

Department of Environment
Government of West Bengal
Block G, 2nd Floor, Writers Building
Kolkata : 700001

No. EN/493 /T-II-1/007/2009

Date : 17 / 02/2009

To
M/s. Bengal Unitech Universal Infrastructure Pvt. Ltd.
Block - C, 4th Floor
22, Camac Street
Kolkata - 700 016

Subject : Environmental Clearance for the proposed Residential Complex "UNI WORLD CITY" by M/s. Bengal Unitech Universal Infrastructure Private Limited at Plot No. AA-III/Blk-1, Action Area - III, New Town, Rajarhat, Kolkata.

Sir,

This has a reference to your application and subsequent communications for Environmental Clearance for the proposed Residential Complex "UNI WORLD CITY" by M/s. Bengal Unitech Universal Infrastructure Private Limited at Plot No. AA-III/Blk-1, Action Area - III, New Town, Rajarhat, Kolkata.

The proposal has been examined and processed in accordance with EIA Notification, of 2006. It is noted that the proposed project is for a Residential Group Housing Project alongwith other amenities including Club, Retail, School and Service Apartments. The project will be developed in 9 (nine) Phases. At its final stage the project will have 3712 nos. of apartments.

It is noted that the salient features of the project, for which Environmental clearance has been considered are as follows :

Land Area	: 39.81 ha
Expected Population	: 18560 persons
Total Water requirement	: 4016 KLD (Operation phase)
Domestic Water requirement	: 3046 KLD (WBHIDCO supply)
Wastewater generated	: 2437 KLD (to be treated in STP, partly reused and partly discharged to WBHIDCO sewer)
Solid waste disposal	: 6.241 tonne per day
Total Built-up Area	: 857427.37 sqm. (as per Master Plan Area Statement), Built-up Area for Covered Car Parking 129840 sqm., Total 987267.37 sqm
Ground Coverage	: 69661.27sqm. (17.5% of land area) including built-up area for utilities
Utility Area (soft)	: 23883.86 sqm. (6% of land area)
Landscaped Green Area	: 199947.74 sqm. (50.23% of land area)
Landscaped Water Body	: 5592.80 sqm. (1.41% of land area)
Paved Area	: 98978.70 sqm. (24.86% of land area)
No. of Car Parking Spaces proposed	: 8033 nos. (Covered 6492, Open 1541)

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Total Power requirement	: 24 MVA, NTESC
Backup Power	: DG Sets (9 x 500 KVA & 8 x 625 KVA)
Construction started	: Yes

State Level Environment Impact Assessment Authority (SEIAA), examined the proposal and also perused the recommendations of the State Level Expert Appraisal Committee (SEAC). After due consideration of the project proposal, and after considering the recommendations of the State Level Expert Appraisal Committee (SEAC), the State Level Environment Impact Assessment Authority accords Environmental Clearance to the project as per provisions of the EIA notification no. S.O. 1533 (E) dt. 14th September, 2006 of Ministry of Environment & Forests, GOI, subject to strict compliance of terms and conditions as mentioned below.

Part A - SPECIFIC CONDITIONS

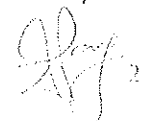
I. Construction Phase

Facility of labourers during construction: -

- i. Provision of drinking water, wastewater disposal and solid waste management should be ensured for labour camps.
- ii. Water usage during construction should be optimised to avoid any wastage.
- iii. 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. In case of non availability of the sewer system, an onsite treatment system has to be provided.
- iv. Health and safety of the workers should be ensured during construction. Personnel protective equipment like helmets, earmuffs, earplugs etc. 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
- ii. Adequate erosion and sediment control measures to be adopted before ensuing construction activities.
- iii. Disposal of muck including excavated material 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 E(P) 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-peak 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 watercourses and the dumpsites



