



सत्यमेव जयते

File No: 10-52/2020-IA.III
Government of India
Ministry of Environment, Forest and Climate Change
IA Division



Date **16/02/2024**



To,

M/s JAWAHARLAL NEHRU PORT AUTHORITY
Jawaharlal Nehru Port Authority, Admin Building, Sheva, Uran, Navi Mumbai , MAHARASHTRA,
400707
cmppd.jnpt@gmail.com

Subject: Grant of prior Environmental Clearance (EC) and Coastal Regulation Zone (CRZ) to the proposed project under the provision of the EIA Notification 2006 -regarding.

Sir/Madam,

This is in reference to your application submitted to MoEF&CC vide proposal number IA/MH/INFRA1/460537/2024 dated 31/01/2024 for grant of prior Environmental Clearance (EC) to the proposed project under the provision of the EIA Notification 2006 and as amended thereof.

2. The particulars of the proposal are as below :

(i) EC Identification No.	EC24A3501MH5650754N
(ii) File No.	10-52/2020-IA.III
(iii) Clearance Type	Fresh EC
(iv) Category	A
(v) Project/Activity Included Schedule No.	7(e) Ports, harbors, breakwaters, dredging
(vi) Sector	INFRA-1
(vii) Name of Project	Development of a Greenfield Port at Vadhavan, District –Palghar, Maharashtra
(viii) Name of Company/Organization	JAWAHARLAL NEHRU PORT AUTHORITY
(ix) Location of Project (District, State)	RAIGAD, MAHARASHTRA
(x) Issuing Authority	MoEF&CC
(xi) Applicability of General Conditions as per EIA Notification, 2006	No

3. Jawaharlal Nehru Port Authority (JNPA) has proposed 'Development of Greenfield Port at Vadhavan, District Palghar, Maharashtra by M/s Jawaharlal Nehru Port Authority (JNPA)'. The total area of the project is 17,471 ha out of which 16,900 ha has been declared as Port Limit and 571 ha outside Port Limit for the Road and Rail Connectivity. The proposed port is located near

Dahanu, abutting northern boundary of Palghar district of Maharashtra at co-ordinates Latitude 19° 55.8'N and Longitude 72°39.6'E. A natural water depth of around 20.0 m below Chart Datum (CD) is available at 10 km from Vadhavan point and 15 m contour is available at a distance of 6 km which will allow safe voyage and mooring for the new generation vessels up to 24,000 TEU's. The cargo handling capacity of the port would be 298 Million Metric Tonne per Annum (MTPA). The site is about 150 km north of Mumbai and about 150 km west of Nashik and about 180 km south of Surat respectively.

4. The Port Limit have three components namely (i) Waterfront area 15,363.5 Ha, (ii) Reclamation and land filling of 1,448.0 ha for inter tidal zone with 200Mcum, (iii) Berth area 63.5 Ha. The requirement of land for rail and road is 571 Hectares will be met through the acquisition of land as per the applicable rules and regulations. In addition to the above an area of 1,000 ha. Government land is available for port-enabled services and port related infrastructure.

5. As a part of Vadhavan Port the following Infrastructure are proposed:

The basic infrastructure of the port necessitating upfront investment such as breakwater, rail and road linkages, power, water lines and common infrastructure and services will be developed by the port/ SPV whereas all cargo handling infrastructure will be developed and operated by Concessionaires.

I. Inside Port

- i. Breakwater of total length 10.14 km.
- ii. Dredging 6.98 Million cum in Phase-1 and 21.5 Million cum in Phase-2.
- iii. Annual maintenance dredging of about 6.5 Million with its disposal at designated dumping ground in the sea or coastal area.
- iv. Port craft/ Tug berth of 200 m.
- v. Total Reclamation area inside the port 1448 ha. with 1162 ha. in Phase-1.
- vi. Road inside the port 32 km
- vii. DFC rail yard 227.5 ha.
- viii. Buildings with area of 23,500 sq.mts

II. Outside Port

- i. Land acquisition 571 ha. (For road and rail connectivity)
- ii. External road connectivity of 33.4 km, 120m wide corridor with alternatives routes
- iii. Rail linkage area length 12 km 60 m wide corridor with alternative routes
- iv. Water pipeline from Surya river which is about 22 km from port site
- v. Power line from PGCIL line/Tarapur Boisar power station 20 km from port.

III. Terminal Operators – Concessionaires

- i. Container terminals including storage yard, equipment, terminal pavements, drainage, utilities networks etc., with total berth length of 9000 m (4 terminals in Phase-1 and 5 terminals in Phase 2

each of 1000 m length) capable of handling vessels of 24,000 TEU and above with 24,000 TEU design container vessels.

ii. Multipurpose berths of 1000 m (4 berths each of 250 m) including equipment, storage yard/shed

iii. 1 Ro Ro berth of 250 m including storage and onshore facilities Four (4 Nos) Liquid cargo terminals including pipelines and tank farms.

iv. Vadhavan is 12 km away from Vangaon Railway Station along Mumbai-Surat Western Rail Link and will be linked to DFCC line at New Palghar Station. The port location is 33.4 km away from NH 48 and 22 km away from Vadodara Expressway from Port. All roads will be merging with the road connecting port to the NH-48 and Mumbai Vadodara expressway.

IV. The final master plan layout incorporates the following:

i. 9 container terminals each with a straight 1,000 m long marginal quay. 7 terminals have the container storage yard located directly behind the quay apron whilst for two of the terminals the container yard is located about 1 km behind the quay. A total of four multi-purpose berths each 250 m long at the southern end of the reclamation

iii. Four liquid bulk berths located on the leeside of the breakwater

iv. A Ro-Ro berth at the south-west end of the offshore reclamation with adjacent vehicle parking

v. Small craft (pilot boats and tugs) and coastguard berths at the southern end of the reclamation.

vi. Additional berths for small craft may also be provided at the northern end of the reclamation.

vii. Rail terminal located along the eastern side of the offshore reclamation

viii. Onshore reclamation for liquid bulks storage (Except LPG and LNG and other petroleum products) and administrative facilities.

ix. Water depth in the channel is around 17 to 18 m depth below CD. +2.0 m tidal advantage has been considered as the MSL is about +2.8 m w.r.t CD.

x. The diameter of the sheltered turning circle with tug assistance is 700 m. The main emphasis while developing the port layout is given to balance the cost of dredging and reclamation land area developed.

xi. It is estimated that approximately 200 million cum of reclamation material would be required for the proposed port development and the material will be brought from the borrow pit located at off shore Daman coast at around 50 km into sea from the proposed Vadhvan port. The marine sand will be dredged using Trailing Suction Hopper Dredger (TSHD) and the sand will be transported and dumped at the reclamation location. The Ministry of Mines vide its GR dated 21st Dec, 2023 has issued order for reservation of the site for dredging.

xii. The dredged volume of 7.01 M cum comprising of soil and rock is required to be dredged in Phase 1 and 21.5 Million Cum in Phase-2 and is to be disposed at designated dumping ground (VDS -1 & VDS-2) or for reclamation purpose as per its suitability.

xiii. The proposed port at Vadhavan aims to provide long-term commitment, strong policy push, innovation, and alignment of interests and business philosophies along with serious investment in technologies, systems, and manpower in order to achieve the objective set out in developing the vision of the port by JNPA. These sustainable solutions will range from analysis of climate change

risk and resiliency at the planning stage for; (i) Renewable energy, (ii) Alternative energy sources, (iii) Cold Ironing / Shore power supply, (iv) Efficient port operations, (v) Other green initiatives thereby achieving reduction in carbon footprints and energy costs during the operations phase.

xiv. The required electrical system for the project will comprise incoming electrical supply at 80 MVA level. 220/33 kV substations containing transformers, switchboards, control equipment, etc. to supply the electrical power to various parts of the site at the required voltage levels of 11kV or 6.6 kV & 0.415 kV as well as requisite control and Monitoring systems.

xv. Two locations of the nearest 220 kV source from PGCIL line/ Tarapur Power Boisar and Dahanu have been identified to be provided by MSETCL. The PGCIL line/Tarapur Boisar power station is located 20 km away from Vadhavan site by overhead 220 KVA HT Line to Vadhavan port site.

xvi. Water requirement is around 6.8 MLD (million litres per day) and for the master plan phase, the anticipated demand is at 15.3 MLD. Out of this, the potable water demand for port usage is 1.8 MLD in Phase 1 and 2.8 MLD in master plan phase, with the balance being the demand for raw water and supply to port township to be met by Surya River about 22 km away from the proposed Vadhavan Port

6. The proposed project falls under 7(e)-Ports, harbours, break waters, dredging and 7(f) Highways as Category-A, as per EIA Notification 2006. The total cost of the project is Rs.76,220 Crores.

