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Validity expires 29/01/2024

Proceedings of the State Environment Impact Assessment Authority Kerala

Present: Prof. (Dr.) K.P. Joy, Chairman;Dr. J. Subhashini, Member and Sri. V. S. Senthil, I.A.S., Member Secretary.

Sub: SEIAA- Environmental clearance for Township and Area development Project in Sy. Nos. 671/1, 674/1, 675/4 at Kakkanad Village, Kanayanoor Taluk, Ernakulam District, by Sri.Thankachan Thomas for M/s Prestige Hill Side Gate Way - EC granted

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STATE ENVIRONMENTAL IMPACT ASSESSMENT AUTHORITY

No. 588/SEIAA/EC3/4504/2014 ***Dated, Thiruvananthapuram 30/01/2017***

Ref : 1. Application dated 19-09-2014 Sri.Thankachan Thomas, Sr. Vice President, No: 2, Bay Pride Mall, Marine Drive, Cochin
2. Minutes of 40th meeting of SEAC held on 29.05.2015
3. Minutes of the 46th meeting of SEAC held on 29-30 September 2015
4. Minutes of 52nd meeting of SEAC held on 08.02.2016.
5. Minutes of the 54th meeting of SEAC held on 6th and 7th April, 2016
6. Minutes of the 58th SEAC meeting held on 28th& 29th June, 2016
7. Minutes of the 59th meeting of SEAC held on 11th and 12th July, 2016
8. Minutes of the 58th meeing of SEIAA held on 8th September 2016.
9. Minutes of the 61st Meeting of SEIAA held on 30th November 2016

ENVIRONMENTAL CLEARANCE NO.14 /2017

Sri.Thankachan Thomas, Sr. Vice President, No: 32, Bay Pride Mall, Marine Drive, Cochin, vide his application received on 09-09-2014 and has sought environmental clearance under the EIA Notification, 2006 for the Township and Area development Project in Sy. Nos. 671/1, 674/1,675/4 at Kakkanad Village, Kanayanoor Taluk, Ernakulam District, Kerala. It is interalia, noted that the project comes under the Category B, 8(a) of Schedule of EIA Notification 2006. No forest land is involved in the present project.

Total Plot Area is50, 961m2(12.59 acres) and built up area is 2, 11,376.29 m^2, Proposed vacant area / Open to sky will be 12724.07 m^2. The height of the proposed building is 59.1 m. There are 20 floors *i.e.* (LG+G+18) and 602 Units; Villas-24 nos& one Club House; Retails Shops-(3LG+G+4)and parking facility will be at 2 Lower Grounds. Power requirement & source 41183.8 KVA from Kerala State Electricity Board, Water requirement & source will be Fresh water: 378 KLD (Municipal Supply/ Ground Water); Reuse of treated

for flushing from STP: 238 KLD; Total water requirement: 616 KLD. Sewage treatment facility: STP of 280 KLD, 130 KLD & 90 KLD is proposed. Basic details as follows;

Name of project		Prestige hillside gateway,Kakkanad, Ernakulam
Brief description of the project		Mixed Development Project (Residential cum Commercial Project – "*Prestige Hillside Gateway*") with total plot area of about 5.1057 hectares and total built-up area of about 2,09,264.09 sq. m.
Category/Subcategory & Schedule		Category 'B', Schedule 8 (b) -Townships and Area Development project.
Location Sy no/ district, Taluk/ village etc.		Survey Nos. 671/1, 674/1,675/4- Kakkanad Village, Thrikkakara Municipality, Kanayanoor Taluk, Ernakulam District, Kerala
GPS co-ordinates	Latitude (N)	$10^0$00'52.58" to $10^0$00'58.17"
	Longitude (E)	$76^0$21'23.34" to $76^0$21'33.59"
for Construction projects	***Built up area (in m^2)***	**2,09,264.09 sq. m.**
	No. of floors	Ground + 18 floors+LG
	Maximum height from ground level	59.20 m.
	Facilities proposed	602 Residential units, 27 villas & Shopping area, Multiplex/foodcourt with supporting infrastructure facilities.
	Details of project cost	About Rs. 300 Crores
	Financial statement including funding source and details of insurance	Source :- Own source & Bank loan Insurance :- Insurance to the workers and machinery during construction phase.
	Activity schedule of the project	About 5 years
Environmental parameters considered		***Description***
WATER		
Water requirement & sources		The total domestic water requirement of about 587 KLD (which includes daily fresh water requirement of about 343 KL). Treated water from STP to be used for flushing of toilets (about 244 KLD), horticulture requirement (about 45 KLD) & excess to use as make-up water requirement for cooling towers attached to D.G. sets & HVAC system. Source :- Stored Rain water, Wells, KWA water supply and treated water from STP.
RWH units proposed		The project has provision for rain water storage tanks which will be used as source of water during rainy days & non-rainy days.
Facilities for liquid waste treatment		Sewage Treatment Plant for domestic sewage.

