

Ref: GGIAL/MoEF&CC/EC/2019-20/0360

Date: 21st May' 2019

To,
The Additional Principal Chief Conservator of Forest (C)
Ministry of Environment, Forest & Climate Change,
Regional Office (SZ),
4th Floor, E&F Wing, Kendriya Sadan,
Koramangala, Bengaluru - 560034

Dear Sir,

Sub: Submission of 4th Half Yearly EC Compliance Report of Greenfield International Airport at Mopa (Goa).

Ref: Environmental clearances vide your letter No. F.No.10-29/2011-IA.III dated 28th October'2015 & letter No. F. No 10-29/2011-IA-111 dated: 22/02/2018

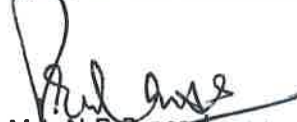
With reference to the subject referred above, we are submitting the 4th Half Yearly EC Compliance Report of Greenfield International Airport (GMR Goa International Airport Limited) at Mopa (Goa), for your kind perusal please.

Copy of the EC compliance report is also being sent in soft format through e-mail (rosz.bng-mef@nic.in) for your kind perusal.

Kindly acknowledge receipt of the same.

Thanking you,

Yours sincerely,
for GMR Goa International Airport Limited.

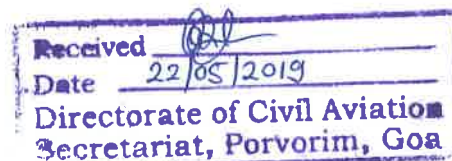

M.L.N.B. Prasad
Chief Development Officer



Enclosed: As Above

Copy for kind information to:

- The Director, MoEF&CC, GOI, New Delhi -3
- The Member Secretary, CPCB, Delhi-32
- The Member Secretary, Goa State Pollution Control Board, Saligao, Goa
- The Director, Directorate of Civil Aviation, GoG, Porvorim, Goa -21



Date:21/05/2019

Environment Clearance & NGT Conditions Compliance Status Report
MoEF&CC Vide Letter No: F.NO.10-29/2011-IA.III dated 28/10/2015 and
Additional Condition of EC vide NGT Order dt.21/08/2018

Six Monthly Compliance Report for the Period of October'18 to March'2019
(4th Report by GMR Goa International Airport Limited after amendment of EC on dated 22/02/2018)

No.	Reference No. of EC/NGT	Conditions of EC/NGT	Compliance
1.	4 (A) (i)	'Consent to Establish' shall be obtained from State Pollution Control Board under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.	Obtained Consent to Establish from Goa State Pollution Control Board (GSPCB), vide Letter No.: 5/5163/16-PCB/CI-2454 dated 16/01/2017 Complied. Copy of CTE submitted vide letter no.: 108/DOCA/EC/HYCR/2017/575 dated 10/11/2017 of DoCA, Goa.
2.	4 (A) (ii)	The Project Proponent shall ensure availability of adequate land at the junction of the Mopa Airport road and Mumbai /Goa NH-17 for traffic circulation/management and to provide for all the traffic interchanges and proposed clover leaf.	Will be addressed in due course in collaboration with Govt. of Goa.
3.	4 (A) (iii)	The approach and exit roads to the Airport shall be got approved from the NHAI and should be according to IRC norms.	Will be addressed in due course in collaboration with Govt. of Goa.
4.	4 (A) (iv)	A perusal of the Topo sheet superimposed on the runway area indicates that the extreme end of the runway is covering the drainage area partly. The drainage area which is under the runway shall be channelized. The area between the parallel taxiway and runway shall be handled carefully to drain the water from the area in the outfall 2.	Detailed design is under progress.




5.	4 (A) (v)	The PP shall submit the site clearance certificate from Directorate General of Civil Aviation (DGCA), before commencement of work at the project site.	Complied and submitted (Annexure – B of vide letter no – 108/DOCA/EC/HYCR/ 2017/ 575 dated 10/11/2017 of DOCA, Goa)
6.	4 (A) (vi)	Sewage and other liquid effluent generated from the airport including from the existing terminal should be treated according to the norms laid down by the State Pollution Control Board. The treated sewage shall be recycled for flushing/ gardening. Proper dual plumbing shall be provided.	Will be addressed and complied with during operational phases of airport. Currently, we are in the construction phase and hence infrastructure is being built.
7.	4 (A) (vii)	The solid waste generated shall be properly collected, segregated and disposed according to the provisions of Solid Waste (Management and Handling) Rules, 2000. The project proponent shall make provisions for drinking water at convenient places for passengers and also at the cafeterias as to reduce generation of solid wastes including PET bottles.	Will be addressed and complied with during operational phases of airport. Currently, we are in the construction phase and hence infrastructure is being built.
8.	4 (A) (viii)	Installation and operation of DG sets shall comply with the guidelines of CPCB.	Will be complied with.
9.	4 (A) (ix)	Parking provision shall be provided according to the National Building Code of India, 2005.	Will be complied with.
10.	4 (A) (x)	Water conservation fixtures shall be provided and water balance shall be maintained through verifiable metering for fresh raw water, recycled as well as rain water harvesting.	Will be complied with.
11.	4 (A) (xi)	Necessary permission shall be obtained for drawing of ground water from competent authority prior to construction / operation of the project.	Obtained permission for sinking of 2 no.'s of bore well from WRD, Goa, vide letter no.-1298 dated 09/11/2017 Submitted, Vide letter no. – GGIAL/ MoEF/EC/ 2018/ 237 dated 12/05/2018 of GGIAL, Goa. Ground water drawl permission has been obtained from the WRD, Goa, vide registration no. – N 3269/RO and N 3270/RO dated 13/3/2019.



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12.	4 (A) (xii)	The land use around the Airport complex shall be regulated through a plan to control unauthorized development which may create problems in the operation of Airport.	Will be addressed in due course in collaboration with Govt. of Goa.
13.	4 (A) (xiii)	The wastewater from hangers shall be tested for presence of heavy metals, if any, and shall be treated in STP. The treated wastewater shall be used for gardening/ flushing.	Will be addressed and complied with during operational phases of airport. Currently, we are in the construction phase and hence infrastructure is being built.
14.	4 (A) (xiv)	Rain water harvesting shall be provided to recharge the ground water.	Design work is in progress.
15.	4 (A) (xv)	Energy conservation to the extent of at least 20% shall be incorporated including water conservation (reuse/recycle, rain water harvesting and water efficient fixtures) and other green building practices for various buildings proposed within the airport complex. The PP shall consider ECBC Guidelines 2009 to achieve energy-efficiency. The energy conservation measures shall be subject to periodic verification by the competent Energy Conservation/ Efficiency authority in the State.	Will be addressed and complied with during operational phases of airport. Currently necessary infrastructure is being built.
16.	4 (A) (xvi)	The project proponent shall prepare a detailed traffic management plan to take care of increased vehicular traffic which should also cover/clearly delineate widening/ increasing the existing roads and associated road infrastructure approving/ installation of road safety features/pedestrian facility/FOB/under passes etc. (that can be done by carrying out road safety audits). Measures shall be taken to prevent encroachment along/ within the Rows on connecting/ main arterial roads.	Will be addressed in collaboration with Govt. of Goa.
17.	4 (A) (xvii)	All the recommendations of the EMP shall be complied with in letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to RO, MoEF&CC along with half yearly compliance report.	Being ensured. Matrix format attached for kind information as Annexure-I .



18.	4 (A) (xviii)	The responses/ commitments made during public hearing shall be complied with in letter and spirit.	Will peruse with Govt. of Goa.
19.	4 (A) (xix)	Project Proponent shall install noise level display system. Noise level shall be monitored regularly in all seasons (different meteorological conditions) within the compound as well as nearby habitations and it shall be ensured that the noise level is within the prescribed limits. During night time the noise levels measured at the boundary shall be restricted to the permissible levels to comply with the prevalent regulations.	Noise level being monitored.
20.	4 (A) (xx)	The location of monitoring stations and monitoring of noise level during day and night shall be in accordance with the CPCB guidance document "Requirement and procedure for monitoring Ambient Noise Level due to aircraft" published on 25 th June, 2008.	Noted. Guidelines will be followed during Operations.
21.	4 (A) (xxi)	Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.	Being Complied.
22.	4 (A) (xxii)	Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approval of the SPCB.	Being complied.
23.	4 (A) (xxiii)	Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it was found that construction of the project has been started without obtaining environmental clearance.	Complied with
24.	4 (A) (xxiv)	The project proponent will set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.	Environmental management cell is in place



25.	4 (A) (xxv)	<p>Corporate Environment Responsibility:</p> <p>a) The Company shall have a well laid down Environment Policy approved by the Board of Directors.</p> <p>b) The Environment Policy shall prescribe for standard operating process/procedures to bring into focus any infringements/ deviation/violation of the environmental or forest norms/ conditions.</p> <p>c) The hierarchical system or Administrative Order of the company to deal with environmental issues and for ensuring compliance with the environmental clearance conditions shall be furnished.</p> <p>d) To have proper checks and balances, the company shall have a well laid down system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the company and/ or shareholders or stakeholders at large.</p>	In place
			Being developed
			Being developed
			Being developed
B.	GENERAL CONDITIONS:-		
26.	4 (B) (i)	<p>Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care etc.</p> <p>The housing may be in the form of temporary structures to be removed after the completion of the project</p>	Being complied with.
27.	4 (B) (ii)	A First Aid Room will be provided in the project both during construction and operation of the project.	Complied.
28.	4 (B) (iii)	All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.	Being Complied.
29.	4 (B) (iv)	Disposal of muck during construction phase should not create any adverse effect on the neighboring communities and be	Being complied with.



		disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.	
30.	4 (B) (v)	The diesel generator sets to be used during construction phase should be low Sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards. The diesel required for operating DG sets shall be stored in underground tanks and if required clearance from Chief Controller of Explosives shall be taken.	Being Complied.
31.	4 (B) (vi)	Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards and should be operated only during non-peak hours.	Being followed.
32.	4 (B) (vii)	Fly ash usage shall be explored as building material in the construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27 th August, 2003.	Will be complied with as applicable
33.	4 (B) (viii)	Ready mixed concrete must be used in building construction.	Being followed.
34.	4 (B) (ix)	Storm water control and its re-use as per CGWB and BIS standards for various applications.	Storm water drainage design work is in progress.
35.	4 (B) (x)	Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.	Being complied with
36.	4 (B) (xi)	Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.	Design works are under progress.
37.	4 (B) (xii)	Use of glass may be reduced by up to 40% to reduce the electricity consumption and load on air-conditioning. If necessary, use high quality double glass with special reflective coating in windows.	Design works are under progress.



