

November, 2023

ENVIRONMENTAL IMPACT ASSESSMENT(EIA) OF OPF Housing Scheme, Rawalpindi.

Mouza Panjgran And Ubban Chak, Tehsil
& District, Rawalpindi.



Housing & Works Division
OFFICE OF DEPUTY DIRECTOR WORKS
Shahra-e-Jamhuriat, G-5/2
Islamabad.

OPF HOUSING SCHEME, TEHSIL & DISTRICT RAWALPINDI

ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

OPF HOUSING SCHEME, MOUZA PANJGRAN AND UBBAN CHAK, TEHSIL & DISTRICT, RAWALPINDI

Final Report November, 2023

Eco Sphere Management Consultants Pvt. Ltd.

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ABBREVIATIONS

BOD	Biological Oxygen Demand
COD	Chemical Oxygen Demand
EMMP	Environmental Management and Monitoring Plan
EMP	Environmental Monitoring Program
EPA	Environmental Protection Agency
EPD	Environment Protection Department
EPC	Environmental Protection Council
IEE	Initial Environment Examination
IUCN	International Union for Conservation of Nature
LAA	Land Acquisition Act
NEQS	National Environmental Quality Standards
NGOs	Non-governmental Organizations
OPF	Overseas Pakistanis Foundation
RDA	Rawalpindi Development Aauthority
PAPs	Project Affected Persons
PHATA	Punjab Housing and Town Planning Agency
PEQS	Punjab Environmental Quality Standards
MMM	Mitigation Management Matrix
WASA	Water and Sanitation Agency
EO	Environmental Officer
MER	Monthly Environmental Report

CHECKLIST (EIA)**PAK EPA GUIDELINES FOR PREPARATION AND REVIEW OF ENVIRONMENTAL REPORTS, 1997**

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
Executive summary:			
1. Title and location of project			
2. Name of the proponent			
3. Name of the organization preparing the report			
4. A brief outline of the proposal (type, process, technology and land requirement)			
5. The major impacts			
6. Recommendations for mitigation measures			
7. Proposed monitoring			
Introduction:			
1. Purpose of report			
2. Identification of project and proponent			
3. Details of consultant			
4. Brief description of nature, size, and location of project			
Screening: Whether the Project requires IEE or EIA as per Regulations			
Scoping			
1. Spatial and Temporal Boundaries of Environmental Assessment			
2. Important issues and concerns raised during consultation			
3. Significant impacts and factors to be determined			
Consideration of Alternatives			
1. Site alternatives, their selection and rejection criteria			
2. Design/Technology alternatives, their selection and rejection criteria			
3. Environmental Alternatives, their selection and rejection criteria			

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
4. Economic Alternatives, their selection and rejection criteria			
Description of the project:			
1. Objectives of Project			
2. Location and Site Layout of the project (May be annexed at the end of report)			
3. Land use on the site			
4. Road access			
5. Vegetation features of the site			
6. Cost and Magnitude of operation			
7. Schedule of implementation			
8. Description of the project (Process flow chart/steps, Technology, Raw material and products, by-products)			
9. Restoration and rehabilitation plans			
Description of Environment: Clear-cut picture of existing environmental resources:			
1. Baseline Physical Environment			
2. Baseline Ecological Environment			
3. Baseline Socioeconomic Environment			
4. Lab reports of environmental analyses (along with soil tests, geo-investigation in case of building projects and industries)			
5. Suitability of the site (not prohibited, environmentally sensitive, incompatible to surroundings and unsuitable)			
Impact Assessment			
1. Methodologies for impact identifications (One/more)			
✓ Checklists			
✓ Matrices			

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
✓ Networks			
✓ Overlays			
✓ GIS and Computer expert systems			
2. Characteristics of impacts (nature, magnitude, extent and location, timing, duration, reversibility, risk)			
Screening of potential Environmental Impacts and mitigation measures on/during:			
1. Project location			
2. Design			
3. Construction phase			
4. Operational phase			
5. Potential Environmental Enhancement Measures			
Environmental management and monitoring program			
i. Description of proposed mitigation actions along with:			
ii. Schedule for implementation and Environmental budget			
iii. Environmental Management Team along with their Roles and responsibilities (by name or position)			
iv. Proposed monitoring program to assess performance or output of EMP			
v. Proposed EMP reporting and reviewing procedures			
vi. Any training needs required to ensure implementation of EMP and Monitoring plans			

Required Content	EIA Report		
	PAGE NO.	REMARKS (If Any)	LACKING
Stakeholders Consultation: Communicate the possible impacts and concerns to the following to assist further analysis and decision making:			
i. Proponent's Environment Management Team			
ii. The responsible authority			
iii. Other departments and agencies			
iv. Environmental practitioners and experts			
v. Affected and wider community			
Appendices			
1. Glossary			
2. List of abbreviations			
3. Lists of individuals and organizations consulted along with their written feedback			
4. Sources of data and a full list of all reference material used			
5. Terms of references of environmental reports and those given to individual specialists			
6. List of names, qualifications and roles of team members carrying out the IEE/EIA study			
7. Approvals from other concerned departments			

EXECUTIVE SUMMARY

Title of the Project:

Environmental Impact Assessment (EIA) Report of Establishment of “Overseas Pakistanis Foundation (OPF) Housing Scheme, District Rawalpindi.

Proponent Details	Consultants Details
Mubasher Ghafoor Deputy Director (Works) Office at Shahrah-e-Jamhuriat, G 5/2 Islamabad Tel: +92-51-9048358	Eco Sphere Management Consultant (Pvt.) Ltd. 95, Street 50 Sector G-13/2, Islamabad +92-300-8577650 +92-321-4521413 jamal.emc@gmail.com

Location of the project:

The project site for construction of Overseas Pakistanis Foundation (OPF) Housing Project located at Mouza Panjgran And Ubban Chak, Tehsil & District, Rawalpindi”, over an area of 618 Kanals. The Google earth map of the project site is shown in figure E.1.



Brief Outline of the Proposal:

Nature of project: Housing Scheme

Area of Project: 618 Kanals.

Category of Project: The Project is a Housing Scheme falls under Schedule II (list of projects requiring EIA), Category II (Urban Development and Tourism) and sub sector 1 “Housing Schemes more than 300 Kanals” of the IEE / EIA Regulations 2000 made under section 12 of Punjab Environment Protection Act 1997 (Amended 2012) under which the Environmental Impact Assessment (EIA) is mandatory for getting Environmental Approval. The Director General, EPA Punjab is the authority to issue the requisite Environmental Approval after proper review of the project.

Status of Construction: The project is in its initial stage, no construction has been done yet.

Cost of the Project:

Total cost of the project: Above 100 Million Rupees

Detail of Land Use:

Sr.No	Description Of Land Use	Kanals	RDA %	Colour	Percentage
1	Residential	272.61	actual		39.06%
2	Commercial	64.61	5-10%		9.26%
3	Public building	23.50	3-10%		3.3%
4	Parks/Green Area	50.11	7-10%		7.18%
5	Tube well	1.79			0.26%
6	Graveyard	12.76	2%		2%
7	Roads & Parking	272.61	actual	130	39.06%
8	Non possession pockets	59.00	actual	00	7.79%
	Total Area of Scheme	757			100%

Detail of Plots:**TABLE E.1: DETAILS OF LAND USE**

Residencial Plots Detail				
Sr. #	Size	Color	QTY	Area (Kanal)
	21X37.5 (3.5 Marla)		295	
	25X45 (5 Marla)		366	
	30X60 (8 Marla)		167	
	35X75 (11.66 Marla)		37	
	35X87 (11.19 Marla)		06	
	Apartment		07	
	Odd Size		64	
			889	

Commercial Plots Detail

Sr. #	Size	Color	QTY	Area (Kanal)
	30X40		68	
	60X80		09	
	80X100		05	
	90X120		03	
	200X200		1	
	ODD Size		7	
			93	

Electrical supply

Main source of energy is IESCO

Telecommunication

The infrastructure for the provision of telecommunication will be developed.

Municipal waste

The estimated amount of generated solid waste is described as follow:

HOUSING UNITS = 618
ESTIMATED POPULATION = 5334
SOLID WASTE PRODUCED @0.73 KG PER PERSON PER DAY = 9873 KG
SANITARY WORKERS REQUIRED (11TONS) @ 01 SANETERY WORKER FOR 500 PERSONS = 27
TOTAL NO OF BINS = 277
SIZE OF BIN = 0.96 M3
02 SOLID WASTE SITES = 1.73-K
= 0.78-K

Sui Gas infrastructure

Sui Gas connections will be laid down for provision of the natural gas which is considered as Environment Friendly Fuel.

Water supply

Housing Scheme has been divided in 1888 number of residential plots and 6 persons has been consider to reside in each house. Water supply pipe will provide water which will be approx. 100 gallon/capita/day. Water supply distribution system will provide water to each home. **The estimated portable water required for 5334 persons @ 18 gallons/person =2, 42,568 gallons.**

Surface Draining

Storm water collection system will be provided along the roadsides.

Street lights

Street lights will be installed

Roads

Roads will be constructed 272.61 Kanals which is 39.06 % of total area.

Energy Conservation

- Main source of energy is WAPDA (ISECO)
- Use of Sunlight has been incorporated in each house design.
- Ventilation system is necessary for each house design.
- Open space for tree plantation / Landscaping in front of each house and indoor has been made compulsory as per rules.

The Major Impacts and their Mitigation Measures

The project falls under high beneficial and low adverse impact category, it may pose some minor and moderate negative social and environmental impacts which will require proper mitigation measures.

During Development phase, vehicles and machinery will be employed. These will generate some dust and smoke temporarily which will stop on completion of the construction work. Water will be sprinkled daily on all exposed surfaces to suppress dust emission.

Construction activity will be carried out during the day time to lessen the impact of noise on surrounding environment.

Vehicular movement will be restricted to a specific time for supplies of construction material. Blowing of horn by the project related vehicles will be strictly prohibited.

During construction phase, the soil quality may be affected due to very small amount of discharges during vehicle and equipment maintenance and leakage from equipment and vehicles. To avoid leakage the vehicles and machinery will be properly maintained, avoid the maintenance of vehicles at project site. This impact is classified to be short term, reversible and limited, as it will only occur during the development activities. Also these impacts are expected to be contained within the site boundaries.

Construction of the proposed project will create employment opportunities for the local people. Waste produce from construction include, packing material, scrap metal construction material. Recyclable material will be separated at source. Waste bins will be placed at the construction site for waste materials. The recyclable waste will be handed over to waste contractors. The majority of the construction waste will be inert material and it is proposed to reuse it for construction purposes where possible. Excavation material will either be used for infill during construction or be removed from the site by appropriately permitted contractor.

The Contractor will ensure that the construction workers/labour are trained in safety procedures for all relevant aspects of construction. Construction workers will be provided with proper safety equipment such as helmets, goggles, face masks, ear plugs and safety shoes where required and considered necessary. First aid kits and other necessary equipment will be kept available at site along with the list of emergency phone numbers to be contacted in case of any emergency; Proper illumination will be provided at night.

To avoid the sliding of soil protection will be provided at excavated area; Warning signs will be displayed in local language where considered necessary. Fence will be used all around the site. Existing routes will not be blocked as far as possible. Vehicle speed near/ within the communities will be kept low.

During operational phase, Solid waste generated from the project will comprise mainly paper, plastics organic matter and food waste. Municipal waste will be collected from home to home on daily basis through sanitation staff and disposed-off at designated solid waste disposal station. All non-hazardous waste material that cannot be recycled or reused will be disposed of through waste management contractor.

Monitor housekeeping, littering and illegal dumping will be done. The proponent will plant indigenous species of plants to increase the esthetic value and meteorological condition of the area.

It will be ensure that all water pumps etc. will be in good condition; Purchase and use of water-saving equipment will be practiced; an effective residents' training programme will be implemented about water conservation.

All personal protective equipment and fire safety equipment will be provided during operational phase in case of any emergency.

Traffic movement will be monitored on daily basis. Blowing of horn will be strictly prohibited. At the operational stage, traffic management, increased groundwater consumption, sewerage water and solid waste generation are the significant impacts that need to be managed. Mitigation measures and their responsibility for each of the mitigation have been given in the Chapter 5 of the report. The proposed mitigation measures will be strictly implemented to save the environment.

Proposed Monitoring

The EMMP is prepared to ensure that the activities are under taken in a responsible non detrimental manner with the objectives of:

- (i) providing a proactive, feasible and practical working tool to enable them measurement and monitoring of environmental performance onsite;
- (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment
- (iii) detailing specifications deemed necessary to assist in mitigating the environmental impact
- (iv) ensuring that safety recommendations are complied with detailed Environmental Management Plan (EMP) is presented in Chapter 6

Table ES-1: Environmental Management Plan (Construction Phase)					
Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
Soil Erosion	To minimize the impacts arising from the soil erosion	-The contractor must minimize the area of exposed soil at any given time and to wet, compact and resurface the disturbed areas during the construction phase. -The contractor must also construct the drainage system during the very initial stage of the project. -The area of exposed soil at any given time and to wet, compact and resurface the disturbed areas.	Construction site and its immediate surrounding	Contractor	OPF Management
Contaminated Land	To minimize the contamination of land due to construction activities like maintenance of vehicle and machinery, fueling generators, leakage from containers etc.	-Removal of oil and contaminated soil around the fuel and oil storage areas will be made possible by the availability of appropriate implements i.e., shovels, plastic bags and absorbent materials. -Contaminated media will be managed with the objective of protecting the safety and health of labourer at the site, the surrounding residents, and the environment. -Plans and procedures will be prepared, to respond to the discovery of contaminated media to minimize or reduce the risk to health, safety, and the environment. -Construction vehicles and machinery will be examined on a regular basis for leakage prevention.	Construction site as well as the generators, equipment and the vehicles.	Contractor	OPF Management
Dust & Exhaust Emissions	To minimize the dust effectively and avoid complaints due to the airborne particulate matter, the gaseous & vehicular emissions	-Dust exposed surfaces should be regularly wetted in a manner that effectively keeps down the dust at the construction site. -Watering of stripped road surfaces along which construction vehicles and trucks travel will control dust emissions by up to 70%.	Construction Site	Contractor	OPF Management

Table ES-1: Environmental Management Plan (Construction Phase)					
Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
		- A fulltime watering truck shall be maintained on site for watering road surfaces as needed to minimize fugitive dust emissions. - Vehicles transporting earth materials shall be covered en-route. - Mixing equipment shall be sealed properly and vibrating equipment shall be equipped with dust removing devices. - Ensure the proper maintenance of vehicles and generators used at the construction site to produce low emission. - Dust masks shall be provided to operators in order to protect them from dust impacts.			
Construction Waste Management	To minimize the impacts associated with construction waste generation.	- Construction sites should be equipped with temporary refuse bins, and construction wastes should be collected daily and contained in a temporary designated waste storage area on each site. - Designated waste storage areas should not be within 50 m of water ways. - Construction sites generate considerable waste and provision will be made for suitable separation and storage of waste in designated and labeled areas throughout the site. - Wastes should be routinely collected from the designated area and disposed at waste disposal facilities approved by local EPA.	Waste should be disposed off through proper contractor. The left-over waste from recycling should be disposed at proper disposal site.	Contractor	OPF Management

Table ES-1: Environmental Management Plan (Construction Phase)					
Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
		-Trainings shall be conducted regarding solid waste segregation and housekeeping issues on site. -Segregation of hazardous and non-hazardous waste will be done in accordance with color coding system.			
Noise level	To minimize noise during construction activities.	-The noise generating sources shall be enclosed with acoustic proof material to cut down the noise levels. -Construction machinery and vehicles shall be serviced at regular intervals in order to keep noise to minimum level. -Green belt shall be developed in and around the proposed facility. -Noise level in and around the project site shall be measured. -Workers shall be equipped with earplugs or earmuffs. -The working hours shall be imposed on construction workers. -Work discipline shall be enforced on site. -Employees shall be trained on noise abatement and PPE's (personal protective equipment) practice. -Workers operating equipment that generates noise should be equipped with the appropriate noise protection gear.	Construction site as well as the generators, equipment and the vehicles.	Contractor	OPF Management
Impact on Water Quality, Consumption and Conservation	To minimize the impacts associated with water and its consumption and conversation	-Preventing site runoff. -Construction of storm water diversion channels to divert storm runoff from flowing over the construction areas.	Construction site	Contractor	OPF Management

Table ES-1: Environmental Management Plan (Construction Phase)					
Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
		- Regular monitoring of water consumption. - Regular monitoring of water quality for good quality concreting. - Use of leak proof storage tanks. - Monitoring of the ground water table to evaluate the impact of construction activity on ground water, if possible.			
Wastewater Generation	To reduce and control the wastewater generated during the constructional activities:	- Wastewater generation will be minimized by controlling the pollutant at the source. - The oily waste will be separated before disposing the wastewater into the sewer. - Regular monitoring of the wastewater generation will be taken into consideration. - Adequate portable or permanent sanitation facilities serving all workers will be provided at all construction sites. - Sanitary wastewater in construction and other sites will be managed.	Construction Site	Contractor	OPF Management
Traffic Flow	To minimize any impact on the flow of traffic during to project's construction.	- The proponent will put in place measures to address such concerns by ensuring that construction vehicles preferably deliver materials during off-peak hours when traffic volume is low. - There will also be provision for caution signs on the access road to alert users on construction activities in progress in order to prevent occurrence of accidents. - Impacts from the traffic flow will be minimized	Local roads nearby project vicinity	Contractor	OPF Management

Table ES-1: Environmental Management Plan (Construction Phase)					
Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
		through proper planning of the transportation of materials to ensure that vehicle fills are increased, in order, to reduce the number of trips done or the number of vehicles on the road.			
Biodiversity	To minimize the impacts on terrestrial habitat and biodiversity	-To establish as many green areas as possible around the facility. -Site clearance and setting out of the facility must avoid the removal of trees wherever possible -Establishment of green areas on the site should include the planting of bird feeding trees.	Construction site and its surrounding areas up to 5kms in radius	Contractor	OPF Management
Occupational Health and Safety	To mitigate the H & S risk	-Provide measures for the management and appropriate disposal of hazardous wastes to ensure protection of the workforce and the prevention and control of releases and accidents; -Provide for the provision of appropriate fire extinguishers and fire response plans and appropriately trained first aid response staff; -Provide for the provision of appropriate first-aid equipment and stations at both work sites including appropriately trained first-aid staff on site and provision of adequate transport facilities for moving injured persons to the nearest hospital; -Provide for the provision of appropriate personal protective equipment (PPE) to minimize risks, such as but not limited to appropriate (insulated if necessary) outerwear, boots and gloves; eye protectors; ear plugs	Construction site	Contractor	OPF Management

Table ES-1: Environmental Management Plan (Construction Phase)

Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
		safety helmets, etc.; - Provide training for workers, and establish appropriate incentives to use and comply with health and safety procedures and utilize PPE; - Include procedures for documenting and reporting occupational accidents, diseases, and incidents; and - Include emergency prevention, preparedness, and response arrangements in place.			

Table ES-2: Environmental Management Plan (Operation Phase)

Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
Air Emissions	To prevent environment and health deterioration due to exhaust emissions	- Generators & vehicles should be maintained in a good condition to ensure that emissions are kept to a minimum level. - Idle equipment will be turned off.	Air Emission Sources at Project site	OPF Management	OPF Management
Noise	To minimize noise pollution during Operational activities.	- The noise shall be prohibited near educational areas, mosques and medical treatment facility. - During night times, pressure horns shall be avoided.	Mosque, Educational institutes, Health	OPF Management	OPF Management
Wastewater	To prevent environmental degradation due to wastewater discharge	- Septic tank shall be regularly cleaned. - The treated waste water from septic tank can be used for gardening in the factory's compound. - Untreated wastewater shall not be disposed-off into	Wastewater treatment and discharge point	OPF Management	OPF Management

Table ES-2: Environmental Management Plan (Operation Phase)					
Environmental Concern	Objective	Mitigation Measures recommended	Locations to Implement	Responsibility	Monitoring
		any sewer lines and water reserves. - Regular monitoring of wastewater should be carried out through EPA approved laboratory to check compliance with PEQS for wastewater.			
Solid Waste	To prevent environmental degradation due to waste disposal	- Hazardous and non-hazardous waste types will be separately collected. - The disposal of sludge and other hazardous waste will be done via EPA approved waste contractor who will dispose of the waste as per EPA requirements. - All waste handling and disposal activities will be monitored to ensure compliance with EMP.	Project site	OPF Management	OPF Management
Occupational Health and Safety	To mitigate the H & S risk	- Personal protective equipment (PPEs) to be supplied to workers such as helmet, earplugs, safety goggles, hand gloves, cover all, safety shoes, gas mask, etc. - Workers will be strictly advised to wear PPEs at all times while within plant and tank farm area. - Training on different topics related to occupational health and safety shall be regularly provided. - Training on standard operating procedures should be provided. - In case of an emergency/accident, ERP should be followed.	Project site	OPF Management	OPF Management

Table ES-3: Environmental Monitoring Plan (Construction Phase)				
Environmental Concern	Parameters to be Monitored	Monitoring Location	Frequency	Responsibility
Dust Pollution (Mainly particulate matter) during construction	SPM (Suspended Particulate Matter) PM10 (Particulate Matter<10 microns) PM2.5 (Particulate Matter <2.5 microns)	Construction site	Once before construction and then Quarterly	- HSE Manager - Contractor
	Visible dust	Construction site	Daily during construction period	- HSE Manager - Contractor
Exhaust emissions from generators and other construction equipment	Gaseous emission includes COx, NOx, SOx and PM from generators and other equipment	All exhaust at construction site	- Prior to equipment use - Quarterly	- HSE Manager - Contractor
Vehicular emissions	Vehicular emissions include Smoke, COx and Noise from vehicle exhaust vent.	Vehicle exhaust vent at construction site	Quarterly	- HSE Manager - Contractor
Noise level	Continuous Noise level Leq dB(A) monitoring	Construction site as well as the generators, equipment and the vehicles.	Quarterly	- HSE Manager - Contractor
Soil Erosion	Visual inspections and photographic evidences	Construction site and its immediate surrounding	Weekly	- HSE Manager - Contractor
Solid Waste Management	Record and logging of daily generated waste. Hazardous and non-hazardous waste quantity	Construction site	Daily	- HSE Manager - Contractor
Occupational Health and Safety	HSE compliance	Construction site	Daily	- HSE Manager - Contractor

Table ES-4: Environmental Monitoring Plan (Operational Phase)				
Environmental Concern	Parameters to be Monitored	Monitoring Location	Frequency	Responsibility
Air Quality	SO _x , NO _x , CO, SPM, PM ₁₀ , PM _{2.5} , O ₃ and Lead (Pb)	Project Site	Annually	- HSE Manager
Exhaust emissions	Gaseous emission includes CO _x , NO _x , SO _x and PM from Boiler stacks, generators and other equipment	Exhaust at operational site Generators, Tractors, Vehicles.	Quarterly	- HSE Manager
Vehicular emissions	Vehicular emissions include Smoke, CO _x and Noise from vehicle exhaust vent.	All Vehicles exhaust vent at operational site	Quarterly	- HSE Manager
Effluent	Effluent flow, Temperature, pH, COD, TSS, TDS	Effluent Discharge Point	Biannually	- HSE Manager
Noise level	Continuous Noise level Leq dB(A) monitoring	Project Site	Quarterly	- HSE Manager
Soil Resource	Visual inspection for contamination and oil spills	Project Site	Weekly	- HSE Manager
Waste Management	-Records of hazardous material used -Inspections of hazardous substances containment facilities, instrumentation and detection systems. -Volume of different wastes types disposed of to landfill or incineration -Volume of different waste types recycled or reused	Waste disposal site	On going	- HSE Manager
Occupational Health and Safety	HSE compliance	All project areas	On going	- Leads - Pharma - Contractor



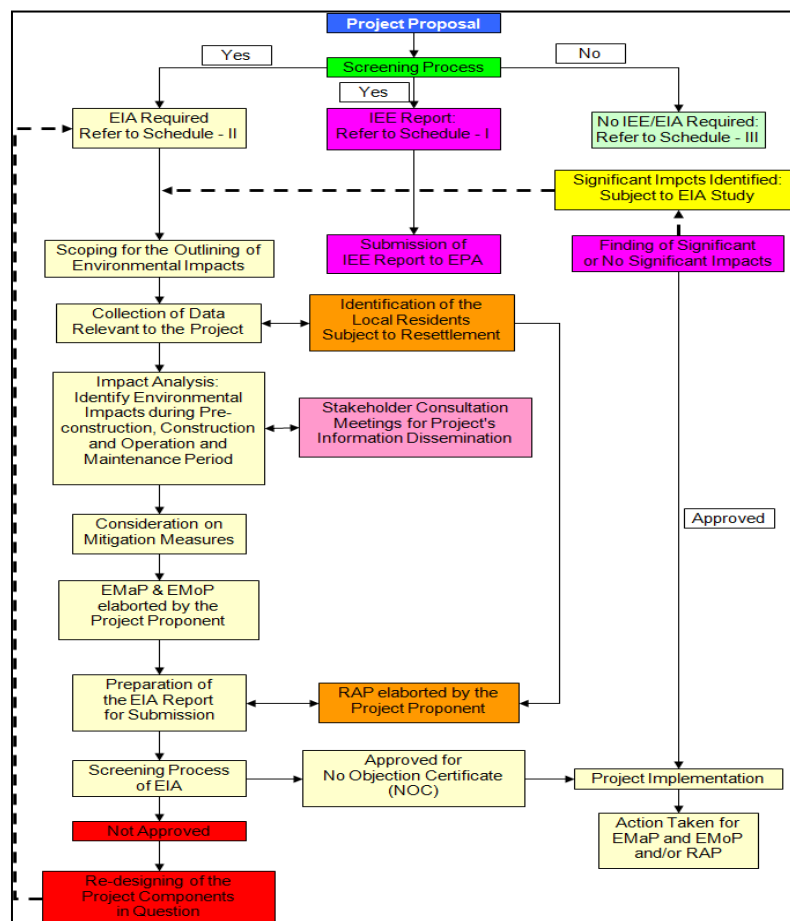
1. INTRODUCTION

1.0 SCREENING

Based on nature, size, cost and associated impacts, the project under consideration has been categorized for EIA Study according to the Notification No.01/EPA/EIA/MISC/21/4214, dated 16.12.2022 issued by Environment Protection Department (EPD).