Water quality meeting requirements	Water quality meets requirements after the treatment of water (filtration & disinfection).
Does it have provisions for use of recycled water	Treated water from STP to be used for flushing, horticulture & cooling purposes within the site.
LAND	
Proximity to forest lands	None within the study area
Access road to the site – Width & Condition	The access to the project site is from about 8 m. wide *PallalKalapurakkal* Link Valley Road (east side) and another access from 10 m. wide *Nilampathiya* Road (west side).
Storage of explosives /hazardous substances	Yes, all precautionary measures in the storage & handling of HSD will be followed.
Facility for solid waste mgmt	➢ Collection & segregation within the site (bio-degradable waste (green bins) & non-biodegradable waste (blue bins). ➢ The recyclable waste like packaging material, paper etc. would be sold through vendors. ➢ Bio-degradable waste would be disposed through the OWC system within the site.
Topographic features/ slope	There are some native tree species and different varieties of shrubs, herbs, grass, climbers existing. The slope within the site towards south & centre of the property.
Proneness of the area for landslides	No
Significant land disturbance resulting in erosion, subsidence & instability	No
Top soil, overburden etc.	Excavation of earthwork will be carried out. The top soil which is fertile will be kept at site for landscaping work, back filling & internal road construction purposes.
AIR	
Air quality meeting requirements	To comply with the requirements as per rules.
Noise level meeting requirements	To comply with the requirements as per rules.
Likely emissions affecting environment	Emissions from D.G. sets and from the vehicles only.
ENERGY	
Energy requirement	Commercial & Common Area – 3821 KW Residential & Club area – 3726 KW
Energy sources	KSEB & D. G. Sets (Club house + Tower 6 + Villas (3 nos. x 320

	kVA), Tower 1 to 5 (4 nos. x 630 kVA), Retail & Assembly (3 nos. x 1500 kVA) as back-up) (10 nos.)
Extent of usage of alternative energy resources	Solar water heating system for the hot water generation and solar power operated street lights.
BIODIVERSITY	
Presence of any endangered species or red listed category	Nil as stated by the proponent
Loss of native species and genetic diversity	There are some native tree species and different varieties of shrubs, herbs, grass, climbers existing. For the development of the proposed project, very few of the existing species are cleared.
Likely displacement of fauna	No Nil as stated by the proponent
Any introduction of alien / invasive species	Nil as stated by the proponent
SOCIAL ASPECTS	
Proximity to nearest habitation	The project site is falling in Kakkanad Village, Thrikkakara Municipality limits and several houses / buildings are located within the 500 m. radius.
CSR related to the project/ allocation/ time frame (details mandatory)	A detailed study on social status of the project site surroundings & need base study on proposed CSR activities were carried out. The summary of the report is provided.
	GENERAL
Does it have eco restoration programmes	Provision for the green area development which includes native species such as medicinal trees, flowering trees, deciduous & evergreen trees, fruit trees, medicinal trees, shrubs & grass coverage.
E-waste management	All the e-waste generated in the proposed campus will be disposed through KSPCB approved agency.
Sufficiency of parking spaces/ traffic management	1,571 Cars + 5,995 Two wheelers
Litigation/court cases, if any, against the project (provide details)	Nil as stated by the proponent
Right & nature of ownership of land	Private land
Is the property forest land/govt. land/own land	Own land
Details of Authorised	Mr.Thankachan Thomas. Vice President