38.	4 (B) (xiii)	Roof should meet prescriptive requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfill requirement.	Design works are under progress.
39.	4 (B) (xiv)	Opaque wall should meet prescriptive requirement as per Energy Conservation Building Code which is proposed to be mandatory for all air-conditioned spaces while it is aspirational for non-air-conditioned spaces by use of appropriate thermal insulation material to fulfill requirement.	Design works are under progress.
40.	4 (B) (xv)	The green belt of the adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.	Will be complied with
41.	4 (B) (xvi)	Traffic congestion near the entry and exit points from the roads adjoining the proposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.	Will be followed.
42.	4 (B) (xvii)	The construction of the structures shall be undertaken as per the plans approved by the concerned local authorities/local administration, meticulously conforming to the existing local and central rules and regulations.	Will be followed.
43.	4 (B) (xviii)	The construction material shall be obtained only from approved quarries. In case new quarries are to be opened, specific approvals from the competent authority shall be obtained in this regard.	Being complied.
44.	4 (B) (xix)	Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.	Being complied.
45.	4 (B) (xx)	Full support shall be extended to the officers of this Ministry/Regional Office by the project proponent during inspection of the project for monitoring purposes by furnishing full details and action plan including action taken reports in	Will be ensured.



		respect of mitigation measures and other environmental protection activities.	
46.	4 (B) (xxi)	A six-Monthly monitoring report shall need to be submitted by the project proponents to the Regional Office of this Ministry regarding the implementation of the stipulated conditions.	Monitoring Report (AAQ, Water and Noise enclosed as Annexure – II)
47.	4 (B) (xxii)	Ministry of Environment, Forest & Climate Change or any other competent authority may stipulate any additional conditions or modify the existing ones, if necessary in the interest of environment and the same shall be complied with.	Noted.
48.	4 (B) (xxiii)	The Ministry reserves the right to revoke this clearance if any of the conditions stipulated are not complied with the satisfaction of the Ministry.	Noted.
49.	4 (B) (xxiv)	In the event of a change in project profile or change in the implementation agency, a fresh reference shall be made to the Ministry of Environment, Forest & Climate Change.	Noted.
50.	4 (B) (xxv)	The project proponents shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of land development work.	<ol style="list-style-type: none"> 1. Financial closure of the project has been achieved on 07th July 2017. 2. The appointed date of the project has been declared on 04th September' 2017. 3. Land development work has already been started (Letter submitted to Regional office MoEF&CC vide letter no -GGIAL/MoEF&CC/2018/0194, dated :26/02/2018).
51.	4 (B) (xxvi)	A copy of the clearance letter shall be marked to concerned Panchayat / local NGO, if any, from whom any suggestion/ representation has been made received while processing the proposal.	Complied.



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52.	4 (B) (xxvii)	A copy of the environmental clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office / Tehsildar's office for 30 days.	Complied
53.	4 (B) (xxviii)	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.	Noted. Will be ensured.
54.	5(B)	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification 2006, including the amendments and rules made thereafter.	Relevant environmental acts as applicable will be followed.
55.	6(B)	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act, 1980 and Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.	Necessary approvals from the concerned authorities will be obtained as applicable.
56.	7(B)	The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest & Climate Change at http://www.envfor.nic.in . The advertisement should be made within Seven days from the date of receipt of the Clearance	Complied.



		letter and a copy of the same should be forwarded to the Regional Office of this Ministry.	
57.	8(B)	This Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No .460 of 2004 as may be applicable to this project.	Noted.
58.	9(B)	Status of compliance to the various stipulated environmental conditions and environmental safeguards will be uploaded by the project proponent in its website.	Being Complied.
59.	10(B)	Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.
60.	11(B)	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.	Noted. Will be ensured.
C.	Additional Condition of Environment Clearance vide NGT order dated 21/08/2018		
	A	Air Environment	
61.	1	Total Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM) during construction phase. Un-burnt and Hydro Carbons (HC), Lead (Pb), CO ₂ , SO ₂ , SOOT and Oxides of Nitrogen (NOx) during operation phase are going to be major pollutants in this kind of project. Besides, fugitive emissions of Volatile Organic Compounds (VOC) during fuel handling can be another issue for ambient air environment. The	Currently in the construction phase of the project, Monitoring of Suspended Particulate Matter (SPM), PM ₁₀ , PM _{2.5} , SO ₂ , NOx, CO is being conducted. The AAQ Monitoring report is enclosed as Annexure-II.



		<p>provision of only 6 (six) Air Quality Monitoring Stations is inadequate as sampling duration has been given as 'twice a week, 4 weeks in a season as per CPCB standards for NAAQM, 1994. It would be appropriate if the Project Proponent establishes real time online continuous Air Quality Monitoring Station also which is connected to CPCB server and capable of monitoring all relevant and critical parameters and mitigation measures taken.</p>	<p>The real time online continuous Air Quality Monitoring Station will be installed in operation phases.</p>
62.	2	<p>Although all parameters w.r.t ambient air parameters have been found to be within limits for all 6 (six) locations monitored, we feel for the purpose of giving/depicting holistic picture with regard to ambient air in the area, at least 3 (three) more locations falling in the State of Maharashtra be also monitored and documented.</p>	<p>Will be Complied.</p>
	B	Water Environment	
63.	1	<p>Only two number of Rain Water Harvesting pits have been provided which we feel are not adequate and there is a need to place other pits at such locations so as to capture all the excess drainage for water re-charge.</p>	<p>Will be Complied.</p>
64.	2	<p>More frequent Water Quality Monitoring i.e. once every month may be carried out by Project Proponent at bore wells and STP discharge plants instead of 4 (four) times in a year as proposed.</p>	<p>Will be Complied with once airport is operational.</p>
	C	Noise Environment	
65.	1	<p>It has been proposed that ambient noise levels shall be monitored around the premises of airport, near DG sets and at main entrance/boundary of airport once a week at 7 (seven) locations which we feel are inadequate. Besides these, continuous monitoring of occupational noise exposure limits in</p>	<p>Will be Complied with once airport is operational.</p>



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		such industrial environments would be appropriate with audible or visual alarm output capability.	
66.	2	Integrated Noise Model (INM) be more frequently used and mitigation undertaken during the operational phase of project at regular intervals.	Will be Complied with once airport is operational.
67.	3	Although ambient noise levels have been found to be within limits at 9 (nine) locations monitored, we feel for the purpose of giving/depicting holistic picture with regard to ambient noise levels in the area, at least 3 (three) more locations falling in the State of Maharashtra be also monitored and documented.	Will be pursued with GoG.
	D	Land Environment	
68.	1	There is a potential for impact on soil quality due to project related spills and leaks of fuel and chemicals and uncontrolled disposal of wastes and waste water. Adequate care be taken to avoid spills and leaks of hazardous substances and all project related wastes. Littering on sites and beyond the sites needs to be adequately prevented and controlled.	Will be complied
69.	2	Debris and Muck Management Plan to be prepared and implemented so as to avoid spillage of muck and debris on the slopes.	Will be Complied
70.	3	Soil conservation and stabilization measures needs to be undertaken by deploying both mechanical and bio-engineering methods.	Being complied
71.	4	Remediation, restoration and compensation needs to be integral part of policy so as to provide adequate relief for any environmental or project related disasters.	Will be Complied.



	E	Biological Environment	
72.	1	Efforts be made to transplant the trees to other locations in the same vicinity by using appropriate mechanical devices which are available these days.	Being complied as per plan.
73.	2	Efforts be made to plant indigenous species which are tall in size rather than small saplings.	Will be Complied.
74.	3	Concerns have been raised by appellants with regard to plant species 'Dipcadi concanense' which has been claimed to be a threatened plant. This claim of the appellants have been negated by the respondent by producing a documentation of Botanical Survey of India, Western Regional Centre, Pune, Maharashtra titled as "A Note on Occurrence and Distribution of Dipcadi concanense". By invoking Precautionary Principle, we direct the Project Proponent to draw up a Conservancy by Plan/Scheme for 'Dipcadi concanense' in collaboration with Forest Department, State of Goa and Botanical Survey of India and ensure its implementation	Complied.
	F	Socio-economic Environment	
75.	1	Adequate drills with respect to implementation of Disaster Management plan needs to be carried out at regular intervals so as to ensure preparedness and rapid response to any disasters both man-made or natural.	Will be Complied
76.	2	Although 'Disaster Management Plan' as Annexure-II is part of EIA Report under the Sub head 1.2.1- National Disasters needs further elaboration especially in terms of Emergency Response Measures, Rules and Responsibility, Mitigation, etc.	Will be complied.





ANNEXURE – I
ENVIRONMENTAL MITIGATION MEASURES AS PER EIA REPORT AND COMPLIANCE STATUS
AS OF MARCH 2019

No	Mitigation measures	Compliance status
Mitigation measures for Air Environment during Construction Phase		
01	Ensure preventive maintenance of vehicles and equipment.	Being Complied with.
02	Ensure vehicles with valid Pollution under Control certificates are used.	Being Complied.
03	Implement dust control activities such as water sprinkling on unpaved sites	Being Complied with.
04	Ensure vertical stacks with height sufficient for dispersion as per CPCB guideline for DG stacks.	DG sets stack height is as per the CPCB Guidelines.
Mitigation measures for Water Environment during Construction Phase		
05	Monitor water usage at construction camps to prevent wastage.	Being Complied.
06	Ensure STP at construction camps/sites and the proposed facilities are properly designed to handle peak waste water load and properly maintained	Work in progress, being complied
07	Ensure supply of temporary/portable toilets for construction staff	Work in progress, being complied
Mitigation measures for Land Environment during Construction Phase		
08	Avoiding rainy season for construction so as to avoid soil erosion	Appropriate measures taken.
	Ensure top soil stock pile is not contaminated with any type of spills.	Being followed.




Nos	Mitigation measures	Compliance status
Mitigation measures for Noise Environment during Construction Phase		
12	Ensure preventive maintenance of equipment and vehicles	Being complied with
13	Ensure DG sets are provided with acoustic enclosures and exhaust mufflers	DG sets have acoustic enclosures.
14	Ensure vehicle movement is avoided at night, and close to sensitive receptors (such as schools, hospitals, place of worships)	Being complied with
Mitigation measures for Biological Environment during Construction Phase		
15	Keep a tally of trees cut	Records have been maintained
16	Avoid cutting of trees wherever possible	Being complied with
17	Closing of trenches as soon as possible after pipeline laying, if any.	Will be complied with
Mitigation measures for Socio-economic Environment during Construction Phase		
18	Prohibit use of firewood in project camps and making use of cooking gas is mandatory.	Being Complied
19	Regulating speed limit of the vehicles	Being regulated



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ANNEXURE-II
GMR GOA INTERNATIONAL AIRPORT, MOPA, GOA

ENVIRONMENTAL MONITORING REPORT
OF DECEMBER 2018 & MARCH 2019

BY
SADEKAR ENVIRO ENGINEERS Pvt. Ltd.
Goa



Sadekar Enviro Engineers Pvt. Ltd.

