



Chennai Metro Rail Limited

(A Joint Venture of Govt. of India and Govt. of Tamil Nadu)

(ISO 9001:2015 and ISO 14001:2015 Certified)

Letter No. CMRL/CON/ES/1087/2025

Dated: 06.10.2025

To,

Dr. V. George Jenner, IFS,
Deputy Director General of Forests (C),
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office,
1st Floor, Additional Office Block for GPOA,
Shastri Bhawan, Haddows Road
Nungambakkam, Chennai – 600 034.

Dear Sir,

Sub: Submission of Six-Monthly Monitoring report (CRZ Clearance) for the period of March 2025 to August 2025 for the Construction of Metro Rail Network – Corridor 3 (Madhavaram to SIPCOT) having total length of the corridor as 45.813 km comprising 50 stations (30 underground stations and 20 elevated stations) in Chennai, Tamil Nadu by M/s Chennai Metro Rail Limited (CMRL) - Reg.

Ref: CRZ Clearance Letter No F.No.11-39/2022-IA.III dated 28th February 2023.

With reference to the Part B - General Conditions, Condition no. (vii) stipulated in the CRZ Clearance cited above we are submitting herewith the six-monthly monitoring report (March 2025 to August 2025) along with necessary supporting documents for your kind information and perusal.

We wish to mention that all the necessary actions are being taken in compliance to the specific and general conditions of CRZ Clearance granted to the project.

We trust that the information furnished is in line with your requirement.

Thanking You.

Yours Sincerely,

A handwritten signature in blue ink, with the date '6/10/2025' written below it.

**Sarvana Kumar R,
Manager - Environment.**



Enclosure: As stated above

METROS, Anna Salai, Nandanam, Chennai - 600 035.

Phone : 044-2437 8000 / Email: chennaimetrorail@cmrl.in / Website: www.chennaimetrorail.org

CIN : U60100TN2007SGC065596

Six Monthly Monitoring Report for CRZ Clearance issued by MoEF&CC, New Delhi vide letter . F. No. 11-39/2022-IA.III, dated 28th February 2023 for Construction of Metro Rail Network – Corridor 3 (Madhavaram to SIPCOT) having total length of the Corridor as 45.813 km comprising 50 stations (30 underground stations and 20 elevated stations) in Chennai, Tamil Nadu by M/s Chennai Metro Rail Limited (CMRL).

Part A – Specific Conditions

S. No.	Description	Status of Compliance / Remarks
i.	All construction shall be strictly by the provisions of CRZ Notification, 2011 and as amended from time to time.	Noted. The recommendations/ conditions applicable for construction stage are compiled as per CRZ Notification 2011 and its amendments.
ii.	During the construction the vibration levels shall be monitored regularly at 200m on either side of alignment at receptors comprising educational, medical, and physical cultural buildings and other fragile buildings.	Being Complied. Vibration levels are monitored regularly during construction at 200 m on either side of the alignment.
iii.	The Ground Penetrating Radar (GPR) measurements before and after tunneling should be taken up loose strata identified from geotechnical data along alignment and regular compliance report should be submitted to Regional Office.	Noted and Agreed to Comply. The GPR measurements are being monitored before and after tunneling in the CRZ areas.
iv.	No ground water shall be extracted within the CRZ area to meet water requirements during the construction and/or operational phase of the project.	Being Complied. No ground water within the CRZ area was extracted during the construction or operation phase of the project. For construction purposes water is procured from CMWSSB through water tankers.
v.	The project proponent shall ensure the natural flow of the creek water at the project site.	Being Complied. No blockage of rivers or creek is envisaged in our project proposal. Proper care was taken to ensure free flow of water throughout the project.
vi.	No excavated material during the construction shall be dumped in water bodies or adjacent areas. The site shall be restored to its near original condition after completion of construction.	Noted and agreed to comply. CMRL has ensured that no excavated materials will be dumped in the water bodies or adjacent areas.
vii.	Permanent labour camp, machinery and material storage shall not be set up in the CRZ area.	Being Complied. Labour camps have been established outside the CRZ area and machinery and



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S. No.	Description	Status of Compliance / Remarks
		material storage are also being ensured outside the CRZ boundary.
viii.	Any temporary physical infrastructure set up during the construction period shall be removed simultaneously with the completion of laying of each segment of the project.	Noted and Agreed to Comply. CMRL ensures that all temporary physical infrastructure will be removed from post work completion.
ix.	All the conditions stipulated by the Tamil Nadu Coastal Zone Management Authority for CRZ clearance vide its letter No. Letter No. RC No P1/2503/2021. Dated 19/01/2022, and commitments made by the PP before the CZMA and EAC shall be followed in letter and spirit.	Noted and Agreed to Comply. CMRL will comply with all the stipulation given by the CZMA and EAC.
x.	All necessary clearance from the concerned authority, as may be applicable should be obtained prior to commencement of the project or activity.	Noted and Being Complied. All prerequisite approvals / clearances are obtained from the relevant authorities before commencement of the project or activity.

Part B – General Conditions

S. No.	Description	Status of Compliance / Remarks
i.	Management of solid waste by the Solid Waste Management Rules, 2016 shall be strictly implemented.	Noted and Agreed to Comply. CMRL has ensured that the proper waste management systems are implemented to minimize the adverse impact on the environment.
ii.	'Consent to Establish' and / or 'Consent to Operate' shall be obtained from State Pollution Control Board under the provisions of the Air (Prevention and Control of Pollution) Act, 1981 and/or the Water (Prevention and Control of Pollution) Act, 1974, as may be applicable.	Noted and Agreed to Comply. 'Consent to Operate' (CTO) has been obtained from TNPCB for the Batching Plants (RMC Plants)
iii.	Disposal of muck during the construction phase should not create any adverse effect on the neighboring	Noted and Being Complied. CMRL ensures that the muck generated during construction phase will be disposed



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S. No.	Description	Status of Compliance / Remarks
	communities and be disposed of taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of Competent Authority.	only in the approved sites without creating any adverse effect on the neighborhood communities. Permission obtained from CMWSSB for dumping muck and other construction waste in their Kodungaiyur STP land without creating any adverse effect on the neighborhood communities.
iv.	All liquid waste arising from the proposed development will be disposed of as per the norms prescribed by the Central / State Pollution Control Board. There shall not be any disposal of untreated effluent into the sea / coastal water bodies. It shall be ensured that the wastewater generated is treated in the STP as committed by the project proponent. The treated wastewater shall be reused for landscaping, flushing and/or HVAC cooling purposes etc. within the development. The project proponent should also make alternate arrangements for situations arising due to malfunctioning STP. There shall be regular monitoring of standard parameters of the effluent discharge from STP under intimation to the SPCB.	Complied. No disposal of liquid wastes done in the sea / coastal water bodies. 300 KLD wastewater treatment plant has been installed in the non CRZ area for treatment of wastewater generated from site and the same treated water being reused for construction activities, landscaping, flushing and dust suppression activities.
v.	Any hazardous waste generated during the construction phase, shall be disposed off as per the applicable rules and norms with the necessary approvals of the State Pollution Control Board.	Noted and Being Comply. Hazardous waste generated during the construction phase is being handled, stored, and disposed of in accordance with the provisions of the Hazardous Waste Management Rules, 2016. Disposal is carried out only through TNPCB-authorized vendors.



