3B	AEP 6A	AEP 6B	AEP 9A	AEP 9B	AEP 9C
Activity	Approval Status	Approval Status	Approval Status	Approval Status	Approval Status	Approval Status	Approval Status
Quarry Establishment & Operation							
SEIAA/DEIAA Approval (EC)	03.06.2016	27.01.2016 & 01.02.2016.	27.06.2016 16.11.2015.	29.12.2015	30.11.2015	01.01.2016	EC Awaited.
Lease Agreement with M&G	08.06.2016	04.02.2016	1. signed 2. Signed	01-04-2016	11-02-2016	30.03.2016	-
Blasting Permission	18.06.2016	04.03.2016	1. 22.03.2016 2.03.03.2017	13.04.2016	10.03.2016	Obtained.	06.03.2015
Crusher Establishment & Operation							
License from DC under Sec.7 of Stone Crusher Regulation Act	23.05.2016.	10.02.2016	14.01.2016	13.05.2016	18.11.2015 & 02.12.2015	05.01.2016	20.04.2016
CFE from KSPCB	11.08.2016	12.05.2016	12.02.2016 30.12.2016	Mobile crusher	Mobile crusher	23.03.2016	Mobile crusher
CFO from KSPCB	30.09.2016	26.07.2016	30.12.2016 -	25.08.2016	13.07.2016 18.08.2016	20.09.2016	19.03.2016.
HMP, WMP, RMC/BP & Base Camp - Establishment & Operation							
CFE from KSPCB	RMC & WMP : 11.08.2016	RMC & WMP : 07.10.2015	RMC & WMP: 12.02.2016 2 nd RMC/BP : 08.09.2016	RMC & WMP : 07.11.2015	RMC & WMP : 02.09.2015	WMP: 23.03.2016 RMC/BP : Awaited.	RMC: 26.11.2015 WMP:18.12.2015
	HMP : 11.08.2016	HMP : 28.03.2016	HMP : 12.02.2016	HMP: 28.03.2016	HMP : 03.12.2015	HMP : 23.03.2016	HMP:19.03.2016
CFO from KSPCB	RMC & WMP: 30.09.2016	RMC & WMP : 07.10.2015	1 st HMP : 27.12.2016 1 st WMP : 27.12.2016 1 st RMC : 27.12.2016 2 nd RMC: 18.11.2016	RMC & WMP : 20.01.2016	RMC & WMP : 20.12.2015	WMM: 20.09.2016	RMC & WMP: 30.01.2016
	HMP : 30.09.2016	28.03.2016	HMP: 23.05.2016	HMP : 21.07.2016	HMP :12.03.2016	HMP : 20.09.2016	HMP: 05.08.2016

Status of Tree cutting under the ADB Sub Project Roads

Sl. No	Package	Link No.	Length in kms	No.of trees identified for cutting	Total no. of trees cut	Balance
1	AEP-1	64C,64D,64E	68.20	2286	2286	0
2	AEP-2	64H	23.21	795	795	0
3	AEP-3A&B	57A,57B,57C	108.62	1953	1947	6
4	AEP-4	T13,T17	14.38	1057	1057	0
5	AEP-5	48A	27.80	2187	2187	0
6	AEP-6A&B	42A,42B	105.63	2719	2711	8
7	AEP-7	27A,27B	63.44	2415	2415	0
8	AEP-8	31A,31B	74.20	3561	3561	0
9	AEP-9A,B&C	21C,21D,21E,21F	130.13	7112	7112	0
Total			615.60	24085	24071	13

Status of Tree Plantation Program under Sub Project Roads

Sl. No	Package	Length in kms	Total No. of Plants required @200 per km	Progress achieved during 2014 Monsoon		Progress achieved during 2015 Monsoon		Progress achieved during 2016 Monsoon		Program for 2017 Monsoon		Remark
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
		Length	Numbers	Length	Nos	Length	Nos	Length Km	Nos	Length Km	Nos	
1	AEP-1	68.20	13640	4	959	10	2000	16	3200	38.2	7640	
2	AEP-2	23.21	4642	-	-	23.21	4642			-	-	complete
3	AEP3A&B	105.63	21126			-	-			66.43	13286	
4	AEP-4	14.38	2876	-	-	5.13	1026			9.25	1850	
5	AEP-5	27.80	5560	-	-	27.80	5560			-	-	complete
6	AEP6A&B	105.63	21126			20.40	4150			60	12000	
7	AEP-7	63.44	12688	22.40	3008	25.18	3909			15	3000	
8	AEP-8	74.20	14840	-	-			35	7000	39.2	7840	
9	AEP9A,B&C	130.13	26026			-	-			93.4	18680	
	Total	615.61	123,122	26.40	3967	111.72	21287	51	10200	321.48	64296	

Status of Forest Land Diversion under Sub Project Roads

Package No	Link No	Name of link	Extent (Ha)	Status
AEP 9	21C	Soundatti-Ramadurga (Mullur Ghat)	5.764	Stage-I& II clearance received from MOEF&CC
AEP 9	21F	Pattadkal-Kamatagi	4.388	Stage I proposal under process (KFD) at DFO Bagalkote
AEP 6	42B	Channagiri-Berur	1.9832	Stage I proposal is under process
AEP 3	57A	Gubbi-Yediyur	0.3633	Stage I& II clearance received from MOEF&CC

Status of Permissions from Archeological Survey of India (ASI)

Sl.No.	Name of Monument	Road Link ID	Status of permission
1.	Musafir Khana and Honda	42A	<p>Permission received from ASI Regional Directorate (Southern Region) Bangalore vide No. ASI/254/CA (BC)/2012/96/dtd 13/1/2014.</p> <p>Conditions of permissions communicated to Contractor, CSC and EE KSHIP Shimoga for adherence.</p> <p>Work executed .</p>
2.	Group of Temples in Pattadakallu and Aihole	21E & 21F	<p>As required by ASI, Vibration Study conducted by M/s. Fluid Control Research Institute Palakkad. Result from the field study has shown that there is no Impact to the protected monuments from construction activity.</p> <p>Report submitted to Regional Director (S), ASI, and Bangalore in June 2016. The RD ASI submitted the proposal to National Monument Authority (NMA) New Delhi in July 2016. The NMA has directed RD(S) ASI Bangalore to insist certain restrictions such as speed breakers, crash barriers considering the sensitivity of the monuments.</p> <p>Clearance from the competent authority is awaited.</p>