B-306/307, Plot No. 61, Patel Estate, Reis Magos, Verem, Alto, Old Betim Road, Bardez, Porvorim, Panaji-Goa-403 101.
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Gazetted By Ministry of Environment & Forest, GOVT. OF INDIA S. O. 21(E), Valid upto 02.01.2019, ★ QCI-NABET Accredited EIA Consultancy

Lab Accredited by **NABL**, Valid up to 29.06.2020 ★ Certified by ISO 9001:2008 & BS OHSAS 18001 : 2007

ANALYSIS REPORT FOR WATER SAMPLE				
Report No.	SEE/12/18/3540	Report Date	10/12/18	
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited			
Address of Client	Mopa, Goa			
Order / Reference	As per dated 05/12/18	Environmental Condition of Lab	Temp ° C	Humidity %
			26.5	55
Sampling point	Borewell			
Sample details	Borewell Water	Date of collection	05/12/18	
Sample Collected by	SEEPL Representative	Sample Received On	05/12/18	
Analysis Started On	05/12/18	Analysis Completed On	10/12/18	
Sample Container	Glass bottle + PVC Can	Sample Quantity	1000 ml + 4000ml	

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
1.	pH	7.01	-	6.5 - 8.5	APHA(23 rd Edition) 4500 H ⁺ -B
2.	Turbidity	0.49	NTU	1.00	APHA(23 rd Edition) 2130 B
3.	Taste *	Agreeable	-	Agreeable	APHA(23 rd Edition) 2160 B
4.	Color *	<1.00	Hazen unit	5.00	APHA(23 rd Edition) 2120 B
5.	Odour *	Agreeable	-	Agreeable	APHA(23 rd Edition) 2150 B
6.	Electric Conductivity	254	µS/cm	Not Specified	APHA(23 rd Edition) 2510-B
7.	Total Alkalinity	120.00	mg/lit	200.00	APHA(23 rd Edition) 2320 B
8.	Total Dissolved Solids	143.00	mg/lit	500.00	APHA(23 rd Edition) 2540 C
9.	Chlorides as Cl ⁻	20.02	mg/lit	250.00	APHA(23 rd Edition) 4500 Cl ⁻ B
10.	Sulphate as SO ₄ ²⁻	4.413	mg/lit	200.00	APHA(23 rd Edition) 4500 SO ₄ E
11.	Sulfides	<0.05	mg/lit	0.05	APHA(23 rd Edition) 4500 S ²⁻ F
12.	Total Hardness as CaCO ₃	100.00	mg/lit	200.00	APHA(23 rd Edition) 2340 C
13.	Ammonia	<0.50	mg/lit	0.50	APHA(23 rd Edition) 4500 NH ₃ B C

Vikas
Vikas Solanki
Analyzed by



Vinayak Kudkar
Authorized Signatory

Report No.	SEE/12/18/3540	Report Date	10/12/18
Order / Reference	As per dated 05/12/18	Sample Received On	05/12/18
Analysis Started On	05/12/18	Analysis Completed On	10/12/18
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
14.	Residual free chlorine	Nil	mg/lit	0.50	APHA(23 rd Edition) 4500 Cl- C
15.	Nitrate as NO ₃	<1.00	mg/lit	45.00	APHA(23 rd Edition) 4500 NO ₃ B
16.	Fluoride as F ⁻	<0.10	mg/lit	1.00	APHA(23 rd Edition) 4500 F D
17.	Phenolic compound	<0.001	mg/lit	0.001	APHA(23 rd Edition) 5530-B,C
18.	Cyanide*	<0.01	mg/lit	0.05	APHA(23 rd Edition) 4500 CN -D
19.	Anionic Detergents*	<0.10	mg/lit	0.20	APHA(23 rd Edition) 5540 - C

Metal Analysis

20.	Aluminium as Al*	<0.01	mg/lit	0.03	APHA(23 rd Edition) 3120 B
21.	Arsenic as As	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
22.	Boron as B*	<0.01	mg/lit	0.50	APHA(23 rd Edition) 3120 B
23.	Calcium as Ca	21.64	mg/lit	75.00	APHA(23 rd Edition) 3500Ca B
24.	Cadmium as Cd	<0.001	mg/lit	0.003	APHA(23 rd Edition) 3120 B
25.	Iron as Fe	0.20	mg/lit	0.30	APHA(23 rd Edition) 3120 B
26.	Lead as Pb	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
27.	Magnesium as Mg	11.21	mg/lit	30.00	APHA(23 rd Edition) 3500Mg B
28.	Manganese as Mn	<0.01	mg/lit	0.10	APHA(23 rd Edition) 3120 B
29.	Mercury as Hg	<0.001	mg/lit	0.001	APHA(23 rd Edition) 3120 B
30.	Selenium as Se	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
31.	Zinc as Zn	0.10	mg/lit	5.00	APHA(23 rd Edition) 3120 B
32.	Sodium as Na*	4.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
33.	Potassium as K*	2.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
34.	Copper as Cu	<0.01	mg/lit	0.05	APHA(23 rd Edition) 3120 B

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Report No.	SEE/12/18/3540	Report Date	10/12/18
Order / Reference	As per dated 05/12/18	Sample Received On	05/12/18
Analysis Started On	05/12/18	Analysis Completed On	10/12/18
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Microbiological Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
35.	Total coliforms at 37°C for 48 hrs. *	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-B
36.	E.coli at 44.5°C for 24hrs. *	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-G

Note: Test results related only to the sample tested.

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Equipment Calibration Details

Sr. No.	Equipment Name	Equipment Id	Certificate No.	Calibration Details	
				Calibration Date	Next Calibration Due Date
01.	pH Meter	Q/022	GOA20180903-1/001	03/09/2018	03/09/2019
02.	Hot Air Oven	Q/039	T2018/06/033	26/06/2018	26/06/2019
03.	ICP- OES	Q/162	-	Inhouse Calibration	
04.	U V Spectrophotometer	Q/0166	-	Inhouse Calibration	
05.	Microbiological Incubator (37 °C)	Q/003	CC2098000000004F	03/09/2018	03/09/2019
06.	Microbiological Incubator (44.5 °C)	Q/004	CC2098000000003F	03/09/2018	03/09/2019
07.	Laminar Air Flow	Q/001	GOA20180903-1/003	03/09/2018	03/09/2019
08.	Autoclave	Q/010	-	24/04/2018	24/04/2019



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SAVE WATER
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ANALYSIS REPORT FOR WATER SAMPLE				
Report No.	SEE/12/18/3541	Report Date	10/12/18	
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited			
Address of Client	Mopa, Goa			
Order / Reference	As per dated 05/12/18	Environmental Condition of Lab	Temp ° C	Humidity %
			26.5	55
Sampling point	Tillari canal			
Sample details	Canal water	Date of collection	05/12/18	
Sample Collected by	SEEPL Representative	Sample Received On	05/12/18	
Analysis Started On	05/12/18	Analysis Completed On	10/12/18	
Sample Container	Glass bottle + PVC Can	Sample Quantity	1000 ml + 4000ml	

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
1.	pH	6.55	-	6.5 - 8.5	APHA(23 rd Edition) 4500 H ⁺ -B
2.	Turbidity	0.38	NTU	1.00	APHA(23 rd Edition) 2130 B
3.	Taste *	Agreeable	-	Agreeable	APHA(23 rd Edition) 2160 B
4.	Color *	<1.00	Hazen unit	5.00	APHA(23 rd Edition) 2120 B
5.	Odour *	Agreeable	-	Agreeable	APHA(23 rd Edition) 2150 B
6.	Electric Conductivity	38.2	µS/cm	Not Specified	APHA(23 rd Edition) 2510-B
7.	Total Alkalinity	20.00	mg/lit	200.00	APHA(23 rd Edition) 2320 B
8.	Total Dissolved Solids	41.00	mg/lit	500.00	APHA(23 rd Edition) 2540 C
9.	Chlorides as Cl ⁻	14.01	mg/lit	250.00	APHA(23 rd Edition) 4500 Cl ⁻ B
10.	Sulphate as SO ₄ ²⁻	3.12	mg/lit	200.00	APHA(23 rd Edition) 4500 SO ₄ E
11.	Sulfides	<0.05	mg/lit	0.05	APHA(23 rd Edition) 4500 S ²⁻ F
12.	Total Hardness as CaCO ₃	8.00	mg/lit	200.00	APHA(23 rd Edition) 2340 C
13.	Ammonia	<0.50	mg/lit	0.50	APHA(23 rd Edition) 4500 NH ₃ B C

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Report No.	SEE/12/18/3541	Report Date	10/12/18
Order / Reference	As per dated 05/12/18	Sample Received On	05/12/18
Analysis Started On	05/12/18	Analysis Completed On	10/12/18
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
14.	Residual free chlorine	Nil	mg/lit	0.50	APHA(23 rd Edition) 4500 Cl- C
15.	Nitrate as NO ₃	<1.00	mg/lit	45.00	APHA(23 rd Edition) 4500 NO ₃ B
16.	Fluoride as F ⁻	<0.10	mg/lit	1.00	APHA(23 rd Edition) 4500 F D
17.	Phenolic compound	<0.001	mg/lit	0.001	APHA(23 rd Edition) 5530-B,C
18.	Cyanide*	<0.01	mg/lit	0.05	APHA(23 rd Edition) 4500 CN -D
19.	Anionic Detergents*	<0.10	mg/lit	0.20	APHA(23 rd Edition) 5540 - C

Metal Analysis

20.	Aluminium as Al*	<0.001	mg/lit	0.03	APHA(23 rd Edition) 3120 B
21.	Arsenic as As	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
22.	Boron as B*	<0.01	mg/lit	0.50	APHA(23 rd Edition) 3120 B
23.	Calcium as Ca	1.60	mg/lit	75.00	APHA(23 rd Edition) 3500Ca B
24.	Cadmium as Cd	<0.001	mg/lit	0.003	APHA(23 rd Edition) 3120 B
25.	Iron as Fe	0.24	mg/lit	0.30	APHA(23 rd Edition) 3120 B
26.	Lead as Pb	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
27.	Magnesium as Mg	1.00	mg/lit	30.00	APHA(23 rd Edition) 3500Mg B
28.	Manganese as Mn	<0.01	mg/lit	0.10	APHA(23 rd Edition) 3120 B
29.	Mercury as Hg	<0.001	mg/lit	0.001	APHA(23 rd Edition) 3120 B
30.	Selenium as Se	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
31.	Zinc as Zn	0.03	mg/lit	5.00	APHA(23 rd Edition) 3120 B
32.	Sodium as Na*	5.13	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
33.	Potassium as K*	2.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
34.	Copper as Cu	<0.01	mg/lit	0.05	APHA(23 rd Edition) 3120 B

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Report No.	SEE/12/18/3541	Report Date	10/12/18
Order / Reference	As per dated 05/12/18	Sample Received On	05/12/18
Analysis Started On	05/12/18	Analysis Completed On	10/12/18
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Microbiological Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
35.	Total coliforms at 37°C for 48 hrs. *	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-B
36.	E.coli at 44.5°C for 24hrs. *	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-G

Note: Test results related only to the sample tested.