Signatory	M/s Prestige Estates Projects Ltd. No. 96, 10 thFloor, Abad Nucleus Mall,NH-49,Maradu,Kochi,Kerala-682304
Details of NABET approved EIA consultant organization	M/s Environmental Engineers & Consultants Pvt. Ltd. (NABET/QCI Accredited Consultant Organization) *Head Office* :-A1-198, JanakPuri, New Delhi. *Branch Office:-* C-306, Kanchanjunga Apartments, Palarivattom P.O., Kochi, Kerala.

The proposal was considered by the SEAC in its 40th meeting (29.05.2015). The proponent along with the consultant attended the meeting and the consultant made a brief power-point presentation. The Committee appraised the proposal based on the Form 1, Form 1A, Conceptual Plan, TOR and details submitted.

The Committee approved the TOR submitted by the proponent and comments of which is furnished in the appraisal report, along with application subject to incorporating the following additional points.

1. The well drawn out standard operating procedure for disaster management shall be a part of proposal.
2. Add more details regarding the likely impact due to the excavation proposed in the project area.

The Committee approved the TOR submitted by the proponent by incorporating the following additional points.

1. The well drawn out standard operating procedure for disaster management shall be a part of proposal.
2. Add more details regarding the likely impact due to the excavation proposed in the project area.
3. Study of existing baseline environment within immediate vicinity of 500m around the project area.
4. Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area. Any obstruction of the same by project.
5. Submit the details of the trees to be felled for the project
6. Soil analysis for 9 locations within the site showing soil profile data up to bed rock.
7. Location of source of building materials should be shown
8. Drawings with quantity of i) excavation and ii) filling
9. Monitoring of existing status of ambient air quality/noise level should be done on all four corners and in centre of the area. Noise monitoring should be done for 6 samples and its peripheral area.
10. Determine the watershed and show the position of the site in watershed map. Check on flood plain of any river.
11. Dependable source of water with quantity and quality must be shown.

12. Surface water sampling must be done in 6 locations with 3 in the periphery. One in the central part and two downstream of valley at 500 x 1Km distance
13. Assessment of flora in study area consisting of core within 500 m and buffer zone of 5 Km radius.
14. Details of settlement with in 500m of area must be studied.
15. C.S.R activities should be mentioned.
16. Examine the details of Source of water, water requirement, use of treated waste water and prepare a water balance chart. Dual plumbing system can be implemented taking in account of use of recycled water.
17. Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/villages and present status of such activities
18. Submit Roles and responsibility of the developer etc for compliance of environmental regulations under the provisions of EP Act.
19. Rain water harvesting proposals should be made with due safeguards for ground water quality. Maximize recycling of water and utilization of rain water.
20. Examine and submit6 details of use of solar energy and alternative source of energy to reduce the fossil energy consumption.
21. Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters .

2. The proposal was considered in the 46th meeting of SEAC held on 29-30 September 2015. The project proponent and consultant appeared before the Committee. The Committee observed that the copy of the letter of National Accreditation Board for Education and Training (NABET) is not sufficient enough for verifying the present validity of the accreditation. The proponent and consultant were allowed to make the presentation subject to production of a copy of valid accreditation certificate.

While presenting the EIA report the Committee observed that the provisions for the disposal of all types of waste, water balance study etc are treated in a casual manner in the EIA report and the consultant was also not able to clarify the points raised by the members. The Committee also observed that some portions of the land proposed for development are nilam which may attract the provision of *Kerala Conservation of Paddy Land and Wetland Act, 2008*. Further some of the copies of the land records produced are not legible. Considering this, the Committee decided to defer for an exhaustive site visit, after proving the extension of the validity of the accreditation of the consultant, by a Subcommittee consisting of Sri. Ajayakumar, Sri John Mathai and Dr. P S Harikumar. The subcommittee will also examine whether the EIA is fully in conformity with the ToR and field conditions.