The Project is a Housing Scheme falls under Schedule II (list of projects requiring EIA), Category II (Urban Development and Tourism) and sub sector 1 “Housing Schemes more than 300 Kanals” of the IEE / EIA Regulations 2000 made under section 12 of Punjab Environment Protection Act 1997 (Amended 2012) under which the Environmental Impact Assessment (EIA) is mandatory for getting Environmental Approval. The Director General, EPA Punjab is the authority to issue the requisite Environmental Approval after proper review of the project.

FIGURE 1.1: METHODOLOGY OF EIA



1.1 SCOPING

Scoping is an early step during the environmental assessment study to identify the important issues to be considered and eliminate those that are not important. Scoping helps identify the boundaries of the project and TOR's for later stages of baseline collection and impact identification and evaluation and help to save extra efforts and resources.

Spatial and temporal Boundaries for Environmental Assessment:

The proposed project is a construction of a Government Housing Scheme. Housing & Works Division Islamabad aims to develop project named "Overseas Pakistanis Foundation" Housing Scheme to provide a cutting-edge housing society that is entirely safe for people to stay in. Their goal is to give customers exceptional levels of knowledge and services and all requirements at reasonable pricing. The work is in progress, therefore in order to give people with comforts, the first thing required for a comfortable existence is to own a home. The site is located within the in the Mouza Panjgran And Ubban Chak, Tehsil & District, Rawalpindi. The project area considered as micro-environment comprises of the project site and its immediate surroundings including nearby, Agricultural land and residential and commercial settlements in surrounding area. Macro-environment of the project is District Rawalpindi. During construction phase the impacts will be localized and restricted to the construction phase only while impacts related to operation phase of the project remain till the life of the project.

Important issues and concerns raised during consultation

Details of the consultations with stakeholders is provided in section 7 of the report. Important issues highlighted during consultation are;

- Housing scheme should prefer locals for technical and non-technical Jobs.
- Air pollution from the project should not affect the residential settlements of surrounding area.
- People welcome the project as it will create jobs and direct and indirect business opportunities for locals.
- Safe driving practices should be followed during movement of heavy vehicles of project.
- Speed limits should be observed to avoid accidents as locals also use the roads.

Significant impact and factors to be considered

Important impacts and factors during different phases of the project need to be considered include but not limited to;

- Air Emissions
- Waste generation

- Traffic impacts due to movement of heavy vehicles
- Ground water use
- Firefighting
- Safety Hazards

Detail regarding screening of impacts is provided in section 5.

1.2 PURPOSE OF THE REPORT

This report presents the findings of the Environmental Impact Assessment (EIA) carried out by Eco Spehere Management Consultant (Pvt) Ltd. for the proposed project titled proposed **“Overseas Pakistanis Foundation (OPF) Housing Project located at Mouza Panjgran And Ubban Chak, Tehsil & District, Rawalpindi”**, over an area of 618 Kanals.

The EIA is conducted under the Legal framework of Punjab Environmental Protection Act, 1997 (amended 2012) and Review of IEE/EIA Regulations, 2000 to seek the Environmental Approval. In compliance with the applicable Environmental Regulations the proponent decided to get the NOC of the project, through consultant. In order to fulfill the legal requirement of Punjab Environmental Protection (Amendment) Act 2012, Section 12; for obtaining No Objection Certificate from Environmental Protection Agency (EPA), Government of Punjab, Lahore, this Environmental Impact Assessment (EIA) Report is being submitted to the said agency. The EIA Report, as desired by EPA, has been prepared according to the prescribed the “Guidelines for the preparation of Environmental Reports, 1997” and “Review of IEE/EIA Regulations, 2000.”

The EIA Report describes environmental, socio- economic, physical, and environmental, land use, crops, forestry, water bodies, bio diversity and other relevant aspects associated with this project. It also describes mitigation measures to be adopted.

The EIA Report also provides information as desired under the format used to help decision makers, EPA Punjab in the present case, before issuing the desired NOC. This EIA study was conducted according to the newly issued standard guidelines and principles available from Punjab-EPA.

This EIA report is structured in eight (8) chapters;

- Chapter 1 is the introductory chapter describing purpose of report, identification of project and proponent, details of consultant and location of project.
- Chapter 2 presents the Legislative and Regulatory framework.
- Chapter 3 describes the type of project, its objectives, considered alternatives, site layout, land use, road access, vegetation, cost, process flow chart and rehabilitation plan.

- Chapter 4 details the baseline data of the project site,
- Chapter 5 identifies and assesses the predicted impacts of the proposed project, the methodology for impact assessment and their mitigation measures
- Chapter 6 presents the Environmental Management and Monitoring Plan (EMP) and includes public consultation in the form of socio-economic impact assessment baseline study forms, and lastly,
- Chapter 7 Stakeholder Consultation
- Chapter 8 gives Conclusions and Recommendations of the EIA study.

1.3. IDENTIFICATION OF PROJECT & PROPONENT

The project proponent Housing & Works Division Islamabad aims to develop project named “Overseas Pakistanis Foundation intends to develop Housing Society at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi.

TABLE 1.1: DETAILS OF THE PROPONENT

Name of the Proponent	Mubasher Ghafoor Deputy Director (Works)
Address	Office at Shahrah-e-Jamhuriat, G 5/2 Islamabad
Project Location	Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi
Contact	Tel: +92-51-9048358

The management of OPF Project is aimed to provide clean and peaceful Environment with a great aesthetic sense of living in the proposed Housing Scheme.

1.4. DETAILS OF CONSULTANT

The services of Eco Sphere Management Consultants Private Limited (ESMC) have been engaged to carry out an Initial Environmental Examination of the proposed project. Baseline Environmental Monitoring has been engaged EPA Punjab Certified Lab and full environmental service testing laboratory and sampling firm that provides its clients with a comprehensive range of environmental consulting, complex field sampling, and analytical laboratory testing services.

Most of the specialists tapped by the consultants are experts in various fields, in addition to full-time staff that compiles the environmental reports and feasibility studies on the basis of input provided by specialists and professionals. The contact details of the consultant are as follow:

TABLE 1.2: DETAILS OF CONSULTANT

Name of Consultant	Eco Sphere Management Consultants Private Limited (ESMC)
---------------------------	---



Address	95, Street 50 Sector G-13/2, Islamabad
Tel:	+92-51-2154464
Cell:	+92-321-4521413
Email:	jamalesiaspecialist@gmail.com

FIGURE 1.1: ONSITE SURVEY BY ENVIRONMENTAL CONSULTANT & BASELINE MONITORING


The team shown in Table 1.3 overleaf collaborated during survey of the project site, discussions with the proponent and the stake-holders, collection and analysis of data, and preparation of this report. The desktop survey was carried out on October 24th 2023 and Baseline Environmental Monitoring was carried out on April 5th 2023 was carried. The core team was also assisted in the process by a number of experts available to the environmental consultants to provide technical input and information, and assembled a number of times for discussions to finalize the report.

TABLE 1.3: TEAM OF EXPERTS

Name	Designation	Qualification
Jamal ud Din Qureshi	Team Leader	MS in Environmental Sciences
Shahbaz Ahmed	Ecologist	BSc Ecology MSc Environmental Sciences
Hira Khan	Environmentalist	MS in Environmental Sciences
Zaigham Abbas	Environmentalist	MS in Environmental Sciences
Naveed Ahmmmed	Environmentalist	BSc (Hons) Environmental Sciences
Muhammad Atif Manzoor	Hydrologist	M.Phil. in Hydrology

1.5. BRIEF DESCRIPTION OF NATURE, SIZE & LOCATION OF PROJECT

1.5.1 Nature of the Project

The project is based on establishment of Proposed Housing scheme project named “Overseas Pakistanis Foundation (OPF)” at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi.

To fulfill the legal requirements of the Punjab Environmental Protection Act (Amended Act 2012), Section 12, Environmental Impact Assessment (EIA) report is being submitted to the Environmental Protection Agency (EPA), Government of the Punjab to obtain the Environmental Approval (EA).

1.5.2 Size of the Project

The total area of the Project site is 618 Kanal. Table 1.4 represents the Landuse analysis for the proposed project for Overseas Pakistanis Foundation (OPF).

TABLE 1.4: LANDUSE ANALYSIS

Sr.No	Description Of Land Use	Kanals	RDA %	Colour	Percentage
1	Residential	272.61	actual		39.06%
2	Commercial	64.61	5-10%		9.26%
3	Public building	23.50	3-10%		3.3%
4	Parks/Green Area	50.11	7-10%		7.18%
5	Tube well	1.79			0.26%
6	Graveyard	12.76	2%		2%
7	Roads & Parking	272.61	actual	130	39.06%
8	Non possession pockets	59.00	actual	00	7.79%
	Total Area of Scheme	757			100%

1.5.3 Location of the Project

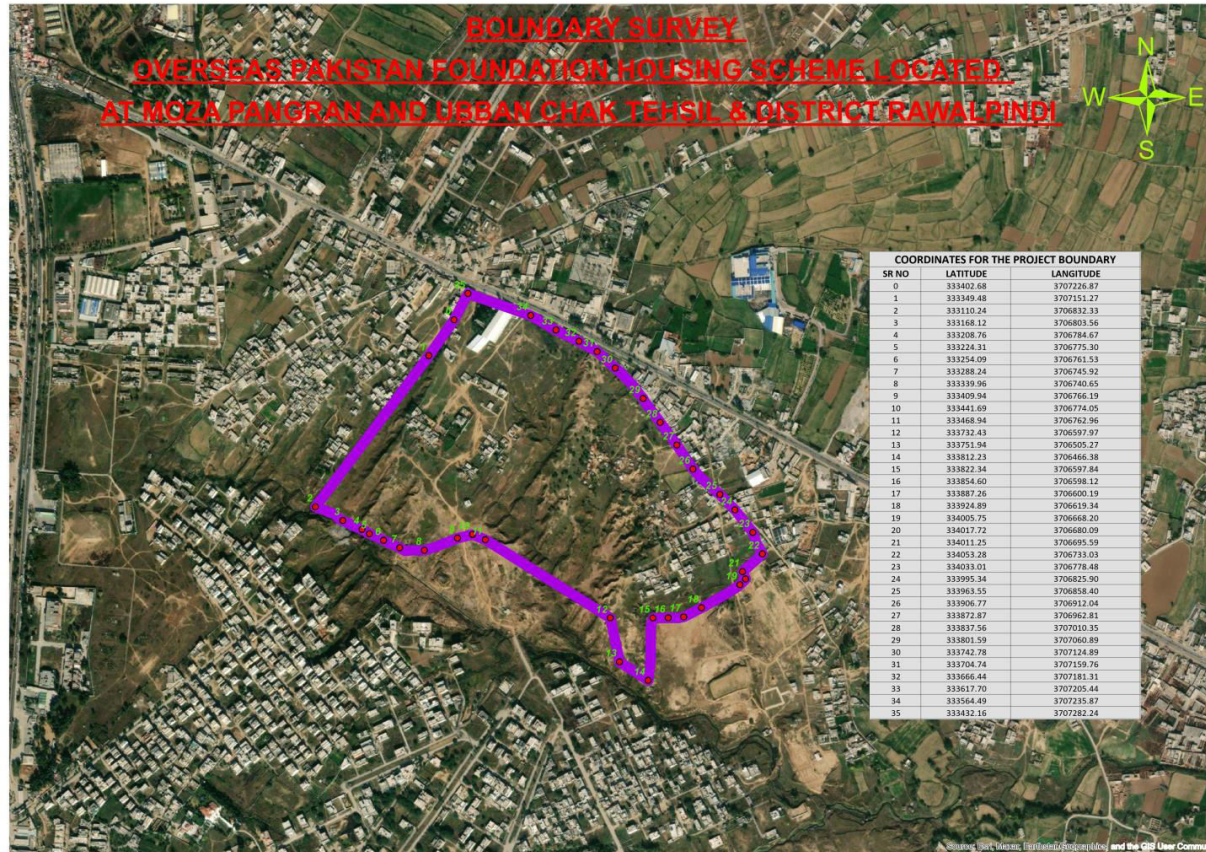


The project site for construction of “Overseas Pakistanis Foundation” (OPF) is at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi. The Google earth map of the project site is shown in figure 1.2.





FIGURE 1.2: LOCATION MAP OF OVERSEAS PAKISNIS FOUNDATION” (OPF) IS AT MOUZA PANJGRAN AND UBBAN CHAK, TEHSIL & DISTRICT, RAWALPINDI





2. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 GENERAL

This section provides an overview of the policy, legal, and administrative framework that apply to the proposed project to control environmental and social constraints during construction and operational phase. The proposed project is anticipated to comply with all relevant policies, laws, guidelines, acts and legislations of Pakistan / Punjab and other related environmental aspects.

2.2 BACKGROUND OF ENVIRONMENTAL LAWS IN PAKISTAN / NATIONAL POLICY AND LEGAL FRAMEWORK

The Ministry of Climate Change is the responsible authority for environmental protection policy making in Pakistan.

The Pakistan National Conservation Strategy (NCS) that was approved by the federal cabinet in March 1992 is the principal policy document on environmental issues in the country (EUAD/IUCN, 1992). The NCS outlines the country's primary approach towards encouraging sustainable development, conserving natural resources, and improving efficiency in the use and management of resources. The NCS has 68 specific programs in

14 core areas in which policy intervention is considered crucial for the preservation of Pakistan's natural and physical environment.

Prior to the adoption of the 18th Constitutional Amendment, the Pakistan Environmental Protection Act (PEPA), 1997 was the governing law for environmental conservation in the country. Under PEPA, 1997 the Pakistan Environmental Protection Council (PEPC) and Pak EPA were primarily responsible for administering PEPA, 1997. Post adoption of the 18th Constitutional Amendment in 2011, the subject of environment was devolved and the provinces have been empowered for environmental protection and conservation.

2.3 REGULATIONS FOR ENVIRONMENTAL ASSESSMENT, PAKISTAN EPA





Under Section 12 (and subsequent amendment) of the PEPA (1997), a project falling under any category specified in Schedule I of the IEE/EIA Regulations (SRO 339 (I0/2000), requires the proponent of the project to file an IEE with the concerned provincial EPA. Projects falling under any category specified in Schedule II require the proponent to file an EIA with the concerned provincial agency, which is responsible for its review and accordance of approval or request any additional information deemed necessary.

2.4. PUNJAB ENVIRONMENTAL PROTECTION ACT (AMENDED), 2012 AND AMENDMENT, 2017

Post adoption of the 18th Constitutional Amendment in 2011, the Punjab Government amended PEPA, 1997 as Punjab Environmental Protection Act (Amended), 2012, and Amendment, 2017 and now Punjab Environment Protection Agency (Punjab-EPA) is responsible for ensuring the implementation of provisions of the Act in Punjab territorial jurisdiction along compliance with the PEQS, and in establishing monitoring and evaluation systems.

Under Clause 12 of Punjab Environmental Protection Act (Amended), 2012, and Amendment, 2017, entails the provision of filing an initial environmental examination or environmental impact assessment (where the project is likely to cause an adverse environmental effect) and obtaining environmental approval from the Agency, in respect thereof before the construction of the proposed project.

As proposed project fall in the jurisdiction of Rawalpindi District therefore Rawalpindi Development Authority (RDA), as implementing agency will ensures the execution of Punjab Environmental Protection Act (Amended), 2012 and Amendment, 2017 during design, construction and operational phases of the project.

2.5. REGULATORY CLEARANCES, PUNJAB EPA

In accordance with provincial regulatory requirements, an IEE/EIA satisfying the requirements of the Punjab Environmental Protection Act (Amended), 2012 and Amendment, 2017 is to be submitted to Punjab Environmental Protection Agency (Punjab- EPA) for review and approval, and subsequent issuance of NOC before the commencement of construction of proposed project.



2.6. GUIDELINES FOR ENVIRONMENTAL ASSESSMENT, PAKISTAN EPA

The Pak-EPA has published a set of environmental guidelines for conducting environmental assessments and the environmental management of different types of development projects. The guidelines that are relevant to the proposed project are listed below:

- Guidelines for the Preparation and Review of Environmental Reports, Pakistan, EPA 1997;
- National Environmental Guidelines Policy and Procedures for the Filing, Reviewing and Approval of Environmental Assessments, 2000;
- Sectoral Guidelines: (Roads and Sewerage), Pakistan Environmental Assessment Procedures, Pakistan Environmental Protection Agency, October 1997;
- Guidelines for Sensitive and Critical Areas - Pak-EPA, 1997;
- Guidelines for Public Consultations; Pakistan EPA May, 1997.

2.7. PUNJAB ENVIRONMENTAL QUALITY STANDARDS (PEQS), 2016

In exercise of the powers conferred under clause (c) of sub-section (1) of section 4 of the Punjab Environmental Protection Act, 2012 (XXXIV of 1997), the Environmental Protection Council has approved the Punjab Environmental Quality Standards (PEQS), 2016. They endow information on the permissible limits for discharges of municipal and industrial effluent parameters and industrial gaseous emissions in order to regulate environmental pollution. The quality standards for Ambient Air, Noise, Drinking Water and Discharge of Municipal Effluents into Inland Waters and Sewage Treatment are discussed in **Table 2.1, 2.2, 2.3 and 2.4**.

Table 2.1 : Ambient Air Quality Standards

Sr. No.	Pollutant	PEQS, 2016	
		Time-Weighted Average	Concentration Standard
1	Sulfur Dioxide (SO ₂)	Annual Average	80 µg/m ³
		24 Hours	120 µg/m ³
2	Nitrogen Oxide (NO)	Annual Average	40 µg/m ³
		24 Hours	40 µg/m ³
3	Nitrogen Dioxide (NO ₂)	Annual Average	40 µg/m ³
		24 Hours	80 µg/m ³



4	Ozone (O ₃)	1 Hour	130 µg/m ³
5	Suspended Particulate Matters (SPM)	Annual Average	360µg/m ³
		24 Hours	500 µg/m ³
6	PM ₁₀	Annual Average	120 µg/m ³
		24 Hours	150 µg/m ³
7	PM _{2.5}	Annual Average	15 µg/m ³
		24 Hours	35 µg/m ³
		1 Hour	15 µg/m ³
8	Lead (Pb)	Annual Average	1 µg/m ³
		24 Hours	1.5 µg/m ³
9	Carbon Monoxide (CO)	8 Hours	5 mg/m ³
		1 Hour	10 mg/m ³

Table 2.2: Noise Quality Standards

Sr. No.	Category of Area	PEQS, 2016	
		Day Time	Night Time
		(db)	(db)
1	Residential Area	55	45
2	Commercial Area	65	55
3	Industrial Area	75	65
4	Silence Zone	50	45

Table 2.3: Drinking Water Quality Standards

Sr. No.	Parameters	PEQS, 2016	WHO
		(mg/l)	(mg/l)
A) CHEMICAL PARAMETERS			
1	Aluminum (Al)	≤ 0.2	0.2
2	Ammonium (NH ₃)	-	1.5
3	Antimony (Sb)	≤ 0.005	0.02
4	Arsenic (As)	≤ 0.05	0.01
Sr. No.	Parameters	PEQS, 2016	WHO
		(mg/l)	(mg/l)
5	Barium (Ba)	0.7	0.7
6	Boron (B)	0.3	0.3
7	Cadmium (Cd)	0.01	0.003
8	Chloride (Cl)	≤ 250	250
9	Chromium (Cr)	≤ 0.05	0.05
10	Copper (Cu)	2	2
11	Cyanide (CN)	≤ 0.05	0.07
12	Fluoride (F)	≤ 1.5	1.5
13	Iron (Fe)	3	0.3
14	Lead (Pb)	≤ 0.05	0.01
15	Manganese (Mn)	≤ 0.5	0.5





16	Mercury (Hg)	≤ 0.001	0.001
17	Molybdenum (Mo)	=	0.07
18	Nickel (Ni)	≤ 0.02	0.02
19	Nitrate (NO ₃)	≤ 50	50
20	Nitrite (NO ₂)	≤ 3	3
21	Selenium (Se)	0.01	0.01
22	Residual Chlorine	$0.2-0.5$	-
23	Zinc (Zn)	5.0	3.0
B) PHYSICAL PARAMETERS			
24	Color	≤ 15 TCU	≤ 15 TCU
25	Taste	Non-Objectionable/ Acceptable	Non-Objectionable/ Acceptable
26	Odour	Non-Objectionable/ Acceptable	Non-Objectionable/ Acceptable
27	Turbidity	< 5 NTU	< 5 NTU
28	Total hardness	< 500 mg/l	-
29	TDS	< 1000	< 1000
30	pH	6.5-8.5	6.5-8.5
C) BIOLOGICAL PARAMETERS			
31	E-Coli	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample
32	Total Coliforms	Must not be detectable in any 100 ml sample	Must not be detectable in any 100 ml sample

Table 2.4: Municipal Effluents into Inland Waters and Sewage Treatment Standards

Sr. No.	Parameters	Discharge into Inland Waters	Discharge into Sewage Treatment
		PEQS, 2016	PEQS, 2016
		(mg/l)	(mg/l)
1	Temperature	$\leq 30^{\circ}\text{C}$	$\leq 30^{\circ}\text{C}$
2	pH value (H ⁺)	6-9	6-9
Sr. No.	Parameters	Discharge into Inland Waters	Discharge into Sewage Treatment
		PEQS, 2016	PEQS, 2016
		(mg/l)	(mg/l)
3	Biochemical Oxygen Demand (BOD ₅)	80	250
4	Chemical Oxygen Demand (COD)	150	400
5	Total Suspended Solids (TSS)	200	400
6	Total Dissolved Solids (TDS)	3500	3500
7	Oil & Grease	10	10
8	Phenolic Compounds (as Phenols)	0.1	0.3
9	Chloride (as Cl ⁻)	1000	1000





10	Fluoride (as F-)	10	10
11	Cyanide (as CN-)	1.0	1.0
12	Anionic detergents (as MBAS)	20	20
13	Sulphate (as SO ₄ ²⁻)	600	1000
14	Sulphide (as S ²⁻)	1.0	1.0
15	Ammonia (NH ₃)	40	40
16	Pesticides	0.15	0.15
17	Cadmium	0.1	0.1
18	Chromium (trivalent and hexavalent)	1.0	1.0
19	Copper	1.0	1.0
20	Lead	0.5	0.5
21	Mercury	0.01	0.01
22	Selenium	0.5	0.5
23	Nickel	1.0	1.0
24	Silver	1.0	1.0
25	Total Toxic Metals	2.0	2.0
26	Zinc	5.0	5.0
27	Arsenic	1.0	1.0
28	Barium	1.5	1.5
29	Iron	8.0	8.0
30	Manganese	1.5	1.5
31	Boron	6.0	6.0
32	Chlorine	1.0	1.0

2.8. OTHER ENVIRONMENT RELATED LEGISLATIONS

2.8.1 Acts

a) Pakistan Climate Change Act, 2017

This act aims to meet obligations under international conventions relating to climate change and to provide for adoption of comprehensive adaptation and mitigation policies, plans, programs, projects and other measures required to address the effects of climate change and for matters connected herewith and ancillary thereto.

b) Land Acquisition Act (LLA), 1894 Including Later Amendments

The Land Acquisition Act, 1894, is a “law for the acquisition of land needed for public purposes and for construction and for determining the amount of compensation to be paid on account of such acquisition”. The exercise of the power of acquisition has been limited to public purposes. The principles laid down for the determination of compensation, as clarified by judicial pronouncements





made from time to time, reflect the anxiety of the law-giver to compensate those who have been deprived of property, adequately. The land needed for the construction of development projects will be acquired under normal conditions based on prevailing market prices or negotiated prices between RDA and the owners of land. Section 17(4) of the LAA will not be used in the absence of an emergency. Instead, the land will be purchased under willing-seller willing-buyer deal at agreed upon market rates and the seller will have the option not to sell the land, in case an acceptable deal for both the parties is not reached.

c) Canal and Drainage Act, 1873

This act entails provisions for the prevention of pollution of natural or man-made water bodies. This act provides the provision that prohibits the discharge of any solid or liquid matter or combination of both from any source into any river, canal and drainage including natural Channel (Sec 59 A (4), save disposal of discharges without harming the natural environment of receiving water body as well as corrupting and fouling of water channel so as to render it unfit for the purpose for which it is ordinarily used (Sec 70 (8)). Any person who fails to follow the provisions shall be incurred with the penalty provided under the act. This act will be triggered if construction waste (liquid and solid) disposed into nearby canal and open drains directly.

d) Punjab Municipal Water Act, 2014

The basic aim of the act is to recognize, regulate and manage present and future municipal water supply and sanitation services and to establish rights of access to basic water supply and basic sanitation, and to ensure conservation of water resources in the Province. This act will be elicited if there is misappropriation of water supply during construction activities.

e) Fisheries Act, 1897

This act aims at the protection of fish in water bodies by rules of State Government. This act will not be trigger as no species of fish is present in water bodies of the proposed Project Area.

f) Protection of Trees and Brushwood Act, 1949

This act prohibits cutting or lopping of trees and brushwood without permission of the Forest Department. The Forest Department will be approached for permission to cut trees along the proposed project site.

g) Cutting of Trees (Prohibition) Act, 1975





This act forbids cutting of trees without acquiescence of the Forest Department.

