

STATE ENVIRONMENT IMPACT ASSESSMENT AUTHORITY
(SEIAA), BIHAR

2nd Floor, Beltron Bhawan, Shastrinagar, Patna-800 023

Ref. No. 298

Patna, dt 16.01.2014

From,

S.K. Kam,
Member-Secretary,
(SEIAA)Bihar.

To,


Sri D.Purkaystha,
Director, Kampilya Builders Pvt.Ltd,
Maurya Centre,
1, Fraser Road,
Patna - 800041

Sub: **Environmental Clearance for Residential cum Commercial Building
Project at Patna.**

Sir,

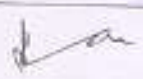
This has reference to your application No.KBPL/C/2013-14/046 A dated 18/09/2013 and subsequent letter No.SEAC/EC/Fnl dated 13/11/2013 for Environmental Clearance which has been examined by SEIAA on the recommendation of SEAC and processed in accordance with the EIA Notification, 2006 and its amendment thereof.

It is noted that the salient features of the project for which Environmental Clearance has been accorded has been given below.


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Salient features of the proposed project:

Name of Project	Arrah Garden
Project Proponent	M/s Kampilya Builders Pvt. Ltd.
Location of Project	Jagdeopath, Bailey Road, Patna
Type of Project	Building & Construction
Category of Project as per EIA Notification 2006	8(a)B ₂
Total Plot Area	15244 Sq. M. (Existing)
Existing Built-up Area	8341.25 Sq. M.
Proposed Built-up Area	21,674.72 Sq. M.
Total Built-up Area (including existing)	30,015 Sq. M.
Green Belt Area	5030.52 Sq. M.
Parking Area	5920 Sq. M.
Project Cost	Rs. 60.0 Crores
No. of Structures	5
Maxm. Height of Buildings	14.95 M.
Source of Water	Patna Municipal Corporation & Bore wells
Water Requirement	144 KLD
Waste Water Generation	81 KLD


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STP Details	Waste water will be treated through Sewage Treatment Sump & discharged to municipal drains
Solid Waste Generation	306 Kg/day of Solid waste will be generated during operation stage of the project
Solid Waste Disposal	Sewage : Municipal Drains Construction Waste : Recycle & Reused at Site Used Spent Oil from DG-Sets : Disposed through Authorized Vendors E-Waste : Sold back to vendors for recycling & reuse
Emission	DG Sets Stacks & Vehicular movement
Noise & Vibration	During Construction : 60 – 70 dB(A) & During Operation : 50 – 60 dB(A)
Power Requirement	1644 KW through BSEB
Power Back-up	2 Nos. 750 KVA DG Sets
Energy Consumption	6.8 Watt/Sq. Ft.
Energy Conservation	<ul style="list-style-type: none"> - Outer walls will be properly insulated to reduce heat load - Provisions for using Solar power for landscape, corridors & pathways lighting. - Capacitors system to improve the load power factor - LED lamp fitting will be used. - Buildings will be designed to more daylight integration. - Provisions have been made for Solar street lights, Solar blinkers, Solar power packs/inverters, Roof

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	top SPV (Solar Photo voltaic) systems.
Parking Facilities	Parking facility will be provided for 133 Nos. of 4 wheelers & 133 No. Two wheelers in residential area and 05 Nos. of 4 wheelers & 33 No. Two wheelers in commercial (Office) area.
Traffic Management	Traffic Management Plan Enclosed
Fire Safety Measures	a. 100 KL Underground Fire Water Tank. b. Hydrant System & Wet Riser Piping c. Sprinkler System d. Fire Alarm System e. Portable Fire Extinguishers.
Environmental Management Plan	Environmental Management Plan Enclosed
Cost of Environmental Management & Protection Measures	Rs. 3,38,800.00 / Annum

Part A – SPECIFIC CONDITIONS

1. Construction Phase

Facility of labourers during construction:

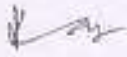
- i) Provision of drinking water, wastewater disposal and solid waste management should be ensured for labour camps. Water usage during construction should be optimized to avoid any wastage.
- ii) Proper sanitation facilities should be provided for construction workers to ensure environmental sanitation. Sewage generated from the areas occupied by the construction labourers have to be directed into the existing sewage drain of the area.
- iii) Health and safety of the workers should be ensured during construction. Personnel protective equipment like helmets, earmuffs, earplugs etc.


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should be provided to the workers. For vibration control damped tools must be used and the number of hours that a worker uses them must be limited.

