



STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

Environment department,
Room No. 217, 2nd floor,
Mantralaya, Annexe,
Mumbai- 400 032.
Date: November 27, 2018

To,
Shri. Pravin Darade- Additional Metropolitan Commissioner, MMRDA
at The project alignment is passing through the area of two municipal councils, i.e. MCGM & TMC & several survey numbers are coming in 32 km stretch.

Subject: Environment Clearance for Proposed construction of Mumbai Metro Line - 4 (Wadala-Ghatkopar-Mulund-Thane- Kasarvadavali) by MMRDA

Sir,

This has reference to your communication on the above mentioned subject. The proposal was considered as per the EIA Notification - 2006, by the State Level Expert Appraisal Committee-I, Maharashtra in its th meeting and recommend the project for prior environmental clearance to SEIAA. Information submitted by you has been considered by State Level Environment Impact Assessment Authority in its 144th meetings.


2. It is noted that the proposal is considered by SEAC-I under screening category Metro rail projects are not categorized in EIA notification as per EIA Notification 2006.

Brief Information of the project submitted by you is as below :-

1.Name of Project	Proposed construction of Mumbai Metro Line - 4 (Wadala-Ghatkopar-Mulund-Thane-Kasarvadavali) by MMRDA
2.Type of institution	Government
3.Name of Project Proponent	Shri. Pravin Darade- Additional Metropolitan Commissioner, MMRDA
4.Name of Consultant	This application is prepared in house by MMRDA
5.Type of project	Others
6.New project/expansion in existing project/modernization/diversification in existing project	New Project
7.If expansion/diversification, whether environmental clearance has been obtained for existing project	MOEF, Government of India intimated MMRDA vide letter dated 9th March, 2016 that construction of metro rail is not covered under EIA Notification, 2006.
8.Location of the project	The project alignment is passing through the area of two municipal councils, i.e. MCGM & TMC & several survey numbers are coming in 32 km stretch.
9.Taluka	The project alignment is passing through the area of two municipal councils, i.e. MCGM & TMC & several Talukas are coming in 32 km stretch.
10.Village	The project alignment is passing through the area of two municipal councils, i.e. MCGM & TMC & several villages are coming in 32 km stretch.
11.Whether in Corporation / Municipal / other area	Corporation
12.IOD/IOA/Concession/Plan Approval Number	Not Applicable IOD/IOA/Concession/Plan Approval Number: Not Applicable Approved Built-up Area: 0000
13.Note on the initiated work (If applicable)	Not Applicable
14.LOI / NOC / IOD from MHADA/ Other approvals (If applicable)	Not Applicable

SEIAA Meeting No: 144 Meeting Date: October 25, 2018 (SEIAA-STATEMENT-0000000564)
SEIAA-MINUTES-0000000737
SEIAA-EC-0000000541

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Shri. Anil Diggikar (Member Secretary SEIAA)

15.Total Plot Area (sq. m.)	Not applicable
16.Deductions	Not applicable
17.Net Plot area	Not applicable
18 (a).Proposed Built-up Area (FSI & Non-FSI)	FSI area (sq. m.): Not applicable
	Non FSI area (sq. m.): Not applicable
	Total BUA area (sq. m.): 00000
18 (b).Approved Built up area as per DCR	Approved FSI area (sq. m.):
	Approved Non FSI area (sq. m.):
	Date of Approval:
19.Total ground coverage (m2)	Not applicable
20.Ground-coverage Percentage (%) (Note: Percentage of plot not open to sky)	Not applicable
21.Estimated cost of the project	11115000000.00