"Field visit to the proposed mixed development project site of Prestige Hill side Gateway in Kakkanad Village Eranakulam district, Keralawas carried out

by the sub-committee of SEAC, Kerala (Sri. Ajay Kumar, Dr. George Chakkacherry and Sri.JohnMathai) on 18.12.2015. Proponent with his representatives was present at the site at the time of site visit.

Site is located adjacent to the Link valley near Infopark with access from the main Kakkanad - Info park road. The area proposed to be developed falls on an undulating plot having a east flowing valley in the middle with moderate to steeply sloping laterite covered flanks. The elevation difference from the main approach road to the centre of the valley exceeds 20 m. A commercial block, club house, five residential blocks and several villas are planned.

Following points need to be considered:-

1. *The buildings are planned at different levels involving cutting of slopes. The excavation plan was explained but the plan with section and road levels are not provided. Excavation should be minimised and excavated material should be used for internal development.*
2. *Considering the stability of the upper segment closer to the main road, excavation must be made in the form of benches of height not exceeding 4 m and over all slope not exceeding 45 degrees. Adequate to support must be provided with reinforcement especially when clay layers are exposed.*
3. *The low lying central part of the area being flat and part of flood plain can receive very large quantity of water during the rainy period from the upper catchment resulting in partial flooding. The storm drainage planned appears inadequate to accommodate peak flood. It must be widened with connectivity to the existing storm water drain on the eastern side.*
4. *Near the Club house an elevated road at ~83 m level is planned while the ground is at 75 m. The lower part below 83 m is to be used for car parking and development of water sources including RWH. A drawing with plan /section should be provided for clarity. Similarly the internal roads are planned at different levels. The existing elevation along the boundary with adjacent plots should be maintained as it is.*
5. *A dependable source of water may be developed in the central valley portion in the form of a pond which can also act as a rainwater harvesting structure.*
6. *There is a need to maximise rainwater harvesting to store at least two weeks requirement of the project so as to ease dependence on public source.*
7. *The details of waste management- organic, inorganic and STP- need elaboration.*
8. *Plant native species in this buffer zone for eco-restoration.*

3.The proponent has submitted additional documents sought by 46th meeting of SEAC held on 29-30 September 2015. Subsequently the proposal was considered in the 52nd meeting of SEAC held on 8thand 9th February, 2016 and the Committee found that the proponent is yet to produce the proof for validity of accreditation of the consultant during the EIA study. So the Committee decided to Defer the item for production of above details within 2 weeks. Subsequently, the proponent has submitted the details of proof for validity of accreditation of

the consultant.

4. The proposal was again considered in the 54th meeting of SEAC held on 6th and 7th April, 2016. The Committee examined the documents submitted furnished by the consultant and observed that the documents produced do not prove that the consultant had necessary accreditation while conducting EIA study. Hence the Committee decided to give one more chance to the proponent to produce necessary documents. Subsequently, the proponent submitted the documents, with the services of NABET, QCI accredited agency who will assist them to complete the work. The Committee in the 56th meeting held on 06.06.2016 examined the request letter of the proponent regarding changing of consultant for the EIA study. The committee decided to defer the item for a presentation of the EIA study report by the new consultant.

5. Again the proposal was placed in 58th SEAC meeting held on 28th& 29th June, 2016. The committee appraised the proposal based on Form 1, Form 1A, conceptual plan and site inspection report. But for the following points the Committee accepted the explanation provided on various points raised by at the time of site inspection.

1. The low lying central part of the area being flat and part of flood plain can receive very large quantity of water during the rainy period from the upper catchment resulting in partial flooding. The storm drainage plan is inadequate to accommodate peak flood. The drainage channel must be widened with connectivity to the existing storm water drain on the eastern side.
2. There is a need to maximise rainwater harvesting to store at least two weeks requirement so as to ease dependence on public source.
3. The details of waste management- organic, inorganic and STP- need elaboration.

Proponent agreed to submit the required clarifications sought by the Committee. The committee deferred the item for submission of the above details. The proponent submitted the details sought by 58th SEAC.

