



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/1088/2025

Dated: 01.11.2025

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 May 2025 to October 2025 for the Construction of Extended Corridor 4 of Chennai Metro Rail Project Phase II from the Light House to Poonamalle Bypass by M/s Chennai Metro Rail Limited (CMRL) - Reg.

Ref: CRZ Clearance Letter No F.No.11-13/2022-IA.III dated 22nd April 2022.

With reference to Part B - General Conditions, Condition no. (vii) stipulated in the CRZ Clearance cited above we are submitting herewith the six-monthly monitoring report (May 2025 to October 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 with 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,

Saravana Kumar R,
Manager - Environment.



Enclosure: As stated above

Six Monthly Monitoring Report for CRZ clearance issued by MOEF&CC, New Delhi vide letter.F.NO.11-13/2022-IA.III, dated 22nd April,2022 for Construction of Extended Corridor 4 – of Chennai Metro Rail Project Phase – II from Light House to Poonamalle Bypass by M/S Chennai Metro Rail Limited

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 recommendation/ conditions applicable for construction stage are compiled as per CRZ notification 2011.
ii.	The PP as committed should submit a Tree Plantation Management Plan that around 133 trees will be cut during the construction phase of the project with a consultation with the Forest Department before the commencement of the project or activity.	Complied Tree plantation management plan for the light house station (CRZ area) submitted to Tamil Nadu Forest Department. The tree cutting/translocation permission obtained from District Green committee vide letter Minutes of the 4 th District Green Committee meeting at District Collectorate, Chennai on 02.09.2022. 133 trees in the coastal area were translocated to the Queen Mary's College and Marina Beach Lawn.
iii.	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 operational phase of the project. For construction and operational purposes, the water was procured from the CMWSSB.
iv.	The project proponent shall ensure the natural flow of the creek water at the project site.	Noted and Being Complied No blockage of rivers or creek is envisaged in our project proposal. Proper care was taken to ensure the natural flow of the creek water throughout the project.
v.	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 material is disposed off into nearby water bodies or coastal areas. Site restoration will be carried out after the completion of construction works.
vi.	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 material



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		storage are also being ensured outside the CRZ boundary.
vii.	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 has ensured that all temporary physical infrastructure will be removed from post work completion.
viii.	All the conditions stipulated by the Tamil Nadu Coastal Zone Management Authority for CRZ clearance vide its Letter No. RC No P1/2503/2021. Dated 19/01/2022, and its commitments made by the CZMA and EAC shall be followed in letter and spirit	Noted and agreed to comply CMRL has complied with all stipulation made by Tamil Nadu Coastal Zone Management Authority and the commitments made by the CZMA and EAC
ix.	All necessary clearance from the concerned authority, as may be applicable, should be obtained before commencement of the project or activity.	Noted and Being Complied. All prerequisite approvals/ clearances are being 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.	Complied CMRL ensures the proper waste management systems are implemented to minimize the negative 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 communities and be disposed of taking the necessary precautions for general safety and healthy aspects of people, only in approved sites with the approval of Competent Authority.	Noted and Being Complied CMRL ensures that the muck generated during the construction phase is being disposed in the approved sites without creating any adverse effects on the neighborhood communities.



Six Monthly Monitoring Report for CRZ clearance issued by MOEF&CC, New Delhi vide letter.F.NO.11-13/2022-IA.III, dated 22nd April,2022 for Construction of Extended Corridor 4 – of Chennai Metro Rail Project Phase – II from Light House to Poonamalle Bypass by M/S Chennai Metro Rail Limited

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 purposed etc. Within the development. The project proponent should also make alternate arrangements for situations arising fir to malfunctioning STP. There shall be regular monitoring of standard parameters of the effluent discharge from STP under intimation to the SPCB.	Complied All liquid waste is treated as per Pollution Control Board norms, with no untreated effluent disposed of into sea / coastal water bodies.
v.	Any hazardous waste generated during the construction phase, shall be disposed off as per the applicable rules and norms with the necessary approval of the State Pollution Control Board.	Noted and Complied The hazardous waste generated from the sites during construction are disposed to the CPCB/TNPCB authorized vendor.
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 Center and Collector's Office for 30 days.	TNPCB and TNCZMA is the concern authority 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 7 th Compliance report, and it is also being sent to the Regional Office, MoEF&CC. And all the CRZ compliance monitoring reports have been uploaded on https://chennaiemtorail.org/compliance-reports/ and are being uploaded periodically
viii.	The Ministry of Environment, Forest & Climate Change or any other Competent Authority may stipulate any additional	Noted and agreed , subjected to applicability and validity of condition, if any.



