ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR IBD

(A project of Imarat Developers Pvt. Limited)

Submitted to:

Pakistan Environmental Protection Agency Islamabad

Plot No. 42, St 2, Sector H8/2

Islamabad Capital Territory (ICT)

EXECUTIVE SUMMARY

The following executive summary is included in accordance with Pakistan Environmental Protection Act, 1997 and IEE/EIA Guidelines 2000. It includes a summary of the Impact Assessment, proposed project actions and their consequences, areas of concerns regarding the project, project alternatives, and the effective Mitigation Measures to reduce or avoid the significant effects on the social and environmental strata of the proposed project "IBD". This summary also identifies each significant effect associated with the project and the proposed mitigation measures that correspond to each significant effect.

Background:

The Pakistan Environmental Protection Act, 1997 makes it mandatory for the project proponents to carry out an Environmental Impact Assessment (EIA) of development projects and incorporate environmental and social mitigation measures as part of the project planning and obtain clearance from the Pak-EPA before the project is implemented. This report presents the findings of the Environmental Impact Assessment (EIA) carried out by the team of experts, hereafter referred to as "the Consultant", on behalf of the M/s Imarat Developers Pvt Ltd., Islamabad for the proposed project titled "IBD, Islamabad".

This report has been prepared to conform to the requirements of Section 12 of the Pakistan Environmental Protection Act 1997 (PEPA), Initial Environmental Examination and Environmental Impact Assessment Review Regulations, 2000 and the guidelines provided in the Pakistan Environmental Assessment Procedures, 1997.

Description of Proposed Project Characteristics:

IBD spread over the area of 32.13 & will span up 11 floors. It is featuring dedicated commercial & entertainment section on each floor. IBD Floor Plan includes Business Center for various enterprises. Meanwhile, luxury retail section presents the well-known local & international brands. This section sprawled over multiple floors. To cater the entertainment needs, it is offering Children's Park, Entertainment Center. Innovative & Arabian night-themed rides are planned in safe & welcoming environments. Offices, Food courts, Wellness Gyms, Thematic Floors mainly Shah Faisal, Egypt & Morocco are the other distinct feature of IBD. The detailed designing of building has been designed in compliance to the conformity with the "Building Control Regulations, 2020" issued by Capital Development Authority (CDA).

The proposed project is IBD, Zone-V, Islamabad. Following are some details provided by Imarat Developers.

Parameter	Details
Total area of the project	32.13 kanals
Total Covered Area	1,049,687.1
Ground Coverage as per CDA Bylaws	50%.
No. of Floors	Lower Ground+Ground+11 Floors
No. of Basements	3
Green Area	50%

Project Location

IBD location is unique in a way that it can be reached from all the areas of Rawalpindi & Islamabad. From main Islamabad Highway, it is abutting to the service road east of Islamabad Expressway, right in front of Soan Gardens Housing Society, Mouza Lohi Bher Eastern Side, Zone-5 Islamabad.

Project Site Characteristics:

Physical Environment

Topography, geology, soil, water resources and climate have been included in physical environment as detailed below;

Geology of Project area is underlain by sedimentary rocks comprising limestone, sandstone, conglomerate, siltstone, and clay of sedimentary origin, ranging in age from Miocene to Recent. Bedrock belonging to Murree formation of Miocene age and is exposed partly in the project area. The remaining area is mostly covered with alluvial soils generally comprising silty / lean clay. The thickness of the alluvial soils near rock outcrop is between 1-2 meters.

Surface Water of the area is consisting of Malal Kas, Korang River and small Water steams are present in the area. In the project area, water sampling and analysis was carried out to establish the baseline conditions for the ground water quality.

For the Ground Water, there are hundreds of groundwater wells are operating in the area. The aquifers are again charged by the Soan River system. The developments in the basin have led to other environmental problems as well, such as, river diversion, fragmentation of aquatic habitats, impoundment, soil erosion, and water pollution due to deforestation and discharge of municipal garbage and industrial waste.

Environmental Management & Monitoring Plan (EMMP)

EMMP provides an overall approach for managing and monitoring the environment related issues and describes the institutional framework and reporting mechanism to implement the EMMP for the proposed development. The approach adopted for carrying out EIA study include review of proposed master plan, environmental baseline survey of the project which includes baseline information related to physical, ecological & social environment, analysis of collected data, impact identification and suggesting mitigation measures and preparation of environmental management plan based on identified impacts and suggested mitigation measures. The study has covered all possible as well as probable impacts from project activities during all phases --- pre-development, demolition, pre-construction, construction, and post-construction, and has suggested mitigation measures.