6. Again proposal was placed in the 59th meeting of SEAC held on held on 11th and 12th July, 2016. The Committee appraised the proposal based on the details provided by the applicant and decided to recommend for issuance of Environmental Clearance subject to the general conditions and the specific condition that the water retaining areas has to be enhanced to 3m.

7. The proposal was considered by SEIAA in its 58th meeting held on 08-09-2016. Authority noted that, as per the Notification, the project comes under CategoryB.8 (b) having a built up area of 2, 09,264.09sq.m. Environmental Impact Asscssment report is necessary for appraisal as Category B1.

8. Authority wanted to ensure that the facilities such as internal roads, STP, effluent discharge, availability of parking space, energy sources etc. required for the major project of built up area 2, 09,264.09 m2 are envisaged as required by the rules as applicable, and feasible. The Authority decided that these matters may be further examined and the case placed in the next meeting of SEIAA held on 30th November 2016. The Authority Further

examined the proposal and found that EIA study has been appraised by SEAC as Category B1. The Authority decided to grant Environmental Clearance on the conditions as laid by the SEAC. *The proponent should submit an affidavit that all the conditions laid in the Inspection Report as well as the general and specific conditions shall be fulfilled* .

9. The Authority approved the application for issuance of E.C. as per the recommendations of SEAC with incorporating the Environment Management Plan, mitigation measures and the green building conditions as under.

1. There shall be RWH facility with adequate capacity
2. Technology and capacity of the STP to be indicated with discharge point (if any) of the treated effluent water not conforming to specifications shall not be let out water bodies
3. Effluent water not conforming to specifications shall not be let out water bodies
4. Maximum reuse of grey water for toilet flushing and gardening and construction work shall be ensured
5. Dual plumbing for flushing shall be done
6. Provisions of disposal of e wastes, solid wastes, non biodegradables, hazardous materials and separate parking facility for building shall be provided
7. Generation of solar energy to be mandatory for own use and/ or to be provided to the grid
8. There shall not be any compromise on safety conditions and facilities to be provided by the project proponent, which shall be ensured for occupation, regularisation or consent to operate.

10. Environmental clearance as per the EIA notification 2006 is hereby accorded for Township and Area development Project in Sy. Nos. 671/1, 674/1, 675/4 at Kakkanad Village, Kanayanoor Taluk, Ernakulam District, by Sri.Thankachan Thomas for M/s Prestige Hill Side Gate Way subject to the specific conditions stipulated in para 5and Green Building conditions in *para 9* above, all the environmental impact mitigation and management measures undertaken by the project proponent in the Forms I and IA and other documents submitted to SEIAA and the mitigation measures proposed in the table in *para 2* above. The assurances and clarifications given by the proponent will be deemed to be a part of these proceedings as if incorporated herein. The proposed revised CSR shall be strictly implemented. Also the general conditions for projects other than mining, appended hereto will be applicable and have to be strictly adhered to.

11. Validity of this environmental clearance will be seven years from 30/01/2017, subject to earlier review in the event of non- compliance or violation of any of the conditions stipulated herein.

12. Compliance of the conditions herein will be monitored by Authority or its agencies and also by the regional office of the Ministry of Environment& Forests Government of India, Bangalore.

I. Necessary assistance for entry and inspection should be provided by the project proponent and those who are engaged or entrusted by him to the staff for inspection or monitoring.

II. Instances of violation if any shall be reported to the District Collector, Eranakulam to take legal action under the Environment (Protection) Act 1986.

III. The given address for correspondence with the authorised signatory of the project is Sri.Thankachan Thomas, Sr. Vice President, No: 32, Bay Pride Mall, Marine Drive, Cochin.

Sd/-
V. S., Senthil, I.A.S.
Member Secretary, SEIAA

To,

Sri.Thankachan Thomas,
Sr. Vice President, No: 32,
Bay Pride Mall,
Marine Drive, Cochin,

Copy to

1. The District Collector, Eranakulam
2. Tahsildar, Ernakulum.
3. The District Town Planner, Ernakulum.
4. Additional Chief Secretary, Environment Department, Government of Kerala.
5. Chairman SEIAA
6. O/C.
7. Website
8. S/F

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY KERALA

Forwarded /By Order

Administrator(SEIAA)

C. RAJENDRAN
Administrator
State Environment Impact Assessment Authority
Pattom, Thiruvananthapuram

GENERAL CONDITIONS *(for projects other than mining)*

(i) Rain Water Harvesting capacity should be installed as per the prevailing provisions of KMBR / KPBR, unless otherwise specified elsewhere.