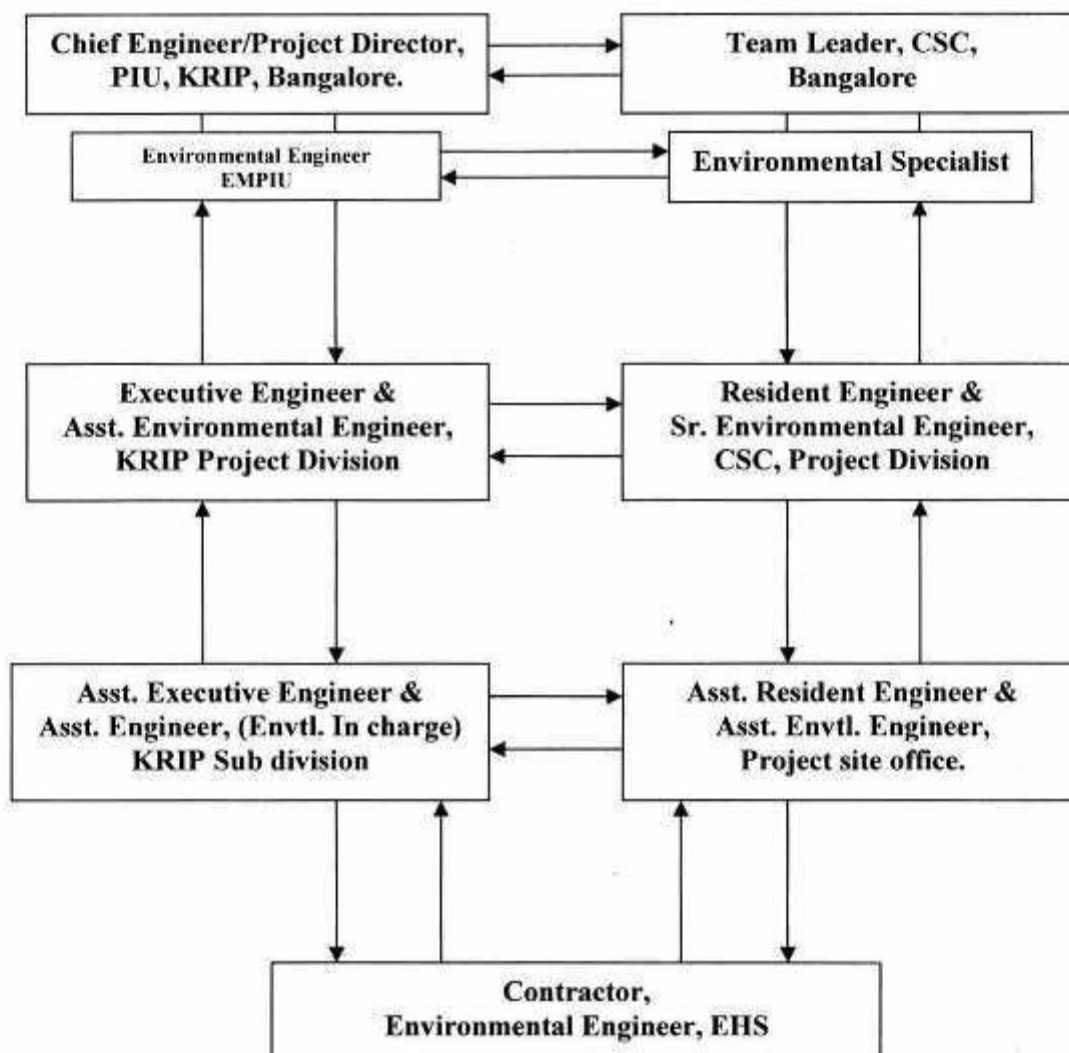
Status of Construction of Solid Noise Barriers under the sub project roads

Sl No.	Name of Project Road	Length in Km	Pkg No	Noise barriers		
				Total #	Constructed	% complete
1	Magadi-Koratagere	68.20	AEP1	40	40	100
2	Pavagada to AP Border	23.21	AEP-2	6	6	100.
3	Gubbi-Mandya	108.62	AEP3	57	57	100
4	Jagaluru - NH-13	9.25	AEP-4	3	3	100
5	Molkalmur - SH 19	5.13		3	3	100
6	Padubidri - Karkala	27.80	AEP-5	10	10	100
7	Davanagere-Birur	105.63	AEP6	39	38	97.04
8	Shelvadi-Mundargi	63.44	AEP7	26	26	100
9	Mudgal-Gangawathi	74.20	AEP8	27	20	74
10	Saundatti-Kamatgi	130.13	AEP 9	37	33	89.20
	Total	615	-	248	236	95.16

Status of Improvement to the Roadside Water Bodies

Sl.No.	Name of Pond	Road Link ID	Link/Package	Progress
1	Pond at Bukambudhi Kere	42B	AEP6	Complete
2	Village pond at Venkatapura	27A	AEP 7	Complete
3	Village Pond at Baradur	27B	AEP 7	Complete
4	Village pond at Tavarekere	31A/B	AEP 8	Complete
5	Village Pond near Chimmankatte	21D	AEP 9	Complete
6	Village pond at Mannikatti	21 C	AEP9	Complete

Institutional Arrangements



Contractors Environment and Safety Engineers

Contract Package	Contractor	Personnel available	Name
AEP3 A	DRN Infrastructure	Env Er	Aditya Ram
		Safety Officer	Irayya S. Hiremath
AEP3B	DP Jain & Co	Env Er	P. Rupesh
		Safety Officer	V S N Prasad
AEP 6A	JMC Infrastruture	Env Er	Sarvajeet Kumar
		Safety Officer	P C Ghosh
AEP 6B	DP Jain & Co	Env Er	To be appointed
		Safety Officer	Rahul Dwivedi
AEP 9A	DP Jain & Co	Env Er	To be appointed
		Safety Officer	To be appointed
AEP 9B	RNS Infrastructure	Env Er	To be appointed
		Safety Officer	Basavaraj
AEP 9C	Ashok Buildcon	Env Er	Lokesh S
		Safety Officer	Durga Prasad Shetty
ROB 1	KNR Constructions	Env Er	To be appointed
		Safety Officer	To be appointed
ROB 2	KVR Engineers & Contractors	Env Er	Mani
		Safety Officer	Kumar

**Environmental Orientation Training Programme
On Environmental Safeguards**

Contract Package	Date	Venue	Timings	No. of Participants
			Class Room Training	
AEP-3A	25/01/2017	Base Camp	10.00 A.M to 1.00 P.M	20
AEP-3B	27/01/2017	Base Camp	10.00 A.M to 1.00 P.M	14
AEP-6A	25/11/2016	Base Camp	10.00 A.M to 1.00 P.M	12
AEP-6B	30/01/2017	Base Camp	10.00 A.M to 1.00 P.M	13
AEP-9A	23/12/2016	Base Camp	10.00 A.M to 1.00 P.M	16
AEP-9B	23/12/2016	Base Camp	2.00 P.M to 6.00 P.M	31
AEP-9C	22/12/2016	Base Camp	2.00 P.M to 6.00 P.M	21
ROB 1	25/11/2016	Base Camp	10.00 A.M to 1.00 P.M	10
ROB 2	30/01/2017	Base Camp	10.00 A.M to 1.00 P.M	5
ROB4	23/12/2016	Base Camp	2.00 A.M to 6.00 P.M	5

Status of Independent Environmental (Pollution) Monitoring

Summary of Ambient Air Quality Monitoring Test Results 3rd Quarter 2016 (Year IV) for Roads under AEP (EPC) Packages.

Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages			
1	Package		AEP 1			
2	Name of Link		64C (MAGADI – NH-48)		64E (DOBBASPET NH4–KORATAGERE)	
3	Sampling Location		CH: 6 + 980		CH: 6 +060	
4	Date of Monitoring		25/11/2016		25/11/2016	
5	Test Report No.		2990		2991	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results
i	Particulate Matter as PM _{2.5}	µg/m ³	60	44.6	60	39.2
ii	Particulate Matter as PM ₁₀	µg/m ³	100	96.3	100	86.3
iii	Sulphur dioxide as SO ₂	µg/m ³	80	10.7	80	9.7
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	15.5	80	14.1
v	Carbon Monoxide as CO	mg/m ³	2	0.68	2	0.72
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (A) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit.
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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages	
1	Package		AEP 2	
2	Name of Link		64H (PAVAGADA to AP)	
3	Sampling Location		Near Primary Health Centre, Dodda Halli	
4	Date of Monitoring		26/11/2016	
5	Test Report No.		2995	
6	Ambient Air Quality Parameters		Standards	Results
i	Particulate Matter as PM _{2.5}	µg/m ³	60	26.8
ii	Particulate Matter as PM ₁₀	µg/m ³	100	58.9
iii	Sulphur dioxide as SO ₂	µg/m ³	80	8.3
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	10.6
v	Carbon Monoxide as CO	mg/m ³	2	0.35
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)
vii	Benzo (A) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)

Environmental Monitoring for ADB Project roads under KSHIP -II
Environmental Monitoring Report – 3rd Quarter 2016 (Year IV)

Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages															
1	Package		AEP 3															
2	Name of Link		57C (KOWDLEY - MANDYA)								57 B (KOWDLEY - YEDIYUR)							
3	Sampling Location		Kalmanti Doddi Near Govt. Primary School	Batching Plant HMP	Kommeran ahalli (Govt.Scho ol &milk Dairy)	Hosagavi Village					Markonalli GramaPanchaya th	Mangala Village	Jannagara Govt Hospital	Arjuna Halli Village				
4	Date of Monitoring		16/11/2016	16/11/2016	16/11/2016	16/11/2016					17/11/2016	17/11/2016	17/11/2016	17/11/2016				
5	Test Report No.		1772	1773	1774	1775					1780	1781	1782	1783				
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	20.4	60	55.8	60	28.0	60	54.6	60	23.9	60	44.1	60	32.4	60	30.7
ii	Particulate matter as PM ₁₀	µg/m ³	100	54.3	100	93.7	100	58.3	100	110.4	100	58.4	100	67.2	100	55.9	100	62.4
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	11.0	80	15.0	80	10.0	80	17.1	80	13.4	80	11.8	80	16.7	80	10.6
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	14.4	80	18.8	80	15.9	80	20.7	80	18.1	80	14.4	80	20.3	80	16.3
v	Carbon Monoxide as CO	mg/m ³	2	0.25	2	0.82	2	0.42	2	0.69	2	0.52	2	0.52	2	0.58	2	0.69