The act mentioned in section “g, and h” will be stimulated if tree cutting involved during construction phase of the proposed project.

h) Punjab Forest Act (Amended), 2010

The act empowers the provincial forest departments to declare any forest area as reserved or protected. It empowers the provincial forest departments to prohibit the clearing of forest for cultivation, grazing, hunting, removing forest produce, quarrying and felling, lopping and topping of trees, branches in reserved and protected forests. The proposed project is urban in nature and thus no protected forest is situated in and around the Project Area.

i) The Punjab Wildlife (Protection, Preservation, Conservation & Management) Act, 1974

This act provides for the protection, preservation, conservation and management of wildlife in the Province of Punjab. This act defines the wildlife sanctuary, game reserves, protected areas and national parks. It also defines the rules and responsibilities of the relevant authorities and the relevant personnel to protect the ecological resources. It also describes the penalties and punishments on offenses against the sections given in the act. This act will not be violated because no wildlife species exists in the proposed Project Area.

j) The Antiquities Act, 1975

The Antiquities Act, 1975, administered by the Provincial Government, is aimed at safeguarding the preservation of cultural heritage, destruction, damage or defacement of antiquities and it is an offence under the act. This act will not be triggered as no antiquities are present in and around the proposed project route.

k) The Punjab Heritage Foundation Act, 2005

This act entails preservation, conservation, maintenance and rehabilitation of the Punjab Heritage through various means, including technical or financial assistance and to create awareness among the people for preservation of the Punjab Heritage. This act will not be triggered as no heritage sites are present in and around the proposed project route.

l) The Punjab Polythene Bag Rules, 2004

This rule prohibits the manufacturing, sale, use and import of polythene bags that is below 15 micron thickness. This rule will be elicited if polythene bags with more than 15 micron thickness used during construction activities.



**m) National Clean Air Act, 2000**

The act aims to control vehicular emissions, pollution from industry, and indoor air pollution in rural and urban areas. This act will be triggered if vehicles and machinery used for construction activities emanate air pollutants above the permissible limit.

n) Seismic Building Code of Pakistan 2007

This code stipulates the minimum requirements for seismic safety of building and structures and the provisions of the Building Code of Pakistan (Seismic Provisions-2007) shall apply for engineering design of buildings, like structures and related components.

Construction of buildings in defiance of the Building Code shall be considered as violation of professional engineering work specified under clause (XXV) of section 2 of the act. This Code is applicable to the proposed project as it includes the formation of structures.

o) The Parks and Horticulture Authority Act, 2012

This act entails regulation, development, and maintenance of public parks, green belts and green areas in the Punjab; regulation of billboards, sky signs and outdoor advertisements; to promote open and unrestricted views of the Punjab. This act will be triggered if green belts along the proposed project route are affected during construction phase.

p) Handling of Hazardous Substances, PEPA, 2000

Subject to the provisions of this act, no person shall generate, collect, consign, transport, treat, dispose of, store, handle or import any hazardous substance except under a license issued by the Federal Agency and in such manner as may be prescribed; or in accordance with the provisions of any other law for the time being in force, or of any international treaty, convention, protocol, code, standard, agreement or other instrument to which Pakistan is a party customary under sub-clause (a) and (b) of clause 13. This act will be triggered during construction and operation phases for handling, management and disposal of hazardous waste.

q) Punjab Environmental Protection (Motor Vehicles) Rules, 2013

Subject to the provisions of this act, and the rules and regulations, no person shall operate a motor vehicle from which air pollutants and noise are being emitted in an amount, concentration or level which is in excess of the Punjab Environmental Quality Standards, or where applicable the standards established under clause (g) of subsection (1) of section 6 of the act. This act will be elicited during construction and operational phase due to use of motor vehicles that produce air pollutants and noise.



r) Labor and Health and Safety Legislation

The Constitution of Pakistan contains a range of provisions with regards to labor rights, in particular:

- Article 11 of the Constitution prohibits all forms of slavery, forced labor and child labor;
- Article 17 provides for a fundamental right to exercise the freedom of association and the right to form unions;
- Article 25 lays down the right to equality before the law and prohibition of discrimination on the grounds of sex alone; and
- Article 37(e) makes provision for securing just and humane conditions of work, ensuring that children and women are not employed in vocations unsuited to their age or sex, and for maternity benefits for women in employment.

Labor law is controlled at both provincial and national levels with compulsory employment agreements containing the terms set out by the labor laws. There are various laws containing health and safety requirements including: Mines Act 1923; Factories Act 1934; Factories Rules; Hazardous Occupations Rules 1963; Provincial Employees Social Security Ordinance 1965; and Workmen's Compensation Act 1923. This legislation will be triggered during project implementation stage as project involves hiring of labors.

s) ISO 18001 Occupation Health and Safety Assessment Series (OHSAS)

OHSAS 18001 is an Occupation Health and Safety Assessment Series for health and safety management systems to help organizations to control occupational health and safety risks. The OHSAS specifications are applicable to any institute that desires to establish an OH&S management system to eradicate or reduce risk to employees and other interested parties who may be exposed to the risks allied with the project activities. The construction of the proposed project may involve various health and safety issues to construction labour, therefore these ISO 18001 guidelines will be applicable and pertinent. This series will be elicited during construction and operational phase to ensure health and safety of workers associated with the project activities.

t) The Punjab Occupational Safety and Health Act, 2019

This act entails provision of occupational safety and health of the workers at workplace and to protect them against risks arising out of the occupational hazards; to promote safe and healthy working environment catering to the physiological and psychological needs of the employees at workplace. The act will be triggered during construction and operational phase to ensure health and safety of workers at workplace associated with the project activities.

**u) Punjab Restriction on Employment of Children Act, 2016**

According to the sub-section 11(a) of this act, an occupier who employs or permits a child (person under the age of 15 years) to work in an establishment shall be liable to punishment with imprisonment for a term which may extend to six months, but which shall not be less than seven days, and a mandatory fine between 10,000 to 50,000 rupees. This act will be trigger if contract higher skilled and unskilled labour under the age of 15 during construction phase of the proposed project.

v) Punjab Protection of Women Against Violence Act, 2016

This act counters gender-based discrimination, violence against women, and economic and social empowerment of women. This act will be entail if gender based violence observed in the Project Area during construction phase.

w) Disaster Management Act, 2010

The act is administered by federal government which provides guidelines for the provision of disaster management plans, offer necessary technical assistance to the Provincial Governments and Provincial Authorities as well for preparing their disaster management plans in case of any mishap. This act is valid to the subject project in case of any unseen situation.

2.8.2 Regulations, Standards and Guidelines**a) Pakistan Environmental Protection Agency Review of IEE and EIA Regulations, 2000**

The Regulation classifies projects on the basis of expected degree of adverse environmental impacts and lists them in two separate schedules. The Schedule I list projects that may not have significant environmental impacts and therefore require an IEE. The Schedule II list projects of potentially significant environmental impacts requiring an EIA. The Regulations also require that all projects located in environmentally sensitive areas require preparation of an EIA. It also lists Projects not requiring either an EIA or an IEE.

b) Sectorial Guidelines, 1997

Pakistan Environmental Assessment Procedure deals with general guidelines as well as the sectoral guidelines for the environmental assessment studies. "Sectoral guidelines for construction of roads and sewerage schemes" are used as a reference in this document.

c) Environmental Assessment Guidelines for Punjab Public Private Partnership (PPP) Projects, 2018

These guidelines provide methodology for carrying out environmental assessments of the projects to





be implemented under PPP mode. The guidelines are used as a reference for preparing IEE of the proposed project.

d) Pakistan Penal Code, 1860

It authorizes fines, imprisonment or both for voluntary corruption or fouling of public springs or reservoirs so as to make them less fit for ordinary use.

e) Hazardous Substance Rules, 2003

Hazardous Substance Rules, 2003 deals with handling, storage, transportation and health & safety procedures to be followed in the workplace. These rules deal with generation and handling of any kind of hazardous substance (solid, liquid & gas) as listed in Schedule I of the rules. These Rules provide Safety plan, waste management plan, transportation of hazardous materials procedures as well as reporting mechanism in case of any accident. Under these rules a license has to be taken from Federal/Provincial Agency for handling and transportation of hazardous material (Schedule II of Rules).

The contractor for handling hazardous waste shall be the licensed contractor. Contravene to any of these rules may cause cancellation of the license by Federal/Provincial Agency as the case may be.

f) Solid Waste Management Guidelines, 2005

Guidelines for Solid Waste Management have been issued as a draft by the Pakistan Environmental Protection Agency in coordination with JICA and UNDP in 2005. These guidelines explain the waste generation, discharge and composition. The handling, transportation and final disposal of waste generated during construction and operation phase of the proposal project should be done in view of these guidelines.

2.8.3 Policies and Plans

a) National Environmental Policy (NEP), 2005

NEP is the primary policy of Government of Pakistan addressing environmental issues. The broad Goal of NEP is, “to protect, conserve and restore Pakistan’s environment in order to improve the quality of life of the citizens through sustainable development”. The NEP identifies a set of sectoral and cross-sectoral guidelines to achieve its goal of sustainable development. It also suggests various policy instruments to overcome the environmental problems throughout the country.

b) National Climate Change Policy, 2012

The National Climate Change Policy was approved by the Federal Cabinet on September 26, 2012.



With an overall goal, ‘to ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate resilient development’, the Policy puts forward comprehensive policy objectives of sustained economic growth, integration of climate change into inter-related national policies, pro-poor gender sensitive adaptation and cost-effective mitigation, water, food and energy security, Disaster Rehabilitation and Resilience (DRR), effective decision making and coordination, creating awareness, building capacities, and conservation of natural resources and long term sustainability. It also seeks effective use of financial opportunities, and public and private sector investment in adaptation measures.

c) Punjab Public Private Partnership (PPP) Policy, 2009

The PPP Policy aims to include the promotion of social development and inclusive economic growth, protection of environment and interests of all stakeholders, which the policy aims to achieve by complying with relevant laws and regulations of Punjab and Pakistan and ensuring fairness, transparency and access to information. Prior to submitting PPP proposals, the policy requires undertaking feasibility studies (including environment and social impact assessments), obtaining the necessary approvals from Punjab Environment Protection Agency (PEPA) for IEEs and EIAs and acquiring land using the Punjab Land Acquisition Rules 1983 and Pakistan’s Land Acquisition Act of 1894.

d) Biodiversity Action Plan

The plan recognizes EIA/IEE as an effective tool for identifying and assessing the effects of a proposed operation on biodiversity.

e) National Water Policy

The National Water Policy aims at efficient management and conservation of existing water resources, optimal development of potential water resources, steps to minimize time and cost overruns in completion of water sector projects, improving urban water management by increasing system efficiency and reducing non-revenue water through adequate investments to address drinking water demand, sewage disposal, handling of wastewater and industrial effluents; equitable water distribution in various areas and canal commands, measures to reverse rapidly declining groundwater levels in low-recharge areas, increased groundwater exploitation in high-recharge areas, effective drainage interventions to maximize crop production, improved flood control and protective measures, steps to ensure acceptable and safe quality of water, minimization of salt build-up and other environmental hazards in irrigated areas, institutional reforms to make the managing organizations more dynamic and responsive.

f) National Drinking Water Policy

The National Drinking Water Policy provides a framework for addressing the key issues and challenges facing Pakistan in the provision of safe drinking water to the people. Drinking water is the constitutional responsibility of the provincial governments and the specific provision function has been devolved to specially created agencies in Cities, Towns and Tehsil Municipal Administrations under the Local Government Ordinance 2001.

g) Operational Strategy for CDM, 2006

The Operational Strategy for CDM has been developed to fulfil the requirements of establishing a Designated National Authority (DNA) and ensuring transparent, participatory and effective management of CDM process in the country. The strategy describes the functions and powers of the DNA and the national approval process. It builds on preliminary studies for initial projects including Asia Least Cost Greenhouse Gases Abatement Strategy (ALGAS) and Pakistan's Initial Communication on Climate Change which provides a general framework for operating CDM in Pakistan.

2.8.4 International Conventions**a) United Nation Framework Convention on Climate Change (UNFCCC) Amended, 2015**

The objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.

b) Kyoto Protocol (Amended), 2012

The Kyoto Protocol aimed to reduce carbon dioxide (CO₂) emissions and the presence of Greenhouse Gases (GHG) in the atmosphere.

c) Paris Agreement, 2015

The Paris Agreement's central goal is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below two degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to one and half degrees Celsius. Additionally, the agreement aims to increase the ability of countries to deal with the impacts of climate change, and at making finance flows consistent with a low GHG emissions and climate-



resilient pathway.

d) The Convention on Conservation of Migratory Species of Wild Animals

The Convention requires countries to take action to avoid endangering migratory species. The term "migratory species" refers to the species of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries. The parties are also required to promote or cooperate with other countries in matters of research on migratory species. There are no endangered species of plant life or animal life in the vicinity of the Project Area.

e) Basel Convention, 1994

In 1994, Pakistan signed Basel Convention that restricts trans-boundary movements of "Hazardous Waste and their Disposal" with aim to protect human health and surrounding environment by minimizing the use of hazardous waste production. The proposed project will not be necessitating the endorsement of this convention.

f) International Union for Conservation of Nature and Natural Resources Red List, 2000

This enlists wildlife species experiencing various levels of threats internationally. Some of the species indicated in the IUCN red list are also present in the wetlands of Pakistan. However, no wildlife species experiencing various levels of threats are present in and around the surroundings of Project Area.

g) Ramsar Convention on Wetlands of International Importance, 1971

The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The convention is an international treaty for the conservation and sustainable utilization of wetlands. It is the only global environmental treaty that deals with a particular ecosystem. No Ramsar Site is present in and around the proposed Project Area.

h) Millennium Development Goals (MDGs)

The Millennium Development Goals (MDGs) were adopted in the General Assembly of the United Nations in the year 2000 by all the countries of world and the world's leading developmental institutions. The MDGs that will prevail for the proposed project are as follows:

- Promote Gender Equality and Empower Women: The contractor during construction phase will be responsible to hire women for construction activities to elude gender discrimination and to promote women empowerment.





- **Combat HIV/AIDS Malaria and Other Diseases:** Contractor will be responsible to conduct medical surveillance of the workers before hiring to combat HIV/AIDS Malaria and other diseases.
- **Ensure Environmental Sustainability:** Contractor will be responsible to ensure environmental sustainability of the proposed Project Areas by ensuring implementation of EMP to mitigate adverse environmental impacts from construction activities during construction phase.

2.9. ADMINISTRATIVE FRAMEWORK

2.9.1 Rawalpindi Development Authority (RDA) & WASA

RDA as an Administrative Authority screen the proposed project activity complies with the laws and regulations controlling the environmental concerns of OPF, Sewerage system and STP construction and operation, and that all preconstruction requisites, such as permits and clearances are met.

RDA is a directorate of Rawalpindi Water and Sanitation Agency (RWASA). Therefore, RWASA is legally bound to provide assistance to RDA in the establishment of Sewerage system and STP by ensuring compliance with the laws and regulations controlling the environmental concerns. The Water and Sanitation Agency (WASA) is committed to provide drinking water of Unquestionable quality in sufficient quantity and to treat the sewage generated to the required parameters. As the leader in providing water and sanitation services, WASA is recognized as an effective instrument of change through adopting state-of-the-art technologies for improving the quality of its services to the general public.

2.9.2 Punjab Housing and Town Planning Agency (PHATA)

Housing and Physical Planning (H & PP) was established under the administrative control of Housing & Physical Planning Department during 1973.

H&PP was devolved under PLGO, 2001 with Directorate General and 34 nucleus offices (DO H&TP) at district level.

H&PP Punjab was revamped as “Punjab Housing and Town Planning Agency (PHATA)” under the PHATA Ordinance, 2002. The said agency has been effectuated w.e.f., 01.04.2004 with the objective of rejuvenating the housing sector in general and provision of shelter to shelter-less low income groups in particular.

2.9.3 Punjab Environmental Protection Agency (Punjab-EPA)





Pakistan Environmental Protection Agency is meant for the enforcement of environmental laws in Pakistan. They have delegated powers to provincial environmental protection agencies for review, approval and monitoring of environmental examination/assessment projects. As the proposed Project also falls in Rawalpindi District therefore Punjab-EPA will be responsible as well for reviewing the report, issuing environmental approval and overall/broad based monitoring of the proposed project activities.



3 DESCRIPTION OF PROJECT

3.1 TYPE AND CAETGORY OF THE PROJECT

Based on nature, size, cost and associated impacts, the project under consideration has been categorized for EIA Study according to the Notification No.01/EPA/EIA/MISC/21/4214, dated 16.12.2022 issued by Environment Protection Department (EPD).

The Project is a Housing Scheme falls under Schedule II (list of projects requiring EIA), Category II (Urban Development and Tourism) and sub sector 1 “Housing Schemes more than 300 Kanals” of the IEE / EIA Regulations 2000 made under section 12 of Punjab Environment Protection Act 1997 (Amended 2012) under which the Environmental Impact Assessment (EIA) is mandatory for getting Environmental Approval. The Director General, EPA Punjab is the authority to issue the requisite Environmental Approval after proper review of the project.

3.2 OBJECTIVES OF THE PROJECT

- The aim of establishing such Housing Scheme is to create a family environment which will be kind to nature.
- Provide better life style to its residents.
- The Development of Housing Scheme provides better job opportunities to the local community including skilled and un- skilled workers during development phase

The project is based on establishment of Proposed Housing scheme project named “Overseas Pakistanis Foundation (OPF)” at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi,” over an area of 618 Kanal.

In every aspect, the design, placement of key buildings, landscaping, architect and earthworks, specific care and sensitivity has been applied to ensure the natural landform, topography, waterways. Native fauna and key features of the have been enhanced. Hence the theme for the development is “Designed with Nature”.

The M/s Housing & Works Dision Islamabad has valued land measuring 618 Kanal at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi. M/s Housing & Works has launched a beautiful and well planned housing scheme to give a fair investment opportunity to the buyers of the plot.

The population within the scheme area shall be served with the facilities of commercial shopping area, school cum collage, Basic health units/Dispensary, mosques and Parks / playlots.

The sewerage treatment plant has been planned at the lower level and after the treatment; the effluent shall be made to flow in the nearby nallah. The grave yard has also been planned and is also accessible by roads. In short effort has been made through circulation plan to achieve convenient and smooth flow of traffic with less risk of accidents. The roads shall be landscaped with ornaments type of trees and shrubs for healthy cool environment and for good aesthetic view along the roads. Majority of plots have been given well climately suited orientation i.e. north-south direction.

3.3 ANALYSIS OF ALTERNATIVES

The objective of screening out alternatives during the EIA exercise, is to identify options that most effectively meet the project's environmental objectives, either by enhancing the environmental benefits of the proposed activity, or through reducing or avoiding potentially significant negative impacts.

The location assessment proves feasible due to following features:-

- It has easy approach from Kallar Syedan Road, District Rawalpindi.
- The land is owned by the proponent
- There is no protected or sensitive area located within or near the project site and site is not prohibited for the proposed project.
- Electricity, telephone facilities are available in locality.
- Transport is available at the Rawalpindi Rawat Road.

For the proposed Project, alternatives were assessed for feasibility:

1. 'No project' alternative
2. Site Location Alternative
3. Design/Technology Alternatives
4. Environmental Alternative
5. Economic Alternatives

3.3.1 No Project Alternative

The 'No-Project' alternative is the option of not implementing the activity or executing the proposed development. No project option is considered mainly with respect to:

- i. Environmental impacts, harmful or beneficial
- ii. Benefits to the society

The project is proposed mainly for the Housing Scheme.

As discussed in subsequent sections, that the proposed project will not cause depletion of natural resources or the significant adverse impacts on environment. On the contrary, it will produce quality of living standards and will enhance the natural aesthetic sense of the project area by quality landscaping and tree plantation activities.

Hence, "No Project Option" is not considered.

3.3.2 Site Location Alternative

The location assessment proves feasible due to following features:

- The proposed site is located near Kallar Seydan Road.
- Land is owned by proponent hence having no land acquisition issue. RDA has allotted the approval for the proposed site to proponent.
- Layout plan of the project is approved
- Surrounding area also has similar kind of Land and proposed Housing projects
- There is no protected or sensitive area located within or near the project site and site is not prohibited for the proposed project.

Location alternatives are not possible by considering the fact that the proponent does not have an alternative site. This implies that he must buy another piece of land elsewhere. Looking for land of the similar size and market location and if such land is available, its cost might be beyond affordable for the proponent. The proponent will have to restart the planning, design, and approval of the project afresh. The proponent will need to re-engage professionals like EIA lead/audit experts and physical planners to assess the viability of the new site. Additional costs will arise from the design and approval of the architectural and structural drawings for the new site

The stand-off will discourage the proponent.

3.3.3 Design/Technology Alternatives

Housing Scheme's design has been prepared by considering national and international standards. The building plan has been approved by estate developer. Firefighting system for the project has been

designed as per standards. The proposed project has been selected considering energy efficiency, environment friendly operations, space efficiency, quality and suitability for the living standard.

3.3.4 Environmental Alternative

To improve the aesthetics of the area and environment, space for green area and park has been allocated within the project site. Designing of the green area has also been completed (See figure 3.1). Other alternatives for environmental improvement include; Tree plantation, use of energy efficient lighting and equipment and water conservation by using water efficient taps and other machinery and equipment.