7. Terms of Reference (ToR): ToR proposal was considered by the Expert Appraisal Committee (EAC) in its 241st meeting held on 25th -26th August 2020. Ministry granted the ToR vide No. 10-52/2020-IA.III dated 7th October 2020. Amendment in ToR proposal was considered by the EAC in its 318th meeting held on 12th-13th January, 2023, 321st meeting held on 28thFebruary-1st March, 2023 based on the reply submitted to the queries raised by the EAC, the proposal was again placed in the 324th EAC meeting held on 19th-21st April, 2023. Amendment in ToR was granted vide letter even no dated 2nd June, 2023.

8. Public Hearing: The Public Hearing was conducted on 19/01/2024 at the District Sports Complex Ground, Tembhode, Palghar, Maharashtra and on 21/12/2023 at Conference Hall Collector and District Magistrate Office, Bhitwadi Road, Municipal Market, Dholar, Moti Daman, Daman Dadra and Nagar Haveli and Daman and Diu.

9. Regarding the issues raised in the public hearing related to fisheries and related activities, JNPA mentioned that they will prepare a Fisher-folks Compensation Policy (FCP) for VPPL project in consultation with all stake holders and fishermen community. Further JNPA also proposed the construction of fishing harbor and development of Sea Food Park in association with State Government for export- oriented value addition of marine resources with the aim of employment to the marginalized. Furthermore, JNPA also proposed to develop the Skill development centers for fisheries and container operation related logistic courses. Regarding shoreline changes, Mathematical Modelling studies for shoreline changes has been carried out by CWPRS as well as Hydrodynamic and siltation studies are carried out by CWPRS for port development. There is no high eroding zone in the vicinity of Vadhavan port location and declared as stable cost. Regarding coastal erosion and mining activities, mining is proposed 5-60 km off coast Daman. IIT Madras

has carried out the sediment dispersion study which indicates that there will not be any dispersion of sediment towards coastal areas by the dredging operation. There will be temporary increase in turbidity of sea water which will be minimized after short duration of construction phase, which is localised. Moreover, the borrow pit area size is 15x5km and dredging will be done for 2-3m sea bed depth and it is likely to be filled by natural oceanic processes within few years. Regarding sound pollution undersea and the impact of the fisheries National Institute for Oceanography (NIO) has studied the sound pollution aspects and provided management plan. JNPA will follow all the mitigative measures suggested by the Central Marine Fisheries Research Institute (CMFRI) and NIO. Regarding impact on the Coral, NIO in their study concluded that no corals are found in the port limit area. JNPA will follow mitigative measures suggested in the NIO report. Regarding tree cutting, NHAI will develop the road all the rules and regulations related to improvement, development, widening etc will be followed by NHAI and their agencies. The compensational plantation and Geo tagging will be done as per requirement of approving Authorities for tree plantation and tree relocation.

10. Land use/Land cover of project site: The project envisages reclamation of 1448 Ha and Acquisition of 571 Ha, reclamation of 1448 ha in inter-tidal zone proposed near the shore in levels ranging from +4.2m CD to -2m CD and -6 m CD to -15 m CD offshore and acquisition of 571 ha land for road and rail linkages is proposed.

11. Terrain and topographical features: Topography of the intertidal zone is rocky and highly undulated. Casuarina plantations are observed along the shoreline. The bed levels in inter tidal zone are sloping west. The slope varies from 1:350 to as gentle as 1:2000 in some section. Most of the rock at VadHAVAN point and offshore comprises rock of basaltic composition. The basaltic rock is dark grey, black and hard, tough and compact. The rock is susceptible to superficial weathering. Most part of the hard rock under the sea is weathered and degree of weathering varies from exposed rock to subsurface rock with subsurface rock more weathered than the exposed one.

12. Details of water bodies, impact on drainage: Port project is located inside the sea on reclaimed land. Changes in water bodies or the land surface affecting drainage or run-off have not been envisaged in this project. It is proposed to lay the RCC trench drain parallel to the proposed internal road. All the drains will be via trenches and buried pipelines, which will be discharged out into the sea through various outfall points. These drains are connected through various cross drains bringing the water from the different areas of the terminals covering the port operational buildings. A drainage system will be provided below the stacking area, with buried perforated drain lines. An impervious layer will be placed in the ground below these transverse drain lines. The storm water runoff from the yard area and adjacent roads will be collected, via trenches and buried pipelines and will be connected to storm water drain. The wastewater collected from the workshop will be treated in an oil skimmer before disposing off to the storm water drain.

13. Water requirements: The requirement for Drinking purpose is 105KL/day (2630 peak manpowerX40 lit/day). Drinking water requirements will be met from State water supply Board i.e Maharashtra Jeevan Pradhikaran (MJP). Water required for Construction Peak time is 4MLD Maharashtra Jeevan Pradhikaran (MJP) will be provided. During Operation phase: For the master

plan phase, the anticipated demand is at 15.3 MLD. The water source identified for the port operations is Surya River about 22 km away from the proposed Vadhavan Port. Maharashtra Jeevan Pradhikaran (Government of Maharashtra) will be facilitating the required water supply to Vadhavan Port. No ground water extraction is envisaged.

14. Diversion of forest land: The diversion of forest land is required in case of road and rail connectivity pass through the Forest Land for which about 86.82 ha of forest land needs to be diverted. However, as per OM no. J-11015/200/2008-IA.II(M) dated 19.03.2013, PP has presented 5 alternative alignments and justified that it is technically feasible to execute the project along an alternate alignment in which diversion of forest land is not required. The road will be developed by MoRTH/NHAI as per the Gati Shakti initiative of the Government as a Green Field Highway and land acquisition will be as per NHAI Act for Highways and user fee will be collected by NHAI. Accordingly, road and rail connectivity is being proposed through alternate alignment not passing through forest land.

15. The proposed project is not located within 10 km of Protected Areas (PA), National Parks, Sanctuaries and Tiger Reserves etc. However, Dahanu Taluka in Palghar District of Maharashtra is declared as ecologically fragile area in 1991. DTEPA is the Monitoring Authority and DTEPA has granted permission to establish a major port at Dahanu Taluka in the off-coast of Vadhavan on 31st July 2023.

16. Biodiversity Study for the proposed borrow pit region in Arabian sea with reference to development of Vadhavan Port was carried out by the Zoological Survey of India and it was observed that since the proposal is for making temporary borrow pit in Arabian sea for dredging/sand mining for the development of the port, the environmental impact would be temporary in nature and would get naturally be restored and marine creatures will adopt to the location as soon as the dredging and mining activities are completed. There is no significant nesting / breeding grounds for any endemic or threatened marine species including turtles, dolphins, pelagic or shorebird and fishes etc. reported and or observed in the proposed project areas. Nevertheless, there may be stray movement of turtles and dolphins as are they are reported in the eastern Arabian sea. As these animals are highly mobile, translocation of the habitat may be a feasible solution, if encountered during dredging and sand mining operations and they can be relocated to safe and suitable places. Also, although the proposed site falls under the migratory route of the birds, since there is no land mass for roosting/ resting of birds and to transit during their flying close to the proposed borrow pit, the impact on migratory birds seems to be very unlikely due to the proposed dredging and sand mining. All the suggested mitigation measures shall be followed rigorously in order to safeguard the marine life as well as their feeding, breeding and migratory path and future survival.