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vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (O) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)
INFERENCE		As per NAAQ standards, Report Status: - The measured values for above parameters are within limit. Except Particulate Matter 10 parameter																

Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages							
1	Package		AEP 3							
2	Name of Link		57A (GUBBI – YEDIYUR)							
3	Sampling Location		Doddamadure - Near Govt High School		Stone Crusher		G. Hosahalli (Near Govt School)		CH: 16.00 (Construction Area)	
4	Date of Monitoring		18/11/2016		18/11/2016		18/11/2016		18/11/2016	
5	Test Report No.		1788		1789		1790		1791	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	26.1	60	55.8	60	37.2	60	49.1
ii	Particulate matter as PM ₁₀	µg/m ³	100	59.7	100	126.3	100	60.3	100	118.20
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	13.0	80	17.5	80	15.8	80	20.7
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	18.5	80	22.9	80	21.1	80	26.3
v	Carbon Monoxide as CO	mg/m ³	2	0.64	2	0.63	2	0.54	2	0.59
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (O) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit. Except Particulate Matter 10 parameter crossed the limits.
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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages			
1	Package		AEP 4			
2	Name of Link		T13 (JAGALUR - NH-13)		T17 (DOBBASPET NH4-KORATAGERE)	
3	Sampling Location		BUS STOP, BHARAMASAMUDRA		FIRE STATION, MOLKALMUR	
4	Date of Monitoring		21/11/2016		26/11/2016	
5	Test Report No.		2960		2961	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results
i	Particulate Matter as PM _{2.5}	µg/m ³	60	28.7	60	28.9
ii	Particulate Matter as PM ₁₀	µg/m ³	100	63.9	100	55.7
iii	Sulphur dioxide as SO ₂	µg/m ³	80	9.3	80	8.6
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	12.8	80	12.3
v	Carbon Monoxide as CO	mg/m ³	2	0.52	2	0.42
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (A) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit.
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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages	
1	Package		AEP 5	
2	Name of Link		48A (PADUBIDRI - KARKALA)	
3	Sampling Location		BELMAN	
4	Date of Monitoring		16/11/2016	
5	Test Report No.		0799	
6	Ambient Air Quality Parameters		Standards	Results
i	Particulate Matter as PM _{2.5}	µg/m ³	60	26.8
ii	Particulate Matter as PM ₁₀	µg/m ³	100	61.3
iii	Sulphur dioxide as SO ₂	µg/m ³	80	8.2
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	10.3
v	Carbon Monoxide as CO	mg/m ³	2	0.42
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)
vii	Benzo (A) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit.
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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages									
1	Package		AEP 6									
2	Name of Link		42 A (DAVANGERE – CHANNAGIRI)									
3	Sampling Location		ROB – I		Kakanur School		Crusher		Batching Plant		Davanagere University	
4	Date of Monitoring		09/11/2016		08/11/2016		08/11/2016		08/11/2016		09/11/2016	
5	Test Report No.		1719		1710		1711		1712		1720	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	24.5	60	35.5	60	38.3	60	39.1	60	20.7
ii	Particulate matter as PM ₁₀	µg/m ³	100	68.9	100	60.3	100	86.6	100	90.6	100	50.6
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	9.78	80	6.79	80	12.2	80	13.0	80	8.15
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	14.0	80	12.5	80	15.9	80	14.8	80	12.2
v	Carbon Monoxide as CO	mg/m ³	2	0.25	2	0.38	2	0.58	2	0.63	2	0.48
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (a) pyrene (BaP)	ng/m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards.
	Report Status: - The measured values for above parameters are within limit. Except Particulate Matter 10

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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages									
1	Package		AEP 6									
2	Name of Link		42 B (CHANNAGIRI - BIRUR)									
3	Sampling Location		ROB – II		CH: 17 + 300		HOT MIX PANT		CRUSHER		CH: 28+260	
4	Date of Monitoring		08/11/2016		09/11/2016		08/11/2016		07/11/2016		07/11/2016	
5	Test Report No.		1704		1721		1713		1705		1706	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	30.6	60	32.4	60	38.7	60	38.7	60	38.4
ii	Particulate matter as PM ₁₀	µg/m ³	100	70.9	100	79.8	100	88.6	100	85.7	100	80.6
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	10.6	80	10.6	80	12.6	80	11.4	80	9.78
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	15.1	80	15.1	80	16.3	80	14.0	80	13.3
v	Carbon Monoxide as CO	mg/m ³	2	0.29	2	0.68	2	0.86	2	0.82	2	0.68
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (a) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)
INFERENCE		As per NAAQ standards, Report Status: - The measured values for above parameters are within limit. Except Particulate Matter 10										

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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages					
1	Package		AEP 7					
2	Name of Link		27A (SHELAWADI – GADAG)	27A (SHELAWADI – GADAG)	27B (GADAG - MUDARGU)			
3	Sampling Location		ROB – III (Base Camp)	HOMBAL VILLAGE	BHIMA RAO CIRCLE (MUNDARGI)			
4	Date of Monitoring		22/11/2016	21/11/2016	21/11/2016			
5	Test Report No.		2952	2954	2953			
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	30.6	60	38.9	60	30.3
ii	Particulate matter as PM ₁₀	µg/m ³	100	82.3	100	83.8	100	66.9
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	10.7	80	11.6	80	9.2
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	14.8	80	15.7	80	11.8
v	Carbon Monoxide as CO	mg/m ³	2	0.63	2	0.83	2	0.48
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (a) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit.
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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages	
1	Package		AEP 8	
2	Name of Link		31A (MUDGAL - TAVARAGERE)	
3	Sampling Location		BASAWESHWARA CIRCLE (TAVARAGERE)	
4	Date of Monitoring		25/11/2016	
5	Test Report No.		2958	
6	Ambient Air Quality Parameters		Standards	Results
i	Particulate Matter as PM _{2.5}	µg/m ³	60	30.9
ii	Particulate Matter as PM ₁₀	µg/m ³	100	66.8
iii	Sulphur dioxide as SO ₂	µg/m ³	80	9.7
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	12.6
v	Carbon Monoxide as CO	mg/m ³	2	0.59
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)
vii	Benzo (A) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit.
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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages													
1	Package		AEP 9A							AEP 9B						
2	Name of Link		21C (SOUNDATATTI – RAMDURG)							21D (RAMDURG - BADAMI)						
3	Sampling Location		RANKALAKOPPA VILLAGE		RAMDURG CAMP		HOOLI VILLAGE		ROB-IV		CH: 27+640		RNS BASE CAMP-2		CH: 13+330 (M. THIMMAPURA)	
4	Date of Monitoring		23/11/2016		23/11/2016		22/11/2016		27/11/2016		24/11/2016		24/11/2016		24/11/2016	
5	Test Report No.		2965		2965		2966		2972		2970		2971		2973	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	36.3	60	40.3	60	23.3	60	35.6	60	44.9	60	33.8	60	40.8
ii	Particulate matter as PM ₁₀	µg/m ³	100	60.8	100	88.9	100	56.7	100	60.9	100	80.7	100	71.7	100	86.9
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	9.3	80	10.8	80	7.6	80	10.7	80	11.2	80	10.8	80	11.3
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	11.9	80	14.4	80	10.8	80	15.4	80	15.6	80	14.7	80	16.7
v	Carbon Monoxide as CO	mg/m ³	2	0.43	2	0.87	2	0.38	2	0.59	2	0.82	2	0.63	2	0.58
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (a) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)
INFERENCE		As per NAAQ standards, Report Status: - The measured values for above parameters are within limit														