FIGURE 3.1: TREE PLANTATION AND SITE FOR GREEN SPACE/PARK AT THE PROPOSED SITE



3.3.5 Economic Alternatives

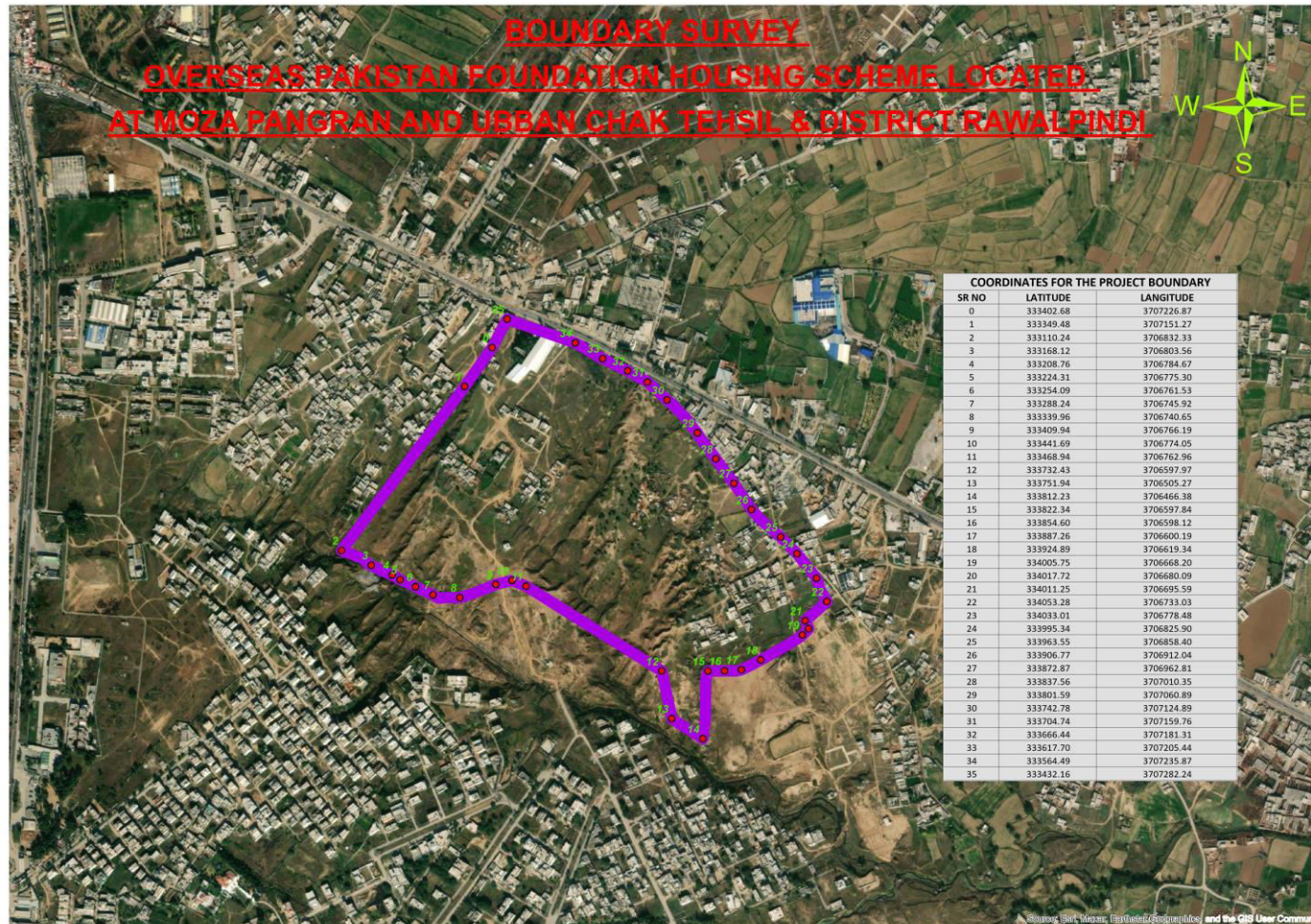
The proposed project will provide direct and indirect business opportunities for the local people. Employment opportunities and revenue generation through taxes will also support the country economy. No other economic alternatives considered for the project.

3.4 LOCATION OF THE SITE

The proposed site for OPF Housing Scheme is near Kallar Seydan Road, at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi,” over an area of 618 Kanal.



FIGURE 3.2: LOCATION OF PROPOSED PROJECT



3.5 LAND USE ON THE SITE

The site is a barren land with natural vegetation. Land is owned by the proponent.

3.6 VEGETATION FEATURES OF THE SITE

The project site has only native flora on it with scrub vegetation and dominant mature trees of Dalbaria sissu, Phonix dactylifera.

3.7 ROAD ACCESS

The project site is easily accessible to the Kallar Seydan Road, Mouza Panjgran and Aban Chak Tehsil & District Rawalpindi at a distance of 30 Meters from the proposed project site.

The OPF is accessible in the following ways:

- Almost 5 min drive away from Islamabad Rawat Expressway
- Located right close to the Kallar Seydan Road
- Almost 15 min drive away from Mandra-Chakbeli Road

3.8 COST AND THE MAGNITUDE OF THE OPERATION

3.8.1 Cost Total Cost Of The Project: Above 100 Million Rupees

Environmental Budget:

The allocated 2.5 Million environmental budget will be spent

- for tree plantation.
- Salaries of Mallis
- Quarterly Environmental Monitoring From EPA certified Laboratory
- Dengue eradication.

The allocated 0.5 Million budget for Health and Safety will be spent on:

- buying of Personal Protective Equipment,
- Training of workers and employees
- Certifications
- Required amount of environmental & health and safety will release every year

3.8.2 Magnitude Of The Project:

The man power during construction phase will be 250 persons, while 100 persons will perform their duties during operational phase of the proposed project. Thus the project is source of employment for economic development activities of the area

3.9 SCHEDULE OF IMPLEMENTATION

Project construction will be executed as soon as the no objection certificate from the environmental protection agency, Punjab will be issued, as the proponent has applied for other mandatory approvals from concerned departments, while the NOC from RDA has been obtained for the sanctioned land (See Annexure –III)

3.10 DESCRIPTION OF THE PROJECT

3.10.1 Development Work

Development Work will include the following:

- Roads & walkways
- Sanitary Sewerage Network
- Storm Water Drainage Network
- Landscaping
- Boundary Wall

3.10.2 Utilities

Utilities provided will include the following:

- Water Supply Network
- External Electrification
- Gas Supply by SNGPL.
- Electric Transmission Line (IESCO)

3.10.3 Nature of project: Housing Scheme

3.10.4 Total Sanctioned Area of Project: 618 Kanal

3.10.5 Status of Construction

The project is in its initial stage, no construction has been done yet.

3.10.6 Water consumption during construction phase: 300-400 gallon/Day

3.10.7 Water consumption during operational phase:

Portable water required for 5334 persons

@ 18 gallons/person =2,42,568 gallons Approximately

3.10.8 Detail of Land Use:

TABLE 3.1: DETAILS OF LAND USE

Residential Plots Detail				
Sr. #	Size	Color	QTY	Area (Kanal)
	21X37.5 (3.5 Marla)		295	
	25X45 (5 Marla)		366	
	30X60 (8 Marla)		167	
	35X75 (11.66 Marla)		37	
	35X87 (11.19 Marla)		06	
	Apartment		07	
	Odd Size		64	
			889	

Commercial Plots Detail				
Sr. #	Size	Color	QTY	Area (Kanal)
	30X40		68	
	60X80		09	
	80X100		05	
	90X120		03	
	200X200		1	
	ODD Size		7	
			93	

3.10.10 Details of the Residential Land:

Total Area of Residential plots:

272.61 Kanals is reserved for residential plots, which is 39.06 % of total area.

3.10.11 Electrical supply

Main source of energy is IESCO. Two (02) Transformers have been installed at the project site having capacity of 200 KVA each.

3.10.12 Telecommunication

The infrastructure for the provision of telecommunication will be developed.

3.10.13 Municipal waste

Municipal waste will be collected from home to home on daily basis through sanitation staff and disposed-off at designated solid waste disposal area. Recyclable material will be separated at disposal station and sold to the approved contractor. All non-hazardous waste material that cannot be recycled or reused will be disposed properly through Waste Management Company.

The estimated amount of generated solid waste is described as follow:

HOUSING UNITS = 618
ESTIMATED POPULATION = 5334
SOLID WASTE PRODUCED @0.73 KG PER PERSON PER DAY = 9873 KG
SANITARY WORKERS REQUIRED (11TONS) @ 01 SANETERY WORKER FOR 500 PERSONS = 27
TOTAL NO OF BINS = 277
SIZE OF BIN = 0.96 M3
02 SOLID WASTE SITES = 1.73-K
= 0.78-K

3.10.14 Sui Gas Infrastructure

Sui Gas connections will be laid down for provision of the natural gas which is considered as Environment Friendly Fuel.

3.10.15 Water supply

Housing Scheme has been divided in 1888 number of residential plots and 6 persons has been consider to reside in each house. Water supply pipe will provide water which will be approx. 100 gallon/capita/day. Water supply distribution system will provide water to each home. **The estimated portable water required for 5334 persons @ 18 gallons/person =2,42,568 gallons.**

For the water supply network, the society shall use PVC pipe. These pipes are easy to lay, non-corrosive and long life when compared with G.I. and MS pipe. Sluice valve, double air valve & washout shall be installed at appropriate location in the network system. The loop system shall be designed in shape of network resembling a gridiron connected at interval to avoid dead ends. Water will be supplied from more than one direction for its circulation throughout the system. To maintain pressure of water, the supply shall be made from overhead tanks to be built at adequately

suitable location for better water head.

3.10.16 Sewerage Network

The scheme shall have its own sanitary sewerage system. Accounting for topography of the area, the sewerage will be collected in one point at the west side. Treatment of the sewage will be provided in following form:

- Preliminary Treatment: Bar screens, Imhoff Tanks, Septic Tanks
- Secondary Treatment: Polishing Of effluent, Filtration

Sewage treatment plant (STP) shall be designed and installed to ensure to save disposal of sewerage water into natural stream.

3.10.17 Surface Draining

Storm water collection system will be provided along the roadsides. For the purpose of calculation, maximum rainfall intensity has been taken as 3 inches per hour.

3.10.18 Street lights

Street lights will be installed as per standard.

3.10.19 Roads

Roads will be constructed 272.61 Kanals which is 39.06 % of total area.

3.10.20 Energy Conservation

- Main source of energy is IESCO
- Use of Sunlight has been incorporated in each house design.
- Ventilation system is necessary for each house design.
- Open space for tree plantation / Landscaping in front of each house and indoor has been made compulsory as per rules.

3.11 RESTORATION AND REHABILITATION PLANS

None of the locals or residents will be relocated or any vegetation or infrastructure affected or destructed because the proposed site is in possession of the proponent and the site is a vacant plot, hence the proposed project does not require any restoration or rehabilitation plan. The proponent will plant ornamental and indigenous species of the plants to increase the aesthetic value and climatological condition of the area.

3.12 CHANGING IN PLANNING AND DESIGN

Proponent has not any plan to change in planning and design in near future. Addition of facilities shall be done in phases based on the requirements.

3.13 LAND ACQUISITION, RESETTLEMENT, AND COMPENSATION

Proponent is the one of the owner of the land. No additional land will be acquired: therefore no resettlement and compensation issues are expected.

3.14 GOVERNMENT AND OTHER APPROVALS

- The proponent has applied for Environmental approval
- PHATA NOC attached herewith (See Annexure III- Government Approvals)

3.15 SUITABILITY OF THE SITE

The project site is not located in any prohibited, environmentally sensitive area.

OPF Nearby Landmarks & Places:

The OPF is surrounded by:

- Kallar Seydan Road
- Islamabad
- Rawalpindi
- Islamabad Express way (Rawat road)

4 DESCRIPTION OF BASELINE ENVIRONMENT

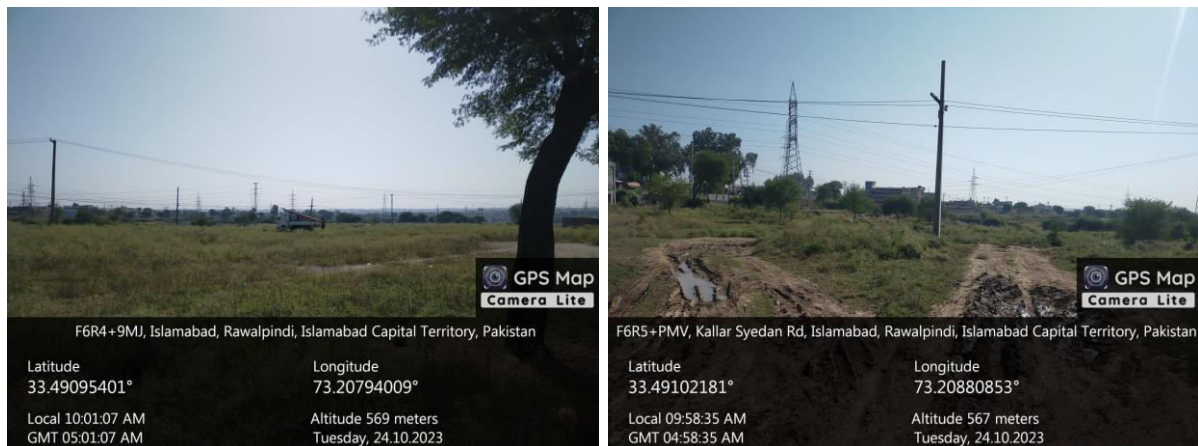
4.1 GENERAL

This chapter describes the baseline conditions, which covers the existing physical, ecological and socio-economic environment of the Project Area as well as the Study Area. Information on these aspects has been derived from the desk study of available data, field visits to the Project/Study Area and information obtained through the visits to the Government departments and other agencies.

4.2 PHYSICAL ENVIRONMENT

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

FIGURE 4.1: PHYSIOGRAPHY OF THE PROJECT AREA



4.2.1 TOPOGRAPHY

The proposed project site has undulations and minor hilly topographic features in surroundings. At few places undulating strata are the main topographic features. Elevation of the area is about 1226 ft. above mean sea level.

Topographically Rawalpindi falls in the Potohar plateau. The terrain surrounding the city is rolling to hilly, criss-crossed by ravines and nullahs running out from these hills. The land is fertile with native vegetation. Topography of the project site is slightly minor undulating to flat terrain.

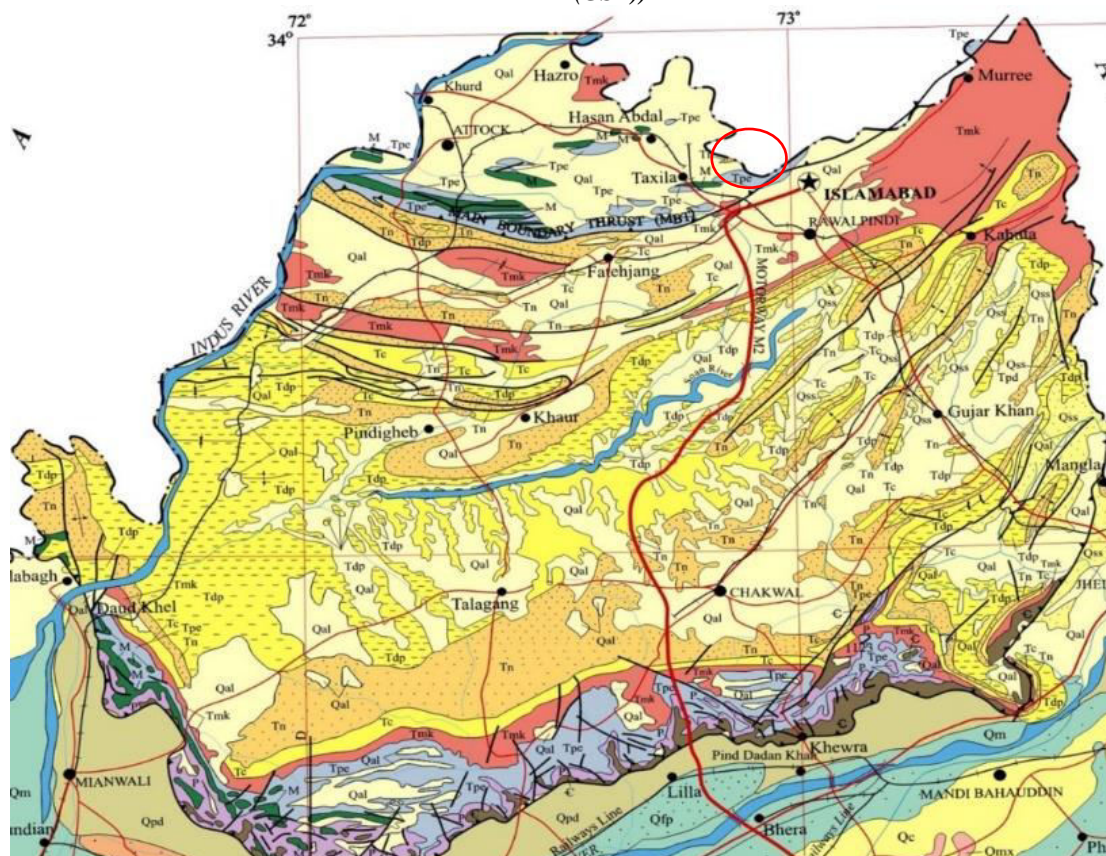
4.2.2 GEOLOGY

The project area is situated within the Soan syncline: an asymmetric, faulted fold of regional extent, plunging west-southwestward, with fluvial sand stone, clay stone and conglomerate of Siwalik group. The project area is underlain by Quaternary deposits, because ling and Soan Rivers confluence points and Soan River is at a few distance of the site, the local soils were expected to consist of Holocene flood-plain and fan alluvium.

FIGURE 4.2: GEOLOGICAL FEATURES OF THE PROJECT SITE REPRESENTING RED TO BRIGHT RED CLAY WITH MEDIUM GRAINED PEBBLES.



FIGURE 4.3: GEOLOGICAL MAP OF PROJECT DISTRICT (Source: Geological Map of Punjab, Pakistan (GSP))



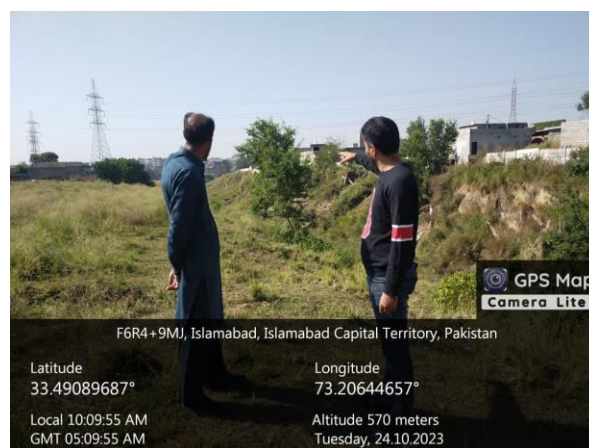
4.2.3 SEISMICITY

Seismic Hazard Zoning of the OPF Housing Project has been done in light of the specifications of Building Code of Pakistan, Seismic Provisions 2007. On this basis, the proposed site is present in Seismic Zone 2B i.e. no damage zone. The seismic zoning map of Pakistan is shown on next page.

4.2.4 SURFACE WATER

The project area exhibits Rainfed area, and natural water stream Channel is present inside the project site. The seasonal Nullah is located near the project site towards east.

FIGURE 4.4: VIEW OF SEASONAL NULLAH IN THE PROJECT SIDE



The Soan River is the main streams draining the area. Their primary tributaries are the Ling River, draining northwestward into the Soan; Gumreh Kas, draining westward into the Kurang from the area between the Kurang and Soan; and Lei Nala, draining southward into the Soan from the mountain front and urban areas. The Kurang and Soan Rivers are dammed at Rawal and Sambli Lakes, respectively, to supply water for the urban area. Extensive forest reserves in the headwaters of the Kurang and Soan Rivers benefit the quality and quantity of supply. A supplemental network of municipal and private wells as deep as 200 meters (m) produces ground water primarily from Quaternary alluvial gravels. The altitude of the water table decreases from about 600 m at the foot of the Margala Hills to less than 450 m near the Soan River, so that the saturated zone generally lies 2–20 m below the natural ground surface (Ashraf and Hanif, 1980). Lei Nala carries most of the liquid waste from Rawalpindi and contributes greatly to the pollution of the Soan River below their confluence. Solid-waste disposal practices threaten the quality of ground-water reserves.¹

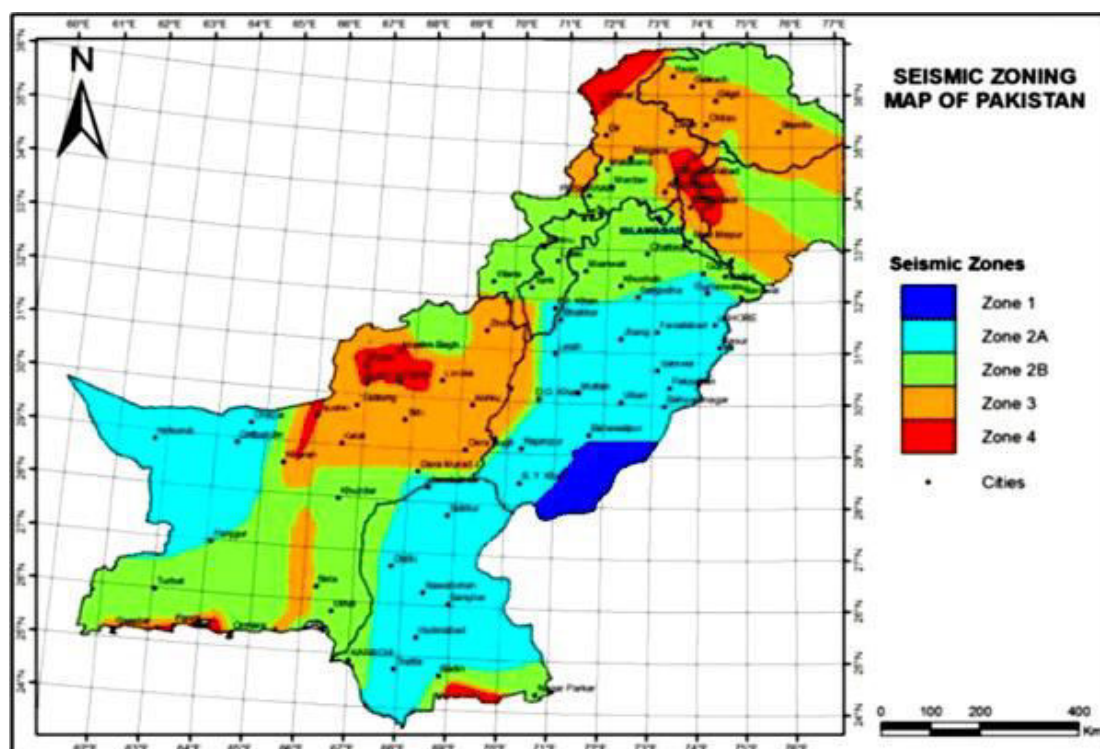
¹ Environmental geology of Rawalpindi

In the project area the main source of water for drinking purposes is local water supply although to meet need people also have installed hand pumps and boring to use Ground water. A Ground water sample near project site was taken; different physico-chemical parameters and heavy metals were tested while using standard method employed by American Public Health Association (APHA), the test results are given in table below:

4.2.5 GROUNDWATER

The source of water for the proposed project and the existence of underground water reservoir is also an important consideration for a project. Ground Water quality of the area is safe under permissible limits as per Punjab Environmental parameters. The water is usually used for domestic, agricultural and industrial purpose. In the project area, water sampling and analysis was carried out to establish the baseline conditions for the ground water quality. These samples were analyzed by EPA certified Laboratory in Lahore. Also on spot analysis was also conducted for Temperature, Total Dissolve solid, Electrical Conductivity, pH and Dissolve oxygen.