17. Impacts on Biodiversity due to the proposed port development was carried out by the CSIR – National Institute of Oceanography. The present marine biodiversity study revealed that at Shankodhar point few species of flora and fauna are abundant in the exposed rock patch. In total, 12 species of fauna and one species of crustose coralline algae were recorded during the survey. Though only 12 species of fauna and one species of flora was recorded, the number of organisms

within the given area were abundant supporting the fact that Shankodhar point is biologically rich. The rocky outcrops at Shankodhar point serves as a habitat for variety of organisms including the barnacles, molluscs, hydroids, and corals. Presence of molluscs egg capsule mass over the rocks indicates that this site could be the breeding ground for those organisms. In addition, there are numerous tide pools and tide channels which provide additional niches for more marine organisms. Majority of rocks were smothered with a thin tube like structures which are found to be inhabited by Tanai dacean crustacean. In addition to this, a school of three dolphins were sighted in the subtidal area of the Shankodhar point indicating the presence of cetaceans in the vicinity of Shankodhar point. As proposed by the PP, Master plan was devised to preserve the existing Shankodhar Point and provides for unimpeded access to it.

18. Waste Management: The solid waste generation will be basically from 2 sources – cargo handling and the garbage/ human waste. It is estimated to be 2000kg/day of Municipal waste generation from port operations, which shall be disposed off as per the Municipal Solid Waste Management Rules 2016 and the amendments thereof. The cargo envisaged at the port is primarily container cargo. The garbage and human waste generation will be minimal and is proposed to be disposed off using the normal measures. Hazardous wastes, if any generated during construction phase shall be sent or sold to an authorised actual user or shall be disposed of in an authorised disposal facility in conformity with the environmental norms in this regard. Hazardous and other wastes during operation phase shall be transported from port to an authorised actual user or to an authorized disposal facility in accordance with the provisions of Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 & amendments. STP details: During construction phase mobile toilets/ STP will be provided for construction workers and site office/ premises staff. The waste shall be collected regularly by authorized vendor. The treated water will be reused in garden premises. Under no circumstances, treated or untreated water will be discharged into marine water. Sewage generated during operation separate STP of 5000 KLD shall be provided. The system will be designed as per design criteria stipulated in the “Manual for Sewerage & Treatment” published by the CPHEEO (Central Public Health and Environment Engineering Organization), Ministry of Urban Development, Govt. of India, IS-SP/35 (S&T)-1987 and National and International practices on the subject. The treated water properties shall meet the CPCB norms and the requirements of re-use.

19. Details of tree cutting and Green belt development: 10179 trees are envisaged to be cut. Tree cutting shall be done as per the guidelines of Government of Maharashtra. Due permission shall be obtained before cutting of trees. The green belt area will be developed within port area as well as along the road and rail connectivity. Green belt of 2 meter width will be developed along the entire alignment of the Rail & Road. About 16467 no of indigenous plant will be planted and their regular monitoring shall be carried out by the project proponent to ensure their survival. Additional greenbelt will be developed in the township area outside port limit.

20. The details of CRZ area: A layout superimposed on HTL/LTL map has been prepared by Institute of Remote Sensing, Anna University, Chennai, based on CRZ Notification 2019. The proposed details viz Approach Trestle, Breakwater, Navigational Area, Offshore Reclamation Area, sheltered Area within Vadhavan Port Limits lies in CRZ-IVA and the reclamation area near

shore within Vadhavan Port Limits lies in CRZ-IB,CRZ-III(200m to 500m from HTL), CRZ-III(No Development Zone), CRZ-IVA, and outside CRZ areas as per CRZ notification, 2019.

21. The remaining area where there is no development proposed within Vadhavan Port Limits lies in CRZ-IA, CRZ-IA (50m Mangrove Buffer Zone), CRZ-IB, CRZ-III (No Development Zone), and CRZ-IVA areas as per approved CRZ notification, 2019.

22. The proposed road and rail alignment for the port connectivity out side the port limit lies in CRZ IB, CRZ-III(200m to 500m from HTL), CRZ-III(No Development Zone) and outside CRZ areas as per CRZ notification, 2019. The details are as following:

S.no	Description	Project details	CRZ Classification	Area in Acres	Total Area in Acres
1	Area for Proposed Development within Vadhavan Port Limits	Approach Trestle	CRZ-IVA	45.26	8763.2
		Breakwater	CRZ-IVA	444.36	
		Navigational Area	CRZ-IVA	3004.28	
		Offshore Reclamation Area	CRZ-IVA	3388.87	
		Reclamation area near shore	CRZ-IB	131.67	
			CRZ-III(200M to 500M from HTL)	12.14	
			CRZ-III(NDZ)	22.86	
CRZ-IVA	417.8				
Sheltered Area	CRZ-IVA	1246.41	49.56		
2	Remaining area within Vadhavan port limits	Nil	CRZ-IA(50m Mangrove Buffer)	126.48	33214.37
			CRZ-IA	98.25	
			CRZ-IB	426.28	
			CRZ-III-NDZ	19.71	
			CRZ-IVA	32543.64	
Grand Total				41977.57	41977.57
S.no	Description	Project Details	CRZ Classification	Length in Meters	Total Length in meters
3	Proposed road alignment for the port connectivity	Proposed road	CRZ-IB	277.29	34033.32
			CRZ-III (200m to 500m from HTL)	257.89	
			CRZ-III-NDZ	491.77	

			Outside CRZ	33006.36	
4	Proposed rail alignment for the port connectivity	Proposed Railway Line	CRZ-IB	217.26	21735.45
			CRZ-III (200m to 500m from HTL)	355.71	
			CRZ-III-NDZ	514.39	
			Outside CRZ	20648.1	
Grand Total				55768.77	55768.77

Maharashtra Coastal Zone Management Authority recommended the proposal vide letter no.IA/MH/CRZ/439228/2023 dated 06th February, 2024.

23. Shoreline Changes, hydrodynamic and siltation studies: Mathematical Modelling studies for Shoreline Changes as well as Hydrodynamic and Siltation studies are carried out by CWPRS for Port development. The studies carried out reveal that maximum velocities at harbour entrance, stoppage distance and turning circle are similar to that for Master Plan Layout. The total quantum of likely siltation in the dredged areas will be about 6.45 million cum per annum. The current strengths at the berths are well below the permissible limits of PIANC guidelines.

24. To assess the impact of proposed port development at Vadhavan on flooding in Dahanu creek & nearby control area under cyclonic conditions, Central Water and Power Research Station carried out Mathematical Model Studies using local model to assess the flooding in Dahanu creek & control area due to cyclonic storm events with the storm tides (Maximum rise in water level + estimated tidal level) as boundary conditions along with runoff discharges at various locations with two scenarios Scenario-1 & Scenario-2 each for 1 in 25 yrs, 1 in 50 yrs & 1 in 100yrs return periods. The model studies reveal that for all combinations/cases there is practically no variation (less than 15 cm) in extent of flooding / water levels within control area (10 km radius from headland at Vadhavan) due to proposed development of port at Vadhavan (about 6 km offshore of headland at Vadhavan) as compared to the extent of flooding observed for the existing condition (without port).