Six Monthly Monitoring Report for CRZ clearance issued by MOEF&CC, New Delhi vide letter.F.NO.11-13/2022-IA.III, dated 22nd April,2022 for Construction of Extended Corridor 4 – of Chennai Metro Rail Project Phase – II from Light House to Poonamalle Bypass by M/S Chennai Metro Rail Limited

	conditions or modify the existing ones, if necessary, in the interest of the environment and the same shall be complied with.	
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 the Ministry.	Agreed and shall be complied if such event occurs
xi.	The Ministry reserves the right to add additional safeguard measures 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 environment clearance under the provisions of the Environmental (Protection) Act, 1986, for non-compliance.	Noted and Agreed to Comply.
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 authority.
xiii.	The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which shall	Complied Grant of CRZ Clearance Letter has been advertised on 01.05.2022 in two local newspapers namely,



Six Monthly Monitoring Report for CRZ clearance issued by MOEF&CC, New Delhi vide letter.F.NO.11-13/2022-IA.III, dated 22nd April,2022 for Construction of Extended Corridor 4 – of Chennai Metro Rail Project Phase – II from Light House to Poonamalle Bypass by M/S Chennai Metro Rail Limited

	be in the vernacular language informing that the project has been accorded CRZ	Dina Thanthi in Tamil language.
	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 in this Ministry.	The Hindu in English Language. Copy of advertisement has been already submitted to MoEF&CC vide letter no. CMRL/CON/ES/773/2022 on 03.05.2022
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/765/2022 on 03.05.2022 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 be simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB	Being complied Status of compliance of stipulated conditions have been uploaded on https://chennaimetro rail.org/ and are being updated periodically.
xvi.	The environmental statement for each financial year ending 31st 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.	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.



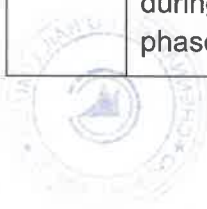
Corridor 4 - Compliance Status of TNSCZMA Conditions stipulated letter.
R.C.No.P1/2503/2021, dated 19th January,2022

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 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 waste water into the CRZ area.	Being Complied All liquid waste is treated as per Pollution Control Board norms, with no untreated effluent disposed into the CRZ area.
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 recommendation/ 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 & Being Complied 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. 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.	Complied All prerequisite approvals / clearances are obtained from the relevant authorities before commencement of the project or activity.



Corridor 4 - 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 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.,	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.	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 400 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.	Complied All liquid waste is treated as per Pollution Control Board norms, with no untreated effluent disposed of into sea / coastal water bodies.
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.



Corridor 4 - Compliance Status of TNSCZMA Conditions stipulated letter.
R.C.No.P1/2503/2021, dated 19th January,2022

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.



Report No	: PCEI/TR-AAQ-7877	Report Date	: 23.06.2025
Discipline	: Chemical	Group	: Atmospheric Pollution
Issued to	M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035		
Project Name	: CMRL/CON/PHASE-II/C4/UG-1/2022		
Sampling Method	: PCEI/AAQ/SOP/003		
Sampled by	: Laboratory		
Sampling Date	: 19.06.2025 to 20.06.2025		
Sample Description	: Ambient Air Quality		
Qty of Sample Received	: Filter Paper & 30ml		
Sample Condition	: Fit for Analysis		
Sampling Location	: Light House Station		
Sample Reference No	: PCEI/AAQ-977-06/25		
Sample Received On	: 20.06.2025		
Test Commenced On	: 20.06.2025		
Test Completed On	: 23.06.2025		