FIGURE 4.4: SEISMIC ZONING MAP OF PAKISTAN (SOURCE: GEOLOGICAL SURVEY OF PAKISTAN)



4.2.7 CLIMATE

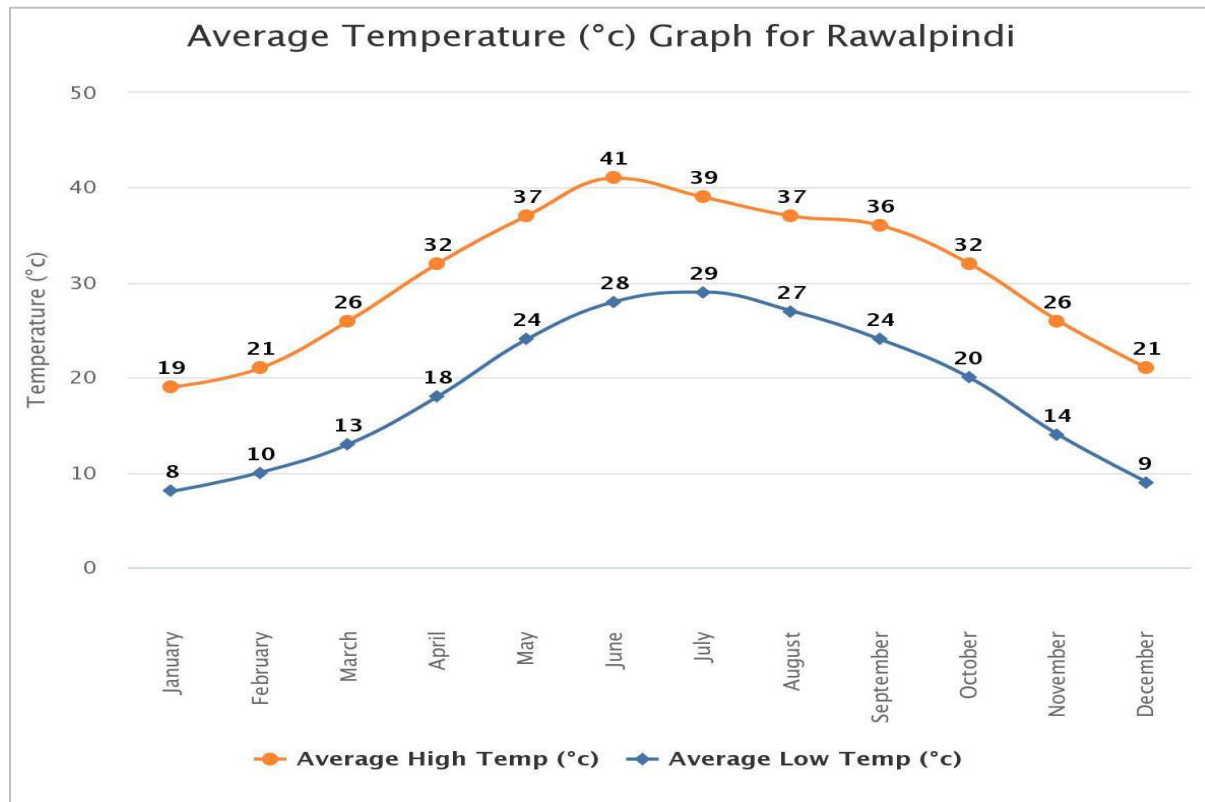
The weather in Rawalpindi is highly variable due to its location. Rawalpindi faces very moderate type of climate having hot summers, which stays usually for long, a monsoon, and mild wet winters which stays for short period of time. The weather condition of Rawalpindi is usually classified similar to its twin city Islamabad but due to over urbanization of the city, it now has become notably different.

Rawalpindi's weather has historically been known to change rather quickly due to its proximity to Himalayas and the Pir Panjal Range. These mountains not only influence the weather of the city, but also provide great recreation during summer season. In summers, June is the hottest month and January is the coldest month of the year. The average annual rainfall is 1,346.8 millimetres (53.02 in), most of which falls in the monsoon season. However, frontal cloud bands also bring significant rainfall in the winter. Throughout the year, Rawalpindi and Islamabad experience an average of about 98 thunderstorms, which is the highest frequency of thunderstorms in Punjab province. In fact, most rainfall in the city is accompanied by a thunderstorm with peak activity experienced in August.²

The driest month is November, with 26 mm | 1.0 inch of rain. Most precipitation falls in August, with an average of 197 mm | 7.8 inch. The highest elevation is 9210 feet close in the Murree Hills, and lowest in the southern part of the district is 1100 feet. Rawalpindi is 497m above sea level.

In Rawalpindi, the summers are short, sweltering, humid, wet, and clear and the winters are short, cold, and mostly clear. Over the course of the year, the temperature typically varies from 4°C to 38°C and is rarely below 1°C or above 42°C.

² <https://rawalpindi.punjab.gov.pk/climate>

FIGURE 4.5: AVERAGE TEMPERATURE OF DISTRICT RAWALPINDI


The orange line shows the average high temperature and the dark blue line show the average low temperature, from January to march the average high temperature raise from 19°C to 37°C and the temperature is on the high peak in the month of June, July. The average high temperature is falling down in the month of October, November and December. While the average low temperature of the district Rawalpindi is increasing from January to March and decrease in the month of November and December.³

4.2.8 HUMIDITY AND RAINFALL

Monsoon rains mostly occur in July and August. Winter rains fall in January and February.

The monthly humidity of rawat from January to December is shown in the figure. The maximum humidity is recorded in august, which is 77%, and the lowest humidity is 36%, which is recorded in the month of May.

TABLE 4.1: MONTHLY MEAN HUMIDITY OF DISTRICT RAWALPINDI

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Humidity (%)	66%	65%	58%	47%	36%	41%	68%	77%	66%	53%	59%	63%

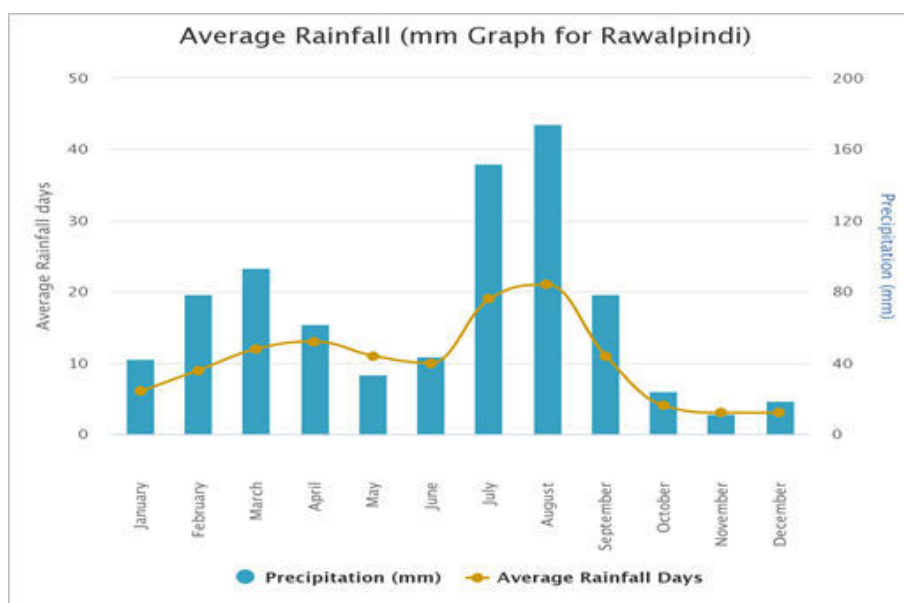
³ World weather online.com/Rawalpindi



Mean Monthly Relative Humidity at Rawalpindi (2010-2022) is shown in table 4.1. The maximum humidity ratio was recorded up to 60% on August 2010, August 2020, August 2022. While on November 2016, the least muggy day of the year, is recorded with 16% humidity.⁴

The rainy period of the year lasts for 9.7 month from January to October. The most precipitation during the 21st day centered on august with an average total accumulation of 81mm precipitation. In January the average rainfall days are 6 recorded with precipitation of 40mm and June has 6 days of average rainfall with 43.9mm precipitation. The least rainfall is recorded in November with precipitation of 11.2mm.⁵

FIGURE 4.6: AVERAGE RAINFAL OF DISTRICT RAWALPINDI



4.2.9 WATER QUALITY

In the project area the groundwater samples were collected from one location. These samples were analyzed by EPA Punjab Certified Lab. Also on spot analysis was also conducted for Temperature, Total Dissolve solid, Electrical Conductivity, pH and Dissolve oxygen. The water sample tested for different parameters and the sample was safe for drinking.

4.2.10 AMBIENT AIR QUALITY

⁴ Rawat weather

⁵ en.climate-data.org



A 24 hours environmental monitoring was conducted in the Project area. The ambient air quality was monitored on two different spots. The ambient air quality was monitored for priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulfur dioxide and particulate matter PM10 & PM 2.5). The monitoring was at individual sampling points. The study identified that PM10 and PM 2.5 were found in the permissible limits. Among the Nox, Cox and Sox were below detecting limits and are not of immediate concern.

4.2.11 NOISE LEVEL

Noise is a significant environmental problem and originates from many sources such as vehicular traffic (termed as roadway noise), aero planes, heavy machinery employed in construction work etc. Elevated noise levels significantly affect the physiological and psychological health which includes hearing loss, annoyance, hypertension, aggression, high stress levels depending upon the magnitude of noise and duration of exposure.

According to Punjab Environmental Quality Standards (PEQS), the level of noise should not exceed 85 decibels (dB) at a distance of 7.5 m from the source. Noise level monitoring in the project area was conducted at three different locations to record noise levels generated by the construction machinery/equipment. In all cases, a distance of 7.5 m from the source was maintained and a set of five readings were recorded to subsequently calculate equivalent continuous noise level (Leq).

4.3 ECOLOGICAL ENVIRONMENT

In this section, the baseline environmental conditions pertaining to biological environment have been described on the basis of primary and the secondary data. An initial reconnaissance of the project area was carried out followed by a detailed biological survey by ecological experts.

4.3.1 FLORA

The project area and its surroundings includes vegetation type of basically sub-tropical thorn mixed culture. *Acacia modesta* is the predominant species, besides *Olea cuspidate* and *Dodonea viscosa*. The common vegetation includes of Shisham, (*Dalbergia sissoo*), Keekar (*Acacia Arabica*), Shareen (*Albizzia lebbek*), Bari (*Ziziphus Jujuba*), Guava, Citrus etc. While wild bushes, and grasses are dominant in the project site.

FIGURE 4.5: FLORAL INVENTORY OF THE PROJECT SITE



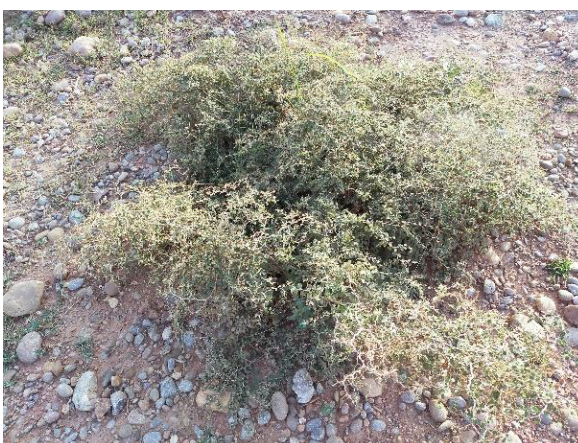
Cannabis (hemp)



Desmostachya bipinnata



Prosopis juliflora



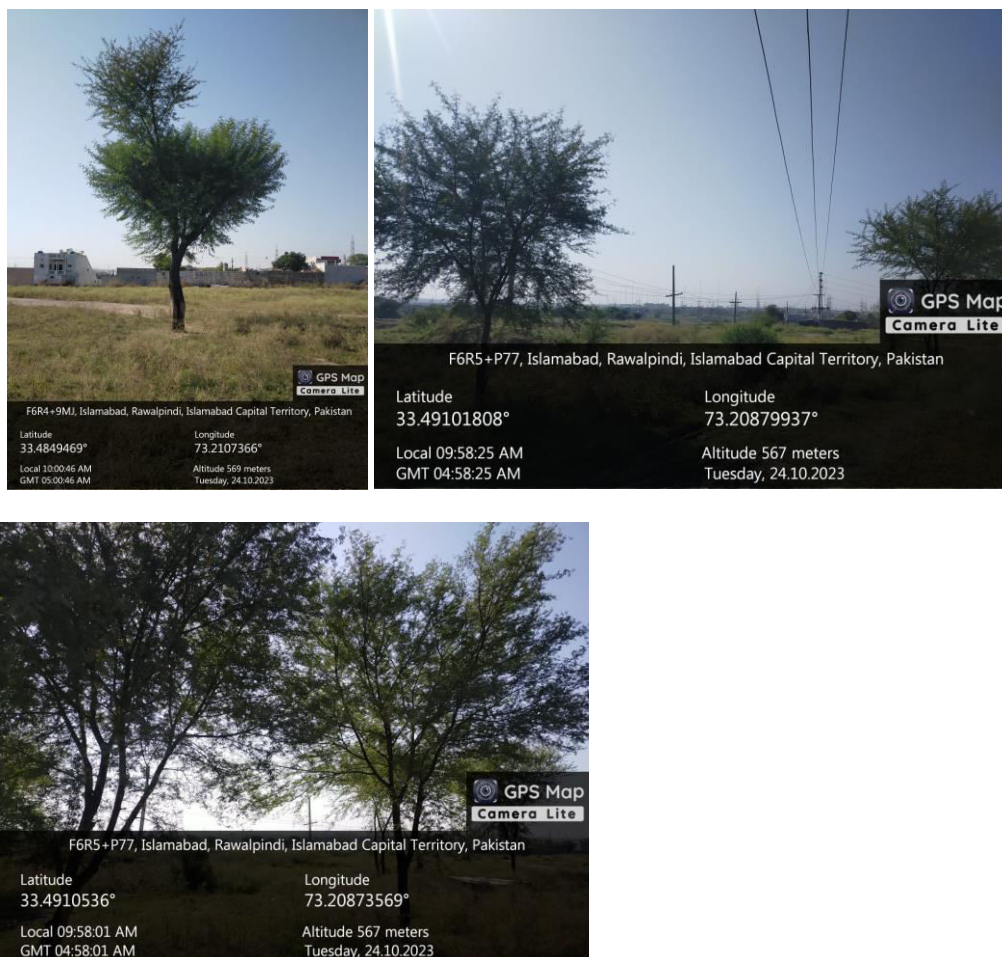
Cordulatus



Shrubland vegetation



Calatropis procera



Accacia modesta (Keekar)

There are a number of species of shrubs and grasses are common in the area including *Acacia*.

4.3.2 FAUNA

The wildlife is scant in the area. Local cats and dogs are found. Few common birds were found during the survey like common crow and Great Egret. Among the wild animals, wild rabbits, jackal, foxes, wild cats are commonly found in the common in the village.

The birds sited in the project area are Egret, Collared Dove, Black Partridge, House Sparrow, House Crow, Little Brown Dove, White Cheeked Bulbul, Owl, Myna, Rock Pigeon, Crow, bulbul and Grey francolin (Teetar). None of species found were listed in the IUCN Red List.

FIGURE 4.6: EURASIAN COLLARED DOVE

4.4 SOCIO-ECONOMIC AND CULTURAL ENVIRONMENT

This section describes the socio-economic and cultural environment of the project area. It presents information on the pertinent socio-economic parameters of the area and includes inter alia its location, major settlements, religious and cultural heritage sites, and economy and lifestyle of the people residing within and in the close proximity of the project sites. The baseline environmental conditions pertaining to socio-economic and cultural environment have been described using the secondary and the primary data. The secondary data were obtained either from published sources or from various departments while the primary data were obtained through surveys conducted in the project area. The information was collected with the purpose of obtaining a clear and complete understanding of the socio-economic conditions of the local residents, assess the vulnerability of the local communities and identify the concerns of local residents regarding the proposed project activities. These baseline environmental conditions have subsequently been used to identify the potential impacts on socio-economic environment that are likely to arise from the project activities. In addition, the mitigation measures that need to be adopted to reduce or minimize these impacts have also been spelled out.

Protecting people and the environment is considered a core value at Pakistan. This section describes the key socio-economic and cultural features of the Micro & Macro environment of the project area i.e. Mouza Chura, Union Council Koliyan Hameeda Tehsil and District Rawalpindi.

4.4.1 ADMINISTRATIVE SETUP

The project falls in Koliyan Hameeda Union Council and Tehsil Rawalpindi District of Punjab Province. There are seven tehsils, forty six union councils and one municipal committee in District Rawalpindi.

S.No.	District Name	Tehsil	Project Area Falls in
1	Rawalpindi	Rawalpindi Tehsil, Gujar khan, Taxila, Murree, Kotli sattian, Kahuta, Kallar syedan.	Rawalpindi Tehsil

4.4.2 POPULATION AND HOUSING

The project falls in rawat union council, Rawalpindi District of Punjab Province. With the reference of census 2017, district population, sex ratio and average annual growth are mentioned below:

District	Households	Population-2017				Sex Ratio	Avg. Annual Growth 1998-2017
		Male	Female	Trans-gender	All Sexes		
Rawalpindi	888,765	2,741,872	2,663,075	686	5,405,633	102.96	2.52
Rural	418,177	1,262,511	1,267,536	70	2,530,117	99.6	2.95
Urban	470,588	1,479,361	1,395,539	616	2,875,516	106.01	2.18

⁶ District wise population by sex and rural urban census 2017 Punjab.

Population-2017		
Tehsil	Population-2017	Avg. Annual Growth 1998-2017
	All Sexes	
Rawalpindi Tehsil	3256641	2.79
Rural	1158817	4.32
Urban	2097824	2.11

4.4.3 EDUCATION AND LITERACY

Rawalpindi boasts one of the highest literacy rates in the country. The number of educational institutions & enrollment available in the district is presented in table below:

District	Education status						
	Numbers			Enrollment			
	Schools	Universities and colleges	others	Schools	Universities and colleges	and	others
Rawalpindi	2,901	46	394	595,000	60,809		26,734

4.4.4 HEALTH FACILITIES

⁶ Pop and household from block to district level.



District Health Officer Supervises the health care activities at the district level. Following health units and hospitals have been established in the district. **The proposed project site will be provided with medical clinic facility (See Annexure-I Layout Plant).**

Health Facilities

Sr. No.	Number of Health care Facilities	District Rawalpindi
1.	Districts Headquarters hospitals	2
2.	Tehsil Headquarters Hospitals	06
3.	Allied hospitals	02
4.	Rawalpindi institute of cardiology	01
5.	Maternity Community Health Centers	06
6.	BHUs	98
7.	GRD	06
8.	Dispensaries	06

4.4.5 POST OFFICES

Postal facilities like Post Office and money order, etc. are currently available in the villages in the peripheral area of the project. The major service centers are available in developed sectors of Rawalpindi.

4.4.6 TRANSPORTATION

Public transport is available in the near the project site at Kallar Seydan Road. During the field visits, coasters, wagons, etc. were observed on the nearby road.

4.4.6 ROAD NETWORK

The project site is easily accessible to the Kallar Seydan Road, Islamabad Express way GT Road Lahore and Mandra Chabeli Road.

4.4.7 TELEPHONE

Telephonic and Cellular communication are available in the project area.

4.4.8 CULTURAL HERITAGE

There was no significant cultural heritage site found in the proximity of the project. There were also no documented or protected sites of archaeological, cultural, historical & religious significance identified in the project area.

4.4.9 WELFARE OF EMPLOYEES

Management of project is mindful of the fact that the satisfied employees will deliver better output.

4.4.10 COMMUNITY SUPPORT

Proponent will take interest in welfare of the local people. They will support certain community projects.

4.4.11 CULTURAL, RELIGIOUS & OTHER STRUCTURES

No cultural, religious and other structures are present in the vicinity of the project area.

4.4.12 RECREATIONAL SITES

No recreation site within the limit of project area as well as in the vicinity of the project area was noted during the field survey. Thus, there would not have any impact on the recreational activities of the local population/ community due to the implementation of this project.

4.4.13 SUITABILITY OF THE SITE

There is not any prohibited environmental sensitive area near the proposed project site. Google map of the area is attached in the Annexure-II of the report.

5 SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 GENERAL

This chapter identifies the potential impacts due to the implementation of the proposed project on the physical, ecological and socio-cultural environment of the Project Area. The chapter also identifies measures that will help to mitigate the Project's adverse environmental effects and enhance the positive impacts.

5.2 APPROACH ADOPTED FOR IMPACT IDENTIFICATION

- **Screening of Potential Impacts**

Based on site visit, observation, brain storming, provided information and social interviews, significant impacts were anticipated and evaluated. Then qualitative and quantitative (where possible) assessment of these anticipated impacts is to be carried out.

- **Identification of Mitigation measures**

After anticipation and screening of significant impacts, certain mitigation measures are to be provided in order to enhance benefits of project and reducing impacts.

- **Evaluation of the Residual Impacts**

Incorporation of suggested mitigation measures may reduce the magnitude of the environmental impacts of the project but sometimes, it may fall in bringing them within acceptable limits. This step refers to the identification of the anticipated remaining impacts after mitigation measures have been applied.

- **Identification of Monitoring Requirements**

The last step in the assessment process is the identification of minimum monitoring requirements, the scope and frequency of monitoring depends on the residual impacts. The purpose of the monitoring is to confirm that the impact are within the

prescribed limits and to provide timely information if acceptable limits are being breached.

5.3 ANTICIPATED POTENTIAL ENVIRONMENTAL IMPACTS

Characterization is done on the basis of significance, probability and prevalence of the potential impacts in the surrounding environment. Typical parameters to be taken into account in impact prediction and decision-making include:

- Nature (positive, negative, direct, indirect, cumulative);
- Magnitude (severe, moderate, low);
- Extent/location (area/volume covered, distribution);
- Timing (construction, operation, decommissioning, immediate, delayed, rate of change);
- Duration (short term, long term, intermittent, continuous);
- Reversibility/irreversibility;
- Likelihood (probability, uncertainty or confidence in the prediction).

Evaluation of impacts will be based on determining the significance of impacts as well as characteristics of impacts. Indicators considered for determining the significance include: predicted increase in acceptable level (established standard e.g. PEQS and duration) in relation to key species life cycle and requirement for population maintenances, geographical extent of an effect, assimilative capacity for environmental attributes. To determine the significance of impacts on bio physical and socio economic environmental of the proposed project, impact characterization is discussed and is given as table for construction and operation phase.

The criteria used to define the significance of impacts in terms of low, Moderate and severe impacts are as follows:

- **Negligible/No Impact:** An impact of negligible significance (or an insignificant impact) is where a resource or receptor (including people) will not be affected in any way by a particular activity, or the predicted effect is deemed to be ‘negligible’ or ‘imperceptible’ or is indistinguishable from natural background variations.

- **Low:** An impact of minor significance is one where an effect will be experienced, but the impact magnitude is sufficiently small (with and without mitigation) and well within accepted standards, and/or the receptor is of low sensitivity/value.
- **Medium:** An impact of moderate significance is one within accepted limits and standards. The emphasis for moderate impacts is on demonstrating that the impact has been reduced to a level that is as low as reasonably practicable (ALARP). This does not necessarily mean that 'moderate' impacts have to be reduced to 'minor' impacts, but that moderate impacts are being managed effectively and efficiently.
- **High:** An impact of major significance is one where an accepted limit or standard may be exceeded, or large magnitude impacts occur to highly valued/sensitive resource/receptors. A goal of the EIA process is to get to a position where the Project does not have any major residual impacts, certainly not ones that would endure into the long term or extend over a large area. However, for some aspects there may be major residual impacts after all practicable mitigation options have been exhausted (i.e. ALARP has been applied).
- **Positive/Beneficial:** Impact that is considered to represent an improvement on the baseline or introduces a positive change.

5.4 IMPACTS ASSOCIATED WITH PROJECT LOCATION

Factors including Easy road access, no settlements in close vicinity, no archaeological or cultural resources to be dismantled or relocated, and no ecologically sensitive or declared protected area existing on proposed site favors the point of no impact due to project location.

5.5 IMPACTS DURING PROJECT DESIGN & PRE CONSTRUCTION PHASE

PHYSICAL ENVIRONMENT

Following is the description of the impacts envisaged during the design & pre-construction phase of the project:

5.5.1 TOPOGRAPHY

Topography of the area will change, due to the construction of the Project related infrastructure, such as roads and bridges. Generally, slopes in the area are mild but at some places steep slopes also exist. Due to these steep slopes

there will be changes in the topography, which may be permanent impact and of adverse nature.

- The sites selected for the development of the Housing Scheme are mostly flat pieces of land available in the area. However, slight trimming of the land may be required during development and cut and fill procedure will be followed. Therefore, there will not be any significant adverse impact on the topography of the area.

ECOLOGICAL ENVIRONMENT

Project Area particularly along roads contains good vegetative cover. The development activity by proponent will not cause an adverse environmental impact on the existing vegetation. No major tree cutting will be done although after the completion of the project, more trees will be planted in the project area as the proponent has already established nursery in the project vicinity.

SOCIO-CULTURAL ENVIRONMENT

5.5.2 LAND ACQUISITION

One of the major impacts related with the location of the proposed Project facilities and to be dealt at Design Stage level i.e. prior to construction activities is the acquisition of land. It is estimated that about 100 Kanals , 1 Marla of land is acquired.

5.5.3 DISRUPTION OF INFRASTRUCTURE

Due to the proposed Project activities, no infrastructure may get disrupted.

5.5.4 DISRUPTION OF RELIGIOUS PROPERTIES

Due to the proposed Project activities, no religious properties may get disrupted.