25. The dredged volume of 7.1 M cum comprising of soil and rock is required to be dredged. The rocks might be encountered while dredging the rock strength shall vary from 6 to 51 Mpa with an average of 19MPa. Based on the mathematical model studies on siltation, the average rate of siltation in the dredged areas will be about 6.45 million cum. The siltation rates are not uniform as it may vary based on the prevailing hydrodynamic conditions. The dredged material in channel and harbour basin would be disposed at the designated dumping site offshore. The location of the disposal site is in deep water (beyond 25m contour). The disposal site is spread over an area of about 20 sq.km and the depth of dumping will be restricted to only 0.5m. The reclamation quantity of dredged material expected from the project is 200 Million cum. The quantity of reclamation is much greater than the dredging quantity which in turn is dependent on the suitability of dredged material for reclamation, JNPA has identified a borrow pit offshore Daman coast at around 50 km into sea from the proposed Vadhavan port for obtaining sand for creating reclaimed land at the proposed port. The marine sand will be dredged using Trailing Suction Hopper Dredger(TSHD) and the sand will be transported and dumped at the reclamation location.

26. The existing studies carried out in regard to hydrodynamics, morphology, and shoreline change analysis for the proposed Greenfield port at Vadhavan in Maharashtra were analysed for the impact of the port on the adjacent coast by the National Centre for Coastal Research (NCCR) & Indian National Centre for Ocean Information Services (INCOIS). The study indicated that the presence of offshore breakwater has less impact on the coastline compared to shore connected breakwater. However, 0.15 Mm³ of the 6.45 Mm³ of maintenance dredging can be used for beach nourishment towards the immediate North of the port. The shoreline morphology and maintenance dredging are to be monitored periodically.

27. Further, Dept. of Ocean Engineering IIT Madras, carried out simulation studies to assess the impact of sediment plume transport from the marine borrow pit towards the coastal region of Vadhavan port. Sensitivity study has been carried out for 10%, 20% and 30% sediment loss. As the marine borrow pit location is approximately 50km to 60km far away from the coastal region with high tidal range and associated strong currents, the concentration of the sediment plume gets weakened immediately during the dredging activity. The model simulation shows that the turbid plume does not reach the shore. Based on the above scenarios, it can be observed that, the plume trajectory of the dredged sediment does not move towards the coast, and they appear not to cause any impact on the shore.

28. Ministry of Earth Sciences vide letter no. D.O.F.No.MoES/Misc/14/2015-PCII dated 25th May 2023 recommended to conduct the comprehensive EIA studies and suggested to draw the mitigation measures for protection of marine ecosystem pre and post dredging for which adequate budgetary provision shall be made available by the Project Proponent(PP) . Ministry of Ports, Shipping and Waterways (MoPSW) has requested for reservation of the offshore area for the purpose of central Govt. under section 8 of the OAMDR Act, 2002 for grant of composite licence in favour of JawaharLal Nehru Port Authority(JNPA) for mining sand from offshore for reclamation purpose for the proposed development of Greenfield Port at Vadhavan at District Palghar, Maharashtra. Ministry of Mines has reserved the proposed area vide notification dated 21.12.2023.

29. Handling of each cargo, storage, transport along with spillage control, dust preventive measures: Cargos are potential sources of dust and would contribute to fugitive dust emissions. The impacts due to emissions could be substantially managed by containment and reduction of emissions. The reduction in the emissions is achieved by continuous spraying of water so that the surface remains moist and the dust gets suppressed. In materials where the water spray would change the characteristics of the material by making it muddy and slushy, foam facility, both water sprays and foam suppressants and the other associated equipment's such as hoppers, belt conveyors, stackers cum declaimers along with integrated dust suppression systems will be used.

30. Details of fishing activity in the vicinity: Vadhavan village and other nearby villages are known as Fishery villages. Major occupation of the villagers is fishing which is likely to be impacted by the construction activity of the port. Construction of Vadhavan port will likely to create impact on fisheries in that region. After examination of fishing activity in the Vadhavan

area, it is understood that Vadhavan shoreline have good fish catch and lobster culture practices. JNPA (earlier known as JNPT) appointed Central Marine Fisheries Research Institute (CMFRI) to study the possible impact on Coastal fisheries and to suggest alternatives for fishing activities. Total number of villages within 10 kms radius of proposed Vadhavan port site is 25 and 16 villages are affected because rail and road connectivity pass through these villages, namely, Agar, Narpad, Dahanu, Dhakti-Dahanu, Gungwada, Tarapore, Varor, Dandepada, Chinchani, Ghivali, Kambode, Tadiyale, Dhumket, Abram, Asangaon and Matgaon falling within 10 kms radius of the proposed Vadhavan Port site. Total fishermen population residing in the identified 16 fishing villages is nearly 20,809 with 5,333 households. Considering the customary rights to fishing of traditional fishermen and livelihood issues due to loss of fishing area by the proposed port, it is suggested that the affected fishers be supported for sustainable alternative livelihoods and practical non-utility of their fishery assets and investments. In this regard possible alternative livelihood options have been suggested in CMFRI report and as a first step, ICAR-CMFRI has already given training on open sea cage culture (farming) to 20 young fishers from the affected villages. PP shall ensure that such training is imparted free of cost to other fisherman also.

31. Energy conservation measures with estimated saving: Roof top Solar panels and open space will be utilized for energy generation for renewable energy sources. Encouraging third parties (Vessel operator's / Terminal operator's) to take power from clean energy sources by providing incentives and integrating clauses in Lease and Concession agreement. Terminal operators to purchase power through Open Access and from renewable sources so as to achieve the target of minimum 60% of energy from renewable sources. Alternative energy sources such as Electric Rubber-Tired Gantry (RTGs), Intra-Terminal Vehicles (ITV), Usage of E-buses and E-cars within the port for port operational personnel shall be used. Provision of necessary EV charging infrastructure shall be made, Electric Quay Cranes, All equipment including Auxiliary equipment shall be operating on either electric or non-conventional clean fuel.

32. PP has submitted that the total project cost is INR 76,220 Crores in which PP has proposed the following budget provisions for component wise the details are as following:

Budget for Environmental Management Plan- Port Area		
Construction Phase:	Capital cost: 302 Lakhs	O & M Cost per Annum: 197.35 Lakhs
Operation Phase	Capital cost: 443 Lakhs	O & M Cost per Annum: 404.5 Lakhs
Budget for Environmental Management Plan -Rail-Road phase		
Operation phase	Capital cost: 222.12 Lakhs	O & M Cost per Annum: 73.17 Lakhs
Budget for Environmental Management Plan -Residential Area		
Operational Phase	Capital cost: 212 Lakhs	O & M Cost per Annum: 55 Lakhs
Offshore monitoring cost	500 lakhs	

33. Land acquisition and R&R issues involved: Vadhavan Port is being developed in offshore area without affecting the coastline. An area of 571 Ha for rail and road connectivity to the port will be required and the same is proposed to be acquired for the project through acquisition of land as per

the applicable rules and regulations. In addition to the above, an area of 1,000 ha. land for Port enabled services and port related infrastructure and other allied services of port i.e., Solar power, corridor for power and water pipelines, public amenities, housing of employees and emergency personnel etc. will be required & the same will be acquired as per rules. The resettlement and rehabilitation (R&R) benefits shall be extended to all the Project Affected Families (PAF) whether belonging to below poverty line (BPL) or non-BPL.

34. Apart from the above, the JNPA will prepare a Fisher-folks Compensation Policy (FCP) for VPPL project in consultation with all stake holders and fishermen community and a Fisher-folks Compensation Committee (FCC) will be set up by JNPA/VPPL with Dy Chairman, JNPA as the Chairman, and members from Fishing Community, Department of Fisheries, Revenue, MMB, Police, Fisheries Scientist and JNPA/ VPPL officers as its members. The Committee will conduct meetings for formulating the policy. In addition, a Stakeholder's meeting will also be conducted by the Dept. of Fisheries. Further JNPA also proposed to construct the Construction of fishing harbor and Development of Sea Food Park in the association of State Government for export- oriented value addition of marine resources with the aim of employment to the marginalized. Further it is also proposed to develop the Skill development centers for fisheries and container operation related logistic courses.