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Equipment Calibration Details

Sr. No.	Equipment Name	Equipment Id	Certificate No.	Calibration Details	
				Calibration Date	Next Calibration Due Date
01.	pH Meter	Q/022	GOA20180903-1/001	03/09/2018	03/09/2019
02.	Hot Air Oven	Q/039	T2018/06/033	26/06/2018	26/06/2019
03.	ICP- OES	Q/162	-	Inhouse Calibration	
04.	U V Spectrophotometer	Q/0166	-	Inhouse Calibration	
05.	Microbiological Incubator (37 °C)	Q/003	CC2098000000004F	03/09/2018	03/09/2019
06.	Microbiological Incubator (44.5 °C)	Q/004	CC2098000000003F	03/09/2018	03/09/2019
07.	Laminar Air Flow	Q/001	GOA20180903-1/003	03/09/2018	03/09/2019
08.	Autoclave	Q/010	-	24/04/2018	24/04/2019



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ULR No.: TC742418000001511F



TC - 7424

NOISE LEVEL MONITORING REPORT			
Report No.	SEE/AR/12/18/4781-83	Report Date	10/12/2018
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		
Address of Client	Mopa, Goa		
Date of Sampling	05/12/2018		
Sample Collected By	SEEPL Representative		

Sr. No.	Sampling Location (From 1.0 meter off)	Report No.	Noise in dB(A)		Noise in dB(A) Leq
			Max.	Min.	Day Time
01.	Near R&R Colony	SEE/AR/12/18/4781	50	42	46
02.	Semeche Advan, Varkhad	SEE/AR/12/18/4782	46	38	42
03.	Airport Boundary, Opp. To CH1400n	SEE/AR/12/18/4783	48	35	47

➤ Noise Limits as per Schedule III of "The Environment (Protection) Rules, 1986" are as follows:

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

- Day time is reckoned in between 6.00am to 10.00pm and night time is reckoned in between 10.00pm to 6.00am.
- *dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. A "decibel" is a unit in which noise is measured.
- "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- Leq: It is the energy mean of the noise level over a specified period.

Note : Test results related only to the sample tested.

: Test results relate only to the condition prevailing at the time of sampling

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Calibration details of the equipments used in monitoring and / or analysis is back side of analysis report.

Monitored by
Anand Chavan



Authorized Signatory
Vinayak Kudkar

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Calibration Details of Equipment used for Sampling

Noise Level Meter No.1(A0913-1393)

Sr No.	Equipment Name	Calibration Certificate No.	Calibrated on	Calibration due date
01	Noise Level Meter	2017-18/CFC/2825/1	15/03/2018	15/03/2019



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TC - 7424

ULR No.: TC742418000001513F

NOISE LEVEL MONITORING REPORT			
Report No.	SEE/AR/12/18/4788-90	Report Date	10/12/2018
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		
Address of Client	Mopa, Goa		
Date of Sampling	05/12/2018		
Sample Collected By	SEEPL Representative		

Sr. No.	Sampling Location (From 1.0 meter off)	Report No.	Noise In dB(A)		Noise in dB (A) Leq
			Max.	Min.	Night Time
01.	Near R&R Colony	SEE/AR/12/18/4788	47	40	45
02.	Semeche Advan, Varkhad	SEE/AR/12/18/4789	41	35	37
03.	Airport Boundary, Opp. To CH1400n	SEE/AR/12/18/4790	39	33	36

➤ Noise Limits as per Schedule III of "The Environment (Protection) Rules, 1986" are as follows:

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

- Day time is reckoned in between 6.00am to 10.00pm and night time is reckoned in between 10.00pm to 6.00am.
- *dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. A "decibel" is a unit in which noise is measured.
- "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- Leq: It is the energy mean of the noise level over a specified period.

Note : Test results related only to the sample tested.

: Test results relate only to the condition prevailing at the time of sampling

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Monitored by
Anand Chavan



Authorized Signatory
Vinayak Kudkar

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Calibration Details of Equipment used for Sampling

Noise Level Meter No.1(A0913-1393)

Sr No.	Equipment Name	Calibration Certificate No.	Calibrated on	Calibration due date
01	Noise Level Meter	2017-18/CFC/2825/1	15/03/2018	15/03/2019



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ULR No.: TC742418000001508F



TC - 7424

AMBIENT AIR QUALITY MONITORING REPORT					
Report No.	SEE/AR/12/18/4778	Report Date	10/12/2018		
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited				
Address of Client	Mopa, Goa				
Sample Collected By	SEEPL Representative	Environmental condition of lab			
Date of Sampling	05/12/2018	Temperature (°C)*	26.4	Humidity (%)*	56
Analysis Started On	06/12/2018	Analysis Completed On	10/12/2018		

AMBIENT AIR STATION LOCATION

Location of ambient air station	Semeche Advan, Varkhad				
Ambient Temperature (°C)*	31.1	Humidity (%)*	72		
Wind Speed (km/hr)*	1.1	Wind Direction (deg)*	243		
Instruments Used	R.D.S.(APM- 460), F.P.S.(APM – 550) & G.P.S.(APM – 411)				

POLLUTION PARAMETERS

Sr. No.	Parameters	Result	Unit	Limits (NAAQS-2009)	Method
01.	SPM	119.36	µg/m ³	-	IS 5182(Part 04)
02.	PM ₁₀	81.23	µg/m ³	100.00	IS 5182(Part 23)
03.	PM _{2.5}	31.25	µg/m ³	60.00	Lab SOP NO.: SEE/LD/SOP-AA-04
04.	SO ₂	3.93	µg/m ³	80 .00	IS 5182 (Part 02)
05.	NO _x	10.88	µg/m ³	80 .00	IS 5182 (Part 06)
06.	CO	0.06	mg/m ³	4.00	Lab SOP NO.: SEE/LD/SOP-AA-10

Note : Test results related only to the sample tested.

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Analysed by
Susmita Kapdoskar




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Vinayak Kudkar

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Calibration details of Equipment used for Sampling & Analysis

Respirable Dust Sampler's with Gaseous Sampling

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	RDS - APM 460 (SR NO.1738-DTI-2012)	SEEPL/CAL/1712-003	03/05/2018	03/05/2019

UV Spectrophotometer

Sr No.	Equipment Name	Calibration
01	UV	In House Calibration

Fine Particulate Sampler (SR No. 104-DTK-2012)

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	FPS - APM 55U MINI	SEEPL/CAL/1712-005	24/04/2018	24/04/2019

CO METER

Sr No.	Instrument Type	Calibrated on	Calibration due date
01	CO Analyzer (COA 109)	01/05/2018	30/04/2019



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ULR No.: TC74241800001509F



AMBIENT AIR QUALITY MONITORING REPORT					
Report No.	SEE/AR/12/18/4779	Report Date	10/12/2018		
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited				
Address of Client	Mopa, Goa				
Sample Collected By	SEEPL Representative	Environmental condition of lab			
Date of Sampling	05/12/2018	Temperature (°C)*	26.4	Humidity (%)*	56
Analysis Started On	06/12/2018	Analysis Completed On	10/12/2018		

AMBIENT AIR STATION LOCATION

Location of ambient air station	Airport Boundary, Opp. To CH1400n				
Ambient Temperature (°C)*	31.1	Humidity (%)*	72		
Wind Speed (km/hr)*	1.1	Wind Direction (deg)*	243		
Instruments Used	R.D.S.(APM- 460), F.P.S.(APM – 550) & G.P.S.(APM – 411)				

POLLUTION PARAMETERS

Sr. No.	Parameters	Result	Unit	Limits (NAAQS-2009)	Method
01.	SPM	70.65	µg/m ³	-	IS 5182(Part 04)
02.	PM ₁₀	54.29	µg/m ³	100.00	IS 5182(Part 23)
03.	PM _{2.5}	8.69	µg/m ³	60.00	Lab SOP NO.: SEE/LD/SOP-AA-04
04.	SO ₂	7.64	µg/m ³	80 .00	IS 5182 (Part 02)
05.	NO _x	13.15	µg/m ³	80 .00	IS 5182 (Part 06)
06.	CO	0.07	mg/m ³	4.00	Lab SOP NO.: SEE/LD/SOP-AA-10

Note : Test results related only to the sample tested.

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Analysed by
Susmita Kapdoskar




Authorized Signatory
Vinayak Kudkar

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Calibration details of Equipment used for Sampling & Analysis

Respirable Dust Sampler's with Gaseous Sampling

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	RDS - APM 460 (SR NO.1461-DTD-2009)	SEEPI/CAL/1710-002	23/04/2018	23/04/2019

UV Spectrophotometer

Sr No.	Equipment Name	Calibration
01	UV	In House Calibration

Fine Particulate Sampler (SR No. 109-DTK-2012)

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	FPS - APM 550 MINI	SEEPL/CAL/1712-007	08/12/2017	07/12/2018

CO METER

Sr No.	Instrument Type	Calibrated on	Calibration due date
01	CO Analyzer (COA 109)	01/05/2018	30/04/2019



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ULR No.: TC742418000001510F



TC - 7424

AMBIENT AIR QUALITY MONITORING REPORT					
Report No.	SEE/AR/12/18/4780	Report Date	10/12/2018		
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited				
Address of Client	Mopa, Goa				
Sample Collected By	SEEPL Representative	Environmental condition of lab			
Date of Sampling	05/12/2018	Temperature (°C)*	26.4	Humidity (%)*	56
Analysis Started On	06/12/2018	Analysis Completed On	10/12/2018		

AMBIENT AIR STATION LOCATION

Location of ambient air station	R & R Colony				
Ambient Temperature (°C)*	31.1	Humidity (%)*	72		
Wind Speed (km/hr)*	1.1	Wind Direction (deg)*	243		
Instruments Used	R.D.S.(APM- 460), F.P.S.(APM – 550) & G.P.S.(APM – 411)				

POLLUTION PARAMETERS

Sr. No.	Parameters	Result	Unit	Limits (NAAQS-2009)	Method
01.	SPM	130.56	µg/m ³	-	IS 5182(Part 04)
02.	PM ₁₀	88.40	µg/m ³	100.00	IS 5182(Part 23)
03.	PM _{2.5}	34.79	µg/m ³	60.00	Lab SOP NO.: SEE/LD/SOP-AA-04
04.	SO ₂	5.39	µg/m ³	80 .00	IS 5182 (Part 02)
05.	NO _x	12.11	µg/m ³	80 .00	IS 5182 (Part 06)
06.	CO	0.05	mg/m ³	4.00	Lab SOP NO.: SEE/LD/SOP-AA-10

Note : Test results related only to the sample tested.