5.6 MITIGATION MEASURES DURING PROJECT DESIGN & PRE CONSTRUCTION PHASE

PHYSICAL ENVIRONMENT

- Maximum efforts should be made to follow the natural topography of the Project Area. However, if it is unavoidable, disturbance should be minimum without damaging the aesthetic view of the area. Slope stability should also be considered.

- Natural drainage of the Project Area should not be disturbed. For this purpose, adequate numbers of culverts and bridges have been proposed. In addition to this, efforts should be made during the detailed design stage that natural depressions and Nullahs should not be disturbed.

ECOLOGICAL ENVIRONMENT

Along with developmental activities, a tree plantation program should also be carried out to compensate the tree cutting, vegetative clearing and to enhance the beautification of the Project Area. For this purpose, extensive plantation will be carried out at proposed parks, along existing & proposed roads and nullahs etc.

SOCIO-CULTURAL ENVIRONMENT

Utmost efforts should be made to minimize the acquisition of land. However, for acquisition of land, compensation would be made as per market value. For this purpose, a land acquisition committee should be organized in consultation with the potential stakeholders.

5.7 ENVIRONMENTAL IMPACTS AND MITIGATION DURING CONSTRUCTION PHASE

The most likely environmental problems to occur from construction could due to:

- Excavations for civil work,
- Construction activities,
- Compaction of soil activity,
- Leveling of land,
- Moving vehicles,
- Erection of building structure,
- On site minor welding and culling of material activity,
- Construction of building and associated civil work.

The entire construction and machinery installation and other activities are restricted to limited scale because of the size and scale of the project is very limited. During civil works, mechanical operations/activities, installation and fitting of machinery and other construction or fabrication activities noise and dust could be the pollutants.

Since the scale of the construction and operations are going to be very limited, therefore, levels of all sorts of pollution will be negligible. Their magnitude will be much within the PEQS levels.

GEOLOGY AND SOIL

The overall geology and soil quality of the Project Site are not expected to be adversely impacted due to the execution of the Project except during the construction periods, which will be a moderate negative impact.

Mitigation:

Re-plantation needs to take place at the Project Site so that soil becomes stabilized and the Site geology is not disturbed.

Monitoring Requirements:

Document all related accidents of spillage to take corrective actions and to avoid reoccurrence.

AIR POLLUTION

During construction phase, the continuous operation of machinery and movement of the cranes, heavy trucks and vehicles may generate gaseous emissions and may have an adverse impact on the surrounding environment. The overall impact on the quality of air during the construction stage will, however, be of lesser intensity. This will be a moderate negative impact.

Mitigation:

Following mitigation measures will be taken into account in order to control air pollution:

- All vehicles, machinery, equipment and generators used during construction activities will be kept in good working condition and properly tuned and maintained in order to minimize the exhaust emissions;
- Open burning of solid waste from the worker camps will be strictly banned; Emissions from power generators and construction machinery are important point sources at the construction sites. Proper maintenance and repair will be undertaken to minimize the emissions.

Monitoring Requirements:

Ambient air quality must be checked near or at project site.

SURFACE WATER AND GROUNDWATER

During the construction stage, the sanitary wastewater will be generated at the workers' camp(s). If this wastewater is allowed to stagnate in water ponds on the site, it can create unhygienic conditions and some of the wastewater may also percolate to the soil, thereby, polluting the groundwater. Therefore, the Contractor will provide a proper sanitary drainage system for the workers' camp.

Mitigation

At project site the water sanitation system will be provided for the safe disposal of wastewater produce from the workers camp. The storage of lubricant materials such as oil and grease will be confined to a specific area so that in case of any leakage or spillage, the lubricant materials do not contaminate the entire Project Site.

The contamination of groundwater due to leakage of oil and fuel from construction equipment and machinery such as trucks/trolleys will be minimized by providing adequate arrangement for the collection and disposal of oil and oil based products by the Contractor. A contractual provision for the same will be made in the tender documents of the Project. The Contractor(s) need to ensure that their machinery and equipment is properly tuned and serviced and there is no leakage or spillage of oil or oily products from the construction equipment and machinery.

Monitoring requirements:

Chemical analysis of wastewater must be done.

DUST

A source of great concern during construction stage is dust nuisance. The existing dust level at the Project Site is minimum due to low traffic load and paved

roadsides. During construction stages, the dust level may increase in and around the active construction area may be generated from the excavation operations, traffic/machinery movement and transportation of construction material at the Project Site. This will be a negative impact.

Mitigation

The majority of dust problems caused during the construction phase of the Project can be effectively mitigated by the implementation of simple procedures by the Contractor including but not limited to the following:

- All excavation work will be sprinkled with water;
- Construction workers will be provided with masks for protection against the inhalation of dust.
- Vehicle speed on the roads along the Project Site will be prescribed and controlled accordingly
- Vehicles used for construction will be tuned properly and regularly to control emission of exhaust gases.
- Preventive measures against dust will be adopted for on-site mixing and unloading operations.
- All materials transported to and from the construction site should be covered;
- Temporary stockpiles of soil or other material should be covered or sprayed with water or suitable chemical wetting agents on a regular basis, particularly during dry or windy conditions;
- All stockpiles should be located as far from residences and businesses as practically possible;
- Dust-generating activities should be minimized during windy conditions, particularly when dust is visible in the air.

Monitoring Requirement:

- Dust emission will be visually monitored.
- Ambient air quality will be checked at or near the project site.

NOISE LEVEL

The Punjab Environmental Quality Standards (PEQS) of noise for traffic is 85dB (A) at the distance of 7.5 meters away from the source. Noise at the proposed project site is already less than the PEQS.

When the construction work is undertaken, constant rattle of heavy machinery will raise the noise level. Since noise is a by-product of human activity, the area of exposure increases as a function of the mobility and construction of structures. Noise due to the construction will be a negative impact. After construction the generator will be used for standby power generation due to which noise will be produced.

Table 5.1: Noise Levels of different situations and their impacts

Sr. No.	Equipment	Noise-Level in dB (A)
1	Earth Moving Machinery	75-85
2	Material Handling Equipment	75
3	Stationary Equipment	75
2	Tools, Hammers and Drivers	80-95

Above 85 dB (A) ear protection devices should be worn.

Table 5.2: General Noise Levels of Machinery and Equipment

Noise Level dB (A)	Situation
192	Lung damage
180	Ear drum rupture
150	Absolute limit with ears protected
150	Maximum of instantaneous noise
135	Absolute maximum with ears unprotected
100	Prolonged noise causing permanent damage
90	Factory work for an 8-hour day, 5 days a week
85	Ear protection should be worn
80	Noise on building or construction sites
70	Normal road traffic near residential areas

Source: The General Services Administration, Construction, Noise Specification, US EPA 2010

According to Table 5.3, which presents the damage risk criteria for hearing loss, noise level above 110 dB (A) can be tolerated for half an hour only.

Table 5.3: Damage Risk Criteria for Hearing Loss*Source: Occupation of Safety & Health Administration, OSHA, USA*

Sr. No.	Maximum Allowable Duration per day (Hours)	Noise-Level in dB(A)
1	8	90
2	6	92
3	2	95
2	3	97
5	2	100
6	1 ½	102
7	1	105
8	½	110
9	¼ or less	115(Max.)

Mitigation

Mitigation measures mentioned below will be adopted to minimize the noise pollution. Those measures include, but are not limited to the following:

- Selection of up-to-date and well-maintained machinery or equipment with reduced noise levels ensured by suitable in-built dampening techniques or appropriate muffling devices;
- Confining excessively noisy work to normal working hours in the day, as far as possible;
- Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
- Providing the construction workers with suitable hearing protection like ear cap, or earmuffs and training them in their use;
- Preferably, restricting construction vehicles movement during nighttime;
- Heavy machinery like percussion hammers and pneumatic drills will not be used during night without prior approval of the Client;
- Use of low noise machinery, or machinery with noise shielding and absorption;

- Contractors will comply with submitted work schedule, keeping noisy operations away from sensitive points; implement regular maintenance and repairs; and strictly follow the operational procedures.

Monitoring requirements:

Monitoring will be done on regular basis to measure the vibration levels and to check compliance with relative standards

WATER POLLUTION

Construction of the society will put heavy demand on water supply. Extensive water will be used during construction phase as well as after the construction; high water consumption may in the long run lower the underground water table due to unplanned excessive withdrawal of water. This will be a negative impact.

Mitigation

There would be coordination between the Proponent and District Management to study the existing system and upgrade it to meet the Unit requirements, so that there is no negative impact on the surrounding area and the delivery of services. The proponent would plan a recharging system such as rain harvesting wells to remove the negative impact of extensive withdrawal of underground water. The Proponents would appoint a consultant to ensure effective project management, efficient use of resources and incorporation of design and infrastructure measures for water conservation etc.

Monitoring Requirements:

Water conservation program, will be initiated to prevent wastage of water.

VIBRATION

During the construction stages of the Project, some of the heavy machinery will produce vibrations at excessive levels. Hence, some mitigation measures need to be taken during the construction phase. This will be a negative impact.

Mitigation

A careful approach will be adopted to minimize the vibration impacts. The construction machinery and trucks used in the construction need to be properly tuned and serviced to avoid any undue noise hazards. Following mitigation measures will be implemented to combat the potential vibration impacts during the construction stage:

- Use of heavy machinery will be restricted from 7.00 am to 7.00 pm except for any emergency for which the contractor will take prior approval.
- Low vibration level machinery will be used and a system of regular maintenance and repairs will be developed and implemented.

Monitoring Requirements:

Monitoring will be done on regular basis to measure the vibration levels and to check compliance with relative standards.

ECOLOGICAL IMPACTS

The project area is an open agricultural land. As such there is no natural vegetation/endangered species at the project site

Mitigation

The proposed final landscape plan will incorporate bird and tree species already present on the site as far as is possible.

HEALTH AND SAFETY

The construction activities impose certain negative impacts on health and safety of the workers and public. Mitigation measures will be required to minimize health and safety related negative impacts of the Project. This will be a moderate negative impact.

Mitigation

Implementation of the following measures will ensure health and safety of the workers and the public during the demolition construction phase:

- The Contractor will ensure that the construction workers / laborers are trained in safety procedures for all relevant aspects of construction;
- Proponents of the Project will make regular checks to ensure that the

contractor is following safety working procedures/safety measure.

- Scaffold must be sound, rigid and sufficient to carry its own weight plus four times the maximum intended load without settling or displacement. It must be erected on solid footing.
- Unstable objects, such as barrels, boxes, loose bricks or concrete blocks must not be used to support scaffolds or planks.
- Scaffold must not be erected, moved, dismantled or altered except under the supervision of a competent person.
- Scaffold must be equipped with guardrails, midrails and toe boards.
- Scaffold accessories such as braces, brackets, trusses, screw legs or ladders that are damaged or weakened from any cause must be immediately repaired or replaced.
- Scaffold platforms must be tightly planked with scaffold plank grade material or equivalent.
- A "competent person" must inspect the scaffolding and, at designated intervals, re-inspect it.
- Stairway treads and walkways must be free of dangerous objects, debris and materials.
- Slippery conditions on stairways and walkways must be corrected immediately.
- Make sure that treads cover the entire step and landing.
- Stairways having four or more risers or rising more than 30 inches must have at least one handrail.
- Be sure that workers wear hard hats where there is a potential for objects falling from above, bumps to their heads from fixed objects, or accidental head contact with electrical hazards
- Safety glasses or face shields are worn anytime work operations can cause foreign objects getting into the eye such as during welding, cutting, grinding, nailing (or when working with concrete and/or harmful chemicals or when exposed to flying particles).
- Eye and face protectors are selected based on anticipated hazards.

- Safety glasses or face shields are worn when exposed to any electrical hazards including work on energized electrical systems.
- Construction workers should wear work shoes or boots with slip-resistant and puncture-resistant soles.
- Safety-toed footwear is worn to prevent crushed toes when working around heavy equipment or falling objects.
- Workers shall wear hard hats where there is a potential for objects falling from above, bumps to their heads from fixed objects, or of accidental head contact with electrical hazards.
- Hard hats are routinely inspected for dents, cracks or deterioration.
- Hard hats are replaced after a heavy blow or electrical shock.
- Hard hats are maintained in good condition.
- Work on new and existing energized (hot) electrical circuits is prohibited until all power is shut off and grounds are attached.
- An effective Lockout/Tag out system is in place.
- Frayed, damaged or worn electrical cords or cables are promptly replaced.
- Formal emergency procedures will be developed for construction site in case of an accident. First aid kits and other necessary equipment will be kept available at site along with the list of emergency phone numbers to be contacted in case of any emergency/accident.

THE SAFETY OF THE PUBLIC AT ALL STAGES OF THE CONSTRUCTION WILL BE ENSURED THROUGH APPROPRIATE PUBLIC EDUCATION AND SAFETY MEASURES SUCH AS USE OF SIGN BOARDS, BARRIERS AND FLAGS AND PROPER ILLUMINATION AT NIGHT.

5.8 IMPACTS DURING OPERATIONAL PHASE

IMPACT ON LAND USES AND ACTIVITIES

Land use can be extremely varied and it is not possible here to address all potential forms. The following list is only mentioned to highlight the most commonly encountered land uses or resources:

- Activities: Agriculture, animal husbandry, forestry, hunting, industry, accommodation, business, recreation, reserves.

- Heritage: Archaeological, historical, spiritual, natural, human health, landscape.
- Man-made facilities: Infrastructures, buildings, shops, plants, transport, communication, services, capital.

All of these parameters have to be addressed individually with the impact due to:

- Raw material production,
- Plant operation and
- Transportation.

Mitigation Measures

The mitigating measures must be implemented to avoid soil pollution. Toxic substances and all special industrial refuse must be treated separately like oil and domestic refuse.

The waste management plan must emphasize the measures to be undertaken to reduce waste production, the recycling systems and the disposal systems and operations.

WATER CONSUMPTION AND CONSERVATION

Drawing water during operational phase, ground water may be a possibility but can only be confirmed with the identification of sustainable water source with adequate quantities and quality fit for consumption.

- On account of increased population (both local as well as visitors), there will be a significant increase in the sewage. It shall lead to further pollution of the available surface water resources.
- With the establishment of new neighborhood centers, new schools, colleges, hospitals and recreation centers, there will be an increased stress on the already scarce drinking water resources.
- Surface run-off from the impervious surface of the carriageway or hillside slopes can aggravate the flooding of embankment during the operation stage.

- If cross-drainage structures like culverts are not adequately maintained and cleaned, natural streams/nullahs tend to become choked with debris and eroded soil, adversely affecting the quality of surface water and ponding in the Project Area

Mitigation Measures

However, it is recommended to adopt following mitigation measures for efficient water management.

- It is prudent to meter this important resource accurately and optimize its usage. For this purpose conservation methods suggested may be adopted to conserve water.
- Water storage and distribution system should be safe and faultless so that there is no contamination and leakage in the system.
- Regular water quality testing should be carried out at different locations to ensure its fitness for consumption.
- Re-use of water and recycling is a valid proposition to conserve water resources and to minimize the effect of depletion of the precious natural resource.
- Avoid land clearing,
- Maintain vegetation along all bodies of water,
- Provide waste disposal facilities,
- Implement procedures for use and storage of chemicals, oil and fuel and to minimize potential pollution effects and implement a monitoring plan to verify the efficiency of the system regularly,
- Implement a monitoring plan.

WASTEWATER DISCHARGE

There will be no hazardous waste water generation during operational activity.

Sewerage water will pass through septic tank at disposals station before discharge to main drain.

SOLID WASTE DISPOSAL

There will be a considerably large quantity of solid waste generated from various activities of the project. The solid waste, if not properly managed and disposed of this can pose environmental threat of pollution not only to the residents and visitors of the industry but also to the surrounding settlements.

Mitigation Measures

The following Mitigations Measures may reduce the impacts of solid waste disposal:

- All solid waste shall be segregated into organic and recyclable waste at source and then collected, stored, and transported for ultimate safe disposal.
- A dedicated waste management contractor shall manage handling and disposal of such waste.
- The solid waste management plan will be developed and thereby facilities for collection, storage and transportation will be established and organized.
- A solid waste recognized contractor will be hired to collect the waste and collect it properly and finally dispose at the proper land fill site after segregation.

ETHICAL CONCERNS

As the project site is present in the agricultural land, no concern has been identified in the survey except a positive response received and majority of the local inhabitants were in favor of this project. Therefore no social & ethical concerns are anticipated.

ECOLOGICAL ENVIRONMENT

There will be no damage to the vegetation of the tract during operation stage.

As the flora and fauna are interdependent, improvement of the flora through plantation shall be a source of attraction for the fauna, especially the avifauna or the birds. The birds, who were scared away during the construction stage, shall return to the Project Area during this stage.

Mitigation Measures

In order to rectify the loss of habitat due to cutting/removal of trees, extensive planting shall be carried out along the both sides of existing and proposed roads, in the compounds of buildings, play grounds, parks and recreation centers, along nullahs and in all other available open spaces.

Fauna depends upon flora of a place. With the improvement of flora the fauna and especially the avi-fauna shall be attracted again to the site and negative impacts on fauna shall be mitigated to a great extent.

5.9 IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT

This section discusses the extent of the potential impacts anticipated from the project activities. Based on the nature and type of impacts, the assessment has been divided into three category i.e. positive, negative and negligible impacts.

A) Positive Impacts

Job Opportunity

The project activities are likely to generate employment opportunities both during construction and the operations phase. It is expected that there will be more than 50-100 workers involved during the normal operational phase. The occupational profile of nearby settlements is such that the locals can be good source of labour during both phases. The community therefore can benefit from the jobs available. Thus the impact on employment due to construction and operation of the society can be considered as “significantly positive”.

Wider Economic Growth

This project will increase the economic activities around the area, creating avenues for direct/indirect employment in the post project period.

B) Negative Impacts

Water Scarcity Problems

Conservation practices will nevertheless be adopted during the entire course of construction. For the proposed project, rainwater will be collected in the reservoir for water harvesting and to augment the water table in the area and if need arises will be used to compliment project water requirements together with treated recycled water after due treatment. Sufficient groundwater recharge pits are planned inside the project area, which would complement the groundwater resources along with the natural recharging in the landscaped areas of the project site

Transient Labor Population

Laborers for the project would be from surrounding areas. The majority of labors working on the site would be on a contract basis or from the neighboring settlements. No significant pressure on local infrastructure is envisaged if a small percentage of laborers settle in and around the site during construction phase.

C) Negligible Impacts

Demography

During the operation phase also, the facility would not lead to migration or relocation of any group to the proposed site. A very small fraction of people working in the society may come and settle in the vicinity of the site. Therefore the project is not likely to significantly alter the existing demographic profile and the existing population density.

Impact on Historical, Archeological and Architectural Sites:

There are no historical or archeological monuments of significance within the project site and hence no negative impact in this regard is anticipated

5.10 POTENTIAL ENVIRONMENTAL ENHANCEMENT MEASURES

The proposed project has a number of positive impacts, which include:

- The proponent will established nursery in the project vicinity with various fruits trees and other native plants.
- Suitable Landscaping will be accompanied to preserve asthetic beauty in the area.

- The project does not involve any land acquisition issue.
- No residential and commercial structures will be affected.
- The project has a potential to create employment opportunities, and will improve the standard of living/ livelihood of the population in the project area.
- The project will improve the living standard.
- The proponent will plant indigenous species of plants to increase the aesthetic value of the area and improve the climatological conditions of the area.

Table 5.3: Checklist provides the screening of potential environmental impact

SCREENING QUESTIONS	Yes	No	REMARKS
A. Project Siting			
Is the project area			
Located in designated industrial area?		X	Project site lies in Union Council Koliyan Hameeda near Chakri Interchange M-2
Densely populated?		X	Project area is in a barren native land.
Have land use change issue?		X	There is no land use change issue, Surrounding are also having similar kind of Housing Societies.
Adjacent to or within any environmentally sensitive areas?			
Cultural heritage site		X	No heritage site is found close to project site.
Protected area		X	No protected area is found within or immediate environs the project site.
Estuarine		X	Not Applicable
Buffer zone of protected area		X	Not Applicable
Special area for protecting biodiversity		X	Not Applicable.
B. Potential environmental impacts			
Will the project cause...			



Impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services.		X	Not envisaged during the project operation. As the project will generate very limited quantity of waste which can easily be manageable. Kindgom Valley Housing Society will have its own waste management system.
Deterioration of environmental conditions of surrounding of project site during construction.		X	Not envisaged. Temporary disturbance may last till the completion of construction work.
Degradation of land and ecosystems (e.g. loss of forests)?		X	Not envisaged. Temporary disturbance may last till the completion of construction work.
Dislocation or involuntary resettlement of people.		X	Not Applicable.
Degradation of cultural property, and loss of cultural heritage and tourism revenues?		X	Not envisaged. No such sites are found within the proximity of the site.
Water resource problems (e.g. depletion / degradation of available water supply, deterioration for surface and ground water quality, and pollution of receiving waters)?		X	Water requirements will be fulfilled by tankers supply and water bores.
Air pollution due to dust and gaseous emissions?		X	Air quality of the area will not be degraded, ensuring implementation of mitigation measures provided in the report.
Social conflicts between construction workers from other areas and local workers?		X	Not expected. Very limited construction activity involved within the existing boundaries of the facility. There will be no interaction of local community and workers.
Road blocking and temporary flooding due to land excavation during rainy season?		X	Not envisaged.
High Noise from construction activities?		X	Not envisaged on surrounding community as the project surrounds many Housing Societies as well.
Traffic disturbances due to construction material transport and wastes?		X	Not expected, ensuring implementation of mitigation measures provided in the report.





6 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

The goal of the Environmental Management and Monitoring Plan (EMMP) is to ensure that all the necessary corrective actions are carried out to counter any adverse environmental



impacts and that enhancement measures are used where feasible and practical. One of the aims of the monitoring program is to actually observe and analyze these impacts, thereby providing the information to help in the modification of mitigation measures to reduce the risks, hazards and associated with this development Projects.

6.1 GENERAL

For the effective implementation and management of the proposed mitigation measures, it is necessary to develop an EMMP which basically provides a delivery mechanism to address the potential impacts of the Project activities and to develop a monitoring program in order to minimize the potential impacts during the construction and operational stages of the Project.

6.2 OBJECTIVES

The EMP has been prepared with an objective of:

- Outlining the mitigation measures required for avoiding or minimizing the potential impacts assessed by IEE.
- Developing a monitoring mechanisms and identifying the requisite monitoring parameters to confirm effectiveness of the mitigation measures recommended in the IEE.
- Defining roles and responsibilities of the Project proponent for the implementation of EMP and identifying areas where these roles and responsibilities can be shared with other parties involved in the execution and monitoring of the Project.
- Defining the requirements necessary for documenting compliance with the EMP and communicating it to all the concerned regulatory agencies.
- Prescribing the mechanisms with which consultation with stakeholders during the Project will be maintained.

6.3 STRUCTURE OF EMMP

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

6.4 LEGISLATION, GUIDELINES AND ENVIRONMENTAL STANDARDS

The main environmental legislations concerned for this Project are the Pak-EPA, 1997, LAA, 1894, the Forest Regulations, 1930, Wildlife (Protection, Preservation, Conservation and Management) Act, 1975.

EFFLUENTS

The PEQS of Punjab will be used for effluents. The NEQS for municipal effluents define the maximum allowable concentration of pollutants in effluents released into different types of receiving bodies. This standard will apply to all effluents from Project facilities.

GASEOUS EMISSION

The PEQS of Punjab for gaseous emissions define the maximum allowable concentration of pollutants. This standard will apply to all gaseous discharges from Project facilities.

AMBIENT AIR QUALITY

Standards for ambient air quality are prescribed under the PEQS of Punjab and will be

NOISE

Standards for vehicle-generated noise are prescribed under the PEQS of Punjab and will be followed.

DRINKING WATER

In addition to the PEQS that apply to effluents released from construction camps, WHO drinking water quality guidelines will be used as reference points for determining water quality.

SURFACE WATER

The surface water quality standards have been established under PEQS and will be followed

6.5 ROLES AND RESPONSIBILITIES

The organizational roles and responsibilities of the key players are summarized below:

Proponent: the project proponent will undertake overall responsibility for compliance with the emp. Proponent will carry out verification checks to ensure that the contractors are effectively implementing their environmental and social requirements.

Contractors: the contractors will implement the majority of environmental and social mitigation measures. The contractors will carry out field activities as part of the project. The contractors are subject to certain liabilities under the environmental laws of the country, and under its contract with proponent.