35. Employment potential: 1000 nos direct employment and indirect employment of 6000 nos. Post project completion, it is estimated that more than 1.0 Lakh of in-direct job opportunities will open up.

36. Details of Court cases:

i. Civil Appeal No(S). 5718-5719/2021 in the Hon'ble Supreme Court. Jawaharlal Nehru Port Authority Appellant(S) Versus National Fishworkers Forum & Ors. Respondent(S). Tentatively case may be listed on 19-02-2023. Category: 1503-Appeal Against Orders of Statutory Bodies: Tribunals.

ii. Writ Petition no.(L) no.17261 of 2023 National Fishworkers Forum & Ors Vs Ministry of Environment forest and Climate Change was file filed before the Hon'ble High Court of Bombay.

37. Benefits of the project: The development is envisaged to play a significant role in strengthening connectivity along the Maharashtra coastline. The port is likely to generate large scale employment during construction phase of port. Direct and indirect employment would be generated for people working on the project for construction of civil infrastructure, installation of mechanical and other utilities infrastructure. The material handling equipment for container terminal are likely to be imported. However, all other equipment and machineries would be procured locally. These would add to growth in the local economy. Indirect impacts occur through the supply chain in the activities of businesses that supply goods and services to support operations, leading to more economic output and jobs.

The operation of port will lead to large-scale direct and indirect employment and would contribute immensely to the local and national economy by promoting maritime trade. Vadhavan port would have similar market focus of JNPA. This would be handling containers and other clean cargo. Hence, the direct employment generation of Vadhavan port would be similar to JNPA. JNPA had

an employee base of around 1,500 persons in the financial year 2020 for handling close to 10 million tonnes cargo directly by port and balance 56 million tonnes by PPP operators of JNPA. It is estimated that around 8% to 10% of the officers were involved in monitoring and facilitating PPP operators. Rest all of 90% to 92% of the workforce was involved in cargo handling operations to achieve a traffic throughput of 10 million tonnes. This excludes the subcontractors hired by JNPA for operating its terminal. Vadhavan port with around 300 million tonnes of Trade volume at its peak would handle around three times JNPA present terminal traffic.

38. The EAC, taking into account the submission made by the project proponent, had a detailed deliberation in its 356th meeting of Expert Appraisal Committee held on 06th-07th February, 2024 recommended the proposal for grant of Environmental and CRZ Clearance subject to all specific conditions and Standard Conditions applicable for such projects.

39. The Ministry of Environment, Forest and Climate Change has considered the proposal based on the recommendations of the Expert Appraisal Committee (Infrastructure, CRZ and other miscellaneous projects) and hereby decided to grant of environmental Clearance and CRZ Clearance for 'Development of Greenfield Port at Vadhavan, District Palghar, Maharashtra by M/s Jawaharlal Nehru Port Authority (JNPA)' under the EIA notification, 2006 as amended and CRZ Notification, 2019 subject to strict compliance of the following specific conditions, in addition to all standard conditions applicable for such projects.

40. This issues with the approval of the Competent Authority.

Copy To

1. Principal Secretary Environment & Climate Change Department, Government of Maharashtra, Mantralaya, Mumbai – 32.
2. The Deputy Director General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Ground Floor, East Wing, New Secretariat Building, Civil Lines, Nagpur-440001.
3. The Chairman, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex, East Arjun Nagar, Delhi – 32.
4. The Member Secretary, Maharashtra Pollution Control Board, Kalpatru Point, Sion Circle, Sion (East), Mumbai-400 022, Maharashtra.
5. Monitoring Cell, MoEF&CC, Indira Paryavaran Bhavan, New Delhi
6. Parivesh Portal.
7. Guard File/Monitoring File/Website/Record File.

Annexure 1

Specific EC Conditions for (Ports, Harbors, Breakwaters, Dredging)

1. Specific Conditions

S. No	EC Conditions
1.1	<p>i. The proponent shall obtain Forest Clearance for diversion of forest land as per Forest (Conservation) Act, 1980 for the proposed road alignment if the proposed alignment is to pass through the forest area. Proponent shall submit an undertaking that work on non-forestry land may only be executed upto such point (to be selected by the user agency) on either side of forest land if it is explicitly certified by the user agency that in case approval under the Forest (Conservation) Act, 1980, for diversion of forest land is declined, it is technically feasible to execute the project along an alternate alignment without involving diversion of forest land. Details of all such stretches along with alternate alignment identified to bypass the forest land should be explicitly provided in the proposal seeking approval under the Forest (Conservation) Act, 1980 and the EIA Notification, 2006. Commencement of work in non-forest land will not confer any right to NHAI for granting approval under the Forest (Conservation) Act, 1980.</p> <p>ii. No Petroleum Oil (POL) Jetty shall be established in the port area.</p> <p>iii. No liquid petroleum product storage and handling shall be carried out in the port facility.</p> <p>iv. Safety standards both during construction stage and operational stages should be of highest standards incorporating latest safety measures.</p> <p>v. Transportation of containers will strictly be through new green fields roads and not through existing high density highways and sufficient provision should be made for smooth flow at intersections and turnings.</p> <p>vi. Time-bound Livelihood Opportunities Plan (LOP) based on the socio economic studies shall to be prepared and submitted along with the implementation plan with the 6 monthly compliance report, as the impact on communities is not uniform. The LOP need to adequately factor in these impacts. Core principles of engagement need to be developed which can be applied consistently, depending upon impact and ensure engagement done directly with communities (represented by legitimate intermediaries).</p> <p>vii. PP to ensure that contractors/labours working on Project/Construction sites are provided with working/living conditions and social infrastructure as per applicable standards in this regard.</p> <p>viii. In second year of operational phase of the project, baseline data on the status of faunal communities be collected and compared for assessing the environment and for ensuring that environmental plans are corrected/managed sustainably to restore the pristine ecosystem through proper conservatory measures.</p> <p>ix. Temporary halting of dredging / sand mining activities shall be practised to the extent possible especially during fish breeding period which is active breeding and spawning period for many marine organisms.</p> <p>x. Activities shall be avoided during night hours at probable areas which will pave the way for the movement of turtles, dolphins and other nocturnal fauna which may be using this shallow area for their feeding and breeding.</p> <p>xi. PP to develop/ follow existing mechanism/methodology for waste collection credits and waste recycling credits (Plastic Credits) by measuring, verifying and validating the reduction of plastic usage collection, recycle or dispose plastic in an environmentally friendly manner over and above the existing BAU (Business As Usual) scenario.</p> <p>xii. As per the MOEFCC Memorandum dated 1st May 2018 JNPA, has proposed an amount of Rs. 190 Crores under Corporate Environment Responsibility (CER). However, the committee suggested the same shall extended as EMP (Environment Management Plan) as per the Ministry's Office Memorandum F. No. 22-65/2017-IA.III dated 30th September 2020, wherein the project proponent shall abide by all the commitments made by them to address the concerns raised during the public consultation. The project proponent shall initiate the activities proposed by them, based on the commitment made in the public hearing, and incorporate during the Environmental Management Plan and submit to the Ministry. All other activities including pollution control, environmental protection and conservation, R&R, wildlife and forest conservation/protection measures including the NPV, Compensatory Afforestation etc, either</p>