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Sl. No.	Sampling Location/ Date/AAQ Parameter	Units	Link Roads under AEP Packages											
1	Package		AEP 9C											
2	Name of Link		21E (BADAMI - PATTADAKAL)						21F (PATTADAKAL - KAMATAGI)					
3	Sampling Location		CH: 9+550 (MAHAKUTTA CROSS)		CH: 21+500		BASE CAMP (AB Ltd)		CH: 5+340		CH: 12+600		Near Ramathala Cross	
4	Date of Monitoring		24/11/2016		25/11/2016		24/11/2016		25/11/2016		25/11/2016		25/11/2016	
5	Test Report No.		2978		2980		2979		2982		2981		2983	
6	Ambient Air Quality Parameters		Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results	Standards	Results
i	Particulate matter as PM _{2.5}	µg/m ³	60	38.6	60	40.7	60	30.2	60	35.6	60	38.2	60	39.8
ii	Particulate matter as PM ₁₀	µg/m ³	100	66.9	100	76.2	100	76.9	100	76.9	100	82.3	100	70.4
iii	Sulphur Dioxide as SO ₂	µg/m ³	80	9.7	80	10.8	80	9.2	80	9.55	80	10.7	80	10.78
iv	Oxides of Nitrogen as NO ₂	µg/m ³	80	13.4	80	14.5	80	12.7	80	12.48	80	14.8	80	13.96
v	Carbon Monoxide as CO	mg/m ³	2	0.64	2	0.63	2	0.52	2	0.82	2	0.71	2	0.78
vi	Benzene as C ₆ H ₆	µg/m ³	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)	5	BDL (< 0.1)
vii	Benzo (a) pyrene (BaP)	ng/ m ³	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)	1	BDL (< 0.2)

INFERENCE	As per NAAQ standards, Report Status: - The measured values for above parameters are within limit
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Table 5: Summary of Ambient Noise Level Monitoring Test Results 3rd Quarter 2016 for Roads under AEP Packages.

Test Report No.	Name of Link & Package	Monitoring Date	Sample Location	Monitoring Duration	Results in dB (A)			Regulatory Limits	Zone
					L _{Min}	L _{Max}	L _{eq} dB(A)		
2992	AEP-1, 64C (Magadi)	25/11/2016	CH: 6 + 980	06.00 am to 02.00 pm	44.9	71.6	58.9	75	Industrial
2993	AEP-1, 64E (Dobbaspet NH4 – Koratagere)	25/11/2016	CH: 6 + 060	02.00 pm to 10.00 pm	44.6	70.7	62.3	75	Industrial
2995	AEP-2, 64H (Pavagada – AP border)	26/11/2016	Govt. High school, Doddahalli	08.00 am to 04.00 pm	40.1	56.6	46.5	50	Silence Zone
1792	AEP 3 57A (Gubbi - Yediyur)	18/11/2016	Doddamadure (Near Govt. High School)	06.00 am to 02.00 pm	54.9	68.4	59.6	50	Silence Zone
1793	AEP 3 57A (Gubbi - Yediyur)	18/11/2016	Stone Crusher	06.00 am to 02.00 pm	76.9	88.5	83.3	75	Industrial Area
1794	AEP 3 57A (Gubbi - Yediyur)	18/11/2016	G. Hosahalli village (Near Govt. School)	02.00 pm to 10.00 pm	49.3	59.4	54.8	50	Silence Zone
1795	AEP 3 57A (Gubbi - Yediyur)	18/11/2016	CH: 16.00 (construction Area)	02.00 pm to 10.00 pm	59.4	69.1	63.2	75	Industrial Area
1784	AEP 3 57 B Kowdley -(Yediyur)	17/11/2016	Markonahalli Grama panchayth	02.00 pm to 10.00 pm	53.4	60.7	57.5	55	Residential Area
1785	AEP 3 57 B Kowdley -(Yediyur)	17/11/2016	Mangala village	02.00 pm to 10.00 pm	55.4	60.4	58.1	55	Residential Area
1786	AEP 3 57 B Kowdley -(Yediyur)	17/11/2016	Jannagara (Govt Hospital)	06.00 am to 02.00 pm	52.6	59.2	57.2	50	Silence Zone
1787	AEP 3 57 B Kowdley -(Yediyur)	17/11/2016	Govt. Middle School (Arjunahalli)	06.00 am to 02.00 pm	55.0	68.5	63.1	50	Silence Zone
1776	AEP 3 57C (Kowdley - Mandya)	16/11/2016	Kalmanti doddi (Govt primary school)	02.00 pm to 10.00 pm	52.8	59.4	56.7	50	Silence Zone
1777	AEP 3 57C (Kowdley - Mandya)	16/11/2016	Batching plant	02.00 pm to 10.00 pm	64.8	73.9	70.1	75	Industrial Area
1778	AEP 3 57C (Kowdley - Mandya)	16/11/2016	Kommeranahalli (Govt School and Milk Dairy)	06.00 am to 02.00 pm	40.4	63.7	60.7	50	Silence
1779	AEP 3 57C (Kowdley - Mandya)	16/11/2016	Hosagavi village	06.00 am to 02.00 pm	59.2	62.8	61.2	75	Industrial Area
2962	AEP-4 T13 (Jagalur – NH13)	21/11/2016	Bus stop – Bharamasamudra	10.00 am to 06.00 pm	40.5	55.8	49.3	65	Commercial Area
2963	AEP-4 T17 (Molkalmur – SH19)	21/11/2016	Fire station, molkalmur	08.00 am to 05.00 pm	41.5	56.6	47.6	55	Residential Area

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1780	AEP-5 48-A (Padubidri-Karkala)	16/11/2016	St. Joseph Higher Primary School, Belman	08.00 am to 05.00 pm	41.8	55.9	47.7	50	Silence Zone
1722	AEP-6 42 A (Davangere – Channagiri)	09/11/2016	ROB – I	07.00 am to 03.00 pm	67.8	74.5	70.5	75	Industrial
1707	AEP-6 42 A (Davangere – Channagiri)	07/11/2016	ROB – II	06.00 am to 02.00 pm	64.8	73.8	68.7	75	Industrial Area
1714	AEP-6 42 A (Davangere – Channagiri)	08/11/2016	Kakanur school	07.00 am to 03.00 pm	40.4	56.8	47.2	50	Silence Zone
1715	AEP-6 42 A (Davangere – Channagiri)	08/11/2016	Crusher	06.00 am to 02.00 pm	73.4	78.9	76.1	75	Industrial Area
1716	AEP-6 42 A (Davangere – Channagiri)	08/11/2016	Batching Plant	02.00 pm to 10.00 pm	67.9	73.6	70.7	75	Industrial Area
1723	AEP-6 42 A (Davangere – Channagiri)	09/11/2016	Davanagere University	06.00 am to 02.00 pm	42.6	56.3	49.1	50	Silence Zone
1723-A	AEP-6, 42 B (Channagiri - Birur)	09/11/2016	CH: 17+300	02.00 pm to 10.00 pm	61.5	63.8	60.8	75	Industrial Area
1718	AEP-6, 42 B (Channagiri - Birur)	08/11/2016	Hot Mix Plant	03.00 pm to 11.00 pm	72.6	75.9	72.0	75	Industrial Area
1708	AEP-6, 42 B (Channagiri - Birur)	07/11/2016	Crusher	07.00 am to 03.00 pm	73.6	80.2	77.3	75	Industrial Area
1709	AEP-6, 42 B (Channagiri - Birur)	07/11/2016	CH: 28+260	02.30 pm to 10.30pm	58.7	69.1	63.8	75	Industrial Area
2955	AEP-7 27A (Shelawadi – Gadag)	22/11/2016	Hombal village	06.00 am to 02.00 pm	41.8	59.6	49.4	55	Residential Area
2956	AEP-7 27B (Mundargi – Gadag)	21/11/2016	Bhimarao circle (Mudargi)	06.00 am to 02.00 pm	43.5	66.2	54.2	65	Commercial Area
2957	AEP-7 27A (Shelawadi – Gadag)	22/11/2016	ROB – III (Base Camp)	02.00 pm to 10.00 pm	50.6	68.8	58.5	75	Industrial Area
2959	AEP-7 27A (Shelawadi – Gadag)	25/11/2016	Basaveswara circle, Tavaragere	08.00 am to 04.00 pm	55.5	69.9	61.9	65	Commercial Area
2967	AEP-9A, 21C (Soundatatti – Ramdurg)	23/11/2016	57.1	06.00 am to 02.00 pm	50.5	66.3	57.1	55	Residential Area
2968	AEP-9A, 21C (Soundatatti – Ramdurg)	23/11/2016	Ramdurg Camp	02.00 pm to 10.00 pm	59.8	77.8	70.4	75	Industrial Area
2969	AEP-9A, 21C (Soundatatti – Ramdurg)	22/11/2016	Hooli village	08.00 am to 04.00 pm	58.9	68.8	64.9	55	Residential Area
2794	AEP-9B, 21D	24/11/2016	CH: 27 + 640	08.00 am to 04.00 pm	49.8	57.4	53.3	75	Industrial Area