Weather Condition	
Ambient Temperature	: 38.5°C
Relative Humidity	: 65%
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 (as SO ₂)	µg/m ³	IS 5182 Part 2/Sec 1 : 2023	10.2	80
2	Nitrogen dioxide (as NO ₂)	µg/m ³	IS 5182 (Part 6): 2006	23.8	80
3	Respirable Particulate Matter (PM ₁₀)	µg/m ³	IS 5182 (Part 23): 2006	56.7	100
4	Respirable Particulate Matter (PM _{2.5})	µg/m ³	IS 5182 (Part 24): 2019	31.2	60
5	Carbon Monoxide (as CO)	mg/m ³	IS 5182 (Part 10): 1999	BDL(DL:1.14)	4**

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

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

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Pinch
Verified By



D. Balanayagi
Authorised Signatory
D. Balanayagi
Technical Manager

TEST REPORT

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

Issued to	M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035.
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Report No	PCEI/TR-N-7882
Report Date	23.06.2025

Sampling Location	Light House Station	Project Name	CMRL/CON/PHASE-II/C4/UG-1/2022
Sample Description	Noise Monitoring	Category of Area	Commercial Area
Sampling Method	IS 9989 - 1981 (RA 2020)	Sample Reference No	PCEI/N-982-06/25
Sampled by	Laboratory	Sampling Date	19.06.2025 to 20.06.2025
Equipment Installed	1.5 m from Ground Level	Sample Received On	20.06.2025
Group	Atmospheric Pollution	Test Commenced On	20.06.2025
Discipline	Chemical	Test Completed On	23.06.2025

REFERENCE EQUIPMENT DETAILS

Equipment Name	Make/Model	Equipment ID	Calibration Date	Due Date
Sound Level Meter with Data Logger	Lutron/SL-4023SD	PCEI/Noise/07	02.05.2025	01.05.2026

Day Time		
Date	Time	Readings dB(A)
19.06.2025	09:00 - 10:00	63.5
19.06.2025	10:00 - 11:00	63.6
19.06.2025	11:00 - 12:00	63.0
19.06.2025	12:00 - 13:00	63.3
19.06.2025	13:00 - 14:00	65.0
19.06.2025	14:00 - 15:00	62.5
19.06.2025	15:00 - 16:00	61.7
19.06.2025	16:00 - 17:00	58.7
19.06.2025	17:00 - 18:00	57.4
19.06.2025	18:00 - 19:00	56.6
19.06.2025	19:00 - 20:00	59.3
19.06.2025	20:00 - 21:00	62.1
19.06.2025	21:00 - 22:00	62.2
20.06.2025	06:00 - 07:00	63.6
20.06.2025	07:00 - 08:00	63.0
20.06.2025	08:00 - 09:00	60.9

Night Time		
Date	Time	Readings dB(A)
19.06.2025	22:00 - 23:00	53.8
19.06.2025	23:00 - 00:00	51.9
20.06.2025	00:00 - 01:00	51.5
20.06.2025	01:00 - 02:00	49.8
20.06.2025	02:00 - 03:00	49.0
20.06.2025	03:00 - 04:00	51.2
20.06.2025	04:00 - 05:00	51.7
20.06.2025	05:00 - 06:00	52.9

Time	Min	Max	Leq dB(A)	CPCB Standard Limit
Day	56.6	65.0	62.2	65 dB(A)
Night	49	53.8	51.7	55 dB(A)

Note:

Limit as per THE NOISE POLLUTION (REGULATION AND CONTROL) RULES, 2000, Schedule Ambient Air Quality Standards in respect of Noise in Commercial Area Daytime 65 dB(A) & Night Time 55 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 NAAQ standard for commercial area noise levels.

