



ENVIRONMENTAL IMPACT ASSESSMENT

ARMY WELFARE TRUST



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CONSTRUCTION PHASE

AWT Housing Scheme

Located at Mouza Asal Lakhawal, Ramkot and Janjatay, Tehsil City District Lahore.

Prepared by



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0304-4657025

Final Report
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TABLE OF CONTENTS

EXECUTIVE SUMMARY		A
Title & Location of the Project		B
Location		B
Name of Proponent		B
Name of Organization Preparing Report		B
Brief Outline of the Proposal		B
Raw Material		C
Major Impacts		C
Summary of Environmental Impacts and Mitigation Measvvures		C
Recommendation of Mitigation Measures		D
Proposed Environmental Monitoring		F
Air Ambient Monitoring		F
Noise		F
Water Quality		G
Schedule of Proposed Monitoring		G
Conclusion		G
CHAPTER No.1 (INTRODUCTION)		
1.1	Purpose of the Report	1
1.2	Identification of the Project	1
1.3	Project Proponent	1
1.4	Brief Description Nature, Size and Location of Project	1
1.5	Location	2
1.6	Methodology for EIA Report	2
CHAPTER No.2 (SCOPING)		
2.1	Spatial & Temporal Boundaries of Environmental Assessment	3
2.2	Important issues and concerns raised during consultation	7
2.3	Significant impacts and factors to be determine	7
CHAPTER No.3 (CONSIDERATIONS OF ALTERNATIVES PROJECT)		
3.1	Site Alternatives, Their Selection and Rejection Criteria	9
3.2	Design / Technology Alternatives, their Selection & Rejection Criteria	9
3.3	Environmental Alternatives, Their Selection & Rejection Criteria	10
	3.3.1 Shifting of the Project to Some Other Location	10
	3.3.1.1 Land Ownership	10
	3.3.1.2 Estimated Population on the Surrounding of the Site	10
	3.3.1.3 Access to the Site	11
	3.3.1.4 Availability of Water and Other Utilities	11
3.4	Economic Alternatives, Their Selection & Rejection Criteria	11
CHAPTER No.4 (DESCRIPTION OF THE PROJECT)		
4.1	Introduction	12
4.2	Type and Category of the Project	12
4.3	Objective of the Project	12
4.4	Project Location and Accessibility	12
4.5	Description of the Project	15
4.6	Occupancy of AWT Housing Project	15
4.7	Facilities to be Provided at AWT Housing Project	15
	4.7.1 Water Demand and Storage	15

	4.7.2	Sewerage System	16
	4.7.3	Sewage Treatment Plant	16
	4.7.4	Solid Waste Management	21
	4.7.5	Roads	21
	4.7.6	Landscape plan	22
4.8	Vegetation Features of the Site		23
4.9	Land Acquisition		23
4.10	Current Land use of the Project Site		23
4.11	Current Status of the Project		23
4.12	Cost of the Project		23
4.13	Government Approvals		24
4.14	Time Schedule		24
4.15	Project Phases		26
	4.15.1	Pre-Construction/Design Phase	26
	4.15.2	Construction Phase	26
	4.15.3	Operational Phase	30
CHAPTER No.5 (DESCRIPTION OF ENVIRONMENT)			
5.1	Physical Environment / Resources		31
	5.1.1	Topography	31
	5.1.2	Climate	31
	5.1.3	Temperature	32
	5.1.4	Precipitation	32
	5.1.5	Air Quality	33
	5.1.6	Noise Level Monitoring	32
	5.1.7	Basic Environmental Conditions	33
	5.1.8	Metrological Conditions	33
	5.1.9	Monitoring Instruments	33
	5.1.10	Methodology Adopted	34
	5.1.11	Ground Water	34
5.2	Ecological Resources		34
	5.2.1	Flora	34
	5.2.2	Fauna	34
5.3	Socioeconomics Environment		35
	5.3.1	Population	35
	5.3.2	Profession	35
	5.3.3	Education Level	35
	5.3.4	Language	35
	5.3.5	Cultural Diversity	35
5.4	Quality of Life Value		35
	5.4.1	Health and Education	36
	5.4.2	Compensation in Money Terms	36
5.5	Archaeological and Historical Treasures		36
5.6	Lab Reports of Environmental Analysis		36
CHAPTER No.6 (SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & MITIGATION MEASURES)			
6.1	Assessment Criteria for Potential Impacts		37
6.2	Environmental Impact Due to Project Location		37
	6.2.1	Impacts	37