Objectives of EMMP

The main objectives of the Environmental Impact Assessment (EIA) study are as follows:

- Determine pre-project state of affair to assess post-project condition if they have changed for better or worse;
- Document all the resources likely to be affected due to the implementation of the proposed project.

- Provide maximum information to the proponent and other stakeholder about the exiting environmental conditions and the implication of the proposed project;
- Allow planners to alleviate potential impacts of the proposed project on different environmental condition such as physical environment, biological environment, and socio-economic environment; and
- Aid decision makers to take informed decisions.

Structure of EMPP

The EMMP consists of the following sections:

- Legislations, guidelines, and Environmental Standards
- Organizational structure and roles and responsibilities
- Mitigation Management Matrix (MMM)
- Environmental monitoring program
- Communication and documentation
- Change management plan
- Training program

Significant Effects, Mitigation Measures, and Project Alternatives

Based on the findings an EMMP a comprehensive monitoring program has been proposed. Monitoring protocol provides details of parameters to be monitored, frequency, and location of sampling and monitoring points for ambient air stack emissions, soil contamination, surface-water, wastewater, and groundwater. The environmental monitoring at pre-construction stage and other in-house monitoring to be carried out by the Contractor(s) will be the part of his contract agreement. A short brief on Environmental & Social Concerns are given below in Table 3-1, Impact Summary lists all of the impacts associated with the proposed project, as evaluated in this EIA Report. The table identifies the level of significance of each impact and presents the mitigation measures necessary to reduce impacts to a less-than-significant level. EPA guidelines states that an EIA shall describe feasible mitigation measures that could minimize the significant adverse effects of the project. These mitigation measures will be fully enforceable through permit conditions, agreements, or other legally binding agreements. There will be a direct connection between the effects of the mitigation measure and the significant impact it seeks to mitigate, and the mitigation measure based on scope to the relevant significant impact of the project.

Project Alternatives

All issues relating to a site, project area and environment are usually catered for at the design site of a project, when all possible alternatives for building design can be considered. A faulty or sub-standard design that does not take the local environment and aesthetics into account and the use of poor color schemes can be a source of considerable annoyance for neighbors and may even lower property prices.

Mitigation: The building has been designed by a top architectural firm that has considered all factors relating to the project sites. Architectural plans for the building have been approved in principle by Capital Development Authority in terms of the relevant building regulations. Compliance of the provisions of these regulations will ensure that there will not be any environmental problems due to project design and all construction activities would conform

strictly to standard construction practices and regulatory framework. Moreover, the project design is such that the building shall not impact unfavorably on adjoining properties in the form of lack of aesthetics, glass windows that cause reflection, protrusions from the body of the structure beyond the project site etc.

Building Shadow

Effects of the shadow of a high-rise can cause an environmental impact in terms of loss of light and energy for properties upon which the shadow falls.

Mitigation: There are no universally accepted criteria to determine how much shadow is acceptable. This factor becomes important usually in cold climate areas, where sunshine plays an important part in reduction of heating costs and lighting. In a warm climate, building shadows in fact provide comfort during summer months. The proposed building will cast shadows to the north-west and south-east. There are thus concerns that the project shall cause loss of sunshine hours and solar radiation for affected areas. The height of the proposed building is strictly according to zoning and restrictions for the project area and the building plans have been approved by the competent land development and town planning authority. There are no structures immediately on any side of proposed building that shall lose sunshine or solar radiation due to height of the proposed high-rise. There is open area to the north and north-west, wide road to the west, and a four-lane avenue to the east that mitigate concerns about possible building shadow. Islamabad is located at the latitude of 33° 42' N. The farthest northern latitude at which the sun can appear directly overhead is 23° 26' N, the Tropic of Cancer. Even at its peak, the sun would thus be about 10° below zenith over Islamabad. Accordingly, there shall not be losses in terms of solar radiation and heat for adjoining properties.

Visual Impact

Visual impact can take three forms: firstly, it relates to the visual impact that a structure creates when it is completed; secondly, to what extent it affects the visual impact of the surrounding area, and thirdly, how a proposed structure, especially a multi-storied building, affects the view of neighbors.

Mitigation: There shall be a visual impact for properties on all sides of the proposed building to the extent of their height. As stated earlier, the project is within a commercial corridor with open areas to the north and a major park towards the south-west, while plots on all other sides are already colonized, in the south by a high-rise apartment building. Building regulations specified for the project prescribe a maximum number of eleven floors above the ground floor, which is basically to ensure that the building is not too high and thus does not interfere with distribution of wind, sunlight and cast long shadows on neighboring properties. This issue applies more to central business districts than to commercial zones inside residential areas.