: Test results relate only to the condition prevailing at the time of sampling

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Analysed by
Susmita Kapdoskar



Authorized Signatory
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Calibration details of Equipment used for Sampling & Analysis

Respirable Dust Sampler's with Gaseous Sampling

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	RDS - APM 460 (SR NO.1719-DTI-2012)	SEEPL/CAL/1712-001	24/04/2018	24/04/2019

UV Spectrophotometer

Sr No.	Equipment Name	Calibration
01	UV	In House Calibration

Fine Particulate Sampler (SR No. 110-DTK-2012)

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	FPS - APM 550 MINI	SEEPL/CAL/1712-008	08/12/2017	07/12/2018

CO METER

Sr No.	Instrument Type	Calibrated on	Calibration due date
01	CO Analyzer (COA 109)	01/05/2018	30/04/2019

GMR GOA INTERNATIONAL AIRPORT, MOPA GOA

**ENVIRONMENTAL MONITORING REPORT
OF MARCH 2019**

**BY
SADEKAR ENVIRO ENGINEERS Pvt. Ltd.
Goa**



Sadekar Enviro Engineers Pvt. Ltd.

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TC-7424

ULR No.: TC74241800003270F

AMBIENT AIR QUALITY MONITORING REPORT					
Report No.	SEE/AR/03/19/7200	Report Date	27/03/2019		
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited				
Address of Client	Mopa, Goa				
Sample Collected By	SEEPL Representative	Environmental condition of lab			
Date of Sampling	22/03/2019	Temperature (°C)*	26.6	Humidity (%)*	57
Analysis Started On	23/03/2019	Analysis Completed On	26/03/2019		

AMBIENT AIR STATION LOCATION			
Location of ambient air station	Semeche Advan, Varkhad		
Ambient Temperature (°C)*	29.5	Humidity (%)*	68
Wind Speed (km/hr)*	2.3	Wind Direction (deg)*	131
Instruments Used	R.D.S.(APM- 460), F.P.S.(APM – 550) & G.P.S.(APM – 411)		

POLLUTION PARAMETERS					
Sr. No.	Parameters	Result	Unit	Limits (NAAQS-2009)	Method
01.	SPM	109.36	µg/m ³	-	IS 5182(Part 04)
02.	PM ₁₀	79.12	µg/m ³	100.00	IS 5182(Part 23)
03.	PM _{2.5}	30.77	µg/m ³	60.00	Lab SOP NO.: SEE/LD/SOP-AA-04
04.	SO ₂	14.54	µg/m ³	80 .00	IS 5182 (Part 02)
05.	NO _x	17.96	µg/m ³	80 .00	IS 5182 (Part 06)
06.	CO	0.09	mg/m ³	4.00	Lab SOP NO.: SEE/LD/SOP-AA-10

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Calibration details of Equipment used for Sampling & Analysis

Respirable Dust Sampler's with Gaseous Sampling

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	RDS - APM 460 (SR NO.1738-DTI-2012)	SEEPL/CAL/1712-003	03/05/2018	03/05/2019

UV Spectrophotometer

Sr No.	Equipment Name	Calibration
01	UV	In House Calibration

Fine Particulate Sampler (SR No. 104-DTK-2012)

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	FPS - APM 550 MINI	SEEPL/CAL/1712-005	24/04/2018	24/04/2019

CO METER

Sr No.	Instrument Type	Calibrated on	Calibration due date
01	CO Analyzer (COA 109)	01/05/2018	30/04/2019



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ULR No.: TC74241800003271F

AMBIENT AIR QUALITY MONITORING REPORT					
Report No.	SEE/AR/03/19/7201	Report Date	27/03/2019		
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited				
Address of Client	Mopa, Goa				
Sample Collected By	SEEPL Representative	Environmental condition of lab			
Date of Sampling	22/03/2019	Temperature (°C)*	26.6	Humidity (%)*	57
Analysis Started On	23/03/2019	Analysis Completed On	26/03/2019		

AMBIENT AIR STATION LOCATION

Location of ambient air station	Airport Boundary, Opp. To CH1400n				
Ambient Temperature (°C)*	29.5	Humidity (%)*	68		
Wind Speed (km/hr)*	2.3	Wind Direction (deg)*	131		
Instruments Used	R.D.S.(APM- 460), F.P.S.(APM – 550) & G.P.S.(APM – 411)				

POLLUTION PARAMETERS

Sr. No.	Parameters	Result	Unit	Limits (NAAQS-2009)	Method
01.	SPM	81.65	µg/m ³	-	IS 5182(Part 04)
02.	PM ₁₀	62.93	µg/m ³	100.00	IS 5182(Part 23)
03.	PM _{2.5}	17.51	µg/m ³	60.00	Lab SOP NO.: SEE/LD/SOP-AA-04
04.	SO ₂	9.58	µg/m ³	80 .00	IS 5182 (Part 02)
05.	NO _x	12.75	µg/m ³	80 .00	IS 5182 (Part 06)
06.	CO	0.10	mg/m ³	4.00	Lab SOP NO.: SEE/LD/SOP-AA-10

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Calibration details of Equipment used for Sampling & Analysis

Respirable Dust Sampler's with Gaseous Sampling

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	RDS - APM 460 (SR NO.1461-DTD-2009)	SEEPL/CAL/1710-002	23/04/2018	23/04/2019

UV Spectrophotometer

Sr No.	Equipment Name	Calibration
01	UV	In House Calibration

Fine Particulate Sampler (SR NO.03-DTA-2017)

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	FPS - AI 112	ECL/SEEPL/2018-19/FLOW/270	30/04/2018	30/04/2019

CO METER

Sr No.	Instrument Type	Calibrated on	Calibration due date
01	CO Analyzer (COA 109)	01/05/2018	30/04/2019



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ULR No.: TC74241800003272F

AMBIENT AIR QUALITY MONITORING REPORT					
Report No.	SEE/AR/03/19/7202	Report Date	27/03/2019		
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited				
Address of Client	Mopa, Goa				
Sample Collected By	SEEPL Representative	Environmental condition of lab			
Date of Sampling	22/03/2019	Temperature (°C)*	26.6	Humidity (%)*	57
Analysis Started On	23/03/2019	Analysis Completed On	26/03/2019		


AMBIENT AIR STATION LOCATION

Location of ambient air station	R & R Colony				
Ambient Temperature (°C)*	29.5	Humidity (%)*	68		
Wind Speed (km/hr)*	2.3	Wind Direction (deg)*	131		
Instruments Used	R.D.S.(APM- 460), F.P.S.(APM – 550) & G.P.S.(APM – 411)				

POLLUTION PARAMETERS

Sr. No.	Parameters	Result	Unit	Limits (NAAQS-2009)	Method
01.	SPM	102.69	µg/m ³	-	IS 5182(Part 04)
02.	PM ₁₀	68.72	µg/m ³	100.00	IS 5182(Part 23)
03.	PM _{2.5}	20.38	µg/m ³	60.00	Lab SOP NO.: SEE/LD/SOP-AA-04
04.	SO ₂	16.13	µg/m ³	80 .00	IS 5182 (Part 02)
05.	NO _x	21.85	µg/m ³	80 .00	IS 5182 (Part 06)
06.	CO	0.07	mg/m ³	4.00	Lab SOP NO.: SEE/LD/SOP-AA-10

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Calibration details of Equipment used for Sampling & Analysis

Respirable Dust Sampler's with Gaseous Sampling

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	RDS - APM 460 (SR NO.1719-DTI-2012)	SEEPL/CAI/1712-001	24/04/2018	24/04/2019

UV Spectrophotometer

Sr No.	Equipment Name	Calibration
01	UV	In House Calibration

Fine Particulate Sampler (SR No. 110-DTK-2012)

Sr No.	Equipment Name	Certificate No.	Calibrated on	Calibration due date
01	FPS - APM 550 MINI	ECL/SEEPL/2018-19/FLOW/4307	20/02/2019	20/02/2020

CO METER

Sr No.	Instrument Type	Calibrated on	Calibration due date
01	CO Analyzer (COA 109)	01/05/2018	30/04/2019



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ULR No.: TC74241800003273F

NOISE LEVEL MONITORING REPORT			
Report No.	SEE/AR/03/19/7203-05	Report Date	27/03/2019
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		
Address of Client	Mopa, Goa		
Date of Sampling	22/03/2019		
Sample Collected By	SEEPL Representative		

Sr. No.	Sampling Location (From 1.0 meter off)	Report No.	Noise in dB(A)		Noise in dB(A) Leq
			Max.	Min.	Day Time
01.	Near R&R Colony	SEE/AR/03/19/7203	52	42	47
02.	Semeche Advan, Varkhad	SEE/AR/03/19/7204	44	36	40
03.	Airport Boundary, Opp. To CH1400n	SEE/AR/03/19/7205	50	34	42

➤ Noise Limits as per Schedule III of "The Environment (Protection) Rules, 1986" are as follows:

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

- Day time is reckoned in between 6.00am to 10.00pm and night time is reckoned in between 10.00pm to 6.00am.
- *dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. A "decibel" is a unit in which noise is measured.
- "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- Leq: It is the energy mean of the noise level over a specified period.

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: Test results relate only to the condition prevailing at the time of sampling

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Monitored by
Anand Chavan



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Calibration Details of Equipment used for Sampling

Noise Level Meter No.5 (HE:001774H)

Sr No.	Equipment Name	Calibration Certificate No.	Calibrated on	Calibration due date
01	Noise Level Meter	CC/ECI/0584/18-19	01/02/2019	03/02/2020



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ULR No.: TC74241800003274F

NOISE LEVEL MONITORING REPORT			
Report No.	SEE/AR/03/19/7206-08	Report Date	27/03/2019
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		
Address of Client	Mopa, Goa		
Date of Sampling	22/03/2019		
Sample Collected By	SEEPL Representative		

Sr. No.	Sampling Location (From 1.0 meter off)	Report No.	Noise In dB(A)		Noise in dB (A) Leq
			Max.	Min.	Night Time
01.	Near R&R Colony	SEE/AR/03/19/7206	45	42	43
02.	Semeche Advan, Varkhad	SEE/AR/03/19/7207	40	33	36
03.	Airport Boundary, Opp. To CH1400n	SEE/AR/03/19/7208	41	31	36

➤ Noise Limits as per Schedule III of "The Environment (Protection) Rules, 1986" are as follows:

Area Code	Category of Area	Limits in dB(A) Leq	
		Day Time	Night Time
(A)	Industrial Area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone	50	40

- Day time is reckoned in between 6.00am to 10.00pm and night time is reckoned in between 10.00pm to 6.00am.
- *dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing. A "decibel" is a unit in which noise is measured.
- "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.
- Leq: It is the energy mean of the noise level over a specified period.