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- 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. The proponent must ensure that no driven piles shall be proposed for this project.
 - x. 15m-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.
 - xi. Loading and unloading operations should not be carried out in open areas.
 - xii. Use of Ready-Mix concrete is recommended for this project.
 - xiii. Adequate measures to be adopted to avoid wastage of water for curing of concrete structures.
 - xiv. Adequate mitigative 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 Pollution under control (PUC) norms.
 - xv. Locally available materials with less transportation cost should be used preferably.
 - xvi. Promotion of use of cleaner fuel and fuel quality improvement should be done. Excessive energy consumption and fuel usage should be avoided.
 - xvii. 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 ash based bricks should be explored to the maximum extent possible. Blended cement with fly ash will be used. The provisions of MoEF Notifications on "Fly Ash Utilization" must be complied with.
- 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 alternate building materials and alternate construction techniques should be considered apart from the conventional materials and methods. Use of hollow unit masonry should be considered.
- vii. 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, as far as practicable.
- viii. Passive solar cooling to be incorporated in building design. Buildings should be oriented for ensuring natural ventilation and daylighting.
- ix. Proper insulation of roof should be provided to achieve desired thermal comfort. Use of light coloured, reflective roofs having an SR1 (solar reflectance index) of 50% or more should be incorporated.
- x. Use of high albedo or reflective pavements to keep parking lots, pavements and inside roads cool should be incorporated.
- xi. Guidelines to the occupants should include usage efficiency measures such as energy efficient lighting and water efficient system.



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- xii. Reduce hard paving-onsite (open area surrounding building premises) and/or provide shade on hard paved surfaces to minimize heat island effect and imperviousness of the site.
- xiii. Adequate open space, greenery and water bodies to be provided as per rules.
- xiv. Any proposed building with air-conditioning facility should follow the norms proposed in the ECBC regulations framed by the Bureau of Energy Efficiency. Chillers should be CFC & HCFC free.
- xv. Restrict the use of glazed surface as per National Building Code 2005.

Water Body Conservation:-

- i. No water body should be lined and no embankments should be cemented. The water bodies are to be kept in natural conditions without disturbing the ecological habitat. The water bodies within the project area shall be maintained in conformity with the conditions stipulated in the Environmental Clearance and the NOC accorded to the Department of Housing, Government of West Bengal for the proposed New Town Project at Rajarhat.

Plantation Proposal:-

- i. The unit should strictly abide by The West Bengal Trees (Protection and Conservation in Non-Forest Areas) Rules, 2007. The proponent should undertake plantation of trees over atleast 20% of the total area.
- ii. The proponent should plant atleast 5600 trees, as proposed. The landscape planning should include plantation of native species. The species with heavy foliage, broad leaves and wide canopy cover are desirable. Water intensive and/or invasive species should not be used for landscaping.

Water supply :-

- i. Water requirement during construction phase shall be met from WBHDCCO supply. Ground water should not be abstracted without prior concurrence of WBHDCCO and also approval of the competent authority as per the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.

Sewage Treatment Plant:-

- i. As per the proposal submitted by the proponent wastewater shall be treated in sewage treatment plant before commissioning of STP by WBHDCCO. Treated wastewater shall be partly reused and partly discharged to WBHDCCO sewer line. However, after commissioning of STP by WBHDCCO untreated sewage may be discharged to WBHDCCO sewer line.

Stormwater 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 stormwater drainage network to be designed for the project without disturbing the surrounding settlements. Storm water management plan should be implemented to prevent large volumes of storm water to be conveyed to the receiving waters by the municipality, which reduces the load on municipality drainage system, and receiving waters are not impacted.
- v. Disruption to the natural hydrology of the site should be minimised by reducing impervious cover, increasing on site infiltration and managing storm water run off.



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- vi. 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.