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S. No.	Description	Status of Compliance / Remarks
vi.	A copy of the clearance letter shall be uploaded on the website of the concerned State Coastal Management Authority/ State Pollution Control Board. The clearance letter shall also be displayed at the Regional Office, District Industries Centre and Collector's Office for 30 days.	TNPCB and TNCZMA is the concern authorities for the same.
vii.	A Six-monthly monitoring report shall need to be submitted by the project proponent to the concerned Regional Office of this Ministry regarding the implementation of stipulated conditions.	Being complied. This is the 4 th compliance report, and it is also being sent to Regional Office, MoEF&CC and would be uploaded on https://chennaimetrorail.org/compliance-reports/ CMRL Website periodically.
viii.	The 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 the environment and the same shall be complied with.	Noted and agreed, subjected to applicability and validity of condition, if any.
ix.	Full co-operation shall be extended to the officials from the Regional Office of MoEF&CC, during monitoring of the implementation of environmental safeguards stipulated. It shall be ensured that documents/data sought pertinent is made available to the monitoring team. A complete set of all the documents submitted to MoEF&CC shall be forwarded to the concerned Regional Office of MoEF&CC.	Agreed to Comply. Full support and coordination will be extended to the Officials from the Regional Office of MoEF&CC during the monitoring of the implementation of environmental safeguards.
x.	In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.	Agreed and shall be complied if such event occurs.
xi.	The ministry reserves the right to add additional safeguard measures	Noted and Agreed to Comply.



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S. No.	Description	Status of Compliance / Remarks
	subsequently, if considered necessary, and to take action to ensure effective implementation of the suggested safeguard measures in a time-bound and satisfactory manner, including revoking the environmental clearance under the provisions of the Environmental (Protection) Act, 1986, for non-compliance.	
xii.	All other statutory clearances such as 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 proponent from the respective Competent Authorities.	Being Complied. All applicable statutory clearances are being obtained from the respective competent authorities.
xiii.	The project proponent should advertise in at least two local newspaper widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded CRZ Clearance and copies of clearance letters are available with the State Pollution Control Board (SPCB) may also be seen on the website of the Ministry of Environment, Forest and Climate Change at https://parivesh.nic.in/ . The advertisement should be made within seven days from the date of receipt of Clearance letter and a copy of the same should be forwarded to the concerned Regional Office of this Ministry.	Complied. Grant of CRZ Clearance Letter has been advertised on 18.03.2023 in two local newspapers namely <ul style="list-style-type: none"> • Dina Thanthi (தினத்தந்தி) in Tamil language. • The Hindu in English language. Copy of advertisement has been already submitted to MoEF&CC vide letter no. CMRL/CON/ES/907/2023 on 10.04.2023.



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S. No.	Description	Status of Compliance / Remarks
xiv.	A copy of the clearance letter shall be sent by the project proponent to the concerned Panchayat, Zilla Parisad / Municipal Corporation, Urban Local Body and the Local NGO, if any, for whom suggestions / representations, if any, were received while processing the proposal.	Complied. A copy of the CRZ Clearance letter marked to Greater Chennai Corporation vide letter no. CMRL/CON/ES/903/2023 on 16.03.2023. As on date, no suggestions and representation received from the said authority.
xv.	The proponent shall upload the status of compliance of the stipulated conditions, including the results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB.	Being complied. Noted. Status of compliance of stipulated conditions have been uploaded on https://chennaimetrorail.org/ and are being updated periodically.
xvi.	The environmental statement for each financial year ending 31 st March in Form-V is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environmental (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the project proponent along the status of compliance of clearance conditions and shall also be sent to the Regional Office of the Ministry by e-mail.	Agreed to Comply. The last environmental statement Form V for financial year 2024-25 ending 31 st March 2025 was submitted to TNPCB and to the Regional Office of the Ministry by e-mail. The next statement will be submitted on or before August 2026.



Corridor 3 - Compliance Status of TNSCZMA Conditions stipulated letter.

R.C.No.P1/2503/2021, dated 19th January,2022

S.No	Description	Status of Compliance/ Remarks
i.	The project proponent should ensure that proposed activities in CRZ areas are as per provisions of CRZ Notification, 2011 (amended time to time).	Noted and Being Complied All activities in the CRZ area were ensured as per provision in the CRZ notification 2011.
ii.	No permanent labour camp, machinery, and material storage shall be allowed in the CRZ area.	Being Complied Labour camps have been established outside the CRZ area, and machinery and material storage are also being ensured outside the CRZ boundary.
iii.	There shall not be disposal of untreated/treated wastewater into the CRZ area.	Being Complied All liquid waste is treated as per Pollution Control Board norms, with no untreated effluent disposed of into coastal water bodies.
iv.	All the solid waste shall be handled as per the Solid waste Management Rules 2016.	Being Complied CMRL ensures the proper waste management systems are implemented to minimize the negative impact on the environment.
v.	Construction activity shall be carried out strictly as per the provisions of CRZ Notification, 2011 on the landward side of the existing road.	Noted The recommendations / conditions applicable for construction stage are compiled as per CRZ notification 2011.
vi.	The project shall adhere to the Construction and Demolition Waste Management Rules, 2018.	Noted CMRL ensures the temporary Storage and Disposal of C&D waste as per C&D waste management Rules 2018.
vii.	Any Hazardous waste generated during construction/operation phase shall be disposed off as per applicable rules and norms with necessary approvals of the SPCB.	Noted and Complied The hazardous waste generated from the sites during construction is disposed to the CPCB/TNPCB authorized vendor. Hazardous waste Authorization obtained from the TNPCB
viii.	Energy conservation measures like installation of CFLs/TFLs for the lighting the areas outside the building should be integral part of the project design and should be in place before the project commissioning. Used CFLs and TFLS should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination. Use of solar panels may be done to the extent possible.	Being Complied Energy-efficient lighting systems like LED fixtures have been incorporated in the project design. Used lamps are being disposed of through authorized recyclers. The installation of solar panels is being explored for suitable areas.
ix.	No construction activity shall be started / undertaken by the proponent until obtaining the CRZ clearance from the competent authority.	Noted All prerequisite approvals / clearances are obtained from the relevant authorities <u>before</u> commencement of the project



Corridor 3 - Compliance Status of TNSCZMA Conditions stipulated letter.
R.C.No.P1/2503/2021, dated 19th January,2022

S.No	Description	Status of Compliance/ Remarks
x.	No ground water from the Costal regulation zone area shall be tapped for the project.	Being Complied. No ground water within the CRZ area was extracted during the construction or operational phase of the project. For construction and operational purposes, the water was procured from the CMWSSB.
xi.	Oil spills if any shall be properly collected and disposed as per the Rules.	Being Complied. Oil generated and Oil spills occurred during the construction are collected and disposed to the CPCB/ TNPCB authorized vendor.
xii.	The proponent shall furnish the site plan with the details of area earmarked for the solid waste disposal, storage of fresh water for consumption etc.,	Being Complied. Site layout plan has been displayed at project site indicating designated areas for solid waste disposal, freshwater storage etc.,
xiii.	The proponent shall furnish the detailed proposal for handling of solid wastes.	Being Complied. Solid waste is segregated and disposed of to the Authorized Agency
xiv.	The proponent shall provide Sewage treatment plant of 15 KLD Capacity as proposed for the treatment of sewage generation and treated sewage shall be utilized for gardening.	Ongoing. For the construction phase, an Effluent Treatment Plant (ETP) of 300 KLD capacity has been installed at the site to treat dewatering water. The treated water is reused for dust suppression and other construction-related activities. The Sewage Treatment Plant (STP) of 15 KLD capacity will be installed before the operational phase of the project, and the treated sewage will be utilized for gardening as proposed.
xv.	All liquid waste arising from the proposed development will be disposed of as per the norms prescribed by Central/State Pollution Control Board. There shall not be any disposal of untreated effluent into the sea/coastal water bodies. It shall be ensured that the waste water generated is treated in the STP as committed. The project proponent should also make alternate arrangement for situation arising due to malfunctioning of STP. There shall be regular monitoring of standard parameters of the effluent discharge from STP under intimation to the SPCB.	Being Complied All liquid waste is treated as per Pollution Control Board norms, with no untreated effluent disposed of into coastal water bodies.