(ii) Environment Monitoring Cell as agreed under the affidavit filed by the proponent should be formed and made functional.

(iii) Suitable avenue trees should be planted along either side of the tarred road and open parking areas, if any, inclusive of approach road and internal roads.

(iv) The project shall incorporate devices for solar energy generation and utilization to the maximum possible extent with the possibility of contributing the same to the national grid in future.

(v) Safety measures should be implemented as per the Fire and Safety Regulations.

(vi) STP should be installed and made functional as per KSPCB guidelines including that for solid waste management.

(vii) The conditions specified in the Companies Act, 2013 should be observed for Corporate Social Responsibility.

(viii) The proponent should plant trees at least 5 times of the loss that has been occurred while clearing the land for the project.

(ix) Consent from Kerala State Pollution Control Board under Water and Air Act(s) should be obtained before initiating activity.

(x) All other statutory clearances should be obtained, as applicable, by project proponents from the respective competent authorities including that for blasting and storage of explosives.

(xi) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Authority.

(xii) The Authority reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.

(xiii) The stipulations by Statutory Authorities under different Acts and Notifications should be complied with, including the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and control of Pollution) act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

(xiv) The environmental safeguards contained in the EIA Report should be implemented in letter and spirit.

(xv) Provision should be made for supply of kerosene or cooking gas and pressure cooker to the labourers during construction phase.

(xvi) Officials from the Regional of MOEF, Banglore who would be monitoring the implementation of environmental safeguards should be given full co-operation, facilities and documents/data by the project proponents during their inspection. A complete set of all the documents submitted to MoEF should be forwarded to the CCF, Regional Office of MOEF, Bangalore.

(xvii) These stipulations would be enforces among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control Pollution) at 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.

(xviii) Environmental Clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

(xix) Any appeal against this Environmental Clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.

(xx) The project proponent should advertise in at least two local newspapers widely circulated in the region, one of which (both the advertisement and the newspaper) shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the Department of Environment and Climate Change, Govt. of Kerala and may also be seen on the website of the Authority at www.seiaakerala.org. The advertisement should be made within 10 days from the date of receipt of the Clearance letter and a copy of the same signed in all pages should be forwarded to the office of this Authority as confirmation.

(xxi) A copy of the clearance letter shall be sent by the proponent to concerned GramaPanchayat/ District Panchayat/ Municipality/Corporation/Urban Local Body and also to the Local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The Environmental Clearance shall also be put on the website of the company by the proponent.

(xxii) The proponent shall submit half yearly 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)** and 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 respective Regional Office of MoEF, Govt. of India and also to the Directorate of Environment and Climate Change, Govt. of Kerala.

(xxiii) The details of Environmental Clearance should be prominently displayed in a metallic board of 3 ft x 3 ft with green background and yellow letters of Times New Roman font of size of not less than 40.

(xxiv) The proponent should provide notarized affidavit *(indicating the number and date of Environmental Clearance proceedings)* that all the conditions stipulated in the EC shall be scrupulously followed.

SPECIFIC CONDITIONS

I.Construction Phase

i. "Consent for Establishment" shall be obtained from Kerala State Pollution Control Board under Air and Water Act and a copy shall be submitted to the Ministry before start of any construction work at the site.

ii. All required sanitary and hygienic measures should be in place before starting construction activities and to be maintained throughout the construction phase.

iii. A First Aid Room will be provided in the project both during construction and operation of the project.

iv. Adequate drinking water and sanitary facilities should be provided for construction workers at the site, Provision should be made for mobile toilets. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.

v. All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site.

vi. Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.

vii. Soil and ground water samples will be tested to ascertain that there is no threat to ground water quality by leaching of heavy metals and other toxic contaminants.