	6.2.2	Mitigation Measures and Recommendations	38
6.3		Environmental Impact Due to Project Design	38
	6.3.1	Impacts	38
	6.3.2	Mitigation Measures and Recommendations	39
6.4		Environmental Impact Due to Construction Phase	40
	6.4.1	Impacts on Physical Environment	40
	6.4.2	Impacts on Biological Environment	41
	6.4.3	Impacts on Socio-Economics Environment	41
	6.4.4	Mitigation Measures & Recommendations	42
6.5		Environmental Impact Due to Operational Phase	43
	6.5.1	Impacts on Physical Environment	44
	6.5.2	Impacts on Biological Environment	44
	6.5.3	Impacts on Socio-Economic Environment	45
	6.5.4	Resettlement Issues	45
	6.5.5	Mitigation Measures & Recommendations	45
6.6		Potential Environmental Enhancement Measures	46
6.7		Purpose of Mitigation Measures	47
6.8		Ways of Achieving Mitigation Measures	47
CHAPTER No.7 (ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM)			
7.1		Purpose & Objective of EMP	49
7.2		Management Approach	49
7.3		Institutional Capacity	49
7.4		Training Schedule	49
	7.4.1	Training of Building Contractor	49
	7.4.2	Environmental Technical Assistance & Training Plan	50
7.5		Responsibility of EMP	51
7.6		Summary of Impacts & Their Mitigation Measures	51
7.7		Equipment Maintenance Detail	56
7.8		Environmental Budget	56
7.9		Environmental Management Plan for AWT Housing	57
CHAPTER No.8 (STAKEHOLDERS PARTICIPATION)			
8.1		Methodology of Consultation	65
	8.1.1	Proponent	65
	8.1.2	The Responsible Authority	65
	8.1.3	Some Other Departments & Agencies	66
8.2		Affected & Wider Community	66
CHAPTER No.9 (CONCLUSION & RECOMMENDATIONS)			
9.1		Conclusions	67
9.2		Recommendations	67

EXECUTIVE SUMMARY

Sr.	Demand	Details
1	Name of the Scheme / Project.	ARMY WELFARE TRUST (AWT) Housing Scheme
2	Proponent Name, address and contact number.	Mr. Muhammad Asghar Khan Niazi, 33104-3461916-3 Post Office Same, Chak No.569-GB, Ratta Khel, Tehsil Jaranwala, District Faisalabad.
3	Total project area and covered area.	Total area of the housing scheme 548-Kanal 01-Marla 135-Sqft.
4	GPS Coordinates of the boundaries of the scheme / project.	GPS Coordinates of the boundaries of AWT Housing are as under:  Above map is also attached in 3x3-feet size with the EIA Report.
5	Existing status of the scheme / project (proposed, construction phase, operations phase).	Proposed.
6	Total cost of the scheme / project.	735-Million
7	Expected Completion Duration.	3-Years approx.
8	Expected Positive Impacts	The objective of the project is to provide residential and commercial plots to middle and low-income groups with state-of-the-art amenities. The need for the project arises from the fact that Real Estate Developers in Lahore consider providing residence to people with high incomes, whereas the AWT Housing Project, which consists of small residential plots, will provide housing facilities to middle and low income groups.
15	Expected Negative Impacts	Nil.
16	All other available Government Approvals.	i. Copies of Fard Milkiat ii. NEC iii. Technical approval

Title & Location of the Project

It is intention of Muhammad Asghar Khan Niazi to get environmental approval for AWT Housing Scheme, Mouza Asal Lakhawal, Ramkot and Janjaty, Tehsil City, District Lahore

by submitting the Environmental Impact Assessment (EIA) Report as per direction of Environment Protection Agency for compliance of section 12 of PEPA 1997 (Amended 2012).

The project falls under section H, clause 1, schedule II of IEE and EIA Regulations, 2022.

Location

Project site is located at Mouza Asal Lakhawal, Ramkot and Janjaty, Tehsil City, District Lahore.

Name of the Proponent

Name:	Muhammad Asghar Khan Niazi
Father:	Shah Wali Khan
CNIC #:	33104-3461916-3
Address:	Post Office Same, Chak No.569-GB, Ratta Khel, Tehsil Jaranwala, District Faisalabad.