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	(Ramdurg - Badami)								
2975	AEP-9B, 21D (Ramdurg - Badami)	24/11/2016	ROB – IV (Near Balu Gate Office)	10.00 am to 06.00 pm	55.8	69.8	64.4	75	Industrial Area
2976	AEP-9B, 21D (Ramdurg - Badami)	24/11/2016	RNS Base Camp – II	09.00 am to 07.00 pm	55.1	69.6	62.4	75	Industrial Area
2977	AEP-9B, 21D (Ramdurg - Badami)	23/11/2016	M. Thimmapura – School	07.00 am to 03.00 pm	47.6	63.5	53.4	50	Silence Zone
2984	AEP-9C, 21E (Badami – Pattadakal)	24/11/2016	CH: 9+550 (Mahakutte Cross)	06.00 am to 02.00 pm	54.1	68.9	59.6	75	Industrial Area
2985	AEP-9C, 21E (Badami – Pattadakal)	24/11/2016	Kadasiddeswara Temple	07.00 am to 03.00 pm	42.9	54.9	48.0	50	Silence Zone
2986	AEP-9C, 21E (Badami – Pattadakal)	24/11/2016	Base Camp (AB Limited)	12.00 pm to 07.00 pm	60.7	71.7	65.7	75	Industrial Area
2987	AEP-9C, 21F (Pattadakal - Kamatagi)	25/11/2016	Govt. Primary School, Mangalagudda	07.00 am to 03.00 pm	47.9	63.8	56.3	50	Silence Zone
2988	AEP-9C, 21F (Pattadakal - Kamatagi)	25/11/2016	Near Jyothirlinga Temple	09.00 am to 05.00 pm	45.6	55.9	47.8	50	Silence Zone
2989	AEP-9C, 21F (Pattadakal - Kamatagi)	25/11/2016	Ramathala Cross	02.00 pm to 10.00 pm	49.8	58.6	53.5	75	Industrial Area

Table 6: Summary of Water Quality Monitoring Test Results 3rd Quarter 2016 for Roads under AEP Packages.

Sl. No.	Sampling Locations/Date/ WQ Parameters	Unit	IS: 10500 - 2012		LINK ROADS UNDER AEP PACKAGES						
1	Package	-	-		AEP 1		AEP 2	AEP 3			
2	Name of Link & Link No	-	Required Acceptable limit	Permissible Limits In The Absence of Alternate Source	64C Magadi-NH48	64E Dabbespet-Koratagere	64H Pavagada-AP border	57A (Yediyur- Gubbi)		57B (Yediyur-Kowdley)	
3	Sampling Locations	-			CH: 16.00	CH: 17.650	Doddahali tank water	Bore water (crusher camp)	Kodipalya (Tank water)	Jannagara (CH: 17+400-Tank water)	Hanchipur (Tank water)
4	Date of Sampling	-			25/11/2016	25/11/2016	26/11/2016	18/11/2016	18/11/2016	17/11/2016	17/11/2016
5	Sample Reference Code	-			NV-1390-05	NV-1390/07	NV-1390/09	1455	1452	1451	1452
6	Water Quality Parameters (Physical and Chemical Parameters)										
i	Color	HZ	5.00	15.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
ii	pH value	-----	6.5 - 8.5	No relaxation	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
iii	Odor	-----	Agreeable	Agreeable	7.4	7.7	7.5	7.6	7.4	7.5	7.8
iv	Turbidity	NTU	1.0	5.0	1.0	0.9	1.1	0.9	0.7	1.0	0.8
v	Conductivity	µS/cm	-----	----	886.0	758.0	489.0	780.0	653.0	510.0	594.0
vi	Total Dissolved Solids	mg/L	500	2000	552.0	476.0	310.0	482.0	410.0	312.0	365.0
vii	Total Alkalinity as CaCO ₃	mg/L	200	600	260.0	244.0	190.0	280.0	245.0	130.0	160.0
viii	Total Hardness as CaCO ₃	mg/L	200	600	236.0	248.0	152.0	264.0	228.0	216.0	204.0
ix	Calcium as Ca	mg/L	75	200	67.0	67.0	40.0	72.0	67.0	64.0	56.0
x	Magnesium as Mg	mg/L	30	100	17.0	19.0	13.0	20.0	15.0	14.0	16.0
xi	Chloride as Cl	mg/L	250	1000	183.0	136.0	81.0	123.0	79.0	72.0	92.0
xii	Sulphate as SO ₄	mg/L	200	400	31.0	30.0	19.0	26.0	20.0	16.0	21.0
xiii	Nitrates as NO ₃	mg/L	45	No relaxation	6.0	5.0	3.0	5.0	3.0	4.0	4.0
xiv	Fluoride as F	mg/L	1.0	1.5	0.3	0.2	0.2	0.3	0.2	0.2	0.2

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xv	Iron as Fe	mg/L	0.3	No relaxation	0.05	0.06	0.08	0.1	0.08	0.05	0.09
xvi	Residual free chlorine	mg/L	0.2	1.0	ND	ND	ND	ND	ND	ND	ND
7	Water Quality Parameters (Biological Analysis)										
i	Escherichia coli Bacteria mL	MPN/100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml
ii	Total Coliforms	MPN/100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml

Sl. No.	Sampling Locations/Date/W Q Parameters	Unit	IS: 10500 - 2012		LINK ROADS UNDER AEP PACKAGES				
1	Package	-	-		AEP 3		AEP 5	AEP 6	
2	Name of Link & Link No	-	Required Acceptable limit	Permissible Limits In The Absence of Alternate Source	57C(Kowdley-Mandya)		48A (Padubidri - Karkala	42A (Davanagere-Channagiri)	
3	Sampling Locations	-			Hallagere lake water (CH:19+800)	Kommeranahalli bore water	Belmane, Stream Water	CH:32+415 (Nala water)	CH: 10+490 (Nala water)
4	Date of Sampling	-			16/11/2016	16/11/2016	16/11/2016	07/11/2016	07/11/2016
5	Sample Reference Code	-			1447	1448	NV-1368/01	1321	1326
6	Water Quality Parameters (Physical and Chemical Parameters)								
i	Color	HZ	5.00	15.0	<2.0	<2.0	<2.0	<2.0	<2.0
ii	Odor*	-----	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
iii	pH value	-----	6.5 - 8.5	No relaxation	7.6	7.4	7.4	7.5	7.4
iv	Turbidity	NTU	1.0	5.0	0.6	0.8	0.9	0.6	0.7
v	Conductivity	µS/cm	-----	-----	610.0	820.0	830.0	106.0	93.0
vi	Total Dissolved Solids	mg/L	500	2000	382.0	510.0	519.0	65.0	58.0
vii	Total Alkalinity as CaCO ₃	mg/L	200	600	202.0	270.0	240.0	30.0	32.0
viii	Total Hardness as CaCO ₃	mg/L	200	600	248.0	250.0	244.0	32.0	35.0