..... End of Report
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Verified By



Authorised Signatory
D.Balanayagi
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 invoicing or issued of test report

TEST REPORT

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

HIG - 6152, TNHB Phase I & II,
Kamarajar Road, Ayapakkam,
Chennai - 600 077.
Ph : +91 44 2682 3190 / +91 73977 96831
Email: lab@pollucareindia.com
Web : www.pollucareindia.com

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

Report No	: PCEI/TR-W-7887	Report Date: 23.06.2025
Discipline	: Chemical	Group: Water
Issued	: M/s.Chennai Metro Rail Limited, No.327 Anna Salai, Nandanam, Chennai - 600035.	
Project Name	: CMRL/CON/PHASE-II/C4/UG-1/2022	
Sampling Method	: PCEI/SOP/W&WW/052	
Sampled by	: Laboratory	
Sample Collected Date	: 20.06.2025	Sample Reference No: PCEI/W-987-06/25
Sample Description	: Water	Sample Received On: 21.06.2025
Qty of Sample Received	: 2 Litres	Test Commenced On: 21.06.2025
Sample Condition	: Fit for Analysis	Test Completed On: 23.06.2025
Sampling Location	: Borewell Water (Light House)	

S.No	Parameters	Units	Test Method	Results
1	Colour	Hazen	IS 3025 (Part 4) 2021	BDL(DL:1.0)
2	Odour	-	IS 3025 Part 5: 2018	Agreeable
3	Turbidity	NTU	IS 3025 Part 10: 2023	BDL(DL:0.1)
4	pH @ 25°C	-	IS 3025 Part 11: 2022	6.88
5	Electrical Conductivity @ 25°C	µs/cm	IS 3025 Part 14: 2019	12840
6	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part 16: 2023	8345
7	Total Suspended Solids @ 105°C	mg/L	IS 3025 Part 17: 2022	BDL(DL:2.0)
8	Free Residual Chlorine	mg/L	IS 3025 Part 26: 2021	BDL(DL:1.0)
9	Chloride (as Cl)	mg/L	IS 3025 Part 32: 2019	11796
10	Sulphate (as SO ₄)	mg/L	IS 3025 Part 24/Sec 1: 2022	3921
11	Nitrate (as NO ₃)	mg/L	APHA 24th Edition 4500 NO ₃ , Part B: 2023	17.6
12	Iron (as Fe)	mg/L	IS 3025 Part 53: 2003	BDL(DL:0.1)
13	Fluoride (as F)	mg/L	APHA 24th Edition 4500 F-D: 2023	BDL(DL:0.1)
14	Total Hardness (as CaCO ₃)	mg/L	IS 3025 Part 21: 2019	6868
15	Calcium (as Ca)	mg/L	IS 3025 Part 40:2019	850
16	Magnesium (as Mg)	mg/l	IS 3025 Part 46: 2023	1153
17	Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 Part 23: 2023	362
18	Phenolic compound (as C ₆ H ₅ OH)	mg/L	IS 3025 Part 43 Sec 1: 2022	BDL(DL:0.001)
19	Cyanide (as CN)	mg/L	APHA 24th Edition, 4500 CN- B, E: 2023	BDL(DL:0.02)

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[Signature]
Verified by



[Signature]
Authorised Signatory
D.Balanayagi
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 invoicing or issued of test report