Corridor 3 - Compliance Status of TNSCZMA Conditions stipulated letter.

R.C.No.P1/2503/2021, dated 19th January,2022

S.No	Description	Status of Compliance/ Remarks
xvi.	The proponent shall comply with the Environmental Management Plan both during construction and operational phases.	Being Complied All activities are being carried out in adherence to the approved Environmental Management Plan (EMP). Periodic monitoring and reporting are undertaken.
xvii.	Necessary green belt of native species shall be developed along the project area to improve the air environment as per the site plan submitted and also shall contribute to Tamil Nadu Green Climate Company towards Green Tamil Nadu Mission in order to enhance the forest and tree cover in the state.	Being Complied Green belt development is in progress using native species as per approved plans.
xviii.	The project proponent shall undertake the establishment only after getting the required Clearances from Competent authorities such as Planning Permission, Plan Approval etc., including the clearance under CRZ Notification, 2011 and other statutory clearances.	Complied All necessary statutory approvals pertaining to the construction phase were already obtained.



TEST REPORT

Accredited by NABL & NABET, Certified ISO 9001:2015, ISO 14001:2015 & ISO 45001 : 2018

POLLUCARE ENGINEERS INDIA PVT.LTD., (Laboratory Services Division)

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Email: lab@pollucareindia.com
Web : www.pollucareindia.com

Report No.	: PCEI/TR-AAQ-9053	Report Date	: 08.07.2025
Discipline	: Chemical	Group	: Atmospheric Pollution
Issued to	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035		
Sampling Method	: PCEI/SOP/AAQ/003		
Sampled by	: Laboratory		
Sample Collected Date	: 04.07.2025 to 05.07.2025	Sample Reference No	: PCEI/AAQ-053-07/25
Sample Description	: Ambient Air Quality	Sample Received On	: 05.07.2025
Qty of Sample Received	: Filter Paper & 30ml	Test Commenced On	: 05.07.2025
Sample Condition	: Fit for Analysis	Test Completed On	: 08.07.2025
Sampling Location	: Greenways		

Weather Condition

Ambient Temperature	: 36.2°C
Relative Humidity	: 51%
Climate Condition	: Scattered clouds
Predominant Wind Direction	: W

S.No	Parameters	Units	Test Method	Results	NAAQ Standards for Industrial, Residential, Rural and Other Area (TWA for 24 Hrs)
1	Sulphur dioxide (SO ₂)	µg/m ³	IS 5182 Part 2/Sec 1 : 2023	11.0	80
2	Oxides of Nitrogen (NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	25.7	80
3	Respirable Particulate Matter (PM ₁₀)	µg/m ³	IS 5182 (Part 23): 2006	61.2	100
4	Respirable Particulate Matter (PM _{2.5})	µg/m ³	IS 5182 (Part 24): 2019	33.6	60
5	Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part 10): 2019	BDL(DL):1.14	4*

Notes: i) TWA - Time Weighted Average ii) ** - TWA for 1 Hour iii) * - TWA for Annual

BDL - Below Detection Limit ; DL - Detection Limit, mg/m³ milligram per cubic meter, µg/m³ - microgram per cubic meter.

Remarks: The above tested parameters are within the limits of NAAQ Standards for Industrial, Residential, Rural and Other Area (TWA for 24 Hrs).

..... End of Report

Page 1 of 1

Verified By



Authorised Signatory

D.Balanayagi
Technical Manager

TEST REPORT

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Issued to	M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035.
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Report No	PCEI/TR-N-958
Report Date	08.07.2025

Sampling Location	Greenways		
Sample Description	Noise Monitoring	Category of Area	Residential Area
Sampling Method	IS 9089 - 1981 (RA 2020)	Sample Reference No	PCEI/N-058-07/25
Sampled by	Laboratory	Sampling Date	04.07.2025 to 05.07.2025
Equipment Installed	1.5 m from Ground Level	Sample Received On	05.07.2025
Group	Atmospheric Pollution	Test Commenced On	05.07.2025
Discipline	Chemical	Test Completed On	08.07.2025

REFERENCE EQUIPMENT DETAILS				
Equipment Name	Make/Model	Equipment ID	Calibration Date	Due Date
Sound Level Meter with Data Logger	Intec/SL-4023SD	PCEI/Noise/03	02.05.2025	01.05.2026

Day Time		
Date	Time	Readings dB(A)
04.07.2025	09:00 - 10:00	52.6
04.07.2025	10:00 - 11:00	50.7
04.07.2025	11:00 - 12:00	53.1
04.07.2025	12:00 - 13:00	51.1
04.07.2025	13:00 - 14:00	52.8
04.07.2025	14:00 - 15:00	54.6
04.07.2025	15:00 - 16:00	53.8
04.07.2025	16:00 - 17:00	50.8
04.07.2025	17:00 - 18:00	51.1
04.07.2025	18:00 - 19:00	53.6
04.07.2025	19:00 - 20:00	51.4
04.07.2025	20:00 - 21:00	53.4
04.07.2025	21:00 - 22:00	54.3
05.07.2025	00:00 - 01:00	53.7
05.07.2025	02:00 - 03:00	55.1
05.07.2025	04:00 - 05:00	46.2
05.07.2025	06:00 - 07:00	53.0

Night Time		
Date	Time	Readings dB(A)
04.07.2025	22:00 - 23:00	46.2
04.07.2025	23:00 - 00:00	41.3
05.07.2025	00:00 - 01:00	43.9
05.07.2025	01:00 - 02:00	42.2
05.07.2025	02:00 - 03:00	41.4
05.07.2025	03:00 - 04:00	43.6
05.07.2025	04:00 - 05:00	44.1
05.07.2025	05:00 - 06:00	45.3

Time	Min	Max	Leq dB(A)	CPCB Standard Limit
Day	50.7	55.1	53.0	55 dB(A)
Night	41.4	46.2	44.1	45 dB(A)

Note:

Limit as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000, Schedule Ambient Air Quality Standards as respect of Noise in Residential Area Daytime 55 dB(A) & Night Time 45 dB(A). 1. Day time shall mean from 6.00 a.m. to 10.30 p.m. 2. Night time shall mean from 10.00 p.m. to 6.00 a.m. The Noise level were monitored as per IS 9089-1981 and CPCB Protocol for Ambient Noise Level Monitoring, 31.4.2015.