Insulation Techniques

Energy-efficient building designs start with implementing optimal insulation levels. Evaluating cost-effectiveness of varying R-values, the efficiency of insulation of a structure, allows maximization of long-term benefits.

Mitigation: The designers have referred to ASHRAE Standard 90-1 R-values while selecting insulation levels and options. ASHRAE standards cover heating, refrigeration, and air-

conditioning engineering. While determining the choice of insulation, the project designers have considered not only energy efficiency but also long-term performance, considering stability of R-value over time. Different options considered for insulation included cellulose, rock wool, fiberglass, perlite, polystyrene, urea formaldehyde and urethane. The designers have also recommended roof treatment with a coat of bitumen, polythene sheet, earth layer and tiles.

Energy-Efficient Building Envelope

It is imperative that given the present levels of technology, a construction project should adopt and comply with all protocols that can contribute to conservation of energy when the project comes into operation.

Mitigation: A building envelope can lead to 50 to 60 percent of the energy losses of the structure and focusing on this aspect can reduce energy consumption. Increased insulation in the walls and ceiling shall help in curtailing heat losses and in improving comfort. Light-colored exterior walls and white or cool roofs help in decreasing cooling loads and can also impact positively on minimizing the size and cost of HVAC system configurations. The useful life of building materials, systems and equipment incorporated in buildings can vary considerably in such a way that these can impact on the cost of construction as well as long-term recurring costs associated with operation, maintenance, and renovation. Wall insulation shall be selected keeping in mind that it cannot be replaced. When choosing wall and roof insulation systems, the primary factor shall be that these last during the expected life of the structure. Options for interior and exterior finishes shall be exercised keeping in mind durability and minimum maintenance requirements. Durable strategies shall be incorporated to address air infiltration so that an effective building envelope reduces all impacts on and from environment.

Earthquake Hazard

While an earthquake can cause damage to a structure, it becomes an environmental hazard should there be possibility of such damage from seismic activity directly impacting on the local environment. This could, for example, include debris falling on adjoining properties. Accordingly, neighbors would be wary of a high-rise being constructed on an adjoining plot and should be satisfied that its design caters for seismic activity. This is especially important in the context of the present project because of the history of the previous structure at the site.

Mitigation: The building plans have been approved in principle by Capital Development Authority after appropriate scrutiny of adherence to prescribed safety standards under the building regulations. Adherence to recommendations of geotechnical investigation report regarding design of foundations, sturdy design of the building, use of proper building materials and competent supervision of construction shall ensure elimination of possibility of erection of a faulty structure. The building design has accordingly been structured to withstand possible seismic activity of the level expected in an area typical of that Zone 2B and there should thus be no threat to safety of people using the premises or immediately close to it. A seismic hazard assessment has been carried out for the building in accordance with the International Building Code procedures. The structure has been designed to withstand a “major” earthquake. The recommended peak ground acceleration values for the project area in various building codes is in the range of 0.2g to 0.3g whereas the proposed building has been designed for ground level acceleration of 0.5g, exceeding requirement of the relevant building code.

ENVIRONMENTAL CONCERNS --- CONSTRUCTION

The impact of a project is felt more severely during construction, mainly because the immediate project area can become particularly vulnerable to environmental disturbance.

Acquisition of Land

Land acquisition and payment of compensation is a tedious process fraught with a horde of issues in a construction project.

Mitigation: No land acquisition proceedings were necessary as land for the project was purchased directly from private owners. Therefore, compensation and resettlement issues are thus not relevant. Moreover, no unauthorized occupant has been ousted either.

Major Impacts of Construction Phase

Main impacts that should considered in relation to construction activities are:

There can be run-off erosion during rains from unprotected excavated areas, thereby leading to excessive soil erosion.

Mitigation: The project site has been excavated to a maximum depth of sixty feet but due to the contours of the site, there shall not be any run-off soil erosion;

There could be danger to workers from accidents, hazardous materials, quarrying, communicable diseases, and emissions.

Mitigation: Workers shall not be exposed to any hazardous materials, quarrying, communicable diseases and shall be protected from accidents and emissions.

Mitigation: There is bound to be additional traffic due to project activities. However, the proponents shall ensure that local traffic is not impeded in any manner through development of a Traffic Impact Analysis and Traffic Management Plan embedded in this report, which indicates various alleviation measures that can adopted by the construction contractor and the proponents during construction as well as operation of the project.