Steps to avoid disturbance during construction:

- i) All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the project site. Adequate erosion and sediment control measures to be adopted before ensuing construction activities.
- ii) The plans should identify wastes to be generated and designate handling, recycling and disposal method to be followed.
- iii) Disposal of muck including excavated material and demolition debris during construction phase should not create any adverse effects on the neighbouring communities and disposed off taking the necessary precautions for general safety and health aspects.
- iv) Diesel generator sets during construction phase should have acoustic enclosures and should conform to Environment (Protection) Rules prescribed for air and noise emission standards.
- v) Vehicles / equipment deployed during construction phase should be in good condition and should conform to applicable air and noise emission standards and should be operated only during non-peaking hours.
- vi) Ambient noise levels should conform to residential standards both during day and night. Only limited necessary construction should be done during nighttime. Fortnightly monitoring of ambient air quality (SPM, SO₂ and NO_x) and equivalent noise levels should be ensured during construction phase.
- vii) Construction spoils including bituminous material and other hazardous materials including oil from construction equipments must not be allowed to contaminate surface water/soil and the dump sites for such material must be secured so that they should not leach into the ground water. If necessary, oil trap should be installed where there is deployment of heavy machineries.
- viii) Regular supervision of the above and other measures should be in place all through the construction phase so as to avoid disturbance to the surroundings.
- ix) 15 m screen and adequate sprinkler arrangement shall be provided. Care should be taken to keep all material storages adequately covered and contained so that they are not exposed to winds.
- x) Loading and unloading operations should not be carried out in open areas.


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- xi) Use of Ready Mix concrete is recommended for this project.
- xii) Adequate measures to be adopted to avoid wastage of water for curing of concrete structures.
- xiii) Adequate mitigation measures should be adopted to control dust emissions, noise and vibrations from construction activities. Vehicles and construction machineries should be properly maintained. Vehicles should conform to CPCB/Bihar State Pollution Control Board (BSPCB) norms.
- xiv) Locally available materials with less transportation cost should be used preferably.
- xv) Promotion of use of cleaner fuel and fuel quality improvement should be done. Excessive energy consumption and fuel usage should be avoided.
- xvi) Accumulation/stagnation of water should be avoided to ensure vector control.

Selection of materials for better energy efficiency:

- i) Use of energy efficient construction materials should be ensured to achieve the desired thermal comfort.
- ii) Design layout should ensure adequate solar access and ventilation. Proper planning and window design for daylight integration should be considered.
- iii) Use of fly ash based bricks/blocks/tiles/products shall be explored to the maximum extent possible.
- iv) Construction should conform to the requirements of local seismic regulations. The project proponent should obtain permission for the plans and designs including structural design, standard and specifications from concerned authority.
- v) Construction technologies that require less material and possess high strength should be adopted. Materials with low embodied energy and high strength should be used preferably.
- vi) Use of energy efficient lighting systems e.g. High Pressure Sodium Vapour (HPSV) Lamps, LED etc. should be promoted. Solar energy should be used for outdoor lighting. viii. Solar water heating arrangement will be done for water heating in hospital as proposed..
- vii) Passive solar cooling to be incorporated in building design. Buildings should be oriented for ensuring natural ventilation and day lighting. Zoning of work place will be done to reduce energy consumption.
- viii) Proper insulation of roof should be provided to achieve desired thermal comfort. Use of light coloured, reflective roofs having an SRI (solar reflectance index) of 50% or more should be incorporated.


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- ix) Use of high albedo or reflective pavements to keep parking lots, pavements and inside roads cool should be incorporated.
- x) Guidelines to the occupants should include usage efficiency measures such as energy efficient lighting and water efficient system.
- xi) Reduce hard paving on site (open area surrounding building premises) and/or provide shade on hard paved surfaces to minimize heat island effect and imperviousness of the site.
- xii) Adequate open space, greenery and water bodies to be provided as per rules.
- xiii) Any proposed building with air-conditioning facility should follow the norms proposed in the ECBC regulations framed by the Bureau of Energy Efficiency. Use of chillers will be CFC & HCFC free.
- xiv) Restrict the use of glazed surface as per National Building Code 2005.

Water Body Conservation:

- i) Water body within the premises of the project area (if any) should not be lined and no embankments should be cemented.

Plantation Proposal:

- i) The greening programme shall include plantation of both exotic and indigenous species.
- ii) Plantation along the side of the proposed building complex roads and in the open spaces shall be developed to act as sinks of air pollutants. The plantation of trees shall be completed in the construction stage. The plantations shall consist of mixture of available indigenous, fast growing and sturdy species of trees, shrubs and herbs. Preferential plantation of flowering trees with less timber and fruit value shall be carried out.
- iii) Water intensive and/or invasive species should not be used for landscaping.

Water supply:

- i) Ground water should not be abstracted without prior permission of the competent authority.
- ii) Project proponent shall provide adequate measuring arrangement at the inlet point of water uptake and at the discharge point for the measurement of water utilized in different categories to monitor the daily water consumption.
- iii) Water saving practices such as usage of water saving devices / fixtures, low flow flushing systems, sensor based fixtures, auto control walls, pressure reducing devices etc. should be adopted.