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Monitored by
Anand Chavan

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Calibration Details of Equipment used for Sampling

Noise Level Meter No.5 (HE:001774H)

Sr No.	Equipment Name	Calibration Certificate No.	Calibrated on	Calibration due date
01	Noise Level Meter	CC/ECL/0584/18-19	04/02/2019	03/02/2020



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SAVC WATER
SAVC LIFE

ANALYSIS REPORT FOR WATER SAMPLE				
Report No.	SEE/03/19/4917	Report Date	28/03/19	
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited			
Address of Client	Mopa, Goa			
Order / Reference	As per dated 23/03/19	Environmental Condition of Lab	Temp °C	Humidity %
			26.3	56
Sampling point	Borewell 1			
Sample details	Borewell Water	Date of collection	23/03/19	
Sample Collected by	SEEPL Representative	Sample Received On	23/03/19	
Analysis Started On	23/03/19	Analysis Completed On	28/03/19	
Sample Container	Glass bottle + PVC Can	Sample Quantity	1000 ml + 4000ml	

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
1.	pH	7.02	-	6.5 - 8.5	APHA(23 rd Edition) 4500 H ⁺ -B
2.	Turbidity	0.54	NTU	1.00	APHA(23 rd Edition) 2130 B
3.	Taste	Agreeable	-	Agreeable	APHA(23 rd Edition) 2160 B
4.	Color	<1.00	Hazen unit	5.00	APHA(23 rd Edition) 2120 B
5.	Odour	Agreeable	-	Agreeable	APHA(23 rd Edition) 2150 B
6.	Electric Conductivity	231	µS/cm	Not Specified	APHA(23 rd Edition) 2510-B
7.	Total Alkalinity	122.00	mg/lit	200.00	APHA(23 rd Edition) 2320 B
8.	Total Dissolved Solids	159.00	mg/lit	500.00	APHA(23 rd Edition) 2540 C
9.	Chlorides as Cl ⁻	10.51	mg/lit	250.00	APHA(23 rd Edition) 4500 Cl ⁻ B
10.	Sulphate as SO ₄ ⁻	10.03	mg/lit	200.00	APHA(23 rd Edition) 4500 SO ₄ E
11.	Sulfides	<0.05	mg/lit	0.05	APHA(23 rd Edition) 4500 S ²⁻ F
12.	Total Hardness as CaCO ₃	102.00	mg/lit	200.00	APHA(23 rd Edition) 2340 C
13.	Ammonia	<0.50	mg/lit	0.50	APHA(23 rd Edition) 4500 NH ₃ B C

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Report No.	SEE/03/19/4917	Report Date	28/03/19
Order / Reference	As per dated 23/03/19	Sample Received On	23/03/19
Analysis Started On	23/03/19	Analysis Completed On	28/03/19
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
14.	Residual free chlorine	Nil	mg/lit	0.50	APHA(23 rd Edition) 4500 Cl- C
15.	Nitrate as NO ₃	<1.00	mg/lit	45.00	APHA(23 rd Edition) 4500 NO ₃ B
16.	Fluoride as F ⁻	<0.10	mg/lit	1.00	APHA(23 rd Edition) 4500 F D
17.	Phenolic compound	<0.001	mg/lit	0.001	APHA(23 rd Edition) 5530-B,C
18.	Cyanide	<0.01	mg/lit	0.05	APHA(23 rd Edition) 4500 CN -D
19.	Anionic Detergents	<0.10	mg/lit	0.20	APHA(23 rd Edition) 5540 - C

Metal Analysis

20.	Aluminium as Al	<0.01	mg/lit	0.03	APHA(23 rd Edition) 3120 B
21.	Arsenic as As	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
22.	Boron as B	<0.01	mg/lit	0.50	APHA(23 rd Edition) 3120 B
23.	Calcium as Ca	16.03	mg/lit	75.00	APHA(23 rd Edition) 3500Ca B
24.	Cadmium as Cd	<0.001	mg/lit	0.003	APHA(23 rd Edition) 3120 B
25.	Iron as Fe	0.22	mg/lit	1.00	APHA(23 rd Edition) 3120 B
26.	Lead as Pb	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
27.	Magnesium as Mg	15.11	mg/lit	30.00	APHA(23 rd Edition) 3500Mg B
28.	Manganese as Mn	<0.01	mg/lit	0.10	APHA(23 rd Edition) 3120 B
29.	Mercury as Hg	<0.001	mg/lit	0.001	APHA(23 rd Edition) 3120 B
30.	Selenium as Se	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
31.	Zinc as Zn	0.06	mg/lit	5.00	APHA(23 rd Edition) 3120 B
32.	Sodium as Na	<1.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
33.	Potassium as K	0.66	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
34.	Copper as Cu	<0.01	mg/lit	0.05	APHA(23 rd Edition) 3120 B

18/3
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Report No.	SEE/03/19/4917	Report Date	28/03/19
Order / Reference	As per dated 23/03/19	Sample Received On	23/03/19
Analysis Started On	23/03/19	Analysis Completed On	28/03/19
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Microbiological Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
35.	Total coliforms at 37°C for 48 hrs.	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-B
36.	E.coli at 44.5°C for 24hrs.	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-G

Note: Test results related only to the sample tested.

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: Calibration details of the equipments used in monitoring and / or analysis is back side of analysis report.


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Equipment Calibration Details

Sr. No.	Equipment Name	Equipment Id	Certificate No.	Calibration Details	
				Calibration Date	Next Calibration Due Date
01.	pH Meter	Q/022	GOA20180903-1/001	03/09/2018	03/09/2019
02.	Hot Air Oven	Q/039	T2018/06/033	26/06/2018	26/06/2019
03.	ICP- OES	Q/162	-	Inhouse Calibration	
04.	U V Spectrophotometer	Q/0166	-	Inhouse Calibration	
05.	Microbiological Incubator (37 °C)	Q/003	CC2098000000004F	03/09/2018	03/09/2019
06.	Microbiological Incubator (44.5 °C)	Q/004	CC2098000000003F	03/09/2018	03/09/2019
07.	Laminar Air Flow	Q/001	GOA20180903-1/003	03/09/2018	03/09/2019
08.	Autoclave	Q/010	-	24/04/2018	24/04/2019



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ANALYSIS REPORT FOR WATER SAMPLE				
Report No.	SEE/03/19/4918	Report Date	28/03/19	
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited			
Address of Client	Mopa, Goa			
Order / Reference	As per dated 23/03/19	Environmental Condition of Lab	Temp ° C	Humidity %
			26.3	56
Sampling point	Borewell II			
Sample details	Borewell Water	Date of collection	23/03/19	
Sample Collected by	SEEPL Representative	Sample Received On	23/03/19	
Analysis Started On	23/03/19	Analysis Completed On	28/03/19	
Sample Container	Glass bottle + PVC Can	Sample Quantity	1000 ml + 4000ml	

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
1.	pH	7.14	-	6.5 - 8.5	APHA(23 rd Edition) 4500 H ⁺ -B
2.	Turbidity	0.58	NTU	1.00	APHA(23 rd Edition) 2130 B
3.	Taste	Agreeable	-	Agreeable	APHA(23 rd Edition) 2160 B
4.	Color	<1.00	Hazen unit	5.00	APHA(23 rd Edition) 2120 B
5.	Odour	Agreeable	-	Agreeable	APHA(23 rd Edition) 2150 B
6.	Electric Conductivity	176.3	µS/cm	Not Specified	APHA(23 rd Edition) 2510-B
7.	Total Alkalinity	92.00	mg/lit	200.00	APHA(23 rd Edition) 2320 B
8.	Total Dissolved Solids	168.00	mg/lit	500.00	APHA(23 rd Edition) 2540 C
9.	Chlorides as Cl ⁻	12.01	mg/lit	250.00	APHA(23 rd Edition) 4500 Cl ⁻ B
10.	Sulphate as SO ₄ ⁻	12.75	mg/lit	200.00	APHA(23 rd Edition) 4500 SO ₄ E
11.	Sulfides	<0.05	mg/lit	0.05	APHA(23 rd Edition) 4500 S ²⁻ F
12.	Total Hardness as CaCO ₃	68.00	mg/lit	200.00	APHA(23 rd Edition) 2340 C
13.	Ammonia	<0.50	mg/lit	0.50	APHA(23 rd Edition) 4500 NH ₃ B C

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Report No.	SEE/03/19/4918	Report Date	28/03/19
Order / Reference	As per dated 23/03/19	Sample Received On	23/03/19
Analysis Started On	23/03/19	Analysis Completed On	28/03/19
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
14.	Residual free chlorine	Nil	mg/lit	0.50	APHA(23 rd Edition) 4500 Cl- C
15.	Nitrate as NO ₃	1.60	mg/lit	45.00	APHA(23 rd Edition) 4500 NO ₃ B
16.	Fluoride as F ⁻	<0.10	mg/lit	1.00	APHA(23 rd Edition) 4500 F D
17.	Phenolic compound	<0.001	mg/lit	0.001	APHA(23 rd Edition) 5530-B,C
18.	Cyanide	<0.01	mg/lit	0.05	APHA(23 rd Edition) 4500 CN -D
19.	Anionic Detergents	<0.10	mg/lit	0.20	APHA(23 rd Edition) 5540 - C

Metal Analysis

20.	Aluminium as Al	<0.01	mg/lit	0.03	APHA(23 rd Edition) 3120 B
21.	Arsenic as As	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
22.	Boron as B	<0.01	mg/lit	0.50	APHA(23 rd Edition) 3120 B
23.	Calcium as Ca	12.02	mg/lit	75.00	APHA(23 rd Edition) 3500Ca B
24.	Cadmium as Cd	<0.001	mg/lit	0.003	APHA(23 rd Edition) 3120 B
25.	Iron as Fe	0.09	mg/lit	1.00	APHA(23 rd Edition) 3120 B
26.	Lead as Pb	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
27.	Magnesium as Mg	9.26	mg/lit	30.00	APHA(23 rd Edition) 3500Mg B
28.	Manganese as Mn	<0.01	mg/lit	0.10	APHA(23 rd Edition) 3120 B
29.	Mercury as Hg	<0.001	mg/lit	0.001	APHA(23 rd Edition) 3120 B
30.	Selenium as Se	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
31.	Zinc as Zn	0.83	mg/lit	5.00	APHA(23 rd Edition) 3120 B
32.	Sodium as Na	<1.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
33.	Potassium as K	0.86	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
34.	Copper as Cu	<0.01	mg/lit	0.05	APHA(23 rd Edition) 3120 B


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Report No.	SEE/03/19/4918	Report Date	28/03/19
Order / Reference	As per dated 23/03/19	Sample Received On	23/03/19
Analysis Started On	23/03/19	Analysis Completed On	28/03/19
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		


Microbiological Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
35.	Total coliforms at 37°C for 48 hrs.	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-B
36.	E.coli at 44.5°C for 24hrs.	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-G

Note: Test results related only to the sample tested.