TABLE 6.1: ROLES AND RESPONSIBILITIES OF PROPONENT & CONTRACTOR

Sr. #	Positions	Significance	Stage	Environmental Responsibilities
1	Proponent / Owner	Critical	Construction / Operations	- Oversee Environmental Policy and EMMP - Serve as primary contact to the regulatory authorities - Commit resources to achieve environmental objectives
2	All Employees	Critical	Construction / Operation	- Attend training and understand their roles in the implementation of EMMP - Understand the Environmental Policy / Objectives and act accordingly - Participate in the review of EMMP - Coordinate with the responsible authorities within the project to report any noncompliance to their Environmental Policy
3	Construction Supervisor	Critical	Construction	- Understand the environmental policy of the project - Operate in accordance with the environmental policy - Ensure reducing the chances of increased solid waste - Reduce water and energy wastage - Ensure all machineries /equipment are in good conditions - Ensure health and safety of the workers during construction phase - Ensure safe transportation of good/materials to and from the proposed project site
4	Maintenance Manager	Critical	Construction / Operation	- Understand the environmental policy of the project - Operate in accordance with the environmental policy - Ensure reducing the chances of increased

				solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of the workers during construction / operational phase • Provides health, safety and environmental awareness trainings to the environmental management cell staff
5	Environmental Management Cell	Critical	Operational	• Understand the environmental policy of the project • Operate in accordance with the environmental policy • Ensure reducing the chances of increased solid waste • Reduce water and energy wastage • Ensure all machineries /equipment are in good conditions • Ensure health and safety of workers/residential/commercial dwellers during operational phase • Receive health, safety and environmental awareness trainings • Prepare and maintain accidents/environmental risk records • Timely coordination with the responsible authority

6.6 ENVIRONMENTAL MANAGEMENT PLAN

The environmental protection and enhancement are achieved in various ways. These approaches should begin right at the embryonic stage, i.e.

- Project location,
- Design, specifications
- Construction activities and
- Post completion activities i.e. operation and maintenance stage.

Appropriate environmental management measures are required to be exercised in a cascade order by the Project proponent at each stage of the Project.

In this way, it is envisaged that the Project will achieve maximum ongoing cost-effectiveness, environmental sustainability and social soundness, far beyond the end of implementation of the Project. All the stages of the Project have to be managed by adopting the proposed environmental mitigation measures, where, besides engineering aspects, due importance is to be accorded to mitigation measures which make a perfect blending with the surrounding ecosystem.

The key environmental and social issues, which have already been discussed, are as under:

- Contamination of air, water and soil during the construction and operation stages
- Soil erosion and soil contamination at construction and operation stages.
- Impact of noise generated by vehicles, machinery and equipment during the construction activities
- Impact on community and work force safety as a result of accident hazards during the construction and operation of the project
- Gender Issues.

EMP is provided below, which establishes the linkages between the environmental and social impacts, mitigation strategy and the agencies responsible for execution.

The EMP identify:

- The required mitigation measures recommended in IEE.
- The person/organization directly responsible for adhering to or executing the required mitigation measures.
- The person/organization responsible for ensuring and monitoring adherence to the mitigation measures.
- The parameters which will be monitored to ensure compliance with the mitigation measures.
- The timing at which the mitigation or monitoring has to be carried out.

TABLE 6.2: MITIGATION MEASURES DURING CONSTRUCTION & OPERATIONAL PHASE

Sr. #	Environmental Element	Mitigation Measures to be taken during	
		Construction Phase	Operational Phase
1	Sewage	The sewage to be generated shall be treated prior to discharge in to the TMA drainage system after due permission of the authority.	• All the treated effluents will be used for the irrigation of plants and trees and for watering of lawns within the premises of OPF Housing Scheme. • The leftover treated effluent, if any, shall be discharged into the TMA drainage system ultimately being disposed into nearby drain after treatment as per PHATA/RDA requirement. • The sewer pipes from the residential houses to the final discharge point shall be duly maintained throughout the project activity. • While laying sewage pipes, measures will be



			adopted to ensure that other pipes, wires or system already existing in the routes of the sewage pipes from the building to the main sewer line are not disturbed, • Adequate system shall be made available with the society management to repair and maintain the sewer lines both onsite and offsite. • Sewage liens, both onsite and offsite shall be laid at reasonable distance from main drinking water supply lines to avoid contamination of drinking water due to accidental leakages of sewer lines. • Road cuttings to lay sewer lines shall be avoided to the maximum however, if necessary, any such activity shall be undertaken after due permission from the concerned authorities. Roads shall be repaired duly and immediately once the sewer lines are laid. • Sewerage from all toilets and wastewater from each point shall be collected onsite in septic tanks and then discharged through the sewer system. Measures to avoid sewer flows above surface e.g. roads, pavements, greenbelts shall be ensured within the project area.
2	Wastewater from construction activities	Wastewater from the project construction activities will be duly curtailed on the project site and disposed of into the public sewer after separating all materials which could block the sewer lines.	
3	Civil water supply	It shall be ensured that no activity tempers with the civil water supply system in the area, if any.	• It shall be ensured that no activity tempers with the civil water supply system in the area, if any.
4	Solid waste	Solid waste from construction phase will be segregated and duly disposed of. Packing material, plastic bags shall be sold in the market. The solid redundant materials will be disposed away from the city adequately. None of these waste shall be accumulated onsite. It shall be ensured that none of the wastes spreads on the public roads/pathways obstructing their accessibility.	• All the wastes to be generated during operational phase of the housing scheme shall be collected daily though locally placed wastes collecting bins. • The Environmental Management Cell of the proposed project will ensure installation of waste bin in the parks, commercial and public areas. • Persons residing in the houses will be encourages to segregate solid waste before placing it out for collection. A no-waste-in-my-yard policy shall be adopted to keep the locality neat and clean. • Once the project construction phase is completed, the Environment Management Cell will identify suitable locations for installation of waste bins. A total number of 30 bins shall be installed in the first phase. The number of bins will be increased depending upon the local population increase and increase in the local commercial activities. • Solid waste shall be broadly segregated into organic and inorganic waste which will be





			further sorted out by the waste collecting staff of the municipality before final disposal.
5	Noise	In order to avoid the nuisance of noise the project maintenance manager shall ensure the all vehicles, equipment, machineries used during construction phase are in good working condition. The working hours of the project construction activities shall be limited to day time only i.e. 08 in the morning till 05 in the evening. Generators, if used during construction phase, shall be kept under canopy to avoid generation of unwanted noise,	- Any activity that generates noise shall be prohibited and limited to the day time only. No noise generating activities shall be allowed after five in the evening. - Installation of personal generators which exceed the night time noise limit proposed by the EPA (PEQS) shall not be allowed. - The housing scheme will not allow any sort of business, commercial activities that emit noise level exceeding the PEQS limits, both during day and night time.
6	Gaseous emissions and particulate matters / dust generation	The electricity generator to run various construction machineries and equipment will produce gaseous emissions and particulate matters. Therefore, the generators will only during shutdown of power supply from WAPDA grid. Construction materials e.g. sand and clay will be transported to the construction site under cover to avoid any fugitive dust.	During operational phase, no activity is envisaged to take place which may generate dust of particulate matter of any significance. Under the policy of the management all care will be taken to keep the in house activities environmentally sound and sustainable.
7	Traffic related problems	Movement of large vehicles will be limited to night time to avoid congestion of traffic on the public roads. Traffic management will be done to avoid traffic stampede/congestion. Parking on the main roads and/or blocking public accessibility will be discouraged.	Every household will be provided enough space for car parking to avoid random vehicle parking on the roads.
8	Floor sweepings	Floor sweepings will be disposed into the municipal bins allocated along the proposed project site.	Floor sweepings will be collected in bags and disposed of into bins installed within the premises.
9	Trash burning	No trash burning will be allowed in or outside the buildings.	Trash burning will be discouraged within the premises of the project.
10	Dust	The construction materials with potential to create dust issues will be kept under cover. Sprinkling of water will be conducted to avoid dust generation.	The proposed project is planned in such a way to minimize generation of dust. The project plans to develop asphalt roads/streets, green belts, and parks. The roads will be kept clean and floor sweeping will be disposed of in the project. Parks and green belts will be watered to avoid the issues of desertification and soil erosion.
11	Environment quality		Environment quality enhancement measures like flower pots will be provided in front of the



	enhancement measures		houses and commercial buildings. Vegetation on the green belts and decoration lights will be installed to improve the aesthetic quality of the area. The proponent also intends to plant trees within the area to give the area a natural look.
12	Staff for environmental management plan	Special staff will be recruited to implement this Environmental Management Plan on regular basis.	Special staff will be recruited to implement this Environmental Management Plan on regular basis. A special Environmental Management Cell will be established for successful implementation of EMMP.

6.7 ENVIRONMENTAL MONITORING PROGRAM

Two aspects of this Initial Environmental Examination require attention of the proponents. Firstly, proponents should ensure effective and complete implementation of the Environmental Management Plan, which provides appropriate mitigation measures during the operational phases of the project. Secondly, proponents should monitor environment at the project, at least once every two months, in order to find whether colonisation is in any way impacting adversely on the local environment.

Mitigation: Accordingly, the proponents shall have to evolve a protocol so that monitoring is regular, meaningful and consistent. The proponents shall assign the duty of carrying out environmental monitoring to a nominee(s) of the staff, who shall be entrusted the following charter of duties:

- Implementation of all conditions contained in the environmental approval to be issued by the Punjab Environmental Protection Agency;
- Environmental monitoring within the project site;
- Maintaining security of the premises;
- Checking disposal of liquid and solid waste, and
- Submission of requisite information and reports to the Punjab Environmental Protection Agency.

As explained in earlier parts of this report, there has not been any environmental degradation during the operational phase of the project so far and any remedial measures do not need to be taken, no expenses need to be incurred in this regard. The Environmental Monitoring Team would be responsible for the following aspects:

- Enforcement of measures aiming to reduce solid waste;

- Assessing arrangements for collection of solid waste within project area;
- Ensuring segregation of solid waste to separate hazardous waste, if any, recyclable waste, green waste and non-recyclable waste;
- Ensuring appropriate storage of all forms of segregated waste;
- Ensuring disposal of all forms of segregated waste in an environmental-friendly manner;
- Adoption of measures for minimization of liquid waste;
- Appropriate conservation of water resources and rendering advice on water conservation methods to workers;
- Checking measures taken to eliminate wastage of water;
- Monitoring measures taken for reuse of water;
- Maintaining noise levels inside the project site within the levels specified under the Punjab Environmental Quality Standards;
- Ensuring that within project area, no such activity is being carried out that can impact adversely on the environment in any manner whatsoever.

Following environmental record should be maintained:

- Periodic inspection reports of the site
- Annual audit reports
- Description of any damage to vegetation, water resource or community asset
- Corrective measures taken, if any
- Survey Reports, in particular, the following:
 - Vehicle and equipment noise
 - Ambient noise survey reports
 - Ambient level of PM
 - Vendor Data
 - Employment
 - Total Number of unskilled, semi-skilled and skilled jobs offered during construction
 - Project and community interface
 - Record of community complains and the measures taken to address them
 - Number of meetings held in various communities and data of persons who attended

- Environmental and social training records.

TABLE 6.3: ENVIRONMENTAL MONITORING PLAN FOR CONSTRUCTION PHASE

Component	Parameters to be measured	Frequency	Responsibility
Noise levels	Noise level on the site and adjacent area on dB (A) scale	At least 3 working days and on weekend	Environment Officer/ Manager
Waste Collection, storage and disposal	Inspection of waste generation, collection, storage and disposal at site	Once daily	Environment Officer/ Manager
Soil contamination	Inspection of equipment and vehicles	Monthly inspection	Environment Officer/ Contractor
Workers safety	Injuries and accidents	Daily	HSE/Contractor
Water conservation	Leakages, spills and wastages	On monthly basis	Environment Officer/ Manager
Vehicle and equipment exhaust	Air quality at different points around the vehicles and equipment	On 3 typical working days	Administration

The monitoring of the EMP and the communication and documentation mechanism that will be employed during the operational phase will be based on the Environmental Management System (EMS) of the project proponents and the certification and legal bindings. The management system of the project proponents will be the same as the certified EMS in place at the company. Approximately 1 million PKR per year budget will be reserved for the environmental monitoring and measures.

TABLE 6.4: ENVIRONMENTAL MONITORING PLAN (OPERATIONAL PHASE)

Component	Parameters to be measured	Frequency	Responsibility
Noise level(dB)	Noise level near the receptor	Quarterly	Environment Officer
Ambient Air Quality	Source emission parameters	Quarterly	Environment Officer/Manager

Waste disposal, procedure for waste collection, storage and disposal	Inspection of waste generation, collection, storage and disposal will be undertaken at each site of the project activity	Once daily	Administration Officer
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6.8 PROPOSED EMP REPORTING AND REVIEWING PROCEDURES

The organizational structure for the environment management plan is outlined below:

6.8.1 PRIMARY RESPONSIBILITIES

The primary responsibility for implementing EMP within the company lies with the Management of OPF Housing Scheme.

6.8.2 OPERATION MANAGEMENT & CONTROL

Conducting the operational activities in environmentally sound manner will be the responsibility of the concerned Manager, for which he will be trained.

6.8.3 SUPERVISION & MONITORING

Senior supervisor will be responsible for all environmental issues and for the implementation of EMP.

6.8.4 COMMUNICATION & DOCUMENTATION

An effective mechanism to store and communicate environmental information during the project is an essential requirement of an EMP.

6.8.4.1 MEETINGS

Two kinds of environmental meetings will take place during the project:

- Kick off meeting
- Weekly meeting

The purpose of the kick off meeting will be to present the EMP to project staff and discuss its implementation and to discuss any event of environmental significance that has happened in the under discussion industry or a similar industrial unit to investigate the root causes and develop its solutions.

The purpose of the weekly meetings will be to discuss the conduct of the operation and environmental issues and their management. The proceedings of the meeting will be recorded in the form of a weekly environmental report.

6.8.4.2 RECORD REGISTER

A Change record register will be maintained at the site, in order to document any changes in project design. These changes will be handled through the change management mechanism.

6.9 TRAINING SCHEDULE

Periodic environmental and HSE trainings must be given to employees working in the project area. The management of OPF Housing scheme understands its duty and has developed strict SOPs for the health and safety of workers. Various sessions of in-house trainings are also conducted in the unit

6.10 EQUIPMENT MAINTENANCE DETAILS

Machinery will be set up and initial training conducted by technicians that the machinery manufacturer will send to start off the plant. A machinery maintenance schedule will have to be maintained by the maintenance and technical staff on a regular basis

6.11 SCHEDULE FOR IMPLEMENTATION AND ENVIRONMENTAL BUDGET

The total cost of EMP implementation is Rs. 1.0 Million budget has been allocated by the management of OPF Housing scheme during the operational phase of the project.

TABLE 6.5: EMP IMPLEMENTATION COST

Name of item	Quantity	Unit	Unit Rate (PKR)	Total Amount (PKR)
N-95 Masks	15	Each	25	375
Safety Shoes	3	Each	1854	5562
Gloves	4	Each	608	2432
First Aid Box	1	Each	4,140	4140
Ear Plugs	3	Each	115	345



Safety Helmets	4	Each	450	1800
Safety Jackets	4	Each	1013	4052
Sanitizer	1	Each	450	450
Thermo-gun	0	Each	3825	0
SUB TOTAL (1)				0.5 million
Environmental Analysis During operations				
Sub-project location: Starting point				
Ambient Air Quality Analysis (SOX, NOX, CO, PM2.5, O3,)	1	Each	64125	64125
Noise Level Monitoring	1	Each	10,350	10350
SUB TOTAL (2)				84,825
Others				
Provision of Dust Bins	1	Each	1530	1530
Reflective Tape	1	Each	405	405
Safety cones	1	Each	2003	2003
Safety boards	1	Each	3578	3578
Water sprinkling	5 times/day	L/S	25000	25000
SUB TOTAL (3)				32516
Cost for Tree Plantation (Layout/Site clearance, pit alignment and digging of earth, pit enrichment, plant fencing, planting a tree) & Land scaping			2100000	2100000
SUB TOTAL (4)				
GRAND TOTAL (1+2+3+4)				2700000
				2.7 Million

6.12 ENVIRONMENTAL MANAGEMENT TEAM ALONG WITH THEIR ROLES AND RESPONSIBILITIES (BY NAME OR POSITION)

The project proponent will establish an organizational structure for environmental management, including occupational health and safety issues, to ensure effective implementation of mitigation measures, and to review the environmental management process.

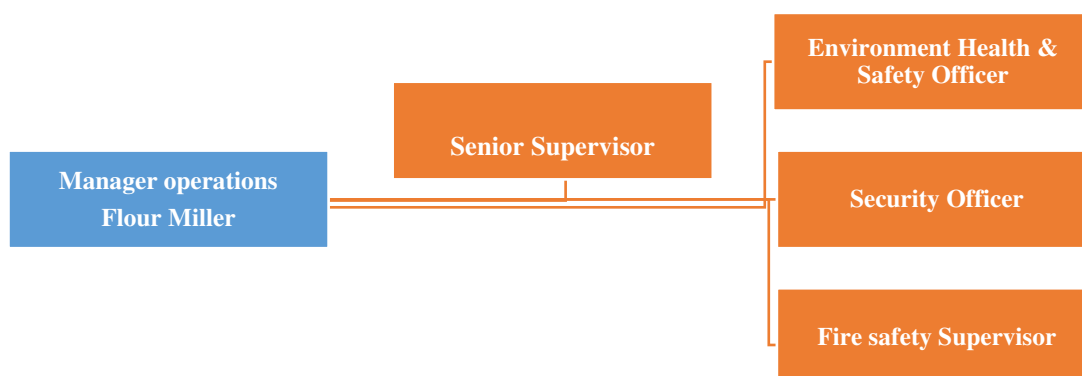
As project developer will ensure, through its project manager and implements EMS for the project operational phase. EMS will comply with the control measures and environmental



management requirements outlined in this EMP and any additional requirements specified by Punjab EPA, construction permits, etc.

The Health, Safety and Environment (HSE) manager of the proponent reporting to the project manager will be responsible for day-to-day HSE management on site. The HSE Manager will maintain constant interactions with line managers and other staff throughout the construction period. The contractor will assist in periodic audits of the EMS including monitoring programs to ensure effective implementation of the control and mitigation measures and implementation of corrective actions for any deviations.

FIGURE 6.1: ORGANO CHART FOR OPF HOUSING SCHEME.



7 STAKEHOLDER CONSULTATION

7.7 GENERAL

Stakeholder consultation is a systematic process which provides an opportunity for citizens, planners, managers and elected representatives to share their experience, knowledge and concerns and perceptions about the proposed Project. The objectives of the public consultation are as follows:

- Share information with stakeholders on proposed improvement works and expected impact on the socio-economic environment of the Project Area.
- Understand stakeholders concerns regarding various aspects of the Project, including the existing condition of the Project Area, upgrade requirements, and the likely impact of construction related activities and operation of the Project.

In order to meet the above mentioned objectives, at different locations, consultations including scoping sessions and focus group discussions were held. During consultations with the local community, main contents of the project were shared with community; they expressed their apprehensions about the Project in detail.

7.8 CONSULTATION WITH STAKEHOLDERS

The consultations were also held with Punjab EPA and Local Administration etc.

A meeting held with Punjab EPA officials for discussion on the project components. They have hinted a few important issues that need special attention during the project execution. The important issues are:

- Trees must be planted at the embankments of drains to reduce soil erosions.
- Water consumption and availability analysis must be done as there is acute shortage of water in Islamabad.
- A solid waste management plan for the operation period must be prepared.
- The plantation of shrubs and ornamental trees should be executed keeping in mind the seasons.
- Roads layout planning and design should be executed keeping in view the natural drainage pattern and slope
- Sewage treatment plant should be proposed to treat wastewater before its disposal into water body.

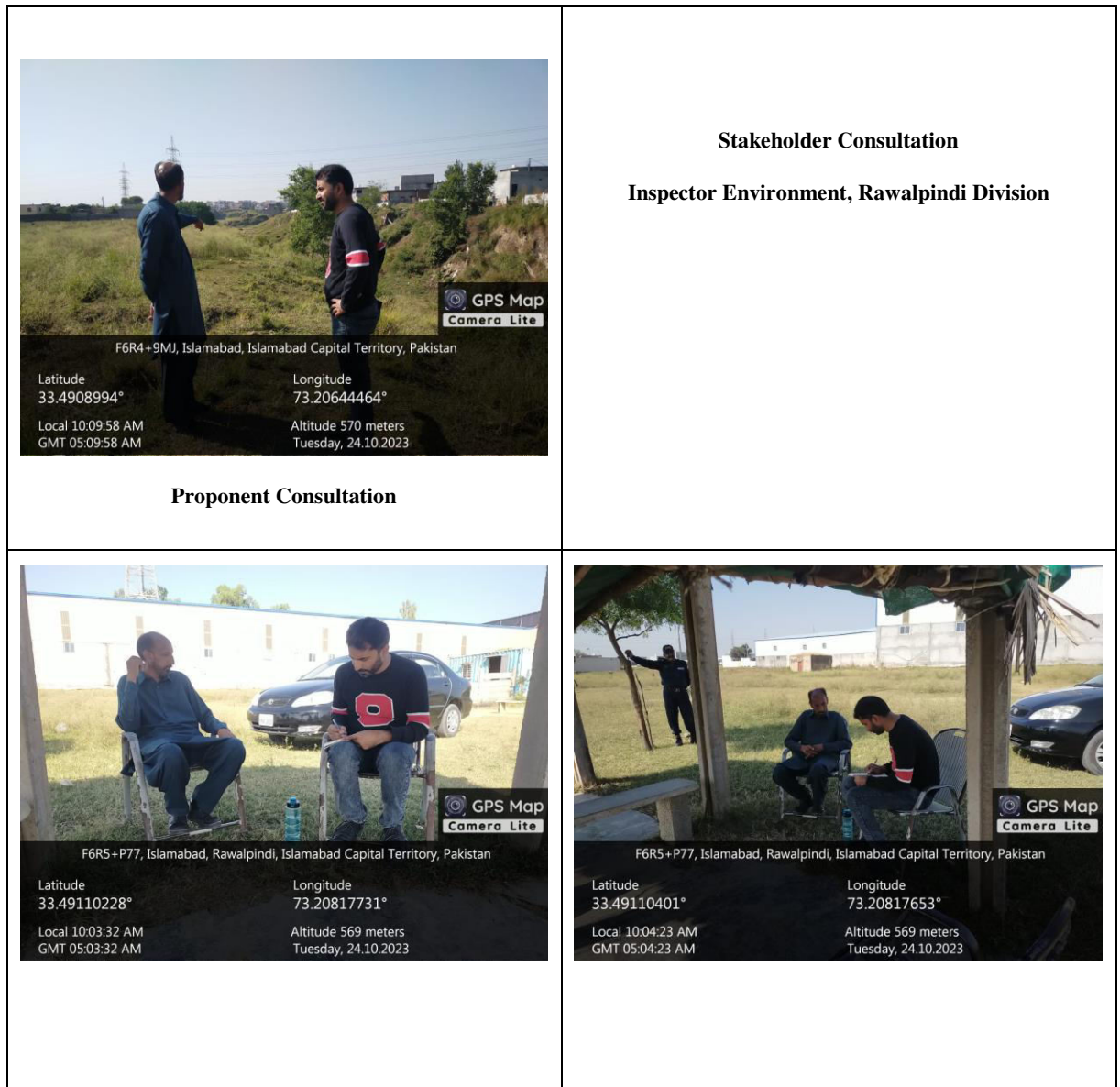
- Alternate energy (solar geysers and photovoltaic cell) must be introduced in the campus
- Buildings must be designed in a way, to utilize maximum daylight and fresh air and make them more energy efficient
- Proper landscaping and vegetation must be done by local plant species to make campus green and lively.
- Concept of segregation of waste must be introduced and separate waste collection bins should be installed for different types of waste i.e. recyclable and non-recyclable.

7.9 CONSULTATION WITH COMMUNITY

Community representatives from the neighboring villages were also discussed about the project to have an informed judgment about their possible response on this project. Salient findings of the group discussion and main concerns of the community are summarized below;

- Noise level will be highly irritating during the construction stage of the Project due to the operation of construction machinery and vehicular movements.
- General mobility of local residents will be disturbed during the construction phase of the Project.
- Insecurity and theft problems may generate during construction stage of the Project.
- Health of the nearby community may be suffered due to dust during the construction stage.
- Solid waste should be properly managed.
- Width of drains must be design keeping in view the climate change.
- Developer must utilize the concept of rainwater harvesting wherever possible.
- Trees must be planted at the embankments of drains to reduce soil erosions.