- iv) Water budget should be adopted as per the plan submitted.

Sewage Treatment Plant:

- i) As per the proposal submitted by the proponent wastewater shall be treated in STP and fully reused.
- ii) Treated water recovered from STP would be used for flushing the toilets, gardening purpose, make up water in air conditioning systems etc. As proposed, Moving Bed Bio Reactor (MBBR) type sewage treatment plant should be installed. The Sewage Treatment Plant shall be ensured before the completion of the Building Project.

Storm water Management & Mitigation of Heat Island Effect :

- i) Imperviousness of the site shall not exceed the NBC (National Building Code 2005) standards for imperviousness factor applicable to different types of area.
- ii) Total paved area of site under parking, roads, paths or any other use should not exceed 25% of the site area.
- iii) Minimum 50% of paved area on site should have pervious paving or shaded under vegetation or topped with finish having solar reflectance of 0.5 or higher.
- iv) Adequate storm water drainage network to be designed for the project. Storm water management plan should be implemented so as to prevent sudden discharge of excessive volumes of storm water to the receiving waters thus reducing the shock load on the drainage system.
- v) Heat island effect should be minimized by use of shading or reflective surfaces, mainly the surfaces that contribute to the heat island effect i.e. streets, sidewalks, parking lots and buildings. White roofs should be provided in the buildings.


Rain Water Harvesting Scheme:

- i) Rainwater from open spaces shall be collected and reuse for landscaping and other purposes. Rooftop rainwater harvesting shall be adopted for the Project Building Complex..

Municipal Solid Waste Management:

- i) Adequate provision shall be made for storage of solid waste and adequate means of access shall be provided.
- ii) Space should be kept reserved for waste storage, collection etc. in site planning and architectural designs.

Transport Management:


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- i) Both internal and external traffic planning and management should be adequate to ensure uninterrupted traffic movement in the area during construction as well as operation phase.
- ii) The design of service road and the entry and exit from the project area should conform to the norms & standards of competent authority for traffic management. Bell mouth type arrangement should be made at the entry & exit.

Others:

- i) All mandatory approvals and permission as required from Director of Explosives, Fire Department, Airport Authority etc. should be obtained.
- ii) Provision of Effective Controls and Building Management Systems such as Automatic Fire Alarm and Fire Detection and Suppression System etc. must be ensured.
- iii) Efficient management of indoor air quality must be ensured for health and safety of the users.
- iv) Adequate measures to be adopted for water conservation during construction and operation stage. Use of efficient irrigation equipment, evaporative cooling unit in air conditioning system etc should be considered.
- v) Rest room facilities should be provided for service population.
- vi) Provisions should be kept for the integration of solar water heating system.
- vii) Unskilled construction laborers shall be recruited from the local areas. Construction materials shall be procured locally as far as possible.
- viii) Provision of vermi-composting for the biodegradable solid wastes generated from the Project Building Complex as well as the large amount of biomass that shall be available from the tree plantation shall be made.
- ix) Periodical monitoring of ground water table and quality shall be carried out. Construction of tube wells, bore wells shall be strictly regulated.
- x) The height of the stack of the DG sets should be as per norms of CPCB.

II. Operation Phase

Water supply:

- i) Water requirement during operation phase shall be primarily met from Bore well supply. Arsenic free water supply should be ensured.


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- v) The project proponent should resort to solar energy at least for street lighting and water heating.

Transport Management:

- i) Use of the least polluting type of transportation should be promoted.
- ii) Adequate parking space should be provided as per norms.
- iii) Pathways should be covered or shadowed by tree canopy as far as practicable.
- iv) Transport system should be such that traffic will be calm in neighborhoods. Traffic within the project site should be restricted by regulation.
- v) Adequate vertical and horizontal clearances of overhead electric power and telecommunication lines should be provided.

Solid Waste Management:

- i) The proponent should abide by the Municipal Solid Wastes (Management and Handling) Rules, 2000. The proponent must develop the Solid Waste Management and Disposal Scheme ensuring storage and segregation of biodegradable and non-biodegradable wastes.
- ii) The solid waste is to be disposed off in consultation with municipal authority.
- iii) The proponent should provide different coloured bins for different categories of waste and ensure complete segregation of biodegradable and non-biodegradable wastes. The solid waste from different collection and storage bins should be finally collected at transfer stations. Further segregation will be done at transfer stations to collect recyclables such as plastic, polythene, glass, metals, textiles, rubbers, leathers, paper etc. Separate compartments shall be provided for each type of recyclables.
- iv) The proponent should abide by the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Collection and storage of hazardous wastes, if any, during Pre-construction and Post-construction activity should be planned properly. The expected hazardous wastes should be disposed off separately as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008.
- v) Spent oil from DG Sets should be stored in HDPE drums in isolated covered facility and disposed off as per the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. Spent oil from DG Sets should be disposed off through registered recyclers only.