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ix	Calcium as Ca	mg/L	75	200	64.0	60.0	66.0	8.0	10.0
X	Magnesium as Mg	mg/L	30	100	21.0	24.0	19.0	3.0	2.0
xi	Chloride as Cl	mg/L	250	1000	90.0	164.0	159.0	16.0	14.0
xii	Sulphate as SO ₄	mg/L	200	400	21.0	29.0	29.0	4.0	2.0
xiii	Nitrates as NO ₃	mg/L	45	No relaxation	5.0	6.0	5.0	<1.0(ND)	<1.0(ND)
xiv	Fluoride as F	mg/L	1.0	1.5	0.1	0.2	0.1	<0.02(ND)	<0.02(ND)
xv	Iron as Fe	mg/L	0.3	No relaxation	0.07	0.05	0.09	<0.02(ND)	<0.02(ND)
xvi	Residual free chlorine	mg/L	0.2	1.0	ND	ND	ND	ND	<2.0
7	Water Quality Parameters (Biological Analysis)								
i	Escherichia coli Bacteria mL	MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml
ii	Total Coliforms	MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml

Sl. No.	Sampling Locations/Date/W Q Parameters	Unit	IS: 10500 - 2012		LINK ROADS UNDER AEP PACKAGES				
1	Package		-		AEP 6		AEP 7		AEP 8
2	Name of Link & Link No	-	Required Acceptable limit	Permissible Limits In The Absence of Alternate Source	42b (Chennagiri-Birur)		27B Gadag – Munargi		31A Mudgal – Tavaragere
3	Sampling Locations	-			Marvanji Lake water	Bukkaraya lake water	Bardur village drinking water	KSHIP pond water near bardur village	Canal water at CH: 31.400
4	Date of Sampling	-			7/11/2016	07/11/2016	21/11/2016	21/11/2016	25/11/2016
5	Sample Reference Code	-			1327	1322	NV-1369/17	NV-1369/18	NV-1390/10
6	Water Quality Parameters (Physical and Chemical Parameters)								
i	Color	HZ	5.00	15.0	<2.0	<2.0	<2.0	<2.0	<2.0
ii	pH value	----	6.5 - 8.5	No relaxation	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
iii	Odor	-----	Agreeable	Agreeable	7..6	7.5	7.7	7.8	7.5
iv	Turbidity	NTU	1.0	5.0	0.9	0.9	0.8	<0.5(ND)	0.8
v	Conductivity	µS/cm	-----	----	430.0	354.0	640.0	900.0	790.0

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vi	Total Dissolved Solids	mg/L	500	2000	262.0	212.0	394.0	563.0	493.0
vii	Total Alkalinity as CaCO ₃	mg/L	200	600	110.0	98.0	204.0	270.0	210.0
viii	Total Hardness as CaCO ₃	mg/L	200	600	126.0	104.0	216.0	300.0	236.0
ix	Calcium as Ca	mg/L	75	200	32.0	32.0	66.0	80.0	64.0
X	Magnesium as Mg	mg/L	30	100	11.0	6.0	13.0	24.0	18.0
xi	Chloride as Cl	mg/L	250	1000	96.0	62.0	87.0	168.0	164.0
xii	Sulphate as SO ₄	mg/L	200	400	15.0	14.0	22.0	31.0	28.0
xiii	Nitrates as NO ₃	mg/L	45	No relaxation	2.0	2.0	3.0	5.0	6.0
xiv	Fluoride as F	mg/L	1.0	1.5	0.05	0.1	0.1	0.3	0.1
xv	Iron as Fe	mg/L	0.3	No relaxation	<0.02(ND)	0.07	0.06	0.07	0.06
xvi	Residual free chlorine	mg/L	0.2	1.0	ND	<0.2(ND)	ND	ND	ND
7	Water Quality Parameters (Biological Analysis)								
i	Escherichia coli Bacteria mL	MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml
ii	Total Coliforms	MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml
Sl. No.	Sampling Locations/Date/W Q Parameters	Unit	IS: 10500 - 2012		LINK ROADS UNDER AEP PACKAGES				
1	Package				AEP 9				
2	Name of Link & Link No	-	Required Acceptable limit	Permissible Limits In The Absence of Alternate Source	21C (Soundatti - Ramdurga)		21D (Ramdurga-Badami)		
3	Sampling Locations	-			Bore water (Camp)	Hooli village - Drinking water	RNS camp drinking water	Thimmapura village water	
4	Date of Sampling	-			21/11/2016	21/11/2016	24/11/2016	24/11/2016	
5	Sample Reference Code	-			NV-1369/16	NV-1369/16A	NV-1370/03	NV-1370/04	
6	Water Quality Parameters (Physical and Chemical Parameters)								
i	Color	HZ	5.00	15.0	<2.0	<2.0	<2.0	<2.0	
ii	pH value	-----	6.5 - 8.5	No relaxation	Agreeable	Agreeable	Agreeable	Agreeable	
iii	Odor	-----	Aggreable	Aggreable	7.5	7.5	7.5	7.3	
iv	Turbidity	NTU	1.0	5.0	0.9	1.1	0.6	0.8	
v	Conductivity	µS/cm	-----	----	671.0	840.0	605.0	745.0	

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vi	Total Dissolved Solids	mg/L	500	2000	419.0	526.0	401.0	464.0
vii	Total Alkalinity as CaCO ₃	mg/L	200	600	205.0	220.0	168.0	210.0
viii	Total Hardness as CaCO ₃	mg/L	200	600	192.0	248.0	180.0	196.0
ix	Calcium as Ca	mg/L	75	200	56.0	64.0	56.0	56.0
X	Magnesium as Mg	mg/L	30	100	13.0	21.0	10.0	14.0
xi	Chloride as Cl	mg/L	250	1000	116.0	147.0	63.0	137.0
xii	Sulphate as SO ₄	mg/L	200	400	24.0	23.0	18.0	32.0
xiii	Nitrates as NO ₃	mg/L	45	No relaxation	4.0	2.0	4.0	5.0
xiv	Fluoride as F	mg/L	1.0	1.5	0.2	0.3	0.1	0.26
xv	Iron as Fe	mg/L	0.3	No relaxation	0.08	0.09	<0.02(ND)	0.06
xvi	Residual free chlorine	mg/L	0.2	1.0	ND	ND	ND	ND
7	Water Quality Parameters (Biological Analysis)							
i	Escherichia coli Bacteria mL	MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml
ii	Total Coliforms	MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml	<2MPN/ 100ml

Sl. No.	Sampling Locations/Date/W Q Parameters	Unit	IS: 10500 - 2012		LINK ROADS UNDER AEP PACKAGES			
1	Package		-		AEP 9			
2	Name of Link & Link No	-	Required Acceptable limit	Permissible Limits in The Absence of Alternate Source	21E (Badami - Pattadakal)		21F (Pattadakal - Kamatagi)	
3	Sampling Locations	-			(CH:19+500) Bore well water	Base Camp – Drinking water	Mangalagudda – Drinking water	CH: 12+600 (Drinking water)
4	Date of Sampling	-			24/11/2016	24/11/2016	25/11/2016	25/11/2016
5	Sample Reference Code	-			NV-1370/06	NV-1370/07	NV-1390/03A	NV-1390/03
6	Water Quality Parameters (Physical and Chemical Parameters)							
i	Color	HZ	5.00	15.0	<2.0	<2.0	<2.0	<2.0
ii	pH value		6.5 - 8.5	No relaxation	Agreeable	Agreeable	Agreeable	Agreeable

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iii	Odor	-----	Aggreable	Aggreable	7.3	7.5	7.5	7.8
iv	Turbidity	NTU	1.0	5.0	0.6	0.5	<0.5(ND)	0.6
v	Conductivity	µS/cm	-----	----	802.0	570.0	612.0	528.0
vi	Total Dissolved Solids	mg/L	500	2000	506.0	356.0	382.0	326.0
vii	Total Alkalinity as CaCO ₃	mg/L	200	600	220.0	165.0	199.0	149.0
viii	Total Hardness as CaCO ₃	mg/L	200	600	200.0	180.0	196.0	164.0
ix	Calcium as Ca	mg/L	75	200	48.0	54.0	56.0	48.0
X	Magnesium as Mg	mg/L	30	100	19.0	11.0	14.0	11.0
xi	Chloride as Cl	mg/L	250	1000	176.0	94.0	96.0	101.0
xii	Sulphate as SO ₄	mg/L	200	400	28.0	27.0	19.0	23.0
xiii	Nitrates as NO ₃	mg/L	45	No relaxation	3.0	5.0	4.0	4.0
xiv	Fluoride as F	mg/L	1.0	1.5	0.1	0.08	0.05	0.07
xv	Iron as Fe	mg/L	0.3	No relaxation	0.08	<0.02(ND)	0.05	<0.02(ND)
xvi	Residual free chlorine	mg/L	0.2	1.0	ND	<0.2(ND)	ND	ND
7	Water Quality Parameters (Biological Analysis)							
i	Escherichia coli Bacteria mL	MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml
ii	Total Coliforms	MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml	<2MPN/100ml