Remarks: The above result shows that the noise level meets the NAAD standard for Residential area noise levels.

.... End of Report
Page 1 of 1




Authorised Signatory
 D. Balasivayappan
 Technical Manager

TEST REPORT

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**POLLUCARE ENGINEERS INDIA PVT.LTD.,
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Report No	: PCEI/TR-AAQ-9290	Report Date	: 15.07.2025
Discipline	: Chemical	Group	: Atmospheric Pollution
Issued to	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035		
Sampling Method	: PCEI/SOP/AAQ/003		
Sampled by	: Laboratory		
Sample Collected Date	: 09.07.2025 to 10.07.2025		
Sample Description	: Ambient Air Quality	Sample Reference No	: PCEI/AAQ-290-07/25
Qty of Sample Received	: Filter Paper & 30ml	Sample Received On	: 10.07.2025
Sample Condition	: Fit for Analysis	Test Commenced On	: 10.07.2025
Sampling Location	: Greenways	Test Completed On	: 15.07.2025

Weather Condition	
Ambient Temperature	: 35.4 °C
Relative Humidity	: 55%
Climate Condition	: Scattered clouds
Predominant Wind Direction	: SW

S.No	Parameters	Units	Test Method	Results	NAAQ Standards for Industrial, Residential, Rural and Other Area (TWA for 24 Hrs)
1	Sulphur dioxide (SO ₂)	µg/m ³	IS 5182 Part 2/Sec 1 : 2023	14.2	80
2	Oxides of Nitrogen (NO _x)	µg/m ³	IS 5182 (Part 6): 2006	26.8	80
3	Respirable Particulate Matter (PM ₁₀)	µg/m ³	IS 5182 (Part 23): 2006	63.9	100
4	Respirable Particulate Matter (PM _{2.5})	µg/m ³	IS 5182 (Part 24): 2019	35.1	60
5	Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part 10):2019	BDL(DL:1.14)	4**

Notes: i) TWA - Time Weighted Average ii) ** - TWA for 1 Hour iii) * - TWA for Annual

BDL - Below Detection Limit ; DL - Detection Limit, mg/m³/milligram per cubic meter, µg/m³- microgram per cubic meter.

Remarks: The above tested parameters are within the limits of NAAQ Standards for Industrial, Residential, Rural and Other Area (TWA for 24 Hrs).

..... End of Report

Page 1 of 1

Verified By




Authorised Signatory
D. Balanayagi
Technical Manager

TEST REPORT

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POLLUCARE ENGINEERS INDIA PVT.LTD.,
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Web : www.pollucareindia.com

Issued to	M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandambur, Chennai - 600035.
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Report No	PCE/TR-N-0295
Report Date	15.07.2025

Sampling Location	Greenways		
Sample Description	Noise Monitoring	Category of Area	Residential Area
Sampling Method	IS 9989 - 1981 (RA 2020)	Sample Reference No	PCE/N-295-07/25
Sampled by	Laboratory	Sampling Date	09.07.2025 to 10.07.2025
Equipment Installed	1.5 m from Ground Level	Sample Received On	10.07.2025
Group	Atmospheric Pollution	Test Commenced On	10.07.2025
Discipline	Chemical	Test Completed On	15.07.2025

REFERENCE EQUIPMENT DETAILS

Equipment Name	Make/Model	Equipment ID	Calibration Date	Due Date
Sound Level Meter with Data Logger	Lutron/SL-462-BSD	PCE/Noise/03	02.05.2025	01.05.2026

Day Time		
Date	Time	Readings dB(A)
09.07.2025	09:00 - 10:00	52.6
09.07.2025	10:00 - 11:00	53.1
09.07.2025	11:00 - 12:00	54.2
09.07.2025	12:00 - 13:00	53.2
09.07.2025	13:00 - 14:00	52.8
09.07.2025	14:00 - 15:00	54.1
09.07.2025	15:00 - 16:00	50.6
09.07.2025	16:00 - 17:00	53.6
09.07.2025	17:00 - 18:00	56.4
09.07.2025	18:00 - 19:00	51.7
09.07.2025	19:00 - 20:00	50.5
09.07.2025	20:00 - 21:00	51.1
09.07.2025	21:00 - 22:00	52.4
10.07.2025	06:00 - 07:00	54.2
10.07.2025	07:00 - 08:00	54.7
10.07.2025	08:00 - 09:00	53.2

Night Time		
Date	Time	Readings dB(A)
09.07.2025	22:00 - 23:00	41.4
09.07.2025	23:00 - 00:00	43.1
10.07.2025	00:00 - 01:00	42.5
10.07.2025	01:00 - 02:00	43.2
10.07.2025	02:00 - 03:00	42.8
10.07.2025	03:00 - 04:00	41.3
10.07.2025	04:00 - 05:00	45.7
10.07.2025	05:00 - 06:00	43.9

Time	Min	Max	L _{eq} dB(A)	CPCB Standard Limit
Day	50.5	56.4	53.3	55 dB(A)
Night	41.3	45.7	43.2	45 dB(A)

Note:

Unit as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000, Schedule Ambient Air Quality Standards in respect of Noise in Residential Area Daytime 55 dB(A) & Night Time 45 dB(A). 1. Day time shall mean from 6:00 a.m. to 10:00 p.m. 2. Night time shall mean from 10:00 p.m. to 6:00 a.m. The Noise level were monitored as per IS 9989-1981 and CPCB Protocol for Ambient Noise Level Monitoring, Jul 2015.

Remarks: The above result shows that the noise level meets the NAAG standard for Residential area noise levels.

....End of Report....

Page 1 of 1




Authorised Signatory
D. Balamayi
Technical Manager

TEST REPORT

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Report No:	: PCEI/TR-AAQ-9517	Report Date	: 22.07.2025
Discipline	: Chemical	Group	: Atmospheric Pollution
Issued to	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600036		
Sampling Method	: PCEI/SOP/AAQ/003		
Sampled by	: Laboratory		
Sample Collected Date	: 16.07.2025 to 17.07.2025		
Sample Description	: Ambient Air Quality	Sample Reference No	: PCEI/AAQ-517-07-25
Qty of Sample Received	: Filter Paper 8.30ml	Sample Received On	: 17.07.2025
Sample Condition	: Fit for Analysis	Test Commenced On	: 17.07.2025
Sampling Location	: Greenways	Test Completed On	: 22.07.2025

Weather Condition			
Ambient Temperature	: 35.8°C		
Relative Humidity	: 58%		
Climate Condition	: Scattered clouds		
Predominant Wind Direction	: SSW		

S.No	Parameters	Units	Test Method	Results	NAAQ Standards for Industrial, Residential, Rural and Other Area (TWA for 24 Hrs)
1.	Sulphur dioxide (SO ₂)	µg/m ³	IS 5182 Part 2/Sec 1 : 2023	13.3	80
2.	Oxides of Nitrogen (NO _x)	µg/m ³	IS 5182 (Part 6): 2006	28.8	80
3.	Respirable Particulate Matter (PM ₁₀)	µg/m ³	IS 5182 (Part 23): 2006	68.6	100
4.	Respirable Particulate Matter (PM _{2.5})	µg/m ³	IS 5182 (Part 24): 2019	37.7	60
5.	Carbon Monoxide (CO)	mg/m ³	IS 5182 (Part 10): 2019	BDL(DL:1.14)	4*

Notes: i) TWA - Time Weighted Average ii) ** - TWA for 1 Hour iii) * - TWA for Annual

 BDL - Below Detection Limit ; DL - Detection Limit, mg/m³/milligram per cubic meter, µg/m³- microgram per cubic meter.