Rain Water Harvesting Scheme:-

- i. The proponent must follow the Rainwater Harvesting Guidelines of the State Level Expert Appraisal Committee (SEAC) available in the website (<http://www.wbpcb.gov.in>).
- ii. The proponent must collect rainwater from roof-top catchments and reuse for various purposes after necessary cleaning. Water bodies should be created and used for storing rainwater. Adequate retention time and storage provisions should be provided for harvesting rainwater.
- iii. The sub-surface recharge proposal including the design of recharge structure and location of recharge structure should be approved by competent authority as per West Bengal Ground Water Resources (Management, control and Regulation) Act, 2005. The total quantity of the rainwater which would be harvested, including surface storage and sub-surface recharge, should also be mentioned in the proposal.
- iv. Adequate water storage for firefighting should be provided as per norms.

Municipal Solid Waste Management :-

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

Transport Management: -

- 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. Proper traffic management plan should be adopted in consultation with Traffic authorities.

Others:-

- i. All mandatory approvals and permission as required from Director of Explosives, Fire Department etc. should be obtained.
- ii. Provision of Effective Controls and Building Management Systems such as Automatic Fire Alarm and Fire Detection and Suppression System, Building Automation System for energy conservation, Management Information Systems etc. must be ensured, wherever applicable.
- iii. Automatic lighting control, occupancy sensors, heat exchanger, high efficiency chillers etc. should be provided for energy conservation, wherever applicable.
- iv. Efficient management of indoor air quality must be ensured for health and safety of the users.
- v. 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.
- vi. Rest room facilities should be provided for service population.
- vii. Provisions should be kept for the integration of solar water heating system.
- viii. Adequate access to fire tenders should be provided.
- ix. CO monitoring facility with automatic alarm should be provided at basement car parking.



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II. Operation Phase

Water supply :-

- i. Water requirement during operation phase shall be met from WBHIDCO / municipality supply. Ground water should not be abstracted without prior concurrence of WBHIDCO / municipality and also approval of the competent authority as per the West Bengal Ground Water Resources (Management, Control and Regulation) Act, 2005.
- ii. 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.
- iii. The proponent must practice rainwater harvesting on regular basis.

Sewage Treatment Plant:-

- i. As per the proposal submitted by the proponent wastewater shall be treated in sewage treatment plant before commissioning of STP by WBHIDCO. Treated wastewater shall be partly reused and partly discharged to WBHIDCO sewer line. However, after commissioning of STP by WBHIDCO untreated sewage may be discharged to WBHIDCO sewer line.
- ii. A scheme should be framed for recycling and reuse of treated wastewater.

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. Diesel generator sets should be provided with integral acoustic enclosure at the manufacturing stage itself as per CPCB norms.
- ii. The stack height and emissions from D.G. sets should conform to the norms of Central Pollution Control Board. The certification of space design for DG sets should be done by competent authority.

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. The lighting design and the heating, ventilation and air conditioning systems should conform to the recommendations of the Energy Conservation Building Code 2007 of the Bureau of Energy Efficiency, GoI, wherever applicable.
- iii. Use of energy efficient electrical systems should be promoted. High efficiency lamps with electronic ballasts should be used.
- iv. 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.
- v. 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.
- vi. The project proponent should resort to solar energy at least for street lighting and water heating.



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Transport Management: -

- i. Use of public mode of transportation should be promoted. Use of the least polluting type of transportation should be promoted. Adequate parking space should be provided as per norms.
- ii. Pathways should be covered or shadowed by tree canopy. Transport system should be such that traffic will be calm in neighbourhoods. Traffic within the project site should be restricted by regulation.
- iii. Adequate vertical and horizontal clearances of overhead electric power and telecommunication lines should be provided. Guard cradle or screen should be provided for electrical power lines carrying voltage exceeding 110 volts while crossing the road. The cradle should extend desirably over the full right-of-way.