Table 7: Summary of Soil Quality Monitoring Test Results THIRD Quarter 2016 (Year IV) for Roads under AEP (EPC) Packages

SI No	Sampling Locations/ Date/ SQ Parameters	Unit	LINK ROADS UNDER AEP PACKAGES						
1	Package		AEP 1		AEP 3				
2	Name of Link & Link No	-	64C (Magadi – H48)	64E (Babspet-Koratagere)	57C (Kowdley-Mandya)		57B (Kowdley – Yediyur)		57A (Gubbi-Yediyur)
3	Sampling Locations	-	CH: 19.00 (Agri. Land)	CH: 6+060 (Agri. Land)	CH: 16.00 (Agri. Land)	CH: 1+560 (Agri. Land)	CH:16+330 (Agri. Land)	CH:23+400 (Agri. Land)	CH: 45+220 (Agri. Land-Opposite school)

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4	Date of Monitoring	-	25/11/2016	25/11/2016	16/11/2016	16/11/2016	17/11/2016	17/11/2016	18/11/2016
5	Sample Reference Code	-	NV-1390/06	NV-1390/08	1449	1450	1453	1454	1454
Soil Quality Parameters (Note: Water Soluble Content in mg/kg of soil analyzed)									
i	P ^H (20% suspension)	.....	7.45	7.22	7.71	7.9	7.4	7.9	7.8
ii	Organic carbon	%	0.71	0.54	0.59	0.72	0.76	0.76	0.86
iii	Total Nitrogen as N	kg/ha	214	156.14	245.0	245	345.0	287.0	314
iv	Potassium as K	kg/ha	120	68.00	134.10	176	180.00	198.1	176.0
v	Phosphorus as P	kg/ha	35.14	31.00	28.26	38.26	56.2	53.14	48.23

Note: Rating of important parameter

Rating	N in kg/ha	P in kg/ha	K in kg/ha	OC in %
Low	Below 280	Below 9	Below 120	Below 0.5
Medium	280 - 560	9.0 – 22	120 - 280	0.5 – 0.75
High	Above 560	Above 22	Above 280	Above 0.75

Sl No	Sampling Locations/ Date/ SQ Parameters	Unit	LINK ROADS UNDER AEP PACKAGES							
1	Package		AEP 3	AEP5	AEP 6					
2	Name of Link & Link No	-	57A (Gubbi-Yediyur)	48A (Padubidri – Karkala)	42A (Davanagere-Channagiri)			42B (Channagiri-Birur)		
3	Sampling Locations	-	Near Crusher Camp (Agri. Land)	CH: 7.00 – 8.00	Near kakanur village (Agri. Land)	Batching plant (Agri. Land)	CH: 08+490 (Agri. Land)	CH:17+300 (Agri. Land)	Hot Mix Plant (Agri. Land)	CH: 28+260 (Agri. Land)
4	Date of Monitoring	-	18/11/2016	27/11/2016	08/11/2016	08/11/2016	09/11/2016	09/11/2016	08/11/2016	07/11/2016

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5	Sample Reference Code	-	1458	NV-1368/02	1328	1329	1324	1332	1330	1325
Soil Quality Parameters (Note: Water Soluble Content in mg/kg of soil analyzed)										
i	P ^H (20% suspension)	.....	7.8	7.34	6.52	6.78	7.42	6.89	7.23	7.12
ii	Organic carbon	%	0.45	0.61	0.72	0.72	0.86	0.56	0.69	0.87
iii	Total Nitrogen as N	kg/ha	125	269.0	214	189	210	178	178	243
iv	Potassium as K	kg/ha	86.0	152.0	110	76.23	79.23	83.0	65.14	123
v	Phosphorus as P	kg/ha	53.14	44.05	43.12	35.12	32.14	24.121	25.14	53.12

Note: Rating of important parameter

Rating	N in kg/ha	P in kg/ha	K in kg/ha	OC in %
Low	Below 280	Below 9	Below 120	Below 0.5
Medium	280 - 560	9.0 – 22	120 - 280	0.5 – 0.75
High	Above 560	Above 22	Above 280	Above 0.75

Sl No	Sampling Locations/ Date/ SQ Parameters	Unit	LINK ROADS UNDER AEP PACKAGES							
1	Package		AEP 6		AEP 7		AEP 8	AEP 9		
2	Name of Link & Link No	-	42A (Davanagere-Chennagere)	42B (Chennagere-Birur)	27A (Selvadi-Gadag)	27B (Gadag-Mundargi)	31A (Mudgal-Tavaragere)	21C (Soundatti-Ramdurg)	21D (Ramdurg-Badami)	21E (Badami-Pattadakal)
3	Sampling Locations	-	ROB – I (Agri. Land)	ROB – II (Agri. Land)	ROB – III (Agri. Land)	CH: 27+00 (Agri. Land)	CH: 28.00 – 29.00	Near Camp (Agri. Land)	CH: 27+640 (Agri. Land)	Base Camp (Agri. Land)
4	Date of Monitoring	-	09/11/2016	07/11/2016	21/11/2016	21/11/2016	25/11/2016	21/11/2016	24/11/2016	24/11/2016
5	Sample Reference Code	-	1331	1323	NV-1369/20	NV-1369/19	NV-1390/11	NV-1369/16B	NV-1370/05	NV-1370/08

Environmental Monitoring for ADB Project roads under KSHIP -II
Environmental Monitoring Report – 3rd Quarter 2016 (Year IV)

Soil Quality Parameters (Note: Water Soluble Content in mg/kg of soil analyzed)										
i	P ^M (20% suspension)	.....	7.45	7.92	07.86	6.21	7.08	6.21	7.75	7.89
ii	Organic carbon	%	0.78	0.54	00.96	0.68	0.53	0.68	00.73	00.62
iii	Total Nitrogen as N	kg/ha	245	156	312.0	178	231.0	178	235.12	175.14
iv	Potassium as K	kg/ha	140	73.12	214.0	105	139.0	105	163.14	80.0
v	Phosphorus as P	kg/ha	36.18	25.14	73.45	32.15	42.09	32.15	53.24	33.44

Note: Rating of important parameter

Rating	N in kg/ha	P in kg/ha	K in kg/ha	OC in %
Low	Below 280	Below 9	Below 120	Below 0.5
Medium	280 - 560	9.0 – 22	120 - 280	0.5 – 0.75
High	Above 560	Above 22	Above 280	Above 0.75

Sl No	Sampling Locations/ Date/ SQ Parameters	Unit	LINK ROADS UNDER AEP PACKAGES	
1	Package		AEP 9	
2	Name of Link & Link No	-	21F (Pattadakal-Kamatagi)	21D (Ramdurg-Badam)
3	Sampling Locations	-	CH:5+340 (Agri. Land)	CH: 41+214 (ROB – IV -Agri. Land)
4	Date of Monitoring	-	25/11/2016	14/06/2016
5	Sample Reference Code	-	NV-1390/04	0243
Soil Quality Parameters (Note: Water Soluble Content in mg/kg of soil analyzed)				
i	P ^H (20% suspension)	.....	7.12	7.0
ii	Organic carbon	%	0.58	0.76
iii	Total Nitrogen as N	kg/ha	245	220
iv	Potassium as K	kg/ha	130	310
v	Phosphorus as P	kg/ha	43.12	13