Remarks: The above tested parameters are within the limits of NAAQ Standards for Industrial, Residential, Rural and Other Area (TWA for 24 Hrs).

..... End of Report

Page 1 of 1




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 D. Balanayagam
 Technical Manager

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Issued to	M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Kamarajar Salai, Chennai - 600035.
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Report No	PCEI/TR-N-9522
Report Date	22.07.2025

Sampling Location	Greenways		
Sample Description	Noise Monitoring	Category of Area	Residential Area
Sampling Method	IS 9989 - 1961 (RA 2020)	Sample Reference No	PCEI/N-522-07-25
Sampled by	Laboratory	Sampling Date	16.07.2025 to 17.07.2025
Equipment Installed	1.5 m from Ground Level	Sample Received On	17.07.2025
Group	Atmospheric Pollution	Test Commenced On	17.07.2025
Discipline	Chemical	Test Completed On	22.07.2025

REFERENCE EQUIPMENT DETAILS

Equipment Name	Make/Model	Equipment ID	Calibration Date	Due Date
Sound Level Meter with Data Logger	Intertek/SL-4023SD	PCEI/Noise/03	02.05.2025	10.05.2026

Day Time		
Date	Time	Readings dB(A)
16.07.2025	09:00 - 10:00	52.3
16.07.2025	10:00 - 11:00	51.4
16.07.2025	11:00 - 12:00	53.6
16.07.2025	12:00 - 13:00	52.8
16.07.2025	13:00 - 14:00	54.1
16.07.2025	14:00 - 15:00	52.8
16.07.2025	15:00 - 16:00	50.3
16.07.2025	16:00 - 17:00	53.2
16.07.2025	17:00 - 18:00	52.1
16.07.2025	18:00 - 19:00	53.6
16.07.2025	19:00 - 20:00	51.2
16.07.2025	20:00 - 21:00	53.2
16.07.2025	21:00 - 22:00	50.7
17.07.2025	06:00 - 07:00	51.4
17.07.2025	07:00 - 08:00	53.2
17.07.2025	08:00 - 09:00	52.8

Night Time		
Date	Time	Readings dB(A)
16.07.2025	22:00 - 23:00	43.6
16.07.2025	23:00 - 00:00	41.8
17.07.2025	00:00 - 01:00	43.2
17.07.2025	01:00 - 02:00	42.5
17.07.2025	02:00 - 03:00	41.1
17.07.2025	03:00 - 04:00	40.3
17.07.2025	04:00 - 05:00	43.2
17.07.2025	05:00 - 06:00	41.1

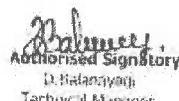
Time	Min	Max	Leq dB(A)	CPCB Standard Limit
Day	50.3	54.1	52.5	55 dB(A)
Night	40.3	43.6	42.2	45 dB(A)

Notes:

Unit as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000. Schedule Ambient Air Quality Standards in respect of Noise in Residential Area Daytime 55 dB(A) & Night Time 45 dB(A). 1. Day time shall mean from 6:00 a.m. to 10:00 p.m. 2. Night time shall mean from 10:00 p.m. to 6:00 a.m. The Noise level were monitored as per IS 9989-1981 and CPCB Protocol for Ambient Noise Level Monitoring, Jul 2015.

Remarks: The above result shows that the noise level meets the RAQO Standard for Residential area noise levels.

 End of Report
 Page 1 of 1

Authorised Signatory
 D. Balanayagi
 Technical Manager

TEST REPORT

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Report No	: PCEI/IR-W-5527	Report Date	: 22.07.2025
Discipline	: Chemical & Biological	Group	: Water
Issued to	M/s.Chennai Metro Rail Limited, No.322 Anna Salai, Nandanam, Chennai - 600035		
Sampling Method	: PCEI/SOP/W&WW/052	Sample Reference No	: PCEI/W-527-07-25
Sampled by	: Laboratory	Sample Received On	: 17.07.2025
Sample Collected Date	: 16.07.2025	Test Commenced On	: 17.07.2025
Sample Description	: Drinking Water	Test Completed On	: 22.07.2025
Qty of Sample Received	: 2 Litres + 500mls		
Sample Condition	: Fit for Analysis		
Sampling Location	: Greenways		

S.No.	Parameters	Units	Test Method	Results	Drinking Water specification as per IS 10500:2012	
					Requirement (Acceptable Limit)	Permissible Limit in the absence of alternative source
1	Colour	Hazen	IS 3025 (Part 4): 2021	BDL(DL:3.0)	5	15
2	Odour		IS 3025 (Part 5) : 2018	Agreeable	Agreeable	Agreeable
3	Taste		IS 3025 (Part 7) : 2017	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	IS 3025 (Part 10): 2023	BDL(DL:0.1)	1	5
5	pH Value @ 25°C	-	IS 3025 (Part 11): 2022	6.84	6.5 - 8.5	No Relaxation
6	Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part 21): 2019	11.80	200	600
7	Iron (as Fe)	mg/L	IS 3025 (Part 53): 2019	BDL(DL:0.1)	0.3	No Relaxation
8	Chloride (as Cl)	mg/L	IS 3025 (Part 37) : 2019	8.10	250	1000
9	Free Residual Chlorine	mg/L	IS 3025 (Part 26): 2021	BDL(DL:1.0)	0.2	1
10	Total Dissolved Solids @ 180°C	mg/L	IS 3025 (Part 16): 2023	21.6	500	2000
11	Calcium (as Ca)	mg/L	IS 3025 (Part 40) : 2019	3.14	75	200
12	Copper (as Cu)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.01)	0.05	1.5
13	Manganese (as Mn)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.05)	0.1	0.3
14	Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24) / Sec 1:2022	BDL(DL:1.0)	200	400
15	Nitrate (as NO ₃)	mg/L	APHA 24th Edition 4500 NO ₃ , Part B : 2023	BDL(DL:1.0)	45	No Relaxation
16	Fluoride (as F)	mg/L	APHA 24th Edition 4500F, B,D : 2023	BDL(DL:0.1)	1.0	1.5
17	Perchloric compound (as ClO ₄)	mg/L	IS 3025 (Part 43) / Sec 1:2022	BDL(DL:0.001)	0.001	0.002
18	Mercury (as Hg)	mg/L	PCEI/SOP/W/W001:2020	BDL(DL:0.001)	0.001	No Relaxation

Page 1 of 2



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 D.Balasavangi
 Technical Manager

Note: 1. The test results are only to the sample submitted for test. 2. Any Correction of the test report in full or part shall invalidate the report. 3. Sample will be retained for 15 days from the date of reporting except in case of regulatory samples or specifically instructed by client. 4. Perishable samples will be discarded immediately after reporting. 5. Under no circumstances lab accepts any liability or loss/damage caused by use or misuse of test report after involving or issued of test report