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Equipment Calibration Details

Sr. No.	Equipment Name	Equipment Id	Certificate No.	Calibration Details	
				Calibration Date	Next Calibration Due Date
01.	pH Meter	Q/022	GOA20180903-1/001	03/09/2018	03/09/2019
02.	Hot Air Oven	Q/039	T2018/06/033	26/06/2018	26/06/2019
03.	ICP- OES	Q/162	-	Inhouse Calibration	
04.	U V Spectrophotometer	Q/0166	-	Inhouse Calibration	
05.	Microbiological Incubator (37 °C)	Q/003	CC2098000000004F	03/09/2018	03/09/2019
06.	Microbiological Incubator (44.5 °C)	Q/004	CC2098000000003F	03/09/2018	03/09/2019
07.	Laminar Air Flow	Q/001	GOA20180903-1/003	03/09/2018	03/09/2019
08.	Autoclave	Q/010	-	24/04/2018	24/04/2019



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ANALYSIS REPORT FOR WATER SAMPLE				
Report No.	SEE/03/19/4919	Report Date	28/03/19	
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited			
Address of Client	Mopa, Goa			
Order / Reference	As per dated 23/03/19	Environmental Condition of Lab	Temp °C	Humidity %
			26.3	56
Sampling point	Office			
Sample details	Drinking Water	Date of collection	23/03/19	
Sample Collected by	SEEPL Representative	Sample Received On	23/03/19	
Analysis Started On	23/03/19	Analysis Completed On	28/03/19	
Sample Container	Glass bottle + PVC Can	Sample Quantity	1000 ml + 4000ml	

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
1.	pH	6.75	-	6.5 - 8.5	APHA(23 rd Edition) 4500 H ⁺ -B
2.	Turbidity	0.49	NTU	1.00	APHA(23 rd Edition) 2130 B
3.	Taste	Agreeable	-	Agreeable	APHA(23 rd Edition) 2160 B
4.	Color	<1.00	Hazen unit	5.00	APHA(23 rd Edition) 2120 B
5.	Odour	Agreeable	-	Agreeable	APHA(23 rd Edition) 2150 B
6.	Electric Conductivity	44.1	µS/cm	Not Specified	APHA(23 rd Edition) 2510-B
7.	Total Alkalinity	12.00	mg/lit	200.00	APHA(23 rd Edition) 2320 B
8.	Total Dissolved Solids	194.00	mg/lit	500.00	APHA(23 rd Edition) 2540 C
9.	Chlorides as Cl ⁻	11.01	mg/lit	250.00	APHA(23 rd Edition) 4500 Cl ⁻ B
10.	Sulphate as SO ₄ ⁻	8.64	mg/lit	200.00	APHA(23 rd Edition) 4500 SO ₄ E
11.	Sulfides	<0.05	mg/lit	0.05	APHA(23 rd Edition) 4500 S ²⁻ F
12.	Total Hardness as CaCO ₃	24.00	mg/lit	200.00	APHA(23 rd Edition) 2340 C
13.	Ammonia	<0.50	mg/lit	0.50	APHA(23 rd Edition) 4500 NH ₃ B C

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Report No.	SEE/03/19/4919	Report Date	28/03/19
Order / Reference	As per dated 23/03/19	Sample Received On	23/03/19
Analysis Started On	23/03/19	Analysis Completed On	28/03/19
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		

Chemical Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
14.	Residual free chlorine	Nil	mg/lit	0.50	APHA(23 rd Edition) 4500 Cl- C
15.	Nitrate as NO ₃	<1.00	mg/lit	45.00	APHA(23 rd Edition) 4500 NO ₃ B
16.	Fluoride as F ⁻	<0.10	mg/lit	1.00	APHA(23 rd Edition) 4500 F D
17.	Phenolic compound	<0.001	mg/lit	0.001	APHA(23 rd Edition) 5530-B,C
18.	Cyanide	<0.01	mg/lit	0.05	APHA(23 rd Edition) 4500 CN -D
19.	Anionic Detergents	<0.10	mg/lit	0.20	APHA(23 rd Edition) 5540 - C

Metal Analysis

20.	Aluminium as Al	<0.01	mg/lit	0.03	APHA(23 rd Edition) 3120 B
21.	Arsenic as As	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
22.	Boron as B	<0.01	mg/lit	0.50	APHA(23 rd Edition) 3120 B
23.	Calcium as Ca	2.40	mg/lit	75.00	APHA(23 rd Edition) 3500Ca B
24.	Cadmium as Cd	<0.001	mg/lit	0.003	APHA(23 rd Edition) 3120 B
25.	Iron as Fe	0.32	mg/lit	1.00	APHA(23 rd Edition) 3120 B
26.	Lead as Pb	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
27.	Magnesium as Mg	4.39	mg/lit	30.00	APHA(23 rd Edition) 3500Mg B
28.	Manganese as Mn	<0.01	mg/lit	0.10	APHA(23 rd Edition) 3120 B
29.	Mercury as Hg	<0.001	mg/lit	0.001	APHA(23 rd Edition) 3120 B
30.	Selenium as Se	<0.01	mg/lit	0.01	APHA(23 rd Edition) 3120 B
31.	Zinc as Zn	0.04	mg/lit	5.00	APHA(23 rd Edition) 3120 B
32.	Sodium as Na	<1.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
33.	Potassium as K	1.00	mg/lit	Not Specified	APHA(23 rd Edition) 3120 B
34.	Copper as Cu	<0.01	mg/lit	0.05	APHA(23 rd Edition) 3120 B


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Report No.	SEE/03/19/4919	Report Date	28/03/19
Order / Reference	As per dated 23/03/19	Sample Received On	23/03/19
Analysis Started On	23/03/19	Analysis Completed On	28/03/19
Name of Client	M/s. Megawide Construction DMCC C/o GMR Goa international Airport Limited		


Microbiological Parameters

Sr. No.	Parameter	Result	Unit	IS desirable Limit (As per IS 10500)	Method
35.	Total coliforms at 37°C for 48 hrs.	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-B
36.	E.coli at 44.5°C for 24hrs.	Absent	MPNIndex/100ml	Absent	APHA(23 rd Edition) 9221-G

Note: Test results related only to the sample tested.

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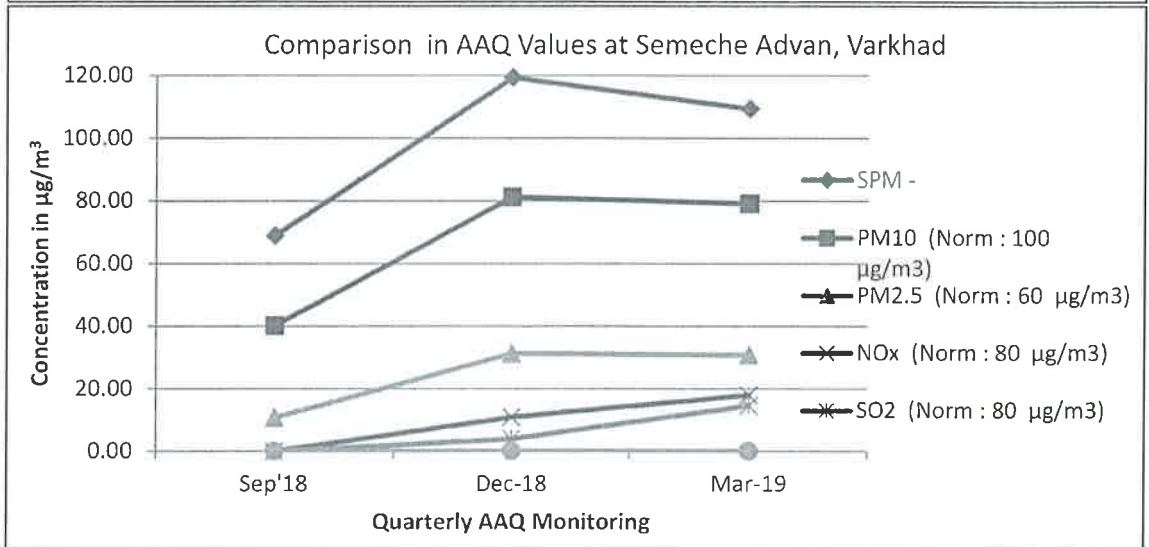
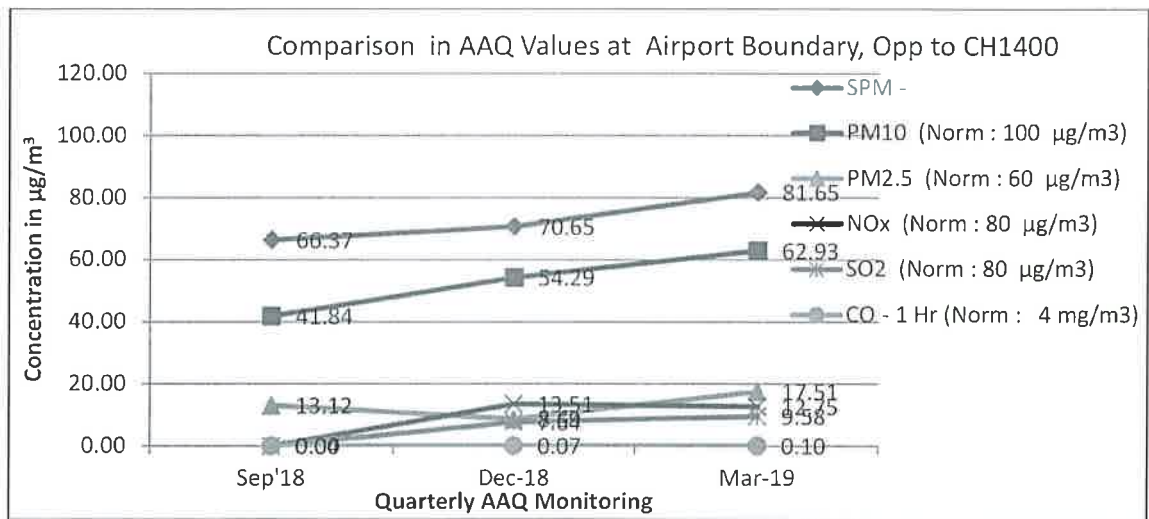
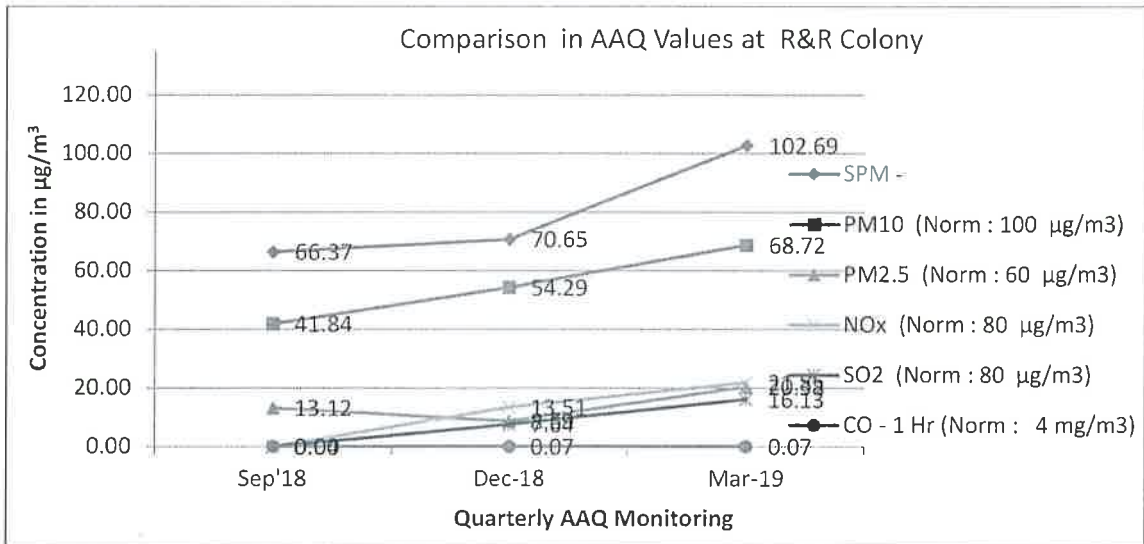