Report No		: PCEI/TR-W-7887		Report Date: 24.06.2025	
S.No	Parameters	Units	Test Method	Results	
20	Hexavalent Chromium (as Cr ⁶⁺)	mg/L	IS 3025 Part 2: 2019	BDL(DL:0.03)	
21	Silica (as SiO ₂)	mg/L	IS 3025 Part 35 : 2023	12.4	
22	Anionic Detergents (as MBAS)	mg/L	IS 13428 Annexure K: 2018	BDL(DL:0.1)	
23	Aluminium (as Al)	mg/L	IS 3025 Part 2: 2019	BDL(DL:0.01)	
24	Arsenic (as As)	mg/L	IS 3025 Part 2: 2019	BDL(DL:0.001)	
25	Boron (as B)	mg/L	IS 3025 Part 2: 2019	BDL(DL:0.05)	
26	Cadmium as (Cd)	mg/l	IS 3025 Part 2 : 2019	BDL(DL:0.001)	
27	Copper (as Cu)	mg/L	IS 3025 Part 2: 2019	0.05	
28	Lead (as Pb)	mg/L	IS 3025 Part 2: 2019	BDL(DL:0.01)	
29	Manganese (as Mn)	mg/L	IS 3025 Part 2: 2019	0.09	
30	Mercury (as Hg)	mg/L	PCEI/SOP/HM/001: 2020	BDL(DL:0.001)	
31	Nickel (as Ni)	mg/l	IS 3025 Part 2: 2019	0.11	
32	Selenium (as Se)	mg/L	IS 3025 Part 2: 2019	BDL(DL:0.01)	
33	Silver (as Ag)	mg/l	IS 3025 Part 2: 2019	BDL(DL:0.01)	
34	Zinc (as Zn)	mg/L	IS 3025 Part 2: 2019	0.26	
Microbiological Parameters					
35	Escherichia coli	Per 100ml	IS 15185 : 2016	Present	

Note: All the above test parameters are within the permissible limits.

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
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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-9582	Report Date	: 22.07.2025
Discipline	: Chemical	Group	: Pollution & Environment
Issued to	: M/s. Chennai Metro Rail Limited , Anna Salai, Nandanam, Chennai- 600 035.		
Project Name	: CMRL/CON/PHASE-II/C4/UG-1/2022		
Sampling Method	: PCEI/SOP/W&WW/052		
Sampled by	: Laboratory		
Sample Collected Date	: 17.07.2025	Sample Reference No	: PCEI/WW-582-07-25
Sample Description	: Waste Water	Sample Received On	: 18.07.2025
Qty of Sample Received	: 2.5 Litres	Test Commenced On	: 18.07.2025
Sample Condition	: Fit for Analysis	Test Completed On	: 22.07.2025
Sampling Location	: ETP Inlet (Light House)		

S.No	Parameters	Units	Test Method	Results
1	Color	Hazen	IS 3025 (Part 4) 2021	20
2	Odour	-	IS 3025 Part 5 : 2018	Agreeable
3	Temperature	°C	IS 3025 Part 09 : 2023	28.3
4	pH @ 25°C	-	IS 3025 Part 11 : 2022	12.10
5	Total Suspended Solids @ 105°C	mg/L	IS 3025 Part 17 : 2023	32
6	Particle size of Suspended solids	-	APHA 24 th Edition 2560	Pass
7	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part 16 : 2023	2146
8	Oil & Grease	mg/L	IS 3025 Part 39 : 2021	BDL(DL:5.0)
9	Total Residual Chlorine	mg/L	IS 3025 Part 26 : 2021	BDL(DL:0.1)
10	Ammonical Nitrogen (as N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	3.27
11	Total Kjeldahl Nitrogen (as N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	6.45
12	Free Ammonia (as NH ₃)	mg/L	IS 3025 Part 34/ Sec 1 :2023	1.32
13	Biochemical Oxygen Demand (3 days at 27°C)	mg/L	IS 3025: Part 44 : 2023	18.2
14	Chemical Oxygen Demand (COD)	mg/L	IS 3025 Part 58 : 2023	156
15	Arsenic (as As)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)
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 ⁺⁺)	mg/L	IS 3025 Part 52 : 2003 (RA 2019)	0.03
20	Total Chromium (as Cr)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)

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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 invoicing or issued of test report

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Report No		: PCEI/TR-WW-9582		Report Date :	
				22.07.2025	
S.No	Parameters	Units	Test Method	Results	
21	Copper (as Cu)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	
22	Zinc (as Zn)	mg/L	IS 3025 Part 2 : 2019	0.25	
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	0.21	
26	Percent Sodium (%)	%	PCEI/SOP/W/001	36.7	
27	Cyanide (as CN)	mg/L	APHA 24th Edition 4500 CN- B,E	BDL(DL:0.02)	
28	Chloride (as Cl)	mg/L	IS 3025: Part 32 : 1988 (RA 2019)	702	
29	Fluoride (as F)	mg/L	APHA 24th Edition 4500 F-D: 2023	0.23	
30	Dissolved Phosphates (as P)	mg/L	IS 3025 Part 31/ Sec 1 :2022	0.39	
31	Sulphates (as SO ₄)	mg/L	IS 3025 Part 24 /Sec 1 : 2022	231	
32	Sulphide (as S)	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	-2.47	