TEST REPORT

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Report No		: PCU/TR-W-9527			Report Date	: 22.07.2025	
S.No	Parameters	Units	Test Method	Results	Drinking Water specification as per IS 10500:2012		
					Requirement (Acceptable Limit)	Permissible Limit in the absence of alternative source	
19	Selenium (as Se)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.01)	0.01	No Relaxation	
20	Arsonic (as As)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.001)	0.01	No Relaxation	
21	Cyanide (as CN)	mg/L	APHA 24th Edition, 4500-CN-B, E: 2023	BDL(DL:0.02)	0.05	No Relaxation	
22	Lead (as Pb)	mg/L	IS 3025 (Part 2) : 2019	BDL(DL:0.01)	0.01	No Relaxation	
23	Zinc (as Zn)	mg/L	IS 3025 (Part 2) : 2019	BDL(DL:0.01)	5	15	
24	Antonine Detergents (as MBAS)	mg/L	IS 13428:2005 (Annex K): 2018	BOL(DL:0.1)	0.2	1.0	
25	Chromium (as Cr ⁶⁺)	mg/L	IS 3025 (Part 52) 2019	BDL(DL:0.03)	0.05	No Relaxation	
26	Nitrate as NO ₃	mg/L	IS 3025 Part 34 / Sect1:2023	BDL(DL:1.0)	-	-	
27	Silica (as SiO ₂)	mg/L	IS 3025 (Part 35) : 2023	BDL(DL:0.1)	-	-	
28	Acidity as CaCO ₃	mg/L	IS 3025 Part 22:2019	BDL(DL:0.01)	-	-	
29	Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part 23): 2023	12.30	200	600	
30	Aluminium (as Al)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.01)	0.03	0.2	
31	Boron (as B)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.05)	0.5	2.4	
32	Magnesium (as Mg)	mg/L	IS 3025 (Part 46): 2023	0.36	30	100	
33	Potassium as K	mg/L	IS 3025 Part 45:2019	BOL(DL:0.001)	-	-	
34	Nickel (as Ni)	mg/L	IS 3025 (Part 2): 2019	BOL(DL:0.01)	0.02	No Relaxation	
35	Silver (as Ag)	mg/L	IS 3025 (Part 2): 2019	BDL(DL:0.01)	0.1	No Relaxation	
36	Sulphate (as H ₂ SO ₄)	mg/L	IS 3025 (Part 29): 2022	BDL(DL:0.5)	0.05	No Relaxation	
37	Ammonium Total (as NH ₄ - N)	mg/L	IS 3025 (Part 34) Sect1:2023	BOL(DL:0.1)	0.5	No Relaxation	
38	Sodium as Na	mg/L	IS 3025 (Part 45):2019	BDL(DL:0.5)	-	-	
Microbiological Parameters							
39	Escherichia coli	Per 100 ml	IS 15185 : 2016	Absent	Shall not be detectable in any 100 ml of Sample	-	
40	Total coliform	Per 100 ml	IS 15185 : 2016	Absent	Shall not be detectable in any 100 ml of Sample	-	

Note: All the above test parameters are carried with the sample's "as received condition".
BDL - Below Detection Limit, DL - Detection Limit, mg/L milligram per liter, NTU - Nephelometric Turbidity Unit.

Remarks: The above drinking Water test results meet the IS 10500:2012 Specification.

.....End of Report,
Page 2 of 2




Authorised Signatory
D. Balanwagi
Technical Manager

TEST REPORT

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Report No	: PCEI/TR-WW-10407	Report Date	: 22.07.2025
Discipline	: Chemical	Group	: Water
Issued to	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035		
Sampling Method	: PCEI/SOP/W&WW/052	Sample Reference No	: PCEI/WW-1407-07/25
Sampled by	: Laboratory	Sample Received On	: 17.07.2025
Sample Collected Date	: 16.07.2025	Test Commenced On	: 17.07.2025
Sample Description	: Borewell Water	Test Completed On	: 22.07.2025
Qty of Sample Received	: 2 Litres		
Sample Condition	: Fit for Analysis		
Sampling Location	: Greenways		

S.No	Parameters	Units	Test Method	Results	Drinking Water specification as per IS 10500:2012	
					Requirement (Acceptable Limit)	Permissible Limit in the absence of alternative source
1	Colour	Hazen	IS 3025 (Part 4) 2021	10	5	15
2	Odour	-	IS 3025 (Part 5) (RA 2018)	Agreeable	Agreeable	Agreeable
3	Taste	-	IS 3025 (Part 7) 1984 (RA 2017)	Agreeable	Agreeable	Agreeable
4	Turbidity	NTU	IS 3025 (Part 10) 2023	BDL(DL:0.1)	1	5
5	pH @ 25°C	-	IS 3025 (Part 11) 2022	7.18	6.5 - 8.5	No Relaxation
6	Total Hardness (as CaCO ₃)	mg/L	IS 3025 (Part 21) 2009 (RA 2019)	346	200	600
7	Iron (as Fe)	mg/L	IS 3025 (Part 53) 2003 (RA 2019)	0.42	0.3	No Relaxation
8	Chloride (as Cl)	mg/L	IS 3025 (Part 32) 1988 (RA 2019)	336	250	1000
9	Free Residual Chlorine	mg/L	IS 3025 (Part 26) 2021	BDL(DL:1.0)	0.2	1
10	Total Dissolved Solids @ 180°C	mg/L	IS 3025 (Part 16) 2023	1025	500	2000
11	Calcium (as Ca)	mg/L	IS 3025 (Part 40) 1991 (RA 2019)	83.40	75	200
12	Copper (as Cu)	mg/L	IS 3025 (Part 2) 2019	0.03	0.05	1.5
13	Manganese (as Mn)	mg/L	IS 3025 (Part 2) 2019	0.02	0.1	0.3
14	Sulphate (as SO ₄)	mg/L	IS 3025 (Part 24)/ Sec 1:2022	98.30	200	400
15	Nitrate (as NO ₃)	mg/L	APHA 24th Edition 4500 NO ₃ ,Part B	9.63	45	No Relaxation
16	Fluoride (as F)	mg/L	APHA 24th Edition 4500F B,D	BDL(DL:0.1)	1.0	1.5
17	Phenolic compound (as C ₆ H ₅ OH)	mg/L	IS 3025 Part 43 / Sec 1:2022	BDL(DL:0.0001)	0.001	0.002
18	Mercury (as Hg)	mg/L	PCEI/SOP/HM/001:2020	BDL(DL:0.001)	0.001	No Relaxation

Page 1 of 2



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 Authorised Signatory
 D.Balanayagi
 Technical Manager