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22.Production Details				
Serial Number	Product	Existing (MT/M)	Proposed (MT/M)	Total (MT/M)
1	Not Applicable	Not Applicable	Not Applicable	Not Applicable
23.Total Water Requirement				
Dry season:	Source of water	MCGM & TMC		
	Fresh water (CMD):	for 32 stations 736 m3/day and for depot 100.5 m3/day		
	Recycled water - Flushing (CMD):	wastewater from all stations will be connected to sewer lines while 64 m3/day treated water from depot will be used for horticulture		
	Recycled water - Gardening (CMD):	64 m3/day treated water from depot will be used for horticulture		
	Swimming pool make up (Cum):	Not applicable		
	Total Water Requirement (CMD) :	736 KLD for 32 stations and 100.5 KLD for depot		
	Fire fighting - Underground water tank(CMD):	Underground water tank of suitable capacity		
	Fire fighting - Overhead water tank(CMD):	Overhead water tank of suitable capacity		
	Excess treated water	will be connected to sewer line		
Wet season:	Source of water	MCGM & TMC		
	Fresh water (CMD):	for 32 stations 736 m3/day and for depot 100.5 m3/day		
	Recycled water - Flushing (CMD):	wastewater from all stations will be connected to sewer lines while 64 m3/day treated water from depot will be used for horticulture		
	Recycled water - Gardening (CMD):	Recycled water will be used for horticulture and excess will be connected to sewer line.		
	Swimming pool make up (Cum):	Not applicable		
	Total Water Requirement (CMD) :	736 KLD for 32 stations and 100.5 KLD for depot		
	Fire fighting - Underground water tank(CMD):	Underground water tank of suitable capacity		
	Fire fighting - Overhead water tank(CMD):	Overhead water tank of suitable capacity		
	Excess treated water	will be connected to sewer line		
Details of Swimming pool (If any)	Not applicable			

24.Details of Total water consumed									
Particulars	Consumption (CMD)			Loss (CMD)			Effluent (CMD)		
Water Requirement	Existing	Proposed	Total	Existing	Proposed	Total	Existing	Proposed	Total
Domestic	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
25.Rain Water Harvesting (RWH)	Level of the Ground water table:		Different at every location.						
	Size and no of RWH tank(s) and Quantity:		Rain water harvesting structures of suitable capacity will be constructed at stations & at depots.						
	Location of the RWH tank(s):		at 32 stations & at depots						
	Quantity of recharge pits:		Recharge pits of suitable capacity						
	Size of recharge pits :		Recharge pits of suitable size						
	Budgetary allocation (Capital cost) :		Estimated cost is Rs. 332.12 Lakhs						
	Budgetary allocation (O & M cost) :		will be decided by consulting with the local authorities (MCGM & TMC) and other statutory authority						
	Details of UGT tanks if any :		Underground tank of suitable capacity will be constructed.						
26.Storm water drainage	Natural water drainage pattern:		Care will be taken that storm water drain will not be affected by the construction of project and if at certain locations due to unavoidable reasons it affects, will be restored before the onset of monsoon						
	Quantity of storm water:		Care will be taken that storm water drain will not be affected by the construction of project and if at certain locations due to unavoidable reasons it affects, will be restored before the onset of monsoon						
	Size of SWD:		Storm water drain of suitable size						
27.Sewage and Waste water	Sewage generation in KLD:		80 KLD at Depot						
	STP technology:		will be decided by consulting with the local authorities (MCGM & TMC) and other statutory authority						
	Capacity of STP (CMD):		2 STP's in 2 depots.						
	Location & area of the STP:		STP's will be provided in 2 depots.						
	Budgetary allocation (Capital cost):		estimated cost of sewage treatment plant is about 78.00 Lakh						
	Budgetary allocation (O & M cost):		will be decided by consulting with the local authorities (MCGM & TMC) and other statutory authority						

28.Solid waste Management

Waste generation in the Pre Construction and Construction phase:	Waste generation:	Construction & Demolition waste will be generated during construction phase
	Disposal of the construction waste debris:	The C& D waste would be handled and disposed off to C&D waste processing facility or for back filling of low lying areas, leaving no significant impact on environment.
Waste generation in the operation Phase:	Dry waste:	26-29 cum of solid waste from stations and 2 tonnes/month from depot site
	Wet waste:	Included in dry waste
	Hazardous waste:	used acid and alkalies, paints used oil & other waste will be generated
	Biomedical waste (If applicable):	used cotton, bandages
	STP Sludge (Dry sludge):	250 kg/year
	Others if any:	Not Applicable
Mode of Disposal of waste:	Dry waste:	solid waste at depot site will be taken up by the cleaning contractor weekly and disposed to the Municipal waste disposal sites
	Wet waste:	wet waste is included in the dry waste. So disposed off as mentioned in the above point.
	Hazardous waste:	The contractor shall approach only Authorized Recyclers for disposal of Hazardous Waste, under intimation to the MMRDA.
	Biomedical waste (If applicable):	Will handover to authorized vendor.
	STP Sludge (Dry sludge):	sludge will be stored in leak proof containers and disposed off as per State Pollution Control Board guidelines
	Others if any:	Not Applicable
Area requirement:	Location(s):	Station and depot
	Area for the storage of waste & other material:	5 m ²
	Area for machinery:	Not Applicable
Budgetary allocation (Capital cost and O&M cost):	Capital cost:	Not Applicable
	O & M cost:	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority

29. Effluent Characteristics

Serial Number	Parameters	Unit	Inlet Effluent Characteristics	Outlet Effluent Characteristics	Effluent discharge standards (MPCB)
1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Amount of effluent generation (CMD):		about 63 KLD at Depot			
Capacity of the ETP:		ETP of suitable capacity will be constructed to treat the effluent			
Amount of treated effluent recycled :		Recycled water will be used for gardening and dust suppression			
Amount of water sent to the CETP:		water will not be sent to CETP			
Membership of CETP (if required):		Not Applicable			
Note on ETP technology to be used		Technology will be finalized by consulting with the local authorities (MCGM & TMC) or other statutory authorities			
Disposal of the ETP sludge		Sludge will be disposed at sites approved by Maharashtra State Pollution Control Board			


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30.Hazardous Waste Details							
Serial Number	Description	Cat	UOM	Existing	Proposed	Total	Method of Disposal
1	paints/spent sovent	21.2	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Will hand over to authorized recycler
2	Spent acid,alkalies	12.2	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Will hand over to authorized recycler
3	Spent oil	5.1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Will hand over to authorized recycler

31.Stacks emission Details						
Serial Number	Section & units	Fuel Used with Quantity	Stack No.	Height from ground level (m)	Internal diameter (m)	Temp. of Exhaust Gases
1	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

32.Details of Fuel to be used				
Serial Number	Type of Fuel	Existing	Proposed	Total
1	Diesel	Not Applicable	Not Applicable	Not Applicable
33.Source of Fuel		From authorized dealers available in the vicinity of the project location		
34.Mode of Transportation of fuel to site		For vehicles-directly from authorized dealers available in the vicinity of the project area and for DG sets on vehicle containing barrels from authorized dealer.		

35.Energy		
Power requirement:	Source of power supply :	M/s TATA Power Company, M/s Maharashtra State Electricity Transmission Co. Ltd. (MSETCL) & M/s Reliance Infrastructure Ltd (RIL)
	During Construction Phase: (Demand Load)	Not Applicable
	DG set as Power back-up during construction phase	DG set of 180 KVA capacity at the elevated station.
	During Operation phase (Connected load):	43.35 MVA
	During Operation phase (Demand load):	Not Applicable
	Transformer:	Not Applicable
	DG set as Power back-up during operation phase:	DG set of 180 kva capacity
	Fuel used:	Diesel
	Details of high tension line passing through the plot if any:	Not Applicable
Energy saving by non-conventional method:		

1. use Automatic Train Operation System (AT0) will save 30 % energy.
2. Use of Platform Screen Doors (PSD) will also save energy
2. Mechanisms of Energy-Saving for Rolling Stock
- Train Control Monitoring system (TCMS):
- Auxiliary Power Supply (APS) System
- Permanent Magnet Synchronous Motor (PSMS)

MMRDA has started the procedure to conceive CDM benefits for Mumbai Metro project from UNFCCC. Metro project information has been published to the Prior Consideration of the CDM list at:
http://cdm.unfccc.int/projects/PriorCDM/notifications/index_html.

36.Detail calculations & % of saving:

Serial Number	Energy Conservation Measures	Saving %
1	By rolling stock	30 %

37.Details of pollution control Systems

Source	Existing pollution control system	Proposed to be installed
Sewage and effluent generated in the Depots	Not Applicable	STP & ETP will be installed
Noise from construction	Not Applicable	use of noise barriers, use of pneumatic tools, Automation, Job rotation etc.
dust and gaseous emissions from vehicles	Not Applicable	Wheel washing facility, dust screens, water sprinklers etc

Budgetary allocation (Capital cost and O&M cost):	Capital cost:	Not Applicable
	O & M cost:	Not Applicable

38.Environmental Management plan Budgetary Allocation

a) Construction phase (with Break-up):