S. No	EC Conditions
	<p>proposed by the project proponent based on the social impact assessment and R&R action plan carried out during the preparation of EIA report or prescribed by EAC, shall also be implemented and become part of EMP.</p> <p>xiii. All the recommendations mentioned in the Biodiversity study for the proposed Borrow pit region in Arabian sea conducted by ZSI and Marine Biodiversity at Shankodhar Point, Dahanu Taluk, Maharashtra conducted by CSIR – National Institute of Oceanography shall be implemented. The compliance to the recommendations shall be submitted along with 6 monthly compliance report to the regional office of MoEFCC. The borrow pit area shall be monitored by a specialized agency during and after construction of port for 3 years.</p> <p>xiv. Although the proposed borrow pit site falls under the migratory route of the birds, since there is no land mass for roosting/ resting of birds and to transit during their flying close to the proposed borrow pit, during such period proper mitigation measures shall be implemented in consultation with the national reputed institutions like ZSI.</p> <p>xv. ZSI report emphasized a rich biodiversity in the inter-tidal region; the committee suggested that a state-of-art research Institute/laboratory shall be developed and maintained by the PP in the proposed project area in consultation with expert scientists to monitor the ecosystem with greater emphasis on breeding grounds for fishes and shellfishes, their health and population status.</p> <p>xvi. Mitigation measures should be followed rigorously in order to safeguard the marine life as well as their feeding, breeding and migratory path and future survival.</p> <p>xvii. Continuous monitoring of the ecological characteristics of the habitat before, during and after the port construction shall be conducted by specialized agency. Further, continuous monitoring of activities related to dredging and land reclamation to assess the changes in the water quality, coastal hydrology, bottom contamination and diversity & abundance of marine organisms shall also be conducted. The suspended sediment concentration at borrow pit, reclamation areas both in offshore and nearshore area shall be monitored using automated system to ensure no adverse effects on adjoining areas. PP shall hire the services of specialized agencies of the aforesaid and such other monitoring tasks or for conducting required studies as mandated by EAC.</p> <p>xviii. Deployment of artificial reefs as a measure of compensation for the loss of fishing grounds, if any, due to dredging and land reclamation shall be made.</p> <p>xix. Measures recommended in the EIA and other studies carried out for the project to (i) prevent water pollution; (ii) limit disturbance of sediment, and (iii) limit the movement of barge/vessel movements shall be included in the mitigation plan.</p> <p>xx. Underwater noise shall be minimized by using bubble curtains which can reduce the noise emission up to 95% and ensure that marine mammals reliant on sound wave communications are not distressed.</p> <p>xxi. Establish ‘no wash zone’ based on the local hydrodynamics between the port and Shankodhar point to prevent the introduction of marine pests due to washing/cleaning of ship hulls and release of ship waste.</p> <p>xxii. All vessels coming to the port shall be checked for the presence/absence of invasive species on the hull as per MARPOL convention and applicable laws.</p> <p>xxiii. Master plan shall preserve the existing Shankodhar Point and provides for unimpeded access to it for the local population.</p> <p>xxiv. No mangrove shall be cut or affected due to port construction.</p> <p>xxv. The marine fisheries management cell shall be established by the project proponent as part of environmental management plan near by the site in consultation with and under the supervision of CMFRI and marine fisheries management activities shall be taken up by the cell for the local communities as part of EMP with separate budget.</p> <p>xxvi. The Wildlife Management & Conservation Plan for Schedule-I species like Indian Swiftlet <i>Aerodramus unicolor</i>, Gull-billed tern <i>Gelochelidon nilotica</i> etc shall be prepared in consultation with the state forest department and the recommend and State Biodiversity</p>

S. No	EC Conditions
	<p>Board/National Biodiversity Authority and the recommendations if any shall be incorporated in the report, and all commitments made in the biodiversity Management & Conservation Plan shall be implemented in letter and spirit. The status of implementation of Wildlife Management & Conservation Plan shall be submitted to the Regional Office of the Ministry along with 6 monthly compliance report.</p> <p>xxvii. Risk assessment and disaster management plan should be prepared and placed at the site for implementation exclusively along with emergency preparedness plan. Since the port is an offshore port, state of the art disaster management plan incorporating both on-site and offsite disaster management plan shall be prepared by the of the pp with the help of specialized agency and necessary security drill shall be conducted as per the provisions of National Disaster Management Act. All necessary equipment's and skilled manpower shall be provided for this purpose by the PP.</p> <p>xxviii. Emergency response system for oil spillage and oil spill contingency plan, any other hazardous material spillages shall be in place at the site level. The mock drill in this regard shall be conducted regularly and the same shall be documented and made available during inspections of local pollution control board, port authorities and MoEF&CC.</p> <p>xxix. All vessels movement offshore and inside the harbour should be through automoated vessel management system and controlled at port monitoring station.</p> <p>xxx. Tide gauge and wave gauge shall be installed permanently at the port premises for long-term monitoring for assessing impact of sea level rise and extreme events like cyclones.</p> <p>xxxi. Conservation plan for the marine mammals shall be prepared and implemented in consultation with the forest department which includes recovery of the species conservation and management, protection of corals other rare and endangered species etc with specific budget provisions and the annual report for the same shall be submitted along with the certified compliance report. The annual status report shall be prepared in consultation with the reputed institute like ZSI/WII/NIO etc.</p> <p>xxxii. Pollution control and abetment plan for Ballast waters, marine corrosion, tugging, etc shall be placed in the site as a part of environmental management system. The same should be exclusively spell in the corporate environment policy which should be disclosed at the site.</p> <p>xxxiii. Adequate mitigation measures should be taken to protect Shankodar area. from phenomenal changes in coastline due to port activity. The mitigation measures shall be recommended duly by the NIOT during construction and operation period.</p> <p>xxxiv. Construction activity shall be carried out strictly according to the provisions of the CRZ Notification, 2019. No construction works other than those permitted in Coastal Regulation Zone Notification shall be carried out in Coastal Regulation Zone area.</p> <p>xxxv. All the recommendations and conditions specified by the Maharashtra Coastal Zone Management Authority vide letter No. IA/MH/CRZ/439228/2023 dated 06th February, 2024 shall be implemented in letter and spirit.</p> <p>xxxvi. Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974. The project proponent shall comply with the air pollution mitigation measures as submitted.</p> <p>xxxvii. The Project proponent shall ensure that no creeks or rivers are blocked due to any activities at the project site and free flow of water is maintained.</p> <p>xxxviii. PP shall take all necessary statutory/regulatory approvals and clearances before the implementation and commissioning of the project from the concerned authority/statutory body.</p> <p>xxxix. The risk assessment and management plan being drawn up with regards to the environmental impacts of natural disasters, oil spills and other waste, dredging and dumping on marine ecology shall scrupulously implemented. It shall be ensured that the marine ecology in the area of influence shall not affect. The monitoring and compliance status of the marine ecology management plan shall be submitted along with the six monthly EC compliance reports.</p> <p>xl. Detailed comprehensive Disaster Management Plan considering earthquake, flooding,</p>

S. No	EC Conditions
	<p>cyclone, Tsunami, landslides, fire etc including emergency evacuation for natural and man-made disasters shall be in placed before the start of the construction of the port. A comprehensive cyber risk assessment and a cyber crisis management plan shall also be prepared. All the recommendations mentioned in the risk assessment report, disaster management plan and safety guidelines shall be implemented.</p> <p>xli. Shoreline should not be disturbed due to dumping. Periodical study on shore line changes and coastal geomorphology shall be conducted through NIO/NIOT/NCCR and mitigation measures like living shoreline and beach nourishment carried out in line with conservation plan. The details shall be submitted along with the six monthly monitoring report to the regional office of MoEFCC.</p> <p>xlii. As recommended by NCCR 0.15 Mm³ of the 6.45 Mm³ of maintenance dredging shall be used for beach nourishment towards the immediate North of the port. Pre and post beach nourishment study shall be conducted and a report this regard shall be submitted with 6 monthly compliance report.</p> <p>xliii. PP will establish an independent Monitoring Committees to oversee the (i) implementation of the specific and general conditions of the EC-CRZ clearance, (ii) the Environmental Management Plan including those arising out of CER (iii) implementation of recommendations of various studies carried out by appointed institutions/organizations for the project including dredge spoil management (iv) any other issues deemed necessary by the PP including grievance redressal of local community. The committee must meet quarterly during the construction phase of the project and at least twice a year during the operational phase of the project to monitor the implementation of various environmental safeguards and also look into the implementation of R&R measures. The committees will review of the progress of work for the above components and advise further on its implementation. Minutes of the meetings, site visit reports by the committee and recommendations of the same shall be uploaded on the website of the JNPA. The tenure of the committee will be till the completion of the final phase of the project. However, the tenure of every individual expert in the Committee shall not exceed three years, and accordingly, Committees should be reconstituted every three years. Sufficient budget allocation shall be provided by the PP to meet the expenses for providing logistics and manpower support for the functioning of the committee. The committee shall have the following members:</p> <ol style="list-style-type: none"> i. Member Secretary, Maharashtra Pollution Control Board (MPCB) shall be the chairman of the Committee. ii. Representative of MPCB shall be the Member Secretary. iii. Directors of Zoological Survey of India (ZSI) iv. Representative of PP v. Representative of the Collector, Palghar District. vi. Representative, CSIR - National Institute of Oceanography (NIO) vii. Representative, ICAR-Central Marine Fisheries Research Institute viii. Representative, National Centre for Coastal Research (NCCR). ix. Representative of IRO, Nagpur. <p>The Committee can co-opt expert members as and when required for technical support.</p>