Consultant's details

Name of Firm:	MHR Environmental Consultant
Address:	Office No.9, Umer Plaza, Mozang, Lahore.
Contact:	0304-4657025

Brief Outline of the Proposal

The subject proposed project is construction of the housing scheme under the name & style **“AWT Housing Scheme”** situated at Mouza Asal Lakhawal, Ramkot and Janjaty, Tehsil City, District Lahore. Total area of the scheme is **548-Kanal 01-Marla 135-Sqft**.

This scheme will have different sizes of plots for residential and commercial purposes. The scheme will be facilitated with wide roads, parks, school, masjid and electricity. For further details, layout map is appended.

Total estimated cost of the project is approximately **Rs.735-Million**. This project is for the betterment and advancement of the region.

Total Area: 548-Kanal 01-Marla 135-Sqft

Raw Material

Fired bricks and clay blocks
Cement composites
Concrete
Fabric
Foam
Glass
Metal

Varies

Major Impact

In order to identify all the activities associated with the project both during construction and operation phase with potential to cause adverse environmental impacts and harm, a through review has been conducted. Project will not have any major adverse impacts on the nearby community and environment. Overall the project will have positive impacts on the local population and country as a whole. Moreover, area for plantation is also reserved for air purification within the project vicinity.

Summary of Environmental Impacts and Mitigation Measures

Pollutant	Constructional phase	Operational phase
Particulate matter (PM)/dust	Particulate matter will be generated during the constructional and transportation activities at the site. Due to raw material loading / unloading.	During the operational phase dust will only be generated due to transportation and that impact will be outside the building on the unpaved roads or non-concreted roads.
Gaseous emissions	Flue gases will be generated due to site generators and vehicles	Flue gases can be generated due to generators and vehicles
Noise	Noise will be generated due to construction machinery and vehicles transporting materials.	Noise can be generated due to generators and vehicles transportation
Solid waste	Solid waste will be generated due to construction and domestic sources Due to sludge from septic tank	Solid waste will be generated due to domestic sources Due to sludge from septic tank treatment facility
Soil contamination	Soil will be contaminated due to leaching of oil, fuel, any stored oil.	Soil can be contaminated due to leaching of oil, fuel, any stored

		oil.
Waste Water	Waste water will be generated from constructional and domestic sources	Waste water will be generated from domestic sources
Health & Safety issues	Health & safety issues will be arose due to machinery handling and constructional activities	Health & safety issues can be arose due to short circuit, fire hazards etc.
Socioeconomic	Disturbance to neighbors by constructional activities	Employment opportunities

Recommendations and Mitigation Measures

Pollutant	Recommendations during constructional phase	Recommendations during operational phase
Particulate matter (PM)/dust	Sprinkling of water All construction raw material should be kept covered	Proper compaction of access roads Avoid off road travel Maintain vehicles speed Monitoring should be conducted as per EPA NEQs Rules 2001, if required
Gaseous emissions	Constructional machinery and vehicles should be tuned and maintained properly All project vehicles should be checked regularly.	Canopies should be built over generators to avoid noise pollution. PPEs should be provided to workers Generators should be maintained properly Generators will be installed in a specially constructed room. Monitoring should be conducted as per EPA NEQs Rules 2001, if required
Noise	Vehicles to carry raw materials	Ear plugs should be provided to

	<p>should be operated during night time as far as possible.</p> <p>Ear plugs should be provided in case of heavy noise.</p>	<p>workers in case of high noise.</p> <p>Monitoring should be conducted as per EPA NEQs Rules 2001, if required</p>
Solid waste	<p>Constructional waste should be utilize for road filling and maintenance.</p> <p>Domestic waste should be disposed off properly, handed over to contractor placed in bins.</p>	<p>Waste bins should be placed at suitable places.</p> <p>Domestic waste should be handed over to local contractors.</p> <p>Periodic cleaning of the septic tank should be done.</p>
Soil erosion / Soil contamination	<p>Placed sheet under generators or leaching material to avoid leaching.</p> <p>Less removal of vegetation or cleaning land</p>	<p>Placed sheet under generators or leaching material to avoid leaching.</p> <p>Store any hazardous waste or fuel properly at safe place.</p> <p>Restoration and reclamation of land will be done in case of soil erosion or removal of vegetation.</p>
Waste Water	<p>Waste water treatment facility should be installed to treat the waste water prior to discharge into any drain or used for agriculture purpose.</p> <p>Waste water from construction and domestic sources should be treated in waste water treatment facility before drain out or used in agriculture land.</p>	<p>Wastewater should be treated prior to discharge into any drain or used for agriculture purpose.</p> <p>Wastewater from domestic sources should be treated in septic tank.</p> <p>Waste water after treatment should be used for irrigation purpose or drain out in nearby drain.</p>
Health & Safety issues	<p>PPEs should be provided to workers during constructional activities.</p>	<p>Training of workers should be conducted regarding health and safety.</p> <p>First aid measures should be available.</p> <p>Proper housekeeping should be</p>