TEST REPORT

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Report No		: PCEI/TR-WW-10407		Report Date	: 22.07.2025	
S.No	Parameters	Units	Test Method	Results	Drinking Water specification as per IS 10500:2012	
					Requirement (Acceptable Limit)	Permissible Limit in the absence of alternative source
19	Selenium (as Se)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.01)	0.01	No Relaxation
20	Arsenic (as As)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.001)	0.01	No Relaxation
21	Cyanide (as CN)	mg/L	APHA 24th Edition,4500 CN- B,E	BDL(DL:0.02)	0.05	No Relaxation
22	Lead (as Pb)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.01)	0.01	No Relaxation
23	Zinc (as Zn)	mg/L	IS 3025 (Part 2) 2019	0.09	5	15
24	Anionic Detergents (as MBAS)	mg/L	IS 13428:2005 (Annex K) :2018	BDL(DL:0.1)	0.2	1.0
25	Chromium (as Cr ⁶⁺)	mg/L	IS 3025 (Part 52) 2003 (RA 2019)	BDL(DL:0.03)	0.05	No Relaxation
26	Mineral Oil	mg/L	IS 3025 (Part 39) 1991 (RA 2021)	BDL(DL:0.1)	0.5	No Relaxation
27	Silica (as SiO ₂)	mg/L	IS 3025 (Part 35) 1988 (RA 2023)	5.62	-	-
28	Pesticides	mg/L	PCEI/SOP/W/075	Absent	-	-
29	Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 (Part 23) 2023	561	200	600
30	Aluminium (as Al)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.01)	0.03	0.2
31	Boron (as B)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.05)	0.5	2.4
32	Magnesium (as Mg)	mg/L	IS 3025 (Part 46) 2023	33.50	30	100
33	Molybdenum (as Mo)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.01)	0.07	No Relaxation
34	Nickel (as Ni)	mg/L	IS 3025 (Part 2) 2019	0.03	0.02	No Relaxation
35	Silver (as Ag)	mg/L	IS 3025 (Part 2) 2019	BDL(DL:0.01)	0.1	No Relaxation
36	Sulphide (as H ₂ S)	mg/L	IS 3025 (Part 29) 2022	BDL(DL:0.02)	0.05	No Relaxation
37	Ammonia Total (as NH ₃ - N)	mg/L	IS 3025 (Part 34) / Sec1:2023	BDL(DL:0.1)	0.5	No Relaxation
38	Chloramines (as Cl ₂)	mg/L	IS 3025 (Part 26) 1986 (RA 2019)	BDL(DL:1.0)	4.0	No Relaxation
Microbiological Parameters						
39	Total coliform	Per 100ml	IS 15185 : 2016	Present	Shall not be detectable in any 100 ml of Sample	-
40	Escherichia coli	Per 100ml	IS 15185 : 2016	Present	Shall not be detectable in any 100 ml of Sample	-

Note: All the above test parameters are carried with the sample's "as received condition".
BDL - Below Detection Limit; DL - Detection Limit

..... End of Report

Page 2 of 2


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Authorised Signatory
D. Balanayagi
Technical Manager

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Web : www.pollucareindia.com

Report No	: PCEI/TR-WW-10408		Report Date	: 22.07.2025
Discipline	: Chemical		Group	: Pollution & Environment
Issued to	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035.			
Sampling Method	: PCEI/SOP/W&WW/0052			
Sampled by	: Laboratory			
Sample Collected Date	: 16.07.2025	Sample Reference No		: PCEI/WW-1408-07/25
Sample Description	: Waste Water	Sample Received On		: 17.07.2025
Qty of Sample Received	: 2.5 Litres	Test Commenced On		: 17.07.2025
Sample Condition	: Fit for Analysis	Test Completed On		: 22.07.2025
Sampling Location	: ETP Inlet- Greenways			

S.No	Parameters	Units	Test Method	Results
1	Colour	Hazen	IS 3025 Part 4 : 2021	10
2	Odour	-	IS 3025 Part 6 : 2018	Objectionable
3	pH @ 25°C	-	IS 3025 Part 11 : 2022	7.91
4	Temperature	°C	IS 3025 Part 09 : 2023	28.3
5	Total Suspended Solids @ 105°C	mg/L	IS 3025 Part 17 : 2023	129
6	Particle size of Suspended solids	-	IS 6339 : 2013	Pass
7	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part 16 : 2023	1548
8	Oil & Grease	mg/L	IS 3025 Part 39 : 2021	46.2
9	Total Residual Chlorine	mg/L	IS 3025 Part 26 : 2021	BDL(DL:0.1)
10	Ammonical Nitrogen (as NH ₃ -N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	10.6
11	Total Kjehdahl Nitrogen (as N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	49.2
12	Free Ammonia (as NH ₃)	mg/L	IS 3025 Part 34/ Sec 1 :2023	5.34
13	Biochemical Oxygen Demand (3 days at 27°C)	mg/L	IS 3025: Part 44 : 2023	76.3
14	Chemical Oxygen Demand (COD)	mg/L	IS 3025 Part 58 : 2023	458

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Authorised Signatory
D.Balanayagi
Technical Manager

TEST REPORT

**POLLUCARE ENGINEERS INDIA PVT.LTD.,
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Accredited by **NABL & NABET**, Certified ISO 9001:2015, ISO 14001:2015 & ISO 45001 : 2018

Report No		: PCEI/TR-WW-10408		Report Date	: 22.07.2025	
S.No	Parameters	Units	Test Method	Results		
15	Arsenic (as As)	mg/L	IS 3025 Part 2 : 2019	0.02		
16	Mercury (as Hg)	mg/L	PCEI/SOP/HM/001 : 2020	BDL(DL:0.001)		
17	Lead (as Pb)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)		
18	Cadmium (as Cd)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)		
19	Hexavalent Chromium (as Cr ⁺⁶)	mg/L	IS 3025 Part 52 : 2003	BDL(DL:0.03)		
20	Total Chromium (as Cr)	mg/L	IS 3025 Part 2 : 2019	0.04		
21	Copper (as Cu)	mg/L	IS 3025 Part 2 : 2019	0.03		
22	Zinc (as Zn)	mg/L	IS 3025 Part 2 : 2019	0.16		
23	Selenium (as Se)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)		
24	Nickel (as Ni)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)		
25	Boron (as B)	mg/L	IS 3025 Part 57 : 2021	0.34		
26	Percent Sodium (%)	%	PCEI/SOP/W/001	67.5		
27	Cyanide (as CN)	mg/L	APHA 24th Edition 4500 CN- B,E: 2023	BDL(DL:0.02)		
28	Chloride (as Cl ⁻)	mg/L	IS 3025: Part 32 : 2019	508		
29	Fluoride (as F ⁻)	mg/L	APHA 24th Edition 4500 F-D: 2023	BDL(DL:0.1)		
30	Dissolved Phosphates (as PO ₄ ³⁻)	mg/L	IS 3025 Part 31/ Sec 1 : 2022	BDL(DL:0.1)		
31	Sulphate (as SO ₄ ²⁻)	mg/L	IS 3025 Part 24 /Sec 1 : 2022	167		
32	Sulphide (as S ²⁻)	mg/L	IS 3025 Part 29 : 2022	BDL(DL:2.0)		
33	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 Part 43 /Sec 1 : 2022	BDL(DL:0.01)		
34	Residual Sodium Carbonate	meq/L	IS 11624 : 2019	1.63		
35	Pesticides	mg/L	PCEI/SOP/WW/075	Absent		

Note: BDL - Below Detection Limit ; DL - Detection Limit, mg/L-milligram per liter, meq/L-Milliequivalents per litre, %-Percentage, °C- Degree Celsius.
All the above test parameters are carried with the sample's "as received condition"

..... End of Report

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Authorised Signatory
D.Balanayagi
Technical Manager

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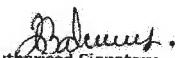
Report No	: PCEI/TR-WW-10409	Report Date	: 22.07.2025
Discipline	: Chemical	Group	: Pollution & Environment
Issued to	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035.		
Sampling Method	: PCEI/SOP/W&WW/052		
Sampled by	: Laboratory		
Sample Collected Date	: 16.07.2025	Sample Reference No	: PCEI/WW-1409-07/25
Sample Description	: Waste Water	Sample Received On	: 17.07.2025
Qty of Sample Received	: 2.5 Litres	Test Commenced On	: 17.07.2025
Sample Condition	: Fit for Analysis	Test Completed On	: 22.07.2025
Sampling Location	: ETP Outlet - Greenways		