Standard EC Conditions for (Ports, harbors, breakwaters, dredging)

1. Statutory Compliance

S. No	EC Conditions
1.1	Construction activity shall be carried out strictly according to the provisions of CRZ Notification, 2019 and the State Coastal Zone Management Plan as drawn up by the State Government. No construction work other than those permitted in Coastal Regulation Zone Notification shall be

S. No	EC Conditions
	carried out in Coastal Regulation Zone area.
1.2	A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project should be obtained.
1.3	All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Coast Guard, Civil Aviation Department shall be obtained, as applicable by project proponents from the respective competent authorities.

2. Air Quality Monitoring And Preservation

S. No	EC Conditions
2.1	The project proponent shall install system to carryout Ambient Air Quality monitoring for common/criterion parameters relevant to the main pollutants released (e.g. PM10 and PM2.5 in reference to PM emission, and SO2 and NOx in reference to SO2 and NOx emissions) within and outside the project area at least at four locations, covering upwind and downwind directions.
2.2	Appropriate Air Pollution Control (APC) system shall be provided for all the dust generating points including fugitive dust from all vulnerable sources, so as to comply prescribed emission standards.
2.3	Shrouding shall be carried out in the work site enclosing the dock/proposed facility area. This will act as dust curtain as well achieving zero dust discharge from the site. These curtain or shroud will be immensely effective in restricting disturbance from wind in affecting the dry dock operations, preventing waste dispersion, improving working conditions through provision of shade for the workers.
2.4	Dust collectors shall be deployed in all areas where blasting (surface cleaning) and painting operations are to be carried out, supplemented by stacks for effective dispersion.
2.5	The Vessels shall comply the emission norms prescribed from time to time.
2.6	Diesel power generating sets proposed as source of backup power should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Use of low sulphur diesel. The location of the DG sets may be decided with in consultation with State Pollution Control Board.
2.7	A detailed traffic management and traffic decongestion plan shall be drawn up to ensure that the current level of service of the roads within a 05 kms radius of the project is maintained and improved upon after the implementation of the project. This plan should be based on cumulative impact of all development and increased habitation being carried out or proposed to be carried out by the project or other agencies in this 05 Kms radius of the site in different scenarios of space and time and the traffic management plan shall be duly validated and certified by the State Urban Development department and the P.W.D./ competent authority for road augmentation and shall also have their consent to the implementation of components of the plan which involve the participation of these departments.

3. Water Quality Monitoring And Preservation

S. No	EC Conditions
3.1	The Project proponent shall ensure that no creeks or rivers are blocked due to any activities at the project site and free flow of water is maintained.
3.2	Appropriate measures must be taken while undertaking digging activities to avoid any likely degradation of water quality. Silt curtains shall be used to contain the spreading of suspended sediment during dredging within the dredging area.
3.3	No ships docking at the proposed project site will discharge its on-board waste water untreated in to the estuary/ channel. All such wastewater load will be diverted to the proposed Effluent Treatment Plant of the project site.
3.4	Measures should be taken to contain, control and recover the accidental spills of fuel and cargo handle.
3.5	The project proponents will draw up and implement a plan for the management of temperature differences between intake waters and discharge waters.
3.6	Spillage of fuel / engine oil and lubricants from the construction site are a source of organic pollution which impacts marine life. This shall be prevented by suitable precautions and also by providing necessary mechanisms to trap the spillage.
3.7	Total fresh water use shall not exceed the proposed requirement as provided in the project details. Prior permission from competent authority shall be obtained for use of fresh water.
3.8	Sewage Treatment Plant shall be provided to treat the wastewater generated from the project. Treated water shall be reused for horticulture, flushing, backwash, HVAC purposes and dust suppression.
3.9	A certificate from the competent authority for discharging treated effluent/ untreated effluents into the Public sewer/ disposal/drainage systems along with the final disposal point should be obtained.
3.10	No diversion of the natural course of the river shall be made without prior permission from the Ministry of Water resources.
3.11	All the erosion control measures shall be taken at water front facilities. Earth protection work shall be carried out to avoid erosion of soil from the shoreline/boundary line from the land area into the marine water body.

4. Noise Monitoring And Prevention

S. No	EC Conditions
4.1	Noise level survey shall be carried as per the prescribed guidelines and report in this regard shall be submitted to Regional Officer of the Ministry as a part of six-monthly compliance report.
4.2	Noise from vehicles, power machinery and equipment on-site should not exceed the prescribed limit. Equipment should be regularly serviced. Attention should also be given to muffler maintenance and enclosure of noisy equipments.

S. No	EC Conditions
4.3	Acoustic enclosures for DG sets, noise barriers for ground-run bays, ear plugs for operating personnel shall be implemented as mitigation measures for noise impact due to ground sources.
4.4	The ambient noise levels should conform to the standards prescribed under E(P)A Rules, 1986 viz. 75 dB(A) during day time and 70 dB(A) during night time.

5. Energy Conservation Measures

S. No	EC Conditions
5.1	Provide solar power generation on roof tops of buildings, for solar light system for all common areas, street lights, parking around project area and maintain the same regularly;
5.2	Provide LED lights in offices and project areas.

6. Waste Management

S. No	EC Conditions
6.1	Dredged material shall be disposed safely in the designated areas.
6.2	Shoreline should not be disturbed due to dumping. Periodical study on shore line changes shall be conducted and mitigation carried out, if necessary. The details shall be submitted along with the six monthly monitoring reports.
6.3	Necessary arrangements for the treatment of the effluents and solid wastes must be made and it must be ensured that they conform to the standards laid down by the competent authorities including the Central or State Pollution Control Board and under the Environment (Protection) Act, 1986.
6.4	The solid wastes shall be managed and disposed as per the norms of the Solid Waste Management Rules, 2016.
6.5	Any wastes from construction and demolition activities related thereto shall be managed so as to strictly conform to the Construction and Demolition Waste Management Rules, 2016.
6.6	A certificate from the competent authority handling municipal solid wastes should be obtained, indicating the existing civic capacities of handling and their adequacy to cater to the M.S.W. generated from project.
6.7	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.
6.8	Oil spill contingency plan shall be prepared and part of DMP to tackle emergencies. The equipment and recovery of oil from a spill would be assessed. Guidelines given in MARPOL and Shipping Acts for oil spill management would be followed. Mechanism for integration of terminals oil contingency plan with the overall area contingency plan under the co-ordination of Coast should be covered.

7. Green Belt

S. No	EC Conditions
7.1	Green belt shall be developed in area as provided in project details with a native tree species in accordance with CPCB guidelines.
7.2	Top soil shall be separately stored and used in the development of green belt.