viii. Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.

ix. Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approval of the Kerala State Pollution Control Board.

x. The diesel generator sets to be during construction phase should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.

xi. The diesel required for operating DG sets shall be stored in underground tanks and if required, clearance from Chief Controller of Explosives shall be taken.

xii. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to the applicable air and noise emission standards and should be operated only during non-peak hours.

xiii. Ambient noise levels should conform to residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/KSPCB.

xiv. Fly ash should be used as building material in construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27th August 2003. (The above condition is applicable Power Stations).

xv. Ready mixed concrete must be used in building construction.

xvi. Storm water control and its re-use per CGWB and BIS standards for various applications.

xvii. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.

xviii. Permission to draw ground shall be obtained from the Computer Authority prior to construction/operation of the project.

xix. Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.

xx. Fixtures for showers, toilet flushing and drinking should be of low flow either by use of aerators or pressure reducing devices or sensor based control.

xxi. Use of glass may be reduced by upto 40% to reduce the electricity consumption and load on airconditioning. If necessary, use high quality double glass with special reflective coating in windows.

xxii. Roof should meet prespective requirement as per Energy Conservation Building Code by using appropriate thermal insulation material to fulfil requirement.

xxiii. Opaque wall should meet perspective requirement as per energy Conservation Building Code which is proposed to be mandatory for all airconditioned spaces while it is aspirational for non-airconditioned spaces by use of appropriate thermal insulation material to fulfil requirement.

xxiv. The approval of the competent authority shall be obtained for structural safety of the buildings due to earthquake, adequacy of fire fighting equipments, etc. as per National, Building Code including protection measures from lightening etc.

xxv. Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.

xxvi. Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the protect proponent if it was found that construction of the project has been started without obtaining environmental clearance.

II. **Operation Phase**

i. The installation of the Sewage Treatment Plant (STP) should be certified by an independent expert and a report in this regard should be submitted to the Ministry before the project is commissioned for operation. Treated affluent emanating from STP shall be recycled / reused to the maximum extent possible. Treatment of 100% grey water by decentralised treatment should be done. Discharge of unused treated affluent shall conform to the norms and standards of the Kerala State Pollution Control Board. Necessary measures should be made to mitigate the odour problem from STP.

ii. The solid waste generated should be properly collected and segregated. Wet garbage should be composted and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material.

iii. Diesel power generating sets proposed as source of back up power for elevators and common area illumination during operation phase 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 low sulphur diesel. The location of the DG sets may be decided with in consultation with Kerala State pollution Control Board.

iv. Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the boundary of the building shall be restricted to the permissible levels to comply with the prevalent regulations.

v. The green belt of the adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.

vi. Weep holes in the compound walls shall be provided to ensure natural drainage of rain water in the catchment area during the monsoon period.

vii. Rain water harvesting for roof run-off and surface run-off, as plan submitted should be implemented. Before recharging the surface run off, pre-treatment must be done to remove suspended matter, oil and grease. The borewell for rainwater recharging should be kept at least 5 mts.above the highest ground water table.

viii. The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.

ix. Traffic congestion near the entry and exit points from the roads adjoining the purposed project site must be avoided. Parking should be fully internalized and no public space should be utilized.

x. A Report on the energy conservation measures confirming to energy conservation norms finalise by Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R & U Factors etc and submit to the Ministry in three months time.

xi. Energy conservation measures like installation of CFLs/TFLs for the lighting the areas outside the building should be integral part of the project design and should be in place before project commissioning. Use CFLs and TFLs should be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination. Use of solar panels may be done to the extent possible.

xii. Adequate measures should be taken to prevent odour problem from solid waste processing plant and STP.

xiii. The building should have adequate distance between them to allow movement of fresh air and passage of natural light, air and ventilation.

III Post Operational Phase

Environmental Monitoring Committee with defined functions and responsibility should foresee post operational environmental problems e.g. development of slums near the site, increase in traffic congestion, power failure, increase in noise level, natural calamities, and increase in suspended particulate matter etc. solve the problem immediately with mitigation measures

For Member Secretary, SEIAA

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