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. Solid waste should be stored in the specific location as approved by WBHIDCO. The solid waste is to be disposed off in consultation with WBHIDCO.
- ii. 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.
- iii. The proponent should abide by the Hazardous Wastes (Management and Handling) Rules, 2003. Collection and storage of hazardous wastes 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 and Handling) Rules, 2003.
- iv. Spent oil from DG Sets should be stored in HDPE drums in isolated covered facility and disposed off as per the Hazardous Wastes (Management and Handling) Rules, 2003. Spent oil from DG Sets should be disposed off through registered recyclers only.
- v. Various types of electrical and electronic wastes generated, which includes PC, Xerox machine components etc. should be collected separately for transportation to the authorized recyclers approved by the State / Central Pollution Control Boards. There should also be provision for storage of these wastes in the building before transportation. The e-waste collected should be processed in authorized recycling unit.

Others :-

- i. The implementation of Environmental Management Plan should be carried out, as proposed. Regular monitoring should be carried out during construction and operation phases.
- ii. 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.
- iii. Firefighting systems should be designed in compliance with the WBFS and NBC norms. Preventive measures should be adopted for Risk & Disaster Management as per the provisions of the National Building Code 2005.
- iv. Environmental Management Information System shall be maintained properly.



Part-B GENERAL CONDITIONS

- i. The environmental safeguards contained in the EMP should be implemented in letter and spirit.
- ii. All the conditions, liabilities and legal provisions contained in the EC shall be equally applicable to the successor management of the project in the event of the project proponent transferring the ownership, maintenance of management of the project to any other entity.
- iii. Provision should be made for the supply of kerosene or cooking gas to the labourers during construction phase.
- iv. All the labourers to be engaged for construction works should be screened for health and adequately treated before issue of work permits.
- v. The project proponent should make financial provision in the total budget of the project for implementation of the suggested safeguard measures.
- vi. Six monthly monitoring reports should be submitted to the West Bengal Pollution Control Board, who would be monitoring the implementation of environmental safeguards and should be given full cooperation, facilities and documents / data by the project proponents during their inspection. A complete set of all the documents should also be forwarded to the State Level Environment Impact Assessment Authority.
- vii. In case of any violation of the conditions laid down in this 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 SEIAA
- ix. The State Level Environment Impact Assessment 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 Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time-bound and satisfactory manner.
- x. The Project Proponent should inform the public that the proposed project has been accorded environmental clearance by the SEIAA and copies of the clearance letter are available with the State Pollution Control Board / Committee and may also be seen at website of the SEIAA (<http://enviswb.gov.in>). This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned.
- xi. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Civil Aviation Department (if required) etc. shall be obtained by project proponents from the competent authorities.
- xii. The project proponent should strictly abide by the conditions laid down in the Environmental Clearance for the proposed New Town Project at Rajarhat, Kolkata, accorded by the Department of Environment, Government of West Bengal to the Department of Housing, Government of West Bengal vide Memo No. EN/1998/AW-8/99 dated 10th November, 1999 and Memo No. EN/P/90/AW-8/99 (Pt.II) dated 30th January, 2003.
- xiii. The project proponent should also abide by the NOC conditions accorded by the West Bengal Pollution Control Board to the Department of Housing, Government of West Bengal for the proposed New Town Project at Rajarhat, Kolkata, vide SI, No. 04-462 Memo No. 1295-175/WPB-NOC/99-2000 dated 31st August, 1999 and SI, No. NO10868 Memo No. 7041-175/vpb/NOC/99-2000 dated 9th June, 2004.



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- xiv. Provision for incorporation of appropriate conditions in the Sale Agreement / Deed, for ensuring sustained Operation and Maintenance (O&M) of the common facilities (STP, 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.
- xv. Prior Consent-to-Establish (NOC) for the proposed project must be obtained from WBPCB. All other statutory clearances should be obtained by project proponent from the competent authorities.
- xvi. The above stipulations would be enforced along with those under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Wastes (Management and Handling) Rules, 1989, the Public Liability Insurance Act, 1991, the Environment Impact Assessment Notification 2006 and their amendments.
- xvii. This 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.



(Debal Ray)

Member Secretary, SEIAA
&
Chief Environment Officer