Serial Number	Attributes	Parameter	Total Cost per annum (Rs. In Lacs)
1	Air, noise, vibration, water, waste water, solid waste, during construction and operation	PM10, SO2, NOX, Noise levels in dB (A), L eq, LMax, Lmin, I10, L50, L90	45.00 Lakhs

b) Operation Phase (with Break-up):

Serial Number	Component	Description	Capital cost Rs. In Lacs	Operational and Maintenance cost (Rs. in Lacs/yr)
1	Rain water harvesting	at stations and depots	332.12 Lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
2	ecological monitoring	monitoring of planted trees will be done	10.00 lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
3	tree plantation	as per the norms of tree authority. 1371 trees will be planted	91.40 lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority

4	water treatment plant	will be installed	120.50 lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
5	Sewage treatment plant	STP will be installed	78.00 Lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
6	Effluent treatment plant	ETP will be installed	88.50 Lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
7	Green belt at depot	will be developed	40.0 lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
8	recycling of treated waste water	Will be carried out and will use for gardening	41.00 lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority
9	Air,noise, vibration,water, waste water. solid waste, during consruction and operation	PM10, S02, NOX, Noise levels in dB (A), L eq, LMax, Lmin, L10,L50, L90	45.00 lakhs	finalized after concerning with the local authorities (MCGM &TMC) or other statutory authority

39.Storage of chemicals (inflammable/explosive/hazardous/toxic substances)

Description	Status	Location	Storage Capacity in MT	Maximum Quantity of Storage at any point of time in MT	Consumption / Month in MT	Source of Supply	Means of transportation
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

40.Any Other Information

No Information Available

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	CRZ/ RRZ clearance obtain, if any:	MCZMA in its 115th meeting held on 17th January, 2017 recommended the proposal from CRZ point of view to SEIAA subject to compliance of various conditions.
	Distance from Protected Areas / Critically Polluted areas / Eco-sensitive areas/ inter-State boundaries	700 m
	Category as per schedule of EIA Notification sheet	Metro rail projects are not categorized in EIA notification
	Court cases pending if any	Not Applicable
	Other Relevant Informations	Not Applicable
	Have you previously submitted Application online on MOEF Website.	No
	Date of online submission	-

3. The proposal has been considered by SEIAA in its 144th meeting & decided to accord environmental clearance to the said project under the provisions of Environment Impact Assessment Notification, 2006 subject to implementation of the following terms and conditions:

Specific Conditions:

I	MMRDA to obtain permission from Hon High court and Forest department for cutting of mangroves.
II	This is CRZ clearance granted for Proposed construction of Mumbai Metro Line - 4 (Wadala-Ghatkopar-Mulund-Thane Kasarvadavali) .

General Conditions:

I	(i)PP to achieve Zero Liquid Discharge ; PP shall ensure that there is no increase in the effluent load to CETP.
II	No additional land shall be used /acquired for any activity of the project without obtaining proper permission.
III	PP to take utmost precaution for the health and safety of the people working in the unit as also for protecting the environment.
IV	Proper Housekeeping programmers shall be implemented.
V	In the event of the failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieve.
VI	A stack of adequate height based on DG set capacity shall be provided for control and dispersion of pollutant from DG set. (If applicable).
VII	A detailed scheme for rainwater harvesting shall be prepared and implemented to recharge ground water.
VIII	Arrangement shall be made that effluent and storm water does not get mixed.
IX	Periodic monitoring of ground water shall be undertaken and results analyzed to ascertain any change in the quality of water. Results shall be regularly submitted to the Maharashtra Pollution Control Board.
X	Noise level shall be maintained as per standards. For people working in the high noise area, requisite personal protective equipment like earplugs etc. shall be provided.
XI	The overall noise levels in and around the plant are shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures, etc. on all sources of noise generation. The ambient noise levels shall confirm to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989.
XII	Green belt shall be developed & maintained around the plant periphery. Green Belt Development shall be carried out considering CPCB guidelines including selection of plant species and in consultation with the local DFO/ Agriculture Dept.
XIII	Adequate safety measures shall be provided to limit the risk zone within the plant boundary, in case of an accident. Leak detection devices shall also be installed at strategic places for early detection and warning.