- ii) Ground water should not be abstracted without prior permission of the competent authority.
- iii) Use of water meter conforming to ISO standards should be installed at the inlet point of water uptake to monitor the daily water consumption. Use of water efficient devices / fixtures and appliances should be promoted. Installation of dual flushing system should be considered to conserve water.
- iv) The proponent must practice rainwater harvesting on regular basis.

Sewage Treatment Plant:


- i) As per the proposal submitted by the proponent, waste water shall be treated in STP.
- ii) Treated waste water shall be fully reused for landscaping, car washing etc. Reuse of treated wastewater should be carried out as proposed.
- iii) Sewage Treatment Plants should be monitored on a regular basis.

Emission from Diesel Generator Set:

- i) Noise barriers will be provided at appropriate locations so as to ensure that the noise levels do not exceed the prescribed standards.
- ii) Diesel generator sets should be provided with integral acoustic enclosure at the manufacturing stage itself as per CPCB norms.
- iii) The stack height and emissions from D.G. sets should conform to the norms of Central Pollution Control Board.

Ensure Energy Efficiency:

- i) Use of energy efficient construction materials to achieve the desired thermal comfort should be incorporated. The desired level of R and U factors must be achieved. U factor for the top roof should not exceed 0.4 Watt/sq.m/degree centigrade with appropriate modifications of specifications and building technologies. The provisions of National Building Code 2005 should be strictly followed.
- ii) Use of energy efficient electrical systems should be promoted. High efficiency lamps with electronic ballasts should be used.
- iii) Energy efficient Motors and properly rated Transformers should be installed. Manufacturer's certificate to this effect shall be obtained and kept on record. Back up power supply should be based on cleaner fuel.
- iv) The power cabling shall be adequately sized as to maintain the distribution losses not to exceed 1% of the total power usage. Record of transmission losses shall be maintained. The proponent shall install permanent electrical metering to record demand (kVA), energy (kWh) and total power factor.


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Others:

- i) The implementation of Environmental Management Plan should be carried out, as proposed.
- ii) Regular monitoring should be carried out during construction and operation phases.
- iii) The project proponent should provide guidelines to the users to ensure conservation of energy and water. In house environmental awareness campaigns should be carried out at regular intervals to ensure environmental protection.
- iv) Firefighting systems should be designed in compliance with the WBFS and NBC norms.
- v) First aid box shall be made readily available in adequate quantity at all the times.
- vi) Preventive measures should be adopted for Risk & Disaster Management as per the provisions of the National Building Code 2005.
- vii) The Corporate Social Responsibility Plan with specific financial commitment should be implemented for the proposed project. At least 5% of the project cost should be utilized for Corporate Social Responsibility programme.
- viii) The proponent should abide by the Direction issued by the Department of Environment & Forests, Government of Bihar/CPCB/BSPCB.
- ix) Environmental Management Information System shall be maintained properly.
- x) The proponent should restrict the use of glazed surface as per National Building Code, 2005

Part- B

GENERAL CONDITIONS

- i) The environmental safeguards contained in the EMP Report should be implemented.
- ii) All the conditions, liabilities and legal provisions contained in the stipulated conditions for Environmental Clearance shall be equally applicable to the successor management of the project in the event of the project proponent transferring the ownership, maintenance or management of the project to any other entity.
- iii) All the labourers to be engaged for construction works should be screened for health and adequately treated before issue of work permits.


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- iv) Provision should be made for the supply of kerosene or cooking gas to the labourers during construction phase.
- v) The project proponent should adhere to the financial provision in the total budget of the project for implementation of the suggested environmental safeguard measures.
- vi) Risk Assessment study along-with Disaster Management Plan (DMP) shall be prepared. The mitigative measures for disaster prevention and control shall be prepared and get approved from competent authority.
- vii) In case of any violation of the conditions laid down in this stipulated conditions for Environmental Clearance, Section 16 of The Environment (Protection) Act, 1986, will be applicable.
- viii) In case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEAC, Bihar.
- ix) The State Expert Appraisal Committee, Bihar reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the stipulated conditions for environment clearance 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.
- x) All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Civil Aviation Department etc. shall be obtained by project proponents from the competent authorities.
- xi) Provision for incorporation of appropriate conditions in the Sale Agreement / Deed, for ensuring sustained Operation and Maintenance (O&M) of the common facilities (Rainwater harvesting system, Solid waste management system, Solar street lights etc.) even after transfer of ownership of the project, should be made in explicit and transparent manner.
- xii) These stipulations would be enforced among others under the provisions of the Water (Prevention & 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 including the amendments and clarification circulars.


S.K. Karn,

Member-Secretary

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