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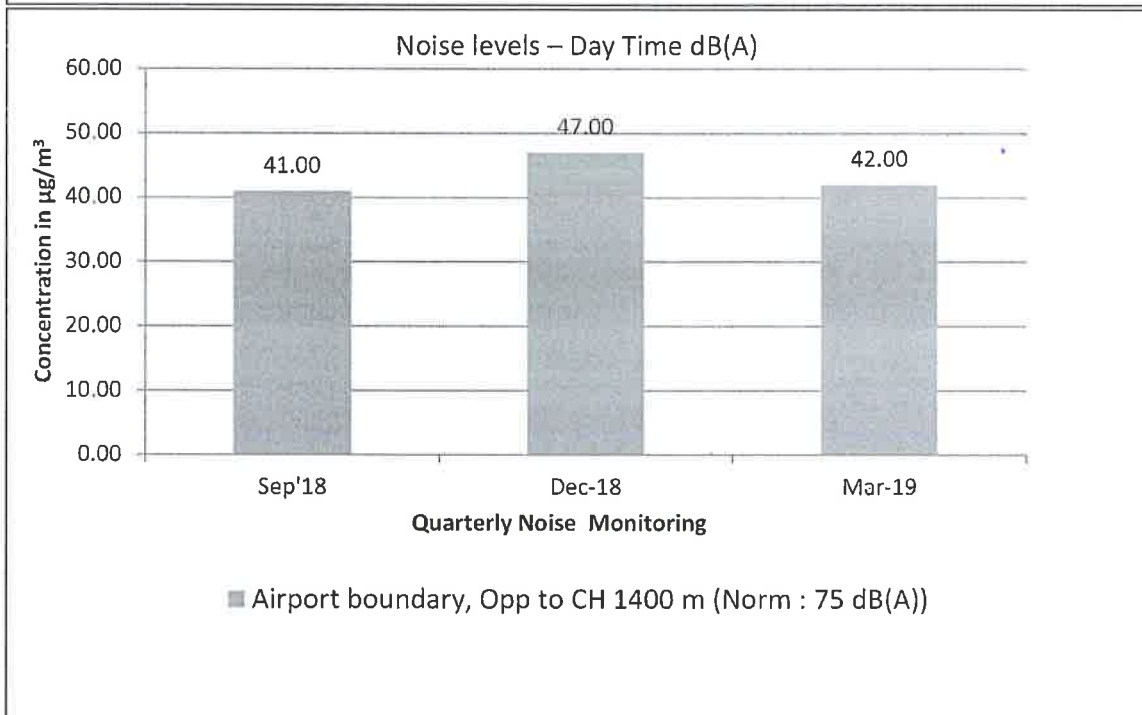
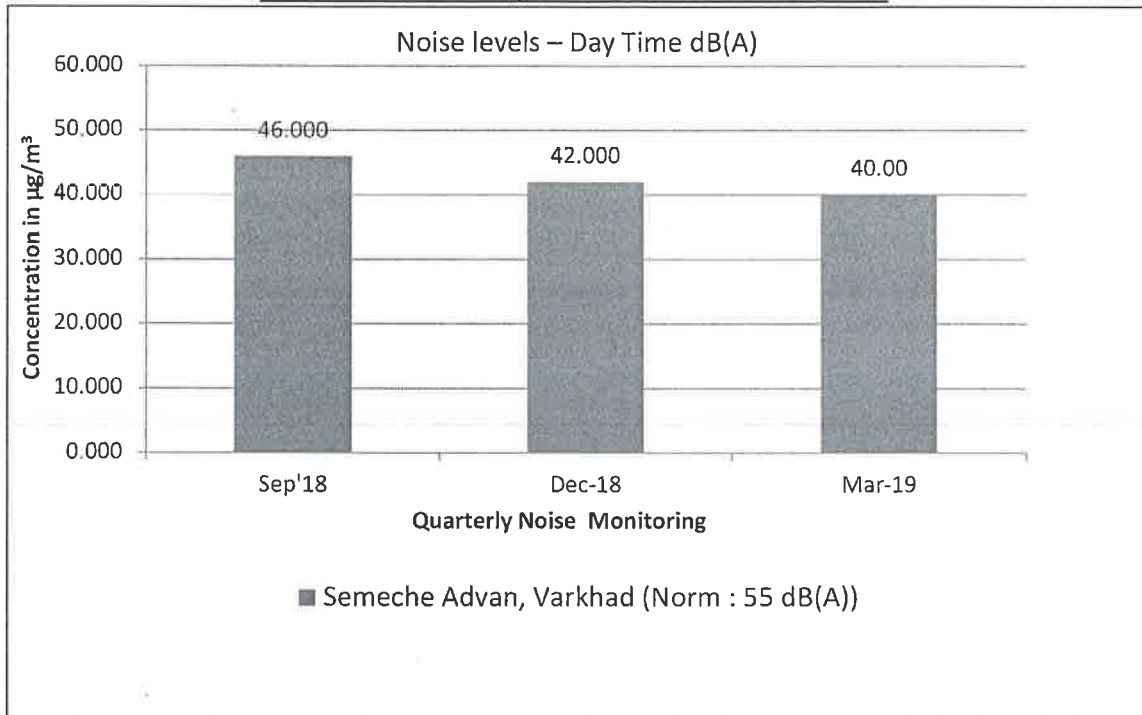
Equipment Calibration Details

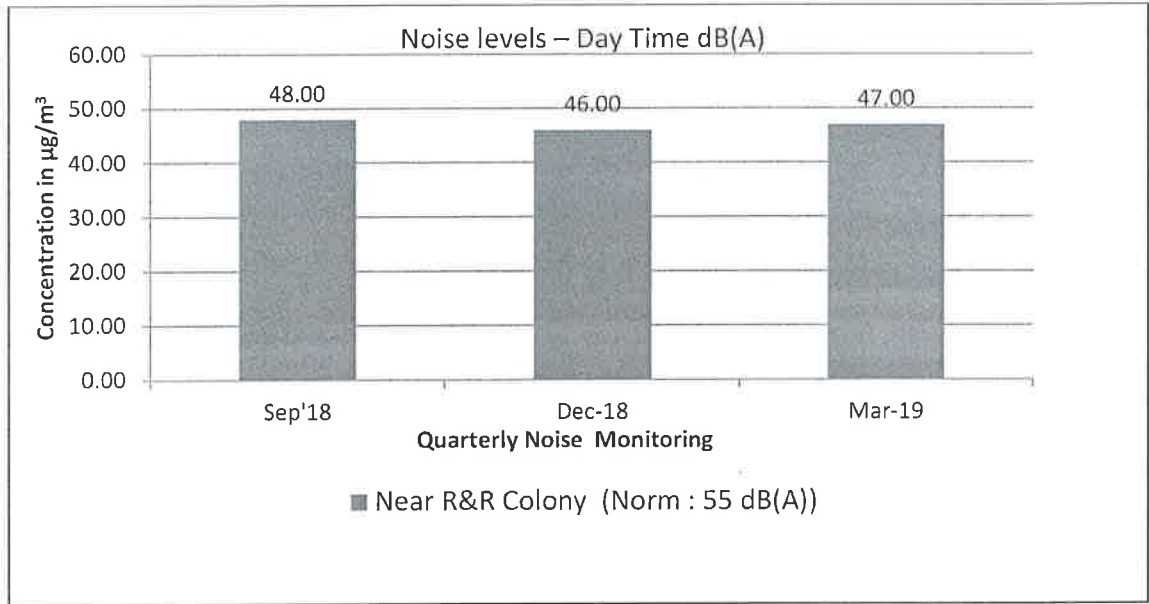
Sr. No.	Equipment Name	Equipment Id	Certificate No.	Calibration Details	
				Calibration Date	Next Calibration Due Date
01.	pH Meter	Q/022	GOA20180903-1/001	03/09/2018	03/09/2019
02.	Hot Air Oven	Q/039	T2018/06/033	26/06/2018	26/06/2019
03.	ICP- OES	Q/162	-	Inhouse Calibration	
04.	U V Spectrophotometer	Q/0166	-	Inhouse Calibration	
05.	Microbiological Incubator (37 °C)	Q/003	CC2098000000004F	03/09/2018	03/09/2019
06.	Microbiological Incubator (44.5 °C)	Q/004	CC2098000000003F	03/09/2018	03/09/2019
07.	Laminar Air Flow	Q/001	GOA20180903-1/003	03/09/2018	03/09/2019
08.	Autoclave	Q/010	-	24/04/2018	24/04/2019

COMPARISON OF AAQ MONITORING VALUES IN 3 LOCATIONS CONDUCTED DURING SEP 2018, DEC 2018 & MARCH 2019



COMPARISON OF NOISE MONITORING VALUES IN 3 LOCATIONS CONDUCTED DURING SEP 2018, DEC 2018 & MARCH 2019





COMPARISON OF NOISE MONITORING VALUES IN 3 LOCATIONS CONDUCTED DURING SEP 2018, DEC 2018 & MARCH 2019