XIV	Occupational health surveillance of the workers shall be done on a regular basis and record maintained as per Factories Act.
XV	(The company shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling.
XVI	The project authorities must strictly comply with the rules and regulations with regard to handling and disposal of hazardous wastes in accordance with the Hazardous Waste (Management and Handling) Rules, 2003 (amended). Authorization from the MPCB shall be obtained for collections/treatment/storage/disposal of hazardous wastes.
XVII	Regular mock drills for the on-site emergency management plan shall be carried out. Implementation of changes / improvements required, if any, in the on-site management plan shall be ensured.
XVIII	A separate environment management cell with qualified staff shall be set up for implementation of the stipulated environmental safeguards.
XIX	Separate funds shall be allocated for implementation of environmental protection measures/EMP along with item-wise breaks-up. These cost shall be included as part of the project cost. The funds earmarked for the environment protection measures shall not be diverted for other purposes and year-wise expenditure should reported to the MPCB & this department
XX	The project management shall advertise at least in two local newspapers widely circulated in the region around the project, one of which shall be in the marathi language of the local concerned within seven days of issue of this letter, informing that the project has been accorded environmental clearance and copies of clearance letter are available with the Maharashtra Pollution Control Board and may also be seen at Website at http://ec.maharashtra.gov.in
XXI	Project management should submit half yearly compliance reports in respect of the stipulated prior environment clearance terms and conditions in hard & soft copies to the MPCB & this department, on 1st June & 1st December of each calendar year.
XXII	A copy of the clearance letter shall be sent by proponent to the concerned Municipal Corporation and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the Company by the proponent.
XXIII	The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO ₂ , NO _x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
XXIV	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.
XXV	The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF by e-mail.

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4. The environmental clearance is being issued without prejudice to the action initiated under EP Act or any court case pending in the court of law and it does not mean that project proponent has not violated any environmental laws in the past and whatever decision under EP Act or of the Hon'ble court will be binding on the project proponent. Hence this clearance does not give immunity to the project proponent in the case filed against him, if any or action initiated under EP Act.

5. In case of submission of false document and non-compliance of stipulated conditions, Authority/ Environment Department will revoke or suspend the Environment clearance without any intimation and initiate appropriate legal action under Environmental Protection Act, 1986.

6. The Environment department reserves the right to add any stringent condition or to revoke the clearance if conditions stipulated are not implemented to the satisfaction of the department or for that matter, for any other administrative reason.

7. Validity of Environment Clearance: The environmental clearance accorded shall be valid as per EIA Notification, 2006, and amendments by MoEF&CC Notification dated 29th April, 2015.

8. In case of any deviation or alteration in the project proposed from those submitted to this department for clearance, a fresh reference should be made to the department to assess the adequacy of the condition(s) imposed and to incorporate additional environmental protection measures required, if any.

9. The above stipulations would be enforced among others under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and rules there under, Hazardous Wastes (Management and Handling) Rules, 1989 and its amendments, the public Liability Insurance Act, 1991 and its amendments.

10. Any appeal against this Environment clearance shall lie with the National Green Tribunal (Western Zone Bench, Pune), New Administrative Building, 1st Floor, D- Wing, Opposite Council Hall, Pune, if preferred, within 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Shri. Anil Diggikar (Member Secretary SEIAA)

Copy to:

1. SECRETARY MOEF & CC
2. IA- DIVISION MOEF & CC
3. MEMBER SECRETARY MAHARASHTRA POLLUTION CONTROL BOARD MUMBAI
4. REGIONAL OFFICE MOEF & CC NAGPUR
5. MUNICIPAL COMMISSIONER MUMBAI
6. MUNICIPAL COMMISSIONER NAVI MUMBAI
7. MUNICIPAL COMMISSIONER THANE
8. REGIONAL OFFICE MPCB MUMBAI
9. REGIONAL OFFICE MPCB NAVI MUMBAI
10. REGIONAL OFFICE MPCB THANE
11. REGIONAL OFFICE MIDC ANDHERI
12. REGIONAL OFFICE MIDC KOPER KHAIRANE NAVI MUMBAI
13. REGIONAL OFFICE MIDC AMBERNATH
14. REGIONAL OFFICE MIDC THANE
15. MAHARASHTRA STATE ELECTRICITY DISTRIBUTION CO. LTD
16. COLLECTOR OFFICE MUMBAI
17. COLLECTOR OFFICE MUMBAI SUB-URBAN
18. COLLECTOR OFFICE THANE