S.No	Parameters	Units	Test Method	Results	TNPCB Tolerance Limits for Treated Effluent
1	Colour	Hazen	IS 3025 Part 4 : 2021	10	-
2	Odour	-	IS 3025 Part 6 : 2018	Unobjectionable	-
3	pH @ 25°C	-	IS 3025 Part 11 : 2022	7.86	5.5 - 9.0
4	Temperature	°C	IS 3025 Part 09 : 2023	28.2	40°C at the point of discharge
5	Total Suspended Solids @ 105°C	mg/L	IS 3025 Part 17 : 2023	3.1	100
6	Particle size of Suspended solids	-	IS 6339 : 2013	Pass	Shall pass 850 micron IS Sieve
7	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part 16 : 2023	378	2100
8	Oil & Grease	mg/L	IS 3025 Part 39 : 2021	BDL(DL:5.0)	10
9	Total Residual Chlorine	mg/L	IS 3025 Part 26 : 2021	BDL(DL:0.1)	1.0
10	Ammonical Nitrogen (as NH ₃ -N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	BDL(DL:1.0)	50
11	Total Kjehdahl Nitrogen (as N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	BDL(DL:1.0)	100
12	Free Ammonia (as NH ₃)	mg/L	IS 3025 Part 34/ Sec 1 :2023	BDL(DL:0.5)	5
13	Biochemical Oxygen Demand (3 days at 27°C)	mg/L	IS 3025; Part 44 : 2023	BDL(DL:2.0)	30
14	Chemical Oxygen Demand (COD)	mg/L	IS 3025 Part 58 : 2023	11.3	250

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Technical Manager

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Web : www.pollucareindia.com

Report No		: PCE1/TR-WW-10409		Report Date	: 22.07.2025
S.No	Parameters	Units	Test Method	Results	TNPCB Tolerance Limits for Treated Effluent
15	Arsenic (as As)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	0.2
16	Mercury (as Hg)	mg/L	PCE1/SOP/HM/001 : 2020	BDL(DL:0.001)	0.01
17	Lead (as Pb)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	0.1
18	Cadmium (as Cd)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	2.0
19	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	IS 3025 Part 52 : 2003	BDL(DL:0.03)	0.1
20	Total Chromium (as Cr)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	2.0
21	Copper (as Cu)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	3.0
22	Zinc (as Zn)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	1.0
23	Selenium (as Se)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	0.05
24	Nickel (as Ni)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	3.0
25	Boron (as B)	mg/L	IS 3025 Part 57 : 2021	BDL(DL:0.01)	2.0
26	Percent Sodium (%)	%	PCE1/SOP/W/001: 2019	46.70	-
27	Cyanide (as CN)	mg/L	APHA 24th Edition 4500 CN- B,E: 2023	BDL(DL:0.02)	0.2
28	Chloride (as Cl ⁻)	mg/L	IS 3025: Part 32 : 2019	123.0	1000
29	Fluoride (as F ⁻)	mg/L	APHA 24th Edition 4500 F-D: 2023	BDL(DL:0.1)	2.0
30	Dissolved Phosphates (as PO ₄ ³⁻)	mg/L	IS 3025 Part 31 / Sec 1 :2022	BDL(DL:0.1)	5.0
31	Sulphate (as SO ₄ ²⁻)	mg/L	IS 3025 Part 24 /Sec 1 : 2022	38.5	1000
32	Sulphide (as S ²⁻)	mg/L	IS 3025 Part 29 : 2022	BDL(DL:2.0)	2.0
33	Phenolic Compounds (as C.H ₂ OH)	mg/L	IS 3025 Part 43 /Sec 1 : 2022	BDL(DL:0.001)	1.0
34	Residual Sodium Carbonate	meq/L	IS 11624 : 2019	1.36	-

Note: BDL - Below Detection Limit ; DL - Detection Limit, mg/L-milligram per liter, meq/L-Milliequivalents per litre ,%-Percentage, "C- Degree Celsius.
All the above test parameters are carried with the sample's "as received condition"

Remarks: The above tested parameters are within the limits of TNPCB Tolerance Limits for Treated Effluent.

..... End of Report

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Technical Manager

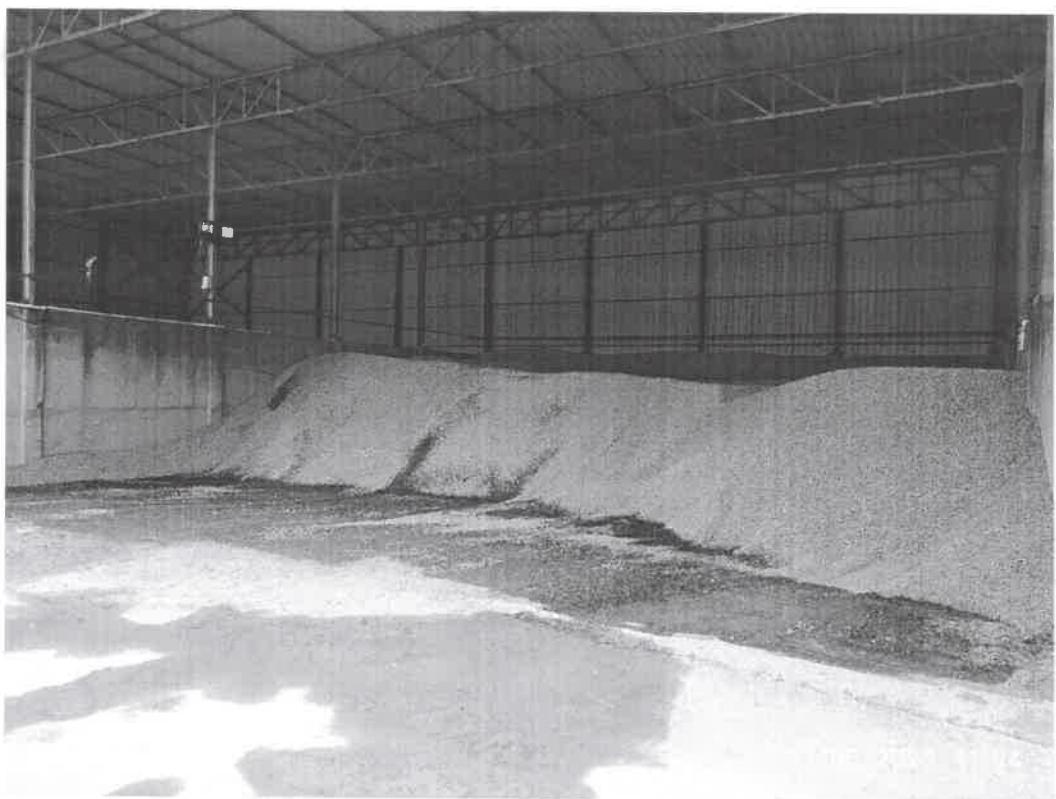
Labour Camp and Material Storage photographs

Material Storage (Non CRZ Area)



11/06/2025 11:54





Labour Camp