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

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Report No	: PCEI/TR-WW-9583	Report Date	: 22.07.2025
Discipline	: Chemical	Group	: Pollution & Environment
Issued to	: M/s. Chennai Metro Rail Limited , Anna Salai, Nandanam, Chennai- 600 035.		
Project Name	: CMRL/CON/PHASE-II/C4/UG-1/2022		
Sampling Method	: PCEI/SOP/W&WW/052		
Sampled by	: Laboratory		
Sample Collected Date	: 17.07.2025	Sample Reference No	: PCEI/WW-583-07-25
Sample Description	: Waste Water	Sample Received On	: 18.07.2025
Qty of Sample Received	: 2.5 Litres	Test Commenced On	: 18.07.2025
Sample Condition	: Fit for Analysis	Test Completed On	: 22.07.2025
Sampling Location	: ETP Outlet (Light House)		

S.No	Parameters	Units	Test Method	Results	TNPSB Standards for Discharge of Trade Effluent
1	Color	Hazen	IS 3025 (Part 4) 2021	BDL(DL:1.0)	-
2	Odour	-	IS 3025 Part 5 : 2018	Agreeable	-
3	Temperature	°C	IS 3025 Part 09 : 2023	28.3	40°C at the point of discharge
4	pH @ 25°C	-	IS 3025 Part 11 : 2022	7.74	5.5 to 9.0
5	Total Suspended Solids @ 105°C	mg/L	IS 3025 Part 17 : 2023	BDL(DL:2.0)	100
6	Particle size of Suspended solids	-	APHA 24 th Edition 2560	Pass	Shall pass 850 micron IS Sieve
7	Total Dissolved Solids @ 180°C	mg/L	IS 3025 Part 16 : 2023	1086	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	Ammoniacal Nitrogen (as N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	1.03	50
11	Total Kjeldahl Nitrogen (as N)	mg/L	IS 3025 Part 34/ Sec 1 :2023	2.14	100
12	Free Ammonia (as NH ₃)	mg/L	IS 3025 Part 34/ Sec 1 :2023	1.11	5.0
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	BDL(DL:4.0)	250
15	Arsenic (as As)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	0.2
16	Mercury (as Hg)	mg/L	PCEI/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 (RA 2019)	BDL(DL:0.03)	0.1
20	Total Chromium (as Cr)	mg/L	IS 3025 Part 2 : 2019	BDL(DL:0.01)	2.0

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Report No		: PCEI/TR-WW-9583		Report Date		: 22.07.2025
S.No	Parameters	Units	Test Method	Results	TNPCB Standards for Discharge of Trade Effluent	
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	0.03	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	0.56	2.0	
26	Percent Sodium (%)	%	PCEI/SOP/W/001	31.4	-	
27	Cyanide (as CN)	mg/L	APHA 24th Edition 4500 CN- B,E	BDL(DL:0.02)	0.2	
28	Chloride (as Cl)	mg/L	IS 3025: Part 32 : 1988 (RA 2019)	357	1000	
29	Fluoride (as F)	mg/L	APHA 24th Edition 4500 F-D: 2023	0.14	2.0	
30	Dissolved Phosphates (as P)	mg/L	IS 3025 Part 31/ Sec 1 :2022	0.29	5.0	
31	Sulphates (as SO ₄)	mg/L	IS 3025 Part 24 /Sec 1 : 2022	112	1000	
32	Sulphide (as S)	mg/L	IS 3025 Part 29 : 2022	BDL(DL:2.0)	2.0	
33	Phenolic Compounds (as C ₆ H ₅ OH)	mg/L	IS 3025 Part 43 /Sec 1 : 2022	BDL(DL:0.01)	1.0	
34	Residual Sodium Carbonate	meq/l	IS 11624 : 2019	-1.05	-	