Status of Borrow Area Management

S.No	Contract Package	Link No.	Borrow areas (Nos)	Total No. of Borrow Areas Exhausted	Total Extent / Area		Status of Redevelopment					
							Converted into Agriculture land		Converted into water bodies		Converted into other use	
					Nos	Extent /Area (Acres)	Nos	Extent /Area (Acres)	Nos	Extent (Acres)	Nos	Extent /Area (Acres)
1	AEP - 1	64 C	38	05	05	20.40	5	8.00	0	0.00	0	0.00
2		64 D & 64 E		11	11	36.94	9	30.94	2	6.00	0	0.00
3				20	20	71.97	17	62.97	3	9.00	0	0.00
	Total	-	38	36	36	129.31	31	101.91	5	15	0	0.00
1	AEP - 7	27 A	54	27	27	47.14	27	47.14	0	0.00	0	0.00
2		27 B		27	27	73.49	27	73.49	0	0.00	0	0.00
	Total	-	54	54	54	120.63	54	120.63	0	0.00	0	0.00
1	AEP - 3A	57 A	8	7	7	31.87	0	0.00	0	0.00	0	0.00
	Total	-	8	7	7	31.87	0	0.00	0	0.00	0	0.00
1	AEP - 3B	57 B & 57 C	31	18	18	93.33	0	0.00	0	0.00	0	0.00
2				13	13	88.24	0	0.00	0	0.00	0	0.00
	Total	-	31	31	31	181.57	0	0.00	0	0.00	0	0.00
1	AEP - 6A	42 A	28	19	19	47.82	19	47.82	0	0.00	0	0.00
	Total	-	28	19	19	47.82	19	47.82	0	0.00	0	0.00
1	AEP - 6B	42 B	27	19	19	53.27	19	53.27	0	0.00	0	0.00
	Total	-	27	19	19	53.27	19	53.27	0	0.00	0	0.00
1	AEP - 9A	21 C	7	07	07	73.38	03	10.14	0	0.00	0	0.00
	Total	-	7	07	07	73.38	03	10.14	0	0.00	0	0.00
1	AEP - 9B	21 D & 21 E	22	19	19	82.13	3	6.32	1	2.13	0	0.00
2				0	0	0	0	0.00	0	0.00	0	0.00
	Total		22	19	19	82.13	3	6.32	1	2.13	0	0.00
1	AEP 9C	21E & 21F	12	6	6	18.28	0	0.00	0	0	0	0.00
2				6	6	8.66	0	0.00	0	0	0	0.00
				12	12	26.94	0	0.00	0	0	0	0.00
	Grand Total		227	204	204	746.92	129	340.09	6	17.13	0	0.00

Public Consultation and Grievance Redressals

Contract Package	Place	Link No.	Date	Grievance	Redressal Action taken by contractor
AEP6A	Santhebennur Village	42A	25/03/201	Safety	Addressed immediately
AEP6B	Ajjampura Village	42B	29/6/2016	Safety	Addressed immediately

EMP IMPLEMENTATION

PHOTOS



Link 64 E - Ch. 22+600 to 22+900 - High Embankment Region - Completed Road Stretch with Road Furniture



Link 64 E - Ch. 15+750 - Borrow Area in operation



Link 57 A - Ch. 37+710 RHS - Borrow Area inspection



Link 57 A - Labour Accommodation at Base Camp

SITE INSPECTION PHOTOGRAPHS (Continued...)



Link 57 C - Ch. 4+800 -Labour Accommodation at Base Camp



Link 57 C – Crusher Plant Site – Dust Emission



Link 57C – Dust Suppression by Water Sprinkling at Ch:4+500



Link 57C - Drain Work - Safety PPE provided to Workers



Link 57 C - Ch:7+500 to 7+600- Safety at Work Zone



Link 57 B - Ch: 12+890 MnB - RHS- Safety Barricading

SITE INSPECTION PHOTOGRAPHS (Continued...)



Link -21D - Ch.24+400 to 24+700- Safety Sign boards in place



Link -21D - Ch.26+468 RC Box Culvert - PPE provided to workers



ROB 1 - Link-42A -Elastomeric Bearing Pedestal concrete work in progress with safety measures



ROB 1 - Link-42A -RCC Precast Girder concrete work in progress with safety measures



SITE PHOTOGRAPHS (Continued...)

November 2016



**Link-64D - Theromplastic painting at Rumble strip
@ Ch:8+400**



**Link-64E - Retro-relfectors provided to Hume
pipes**



**Link-64E - Removal of unserviceable material from
site @ CH:17+650**



**Link-64E - House keeping work completed @
CH:17+260 (Basecamp)**



Link 57 A – Health Check up at Base camp



Link 57 A – Health Check up at Base camp

SITE PHOTOGRAPHS (Continued...)



Link 42A – Ch. 53+550 – Hume Pipes stock



Link 42A - Ch. 26+920 – Public Consultation



Link 42 B – Ch. 41+000 - Dust Suppression by Water Sprinkling



ROB 1 – Base Camp – Labour Accommodation

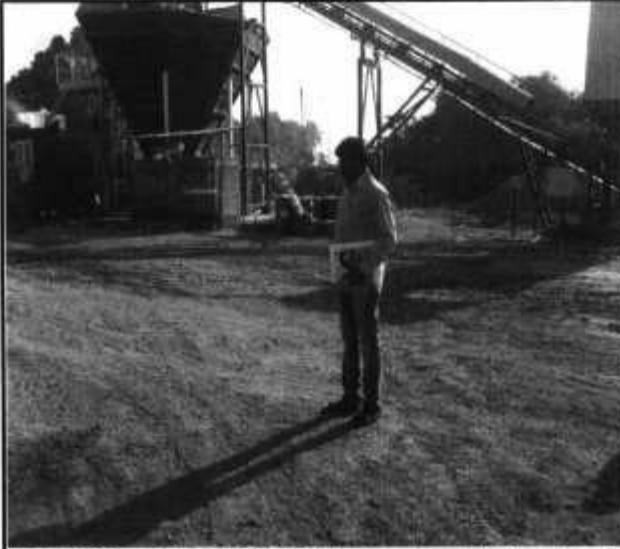


Link 21D - Ch. 40+200 RC Box Bridge - Safety Compliance



Link 21D - Ch.26+300 Safety Compliance

SITE PHOTOGRAPHS (Continued...)



Link 21D - Ch.26+000 Batching plant, Noise level Checking



Link 21D - Ch.26+000 Site Camp, Air Sampling



Link 21D - Ch.26+000 Camp Site, Water Sampling



ROB 2 – Base Camp - Meeting with PM



**Link 42A – Base Camp
EHS - Orientation Training on 25.11.2016**



**Link 42A – ROB 1 - Base Camp
EHS - Orientation Training on 25.11.2016**

SITE PHOTOGRAPHS (Continued...)

December 2016



Link 64E - Sign board fixing



Link 64E – Ch. 33+180 - Over head gantry & Safety



Link 64D - Bus Top - Painting work in progress



Link 64D – CH. 19+600 to 19+678- SDBC Laying work in progress –Workers in PPE



Link 57A - Ch.21+850 RHS - Water Sprinkling



Link 42B - Borrow Are sampling at km 36.000

SITE PHOTOGRAPHS (Continued...)



**Link 21 C – Ch. 2+400 - Box Culvert – Headwall
End –Safety**



**Link 21 C – Ch. 8+180 HPC – Inadequate Safety
Caution Boards & Barricading**



**Link 21 C – Ch. 8+600 to 8+800 – Pipe line shifting-
Safety devices provided & Lack of Safety
Maintenance**



**Link 21 C – Base Camp – Inspection of Scarified
Bitumen Disposal Pit**



**Link 21 D – Ch. 28+240 - SG – Dust Suppression by
Water Sprinkling**



**Link 21D - Ch.17+240 to 17+580 RHS - Safety
cones provided during BC laying**

SITE PHOTOGRAPHS (Continued...)



Link 21D - Ch.12+960 to 13+000 LHS - Safety Barricade provided during DBM laying work



Link 21 F – Ch.4+000 – Dust suppression by Watering



Link 21 E – Ch. 4+200 RHS – Offset 300ms – Inspection of Borrow Area in Operation



Link 21 E – Base Camp – Environmental Safeguards – Orientation Training on 22.12.2016



ROB 4 – Base Camp - Labour Accommodation



Link 21 E – Base Camp – Orientation Training on Environmental Safeguards on 23.12.2016 for AEP 9B & ROB 4