8. Marine Ecology

S. No	EC Conditions
8.1	Dredging shall not be carried out during the fish breeding and spawning seasons.
8.2	Dredging, etc shall be carried out in the confined manner to reduce the impacts on marine environment.
8.3	The dredging schedule shall be so planned that the turbidity developed is dispersed soon enough to prevent any stress on the fish population.
8.4	While carrying out dredging, an independent monitoring shall be carried out through a Government Agency/Institute to assess the impact and necessary measures shall be taken on priority basis if any adverse impact is observed.
8.5	A detailed marine biodiversity management plan shall be prepared through the NIO or any other institute of repute on marine, brackish water and fresh water ecology and biodiversity and submitted to and implemented to the satisfaction of the State Biodiversity Board and the CRZ authority. The report shall be based on a study of the impact of the project activities on the intertidal biotopes, corals and coral communities, molluscs, sea grasses, sea weeds, sub-tidal habitats, fishes, other marine and aquatic micro, macro and mega flora and fauna including benthos, plankton, turtles, birds etc. as also the productivity. The data collection and impact assessment shall be as per standards survey methods and include underwater photography.
8.6	Marine ecology shall be monitored regularly also in terms of sea weeds, sea grasses, mudflats, sand dunes, fisheries, echinoderms, shrimps, turtles, corals, coastal vegetation, mangroves and other marine biodiversity components including all micro, macro and mega floral and faunal components of marine biodiversity.
8.7	The project proponent shall ensure that water traffic does not impact the aquatic wildlife sanctuaries that fall along the stretch of the river.

9. Public Hearing And Human Health Issues

S. No	EC Conditions
9.1	The work space shall be maintained as per international standards for occupational health and safety with provision of fresh air respirators, blowers, and fans to prevent any accumulation and inhalation of undesirable levels of pollutants including VOCs.

S. No	EC Conditions
9.2	Workers shall be strictly enforced to wear personal protective equipments like dust mask, ear muffs or ear plugs, whenever and wherever necessary/ required. Special visco-elastic gloves will be used by labour exposed to hazards from vibration.
9.3	In case of repair of any old vessels, excessive care shall be taken while handling Asbestos & Freon gas. Besides, fully enclosed covering should be provided for the temporary storage of asbestos materials at site before disposal to CTSDf.
9.4	Safety training shall be given to all workers specific to their work area and every worker and employee will be engaged in fire hazard awareness training and mock drills which will be conducted regularly. All standard safety and occupational hazard measures shall be implemented and monitored by the concerned officials to prevent the occurrence of untoward incidents/ accidents.
9.5	Emergency preparedness plan based on the Hazard identification and Risk Assessment (HIRA) and Disaster Management Plan shall be implemented.
9.6	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.
9.7	Occupational health surveillance of the workers shall be done on a regular basis.

10. Environment Responsibility

S. No	EC Conditions
10.1	The company shall have a well laid down environmental policy duly approved by the Board of Directors. The environmental policy should prescribe for standard operating procedures to have proper checks and balances and to bring into focus any infringements/deviation/violation of the environmental / forest /wildlife norms/ conditions. The company shall have defined system of reporting infringements / deviation / violation of the environmental / forest / wildlife norms / conditions and / or shareholders / stake holders. The copy of the board resolution in this regard shall be submitted to the MoEF&CC as a part of six-monthly report.
10.2	A separate Environmental Cell both at the project and company head quarter level, with qualified personnel shall be set up under the control of senior Executive, who will directly report to the head of the organization.
10.3	Action plan for implementing EMP and environmental conditions along with responsibility matrix of the company shall be prepared and shall be duly approved by competent authority. The year wise funds earmarked for environmental protection measures shall be kept in separate account and not to be diverted for any other purpose. Year wise progress of implementation of action plan shall be reported to the Ministry/Regional Office along with the Six Monthly Compliance Report.
10.4	Self environmental audit shall be conducted annually. Every three years third party environmental audit shall be carried out.

11. Miscellaneous

S. No	EC Conditions
11.1	The project proponent shall make public the environmental clearance granted for their project along with the environmental conditions and safeguards at their cost by prominently advertising it at least in two local newspapers of the District or State, of which one shall be in the vernacular language within seven days and in addition this shall also be displayed in the project proponent's website permanently.
11.2	The copies of the environmental clearance shall be submitted by the project proponents to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.
11.3	The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and update the same on half-yearly basis.
11.4	The project proponent shall submit six-monthly reports on the status of the compliance of the stipulated environmental conditions on the website of the ministry of Environment, Forest and Climate Change at environment clearance portal.
11.5	The project proponent shall submit the environmental statement for each financial year in Form-V to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently and put on the website of the company.
11.6	The criteria pollutant levels namely; PM2.5, PM10, SO2, NOx (ambient levels) 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.
11.7	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board and the State Government.
11.8	The project proponent shall abide by all the commitments and recommendations made in the EIA/EMP report, commitment made during Public Hearing and also that during their presentation to the Expert Appraisal Committee.
11.9	No further expansion or modifications in the project shall be carried out without prior approval of the Ministry of Environment, Forests and Climate Change (MoEF&CC).
11.10	Concealing factual data or submission of false/fabricated data may result in revocation of this environmental clearance and attract action under the provisions of Environment (Protection) Act, 1986.
11.11	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory under the provisions of the Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
11.12	The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.
11.13	The Regional Office of this Ministry shall monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer (s) of the Regional Office by

S. No	EC Conditions
	furnishing the requisite data / information/monitoring reports.
11.14	The above conditions shall be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 along with their amendments and Rules and any other orders passed by the Hon'ble Supreme Court of India / High Courts and any other Court of Law relating to the subject matter.
11.15	Any appeal against this EC shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

12. Specific Conditions

S. No	EC Conditions
12.1	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.

Additional EC Conditions

- Cut and fill works shall be carried out strictly in accordance with the design drawings proposed at the time of appraisal of the project.
- All entry/exit/access points on this highway shall be appropriately designed and preferably frozen to avoid traffic congestion and pollution.
- Rain water harvesting including oil and grease trap shall be provided. Water harvesting structures shall be located at every 500m along the road. Vertical drain type rainwater harvesting structures shall be set up to minimize surface runoff losses of rainwater.
- The drain shall be at least 1 m away from the toe of the embankment of the road adopting IRC guidelines. Longitudinal drains shall be provided all along the project road to ensure proper drainage of the area. In addition, adequate number of under passes and culverts to act as cross drainage structures shall also be provided.
- For providing safety to the crossing animals and avoid road accidents speed breakers/rumbled strips shall be constructed at the identified locations of the animal movements. Enough hoardings and signages shall also be put up for the public and vehicles convenience.
- The embankments/slopes and the slopes left after cutting shall be provided with vegetative growth to avoid soil erosion.
- The hot mix plant shall be located at least 500m away from habitation and on the barren land to avoid its adverse impact on the human population.
- For road safety, IRC guidelines in respect of road signages, service roads, bus bays, inter-sections, pedestrian crossings, etc. shall be strictly adhered to.
- Afforestation using compensatory plantation in the ratio of 1:10 shall be carried out. Native tree species shall be provided as per the IRC Guidelines on Landscaping and Tree Plantation (IRC: SP:21-2009). Effort should be made to plant native trees and Ficus species on both sides of the alignment. Special attention shall be given for protecting giant trees, and locally important trees (having cultural importance) and should be identified chainage wise
- Borrow pits and other scars created during the road construction shall be properly levelled and treated.

11. Adequate precautions shall be taken during transportation of the construction material so that it does not affect the environment adversely.

12. Construction spoils including bituminous material and other hazardous material must not be allowed to contaminate water courses and the dump site for such materials must be secured so that they shall not leach into the ground water. The non-usable bitumen spoils shall be disposed off in a deep trench providing clay lining at the bottom and filled with soil at the top(for at least 0.5m).