FIGURE 7.1: STAKEHOLDER CONSULTATION



Consultation with nearby community



8 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

EIA Study was conducted for the construction of OPF Housing Scheme, which included field surveys, investigations, verification and possible quantification of anticipated impacts together with their mitigation measures. It is concluded that the Project is expected to have both positive and negative physical, ecological and socio-economic impacts together with their mitigation measures. Most of the negative impacts can be mitigated.

The impacts identified during the EIA study include the impacts due to location, design and during the construction and operation stages as listed below:

- There will be a moderate impact on the air quality due to the generation of dust and exhaust gases and generation of high noise levels during the project construction and operation. Use of silencers, tuning of vehicles and equipment, avoiding of pressure horns, sprinkling of water on the soil should be practiced as a mitigation measure to minimize this impact.
- Pollution of the existing surface water resources and spring water due to contamination from cement components, oil and grease, toxic chemicals and other construction materials during the construction stage may result in water contamination. Treatment of wastewater will be a part of the Project. Similarly, solid waste management system will also be a part of the Project.

In order to counter the significant negative impacts, a detailed EMP has been developed that includes the proposed mitigation measures against the negative impacts along with defining the roles and responsibilities of each organization for management and monitoring of impacts. The EMP also outlines the monitoring requirements for compliance and effects monitoring of the Project, communication and documentation, site restoration and necessary training of the staff required. If this EMP is strictly enforced during each stage of the Project, the level of negative impacts will be minimized or made negligible and positive impacts will be enhanced.

8.2 RECOMMENDATIONS

The EIA Report of Development of “The M/s Housing & Works Dision Islamabad has valued land measuring 618 Kanal at Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi, is made to fulfill the legal requirement of Punjab Environmental Protection Act 2012. In order to address the potentially adverse impacts of the project, particularly during the operational phase, an EMP has been developed, which will further improve the environmental performance of the project. The EMP assigns roles and responsibilities, provide environmental guidelines and discuss the scope of Environmental Management Plan. It is recommended that mitigation measures proposed in the EMMP should be adequately implemented at design, construction and operation stages.



APPENDICES





Appendix – I:

List of Individuals and Organizations consulted along with their writer feedback



List of Stakeholders Consulted		
S. No	Stakeholders	Date
1	Mubasher Ghafoor Deputy Director (Works).	Ongoing during project
2	Maria Safeer Deputy Director (Rawalpindi division) Environmental Protection Department (EPD)	23-10-2023
3	Mr. Yasir Gul Khan Deputy Director (Environment) Planning Commission, Ministry of Science and Technology	25-10-2023
	Dr. Ibrar Shinwari, Associate Professor (Environment), Dr. Assad Ghufraan, Associate professor (Environment), International Islamic University, Islamabad	26-10-2023
4	Local Villagers Village	24-10-2023
	Ghafoor Elahi Auto Mechanic	
	Muhammad Waseem Labour	
	Muhammad Ijaz Daily wages worker	
	Muhammad Amjad Labour	
	Muhammad Mushtaq Labour	

Stakeholders' Feedback

Consultation with Proponent

Starting from the project award to site visits, project understanding, data acquisition, report preparation, review and finalization and report submission, Proponent project team and environmental management team was in contact with consultant through meeting, telecoms and emails. . The proposed process and project activities were discussed with respect to environmental management and relevant measures discussed during the meeting with proponent.

Consultation with Responsible Authority (EPA)

Meeting was held with Miss Maria Safeer, Deputy Director (Rawalpindi division) EPD to discuss the project and obtain feedback on the project, shared following remarks for the project:

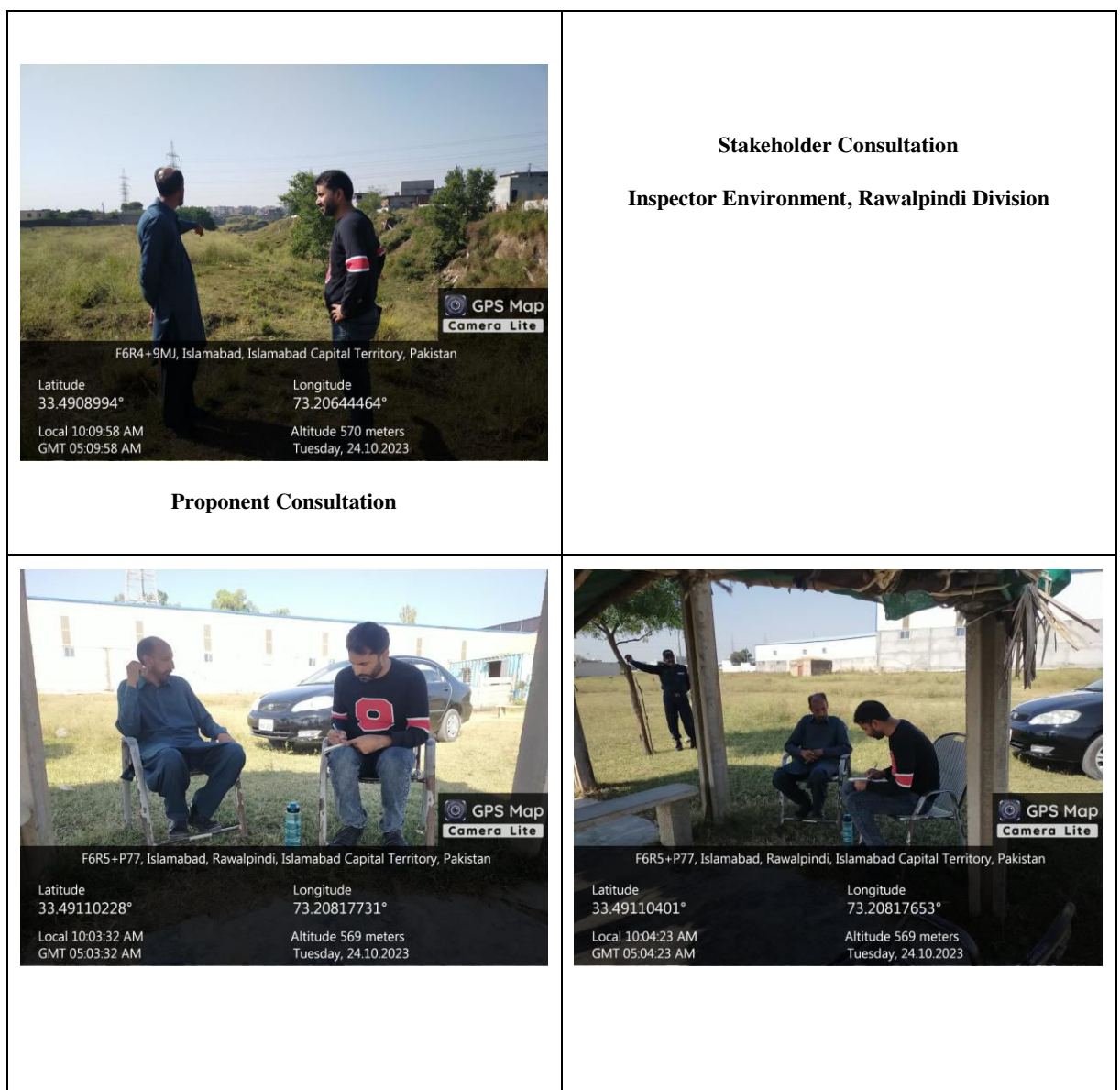
- During both construction and operation phases of the project, Environmental Aspect should be considered important and preventive measure should be used.
- Proper Waste Management should be done during construction and operation phase and hazardous waste should be disposed off by EPD approved contractor.
- Tree plantation should be done to improve environmental aesthetics of the area.
- HSE of workers should be considered important and all type of PPEs should be provided workers involved in different operation of the project.
- Routine monitoring and maintenance of Machinery should be done.

Consultation with Planning Commission Representative

A Meeting was arranged with Mr. Yasir Gul Khan, Deputy Director (Environment) Planning Commission, Ministry of Science and Technology. During meeting different aspects related to project were discussed. Mr. Yasir Gul Khan shared following remarks for the project:

- Housing Scheme should prefer locals for technical and non-technical Jobs.
- Air pollution from the project should not affect the residential settlements of surrounding area.
- Safe driving practices should be followed during movement of heavy vehicles of project.
- Speed limits should be observed to avoid accidents as locals also use the roads.

FIGURE 7.1: STAKEHOLDER CONSULTATION



Consultation with nearby community





Appendix – II:

Source of Data and List of Reference Material Used



**Source of data and list of reference material used**

- Project data received from client
- Field surveys conducted in project area
- Environmental monitoring conducted by EPA Approved Laboratory in project area
- Pakistan Penal Code (XLV of 1860) 6th October 1860
- Geological survey of Pakistan
- en.climate-data.org
- Act VII of 1976(Gazette of Pakistan, Extraordinary, Part 1, 14th January, 1976
- The Land Acquisition Act 1894 (Act of 1894)
- The cutting of Trees (prohibition) Act, 1992, Act No. XVIII of 1992
- <https://rawalpindi.punjab.gov.pk/climate>
- World weather online.com/Rawalpindi
- Chakri weather
- Environmental geology of Rawalpindi
- Environmental and social mangement frame work Punjab tourism and economic graph
- IEE power distribution enhancement program
- PHATA Affordable Private Housing Schemes Rules 2020





Appendix – III: Terms of Reference of Environmental Report



Terms of Reference

Project Title: Construction & Operation of OPF Housing Scheme

Project Location: Mouza Panjgran and Ubban Chak, Tehsil & District, Rawalpindi.

Project Proponent: The M/s Housing & Works Dision Islamabad

Environmental Consultant: Eco Sphere Management Consultant Pvt. Ltd.

The Environmental Consultant (Eco Sphere Management Consultant Pvt. Ltd.) to carry out environmental assessment of proposed project in accordance with the guidelines of Punjab Environmental Protection Agency (PEPA). Consultant will be responsible to collect all the information relevant / required for the project & are required to compile and subsequently assist the proponent to obtain Environmental approval from PEPA.

Scope of EIA:

The consultant scope includes but not limited to following activities.

- Complete description of Proposed project
- Collection, analysis and presentation of baseline data
- Identification of significant environmental issues
- Assessment of direct, indirect impacts on environment
- Mitigation measures to minimize predicted adverse impacts
- Review of the relevant Policies, Legislation and regulations
- Environmental Management and Monitoring plan
- Conclusion & Recommendation.



Appendix – IV: Terms of Reference of Environmental Report



**EIA Study Team**

List of EIA Study Team				
S. No	Names	Positions	Qualification	Roles & Responsibility
1.	Mr Jamal Ahmed Qureshi	ESIA Specialist/ Team Leader	MS in Environmental Sciences	• Technical Review of report • Project Coordination • Stakeholder Consultation Framework • Inputs to stakeholder consultaion plan
2.	Mr. Shahbaz Ahmed	Ecologist	BSc Ecology MSc Environmental Sciences	• Baseline survey • Site Reconnaissance • Technical review of report
3.	Hira Khan	Environmental Engineer	MS Environmental Sciences	• Risk assessment • Report Compilation • EMMP
4.	Zaigham Abbas	Environmental Scientist	MS in Environmental Sciences	• Field Monitoring • Primary Data Collection
5.	Naveed Ahmmed	Environmental Scientist	B.Sc. Environmental Science	• Report Compilation • Data Management
6.	Muhammad Atif Manzoor	Hydrologist	MS in Environmental Hydrology	• Survey of Streams, Nallah's Nearby Project site





Appendix – V: Approvals from other Concerned Departments





ANNEXURES



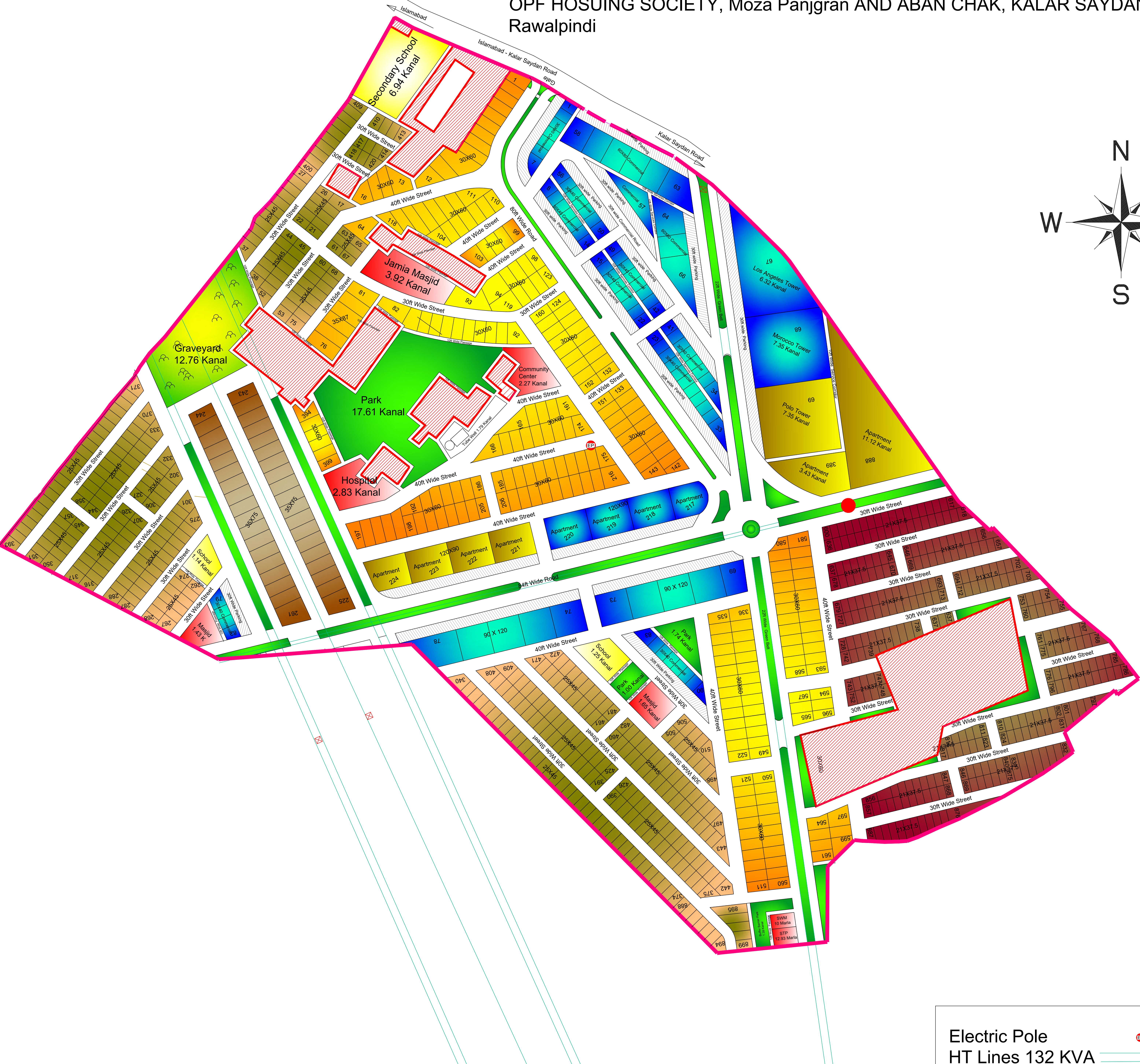


Annexure – 1:

Building Plan Approval and Approved Layout Plan



PROPOSED MASTER PLAN
OPF HOSUING SOCIETY, Moza Panjgran AND ABAN CHAK, KALAR SAYDAN ROAD,
Rawalpindi



LEGEND

Sr. #	Category	Color	Area (Kanal)	%age	RDA %age
	Residencial		272.61 K	39.06%	actual
	Commercial		64.61 K	9.26%	5-10%
	Public Building		23.50 K	3.37%	3-10%
	Parks & Green		50.11 K	7.18%	7-10%
	Tube Well		1.79 K	0.26%	
	Graveyard		12.76K	2.0%	2%
	Roads & Parking		272.61 K	39.06%	actual
	Non-Possession Pockets		59.00 K	7.79%	
Total			757 K	100%	

Residencial Plots Detail

Sr. #	Size	Color	QTY	Area (Kanal)	
	21X37.5 (3.5 Marla)		295		
	25X45 (5 Marla)		366		
	30X60 (8 Marla)		167		
	35X75 (11.66 Marla)		37		
	35X87 (11.19 Marla)		06		
	Apartment		07		
	Odd Size		64		
			889		

Commercial Plots Detail

Sr. #	Size	Color	QTY	Area (Kanal)	
	30X40		68		
	60X80		09		
	80X100		05		
	90X120		03		
	200X200		1		
	ODD Size		7		
			93		

Consulting Town Planner:

Developers Name:
M/s MAZ Enterprises

Client:
OVERSEAS PAKISTAN FOUNDATION
OPF

Electric Pole
HT Lines 132 KVA



SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY



NOISE LEVEL MONITORING REPORT

Client Name: OPFHS (Housing Project) Location: Mouza Panjgran and Ubban Chak.
Monitoring Date: 05-04-2023 Instrument Used: Tehsil & District Rawalpindi
Reporting Date: 12-04-2023 Digital Sound Level Meter T.M 102
Monitoring By: Solution Environmental & Analytical Laboratory Reference No: SEAL/LAB/2023/NM/001

Results: -

Sr. No.	Location	Min. dB(A)	Max. dB(A)	Average dB(A)
1.	North Boundary of Site	67.4	71.5	69.4
2.	South Boundary of Site	62.8	68.2	65.5
3.	East Boundary of Site	60.5	66.6	63.5
4.	West Boundary of Site	64.3	71.5	67.9
5.	Centre of Site	63.2	69.4	66.3
PEQS (Industrial Area Day Time)				75 dB (A)

Note:

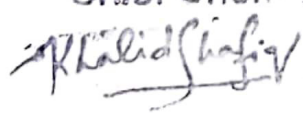
- The average noise levels describe the overall ambient noise levels of the proposed site.
- Selected measurement units were dB (A) otherwise stated.
- Quality was assured through self-calibration of the instrument.
- The measurements were carried out on client request.
- The client is responsible lawful usage of reported data in future.
- The report is not valid for any negotiations.

Monitoring Supervisor: Sajjad Hussain

Signature: 

Chief Chemist with SEAL: Khalid Shafiq

Chief Chemist

Signature: 



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Shahrah-e-Faisal, Karachi, Pakistan. Phone : 92-300-9768799
Email : karachi@seal.com.pk

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SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY



AMBIENT AIR MONITORING REPORT

Client Name: OPFHS (Housing Project) Location: Mouza Panjgran and Ubban Chak, Tehsil & District Rawalpindi
Monitoring Point: Center of Site
Starting Date: 05-04-2023 Reporting Date: 12-04-2023
Monitoring By: Solution Environmental & Analytical Laboratory
Reference No.: SEAL/LAB/2023/AA/001

Results: -

Sr. No.	Parameter	Method	Unit	Results	PEQS
1	Particulate Matter (PM ₁₀)	40 CFR Part 50, App J (US-EPA)	µg/m ³	127.14	150
2	Carbon monoxide (CO)	40 CFR Part 50, App. C (US-EPA)	mg/m ³	4.99	10
3	Oxides of Nitrogen NO _x (NO & NO ₂)	40 CFR Part 50, App F (US-EPA)	µg/m ³	40.12	120
4	Sulphur dioxide SO _x (SO ₂)	EQSA-0197-114 (US-EPA)	µg/m ³	52.14	120

PEQS: Punjab Environmental Quality Standards

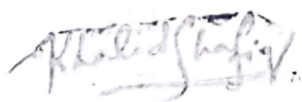
Note:

- Quality was assured through self-calibration of the instrument.
- The measurements were carried out on client request.
- The client is responsible lawful usage of reported data in future.

Monitoring Supervisor: Sajjad Hussain

Signature of Supervisor: 

Chief Chemist with Seal: Khalid Shafiq
Chief Chemist

Signature of Chief Chemist: 



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Email : karachi@seal.com.pk

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SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY



GROUND WATER ANALYSIS REPORT

Client Name: OPFHS
(Housing Project)

Location: Mouza Panjgran and Ubhan
Chak, Tehsil & District
Rawalpindi

Sampling Point: Tap Water
Sampling Date: 05-04-2023
Sampling By: Solution Environmental &
Analytical Laboratory

Nature of Sample: Ground Water
Date of Completion: 12-04-2023
Temp. & Humidity: 23-27 C° & 50-70 %
Reference No.: SEAL/LAB/2023/GW/001

Results: -

Sr. No.	Parameter	Method	Unit	Result	PEQS
1	pH	APIA 4500-H B	--	7.54	6.5-8.5
2	Total Dissolved Solids (TDS)	APIA 2540 C	mg/l	685.4	1000
3	Chloride	4500- APIA Cl B	mg/l	121.2	250
4	Fluoride	APIA 4500-F D	mg/l	0.22	1.5
5	Taste	APIA 2120 B	Object. /unobj.	Non-object.	Unobject.
6	Odour	APIA 2120 B	Object. /unobj.	Non-object.	Unobject.
7	Colour	APIA 2120 B	TCU	0.06	15
8	Nitrate (as NO ₃ ⁻)	APIA 4500-NO ₃ ⁻ E	mg/l	4.25	50
9	Nitrite (as NO ₂ ⁻)	APIA 4500-NO ₂ ⁻ B	mg/l	0.57	3
10	Lead	APIA-Pb B	mg/l	0.01	0.05
11	Total Hardness as CaCO ₃	APIA 2340 C	mg/l	247.4	500
12	Turbidity	APIA 2130 B	NTU	0.2	5
13	Zinc	APIA 3500-Zn B	mg/l	0.23	5
14	Aluminum	APIA 3111 D	mg/l	0.02	0.2
15	Chromium	APIA 3500-Cr B	mg/l	0.022	0.050
16	Cadmium	APIA 3500-Cd D	mg/l	BDL	0.01
17	Copper	APIA 3500-Cu C	mg/l	0.02	2
18	Boron	APIA 4500-B C	mg/l	0.046	0.300
19	Barium	APIA 3111 B	mg/l	0.060	0.700

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Email : karachi@seal.com.pk

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SOLUTION ENVIRONMENTAL & ANALYTICAL LABORATORY



Client Name: OPFHS
(Housing Project)

Location: Mouza Panjgran and Ubban
Chak, Tehsil & District
Rawalpindi

Sampling Point: Tap Water
Sampling Date: 05-04-2023
Sampling By: Solution Environmental &
Analytical Laboratory

Nature of Sample: Ground Water
Date of: 12-04-2023
Completion: 23-27 C° & 50-70 %
Temp. & Humidity
Reference No.: SEAL/LAB/2023/GW/001

Results: -

Sr. No.	Parameter	Method	Unit	Result	PEQS
20	Antimony	APHA 3114 C	mg/l	BDL	0.020
21	Arsenic	APHA 3114 C	mg/l	0.023	0.050
22	Cyanide	APHA 4500-CN D	mg/l	0.01	0.05
23	Mercury	APHA 3112	mg/l	BDL	0.001
24	Nickel	APHA 3111 B	mg/l	0.010	0.020
25	Residual Chlorine	APHA 4500-Cl ₂	mg/l	0.37	0.2 - 0.5
26	Total Thermo Coliform	APHA 9222 B	Number/100ml	0	0/100 ml
27	Total Coliform	APHA 9222 B	Number/100ml	0	0/100 ml
28	E. coli	APHA 9222 C	Number/100ml	0	0/100 ml

PEQS = Punjab Environmental Quality Standards

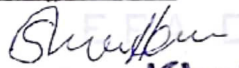
BDL (Below Detection Limit)

APHA = American Public Health Association

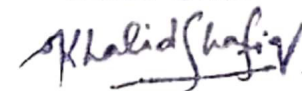
Note:

- Standard Method for the Examination of Water & Wastewater, 23rd Edition, 2017
- The responsibility of the ethical use of the results reported in this report lies with the client. Consequently, the laboratory is absolved of its responsibility for any claim that may result through the use by the client or others of the results appearing in this report.
- The left-over samples (if so available) shall be retained for 15 days after the issuance of the report unless otherwise negotiated between the client and the laboratory.
- The report is not valid for any negotiation.

Sample Analyzed By: Sajjad Hussain

Signature: 

Name of Chief Chemist with Seal: Chief Chemist

Signature of Chief Chemist: 

Page 2 of 2



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