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

..... End of Report
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Report No	: PCEI/TR-W-11392	Report Date	: 18.08.2025
Discipline	: Chemical & Biology	Group	: Water
Issued to	: M/s. Chennai Metro Rail Limited , Anna Salai, Nandanam, Chennai- 600 035.		
Project Name	: CMRL/CON/PHASE-II/C4/UG-1/2022		
Sampling Method	: PCEI/SOP/W&WW/052		
Sampled by	: Laboratory		
Sample Collected Date	: 14.08.2025		
Sample Description	: Drinking Water	Sample Reference No	: PCEI/W-392-08/25
Qty of Sample Received	: 2 Litres + 500ml	Sample Received On	: 15.08.2025
Sample Condition	: Fit for Analysis	Test Commenced On	: 15.08.2025
Sampling Location	: Light House	Test Completed On	: 18.08.2025

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
1	Colour	Hazen	IS 3025 (Part 4) 2021	BDL(DL:1.0)	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 @ 25°C	-	IS 3025 Part 11 : 2022	6.92	6.5 - 8.5	No Relaxation
6	Total Hardness (as CaCO ₃)	mg/L	IS 3025 Part 21: 2019	9.58	200	600
7	Iron (as Fe)	mg/L	IS 3025 Part 53 : 2003	BDL(DL:0.1)	0.3	No Relaxation
8	Chloride (as Cl)	mg/L	IS 3025 Part 32 : 2019	9.80	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	29.4	500	2000
11	Calcium (as Ca)	mg/L	IS 3025 Part 40: 2019	2.78	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	IS 3025 Part 34 Sec 1:2023	BDL(DL:1.0)	45	No Relaxation
16	Fluoride (as F)	mg/L	APHA 24th Edition 4500 F-D: 2023	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:0.001)	0.001	0.002
18	Mercury (as Hg)	mg/L	PCEI/SOP/HM/001: 2020	BDL(DL:0.001)	0.001	No Relaxation

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Report No		: PCEI/TR-W-11392		Report Date		: 18.08.2025	
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: 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	Anionic Detergents (as MBAS)	mg/L	IS 13428 Annexure K : 2018	BDL(DL:0.1)	0.2	1.0	
25	Chromium (as Cr ⁶⁺)	mg/L	IS 3025 Part 52 : 2003	BDL(DL:0.03)	0.05	No Relaxation	
26	Acidity as CaCO ₃	mg/L	IS 3025 Part 22:2019	BDL (DL:1.0)	-	-	
27	Silica (as SiO ₂)	mg/L	IS 3025 Part 35 :2024	BDL(DL:0.1)	-	-	
28	Nitrite as NO ₂	mg/L	IS 3025 Part 34/Sec1:023	BDL(DL:0.01)	-	-	
29	Total Alkalinity (as CaCO ₃)	mg/L	IS 3025 Part 23 : 2023	15.30	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	0.64	30	100	
33	Molybdenum (as Mo)	mg/L	IS 3025 (Part 2) 2004	BDL(DL:0.01)	0.07	No Relaxation	
34	Nickel (as Ni)	mg/L	IS 3025 Part 54 : 2019	BDL(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	Sodium as Na	mg/L	IS 3025 Part 45:019	BDL(DL:0.5)	-	-	
37	Ammonia Total (as NH ₃ - N)	mg/L	IS 3025 Part 34/Sec 1 :2023	BDL(DL:0.1)	0.5	No Relaxation	
38	Potassium as K	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 consent of the concerned authorities.							

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.

INTERPRETATION: The above Drinking Water test results meet the IS 10500:2012 Specification .

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Labour camp and Material Storage Photographs

No permanent labour camp was set up within the CRZ area at Lighthouse. The labour camp was established at Adyar, located 5.5 km away from the CRZ boundary. photographs of the labour camp location are attached below



Material Storage at Lighthouse Photographs



General Storeroom



Diesel and Oil Storage