		ensured. Security guard should be present.
Socioeconomic	People should be informed in advance when work is about to start at the site. Job opportunity should be provided to local people of the area.	Community wellbeing should be considered and anticipated measures are recommended to preserve local culture and ecosystem. Job opportunities should be provided to local people of the area.

Proposed Environment Monitoring

To oversee the environment performance of the project through its lifecycle enforcing the PEQs and Environmental Monitoring Program should be formulated which ensures effective surveillance of the environment parameters at various stages of the project development and compliances with PEQs and legal obligations. Monitoring for following environment parameters is recommended.

Ambient Air Monitoring

Regular monitoring for ambient air should be conducted during construction and operation phase as per PEQs rules and report should be submitted to EPA Punjab on annually basis.

Noise

Regular monitoring for noise level should recorded periodically during construction and during operation it should be conducted on annually basis and report should be submitted to EPA Punjab.

Water Quality

Regular monitoring of groundwater should be conducted during construction and operation phase and report should be submitted to EPA Punjab. Record should be maintained regarding.

Schedules of Proposed Monitoring

Sr.	Parameters	Monitoring Schedule
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1	Ambient Air Monitoring (NO _x CO _x SO _x VOCs PM10)	Annually
2	Noise Level	Annually
3	Water Quality	Annually

Note: Environment Monitoring data log book should be maintained by the project proponent.

Conclusion

The project is recommended for the issuance of Environmental Approval because the project proponent is willing to run the project in environment friendly way and to adopt the Environmental Enhancement Measures.





INTRODUCTION

1.1 Purpose of the Report

Environmental Impact Assessment (EIA) report is being submitted to the Environment Protection Agency (EPA), Government of the Punjab, Lahore for the compliance of Section 12 for the approval of the said project.

Various aspects like environmental social, physical and other aspects of the project both during construction & operation and its regular occupancy are highlighted in this EIA report. Measures necessary to be adopted to mitigate an environmental impact on any part of the environment around are also described. All the important information is also provided as described under the format used to help decision makers, EPA Punjab in the present case, before issuing the desired Environmental Approval.

1.2 Identification of the Project

The Project falls under section H, schedule II of IEE / EIA Regulations, 2000 (Amended 2022).

1.3 Project Proponent

Name:	Muhammad Asghar Khan Niazi
Father:	Shah Wali Khan
CNIC #:	33104-3461916-3
Address:	Post Office Same, Chak No.569-GB, Ratta Khel, Tehsil Jaranwala, District Faisalabad.

1.4 Brief Description Nature, Size and Location of Project

The subject proposed project is construction of the housing scheme under the name & style “**AWT Housing**” Housing Scheme situated at Mouza Asal Lakhawal, Ramkot and Janjaty, Tehsil City, District Lahore. Total area of the scheme is 548-Kanal 01-Marla 135-Sqft. Total estimated cost of the project is approx. **735-Million**. The project is for the betterment and advancement of the region.

Currently the proposed site is open area and do not fall in flooding zone (not prone to flood). This scheme will have different size of plots for residential and commercial purpose. The scheme will be facilitated with wide roads, parks, school, masjid, theme park, county club and electricity. For further details, layout map is annexed.

1.5 Location

Project site is located at Mouza Asal Lakhawal, Ramkot and Janjaty, Tehsil City, District Lahore.

1.6 Methodology of EIA Report

For the purpose of this report, environmental and social baseline data and conditions at / around the project site has been undertaken. The methodology adopted to conduct the EIA studying includes review of layout plan, orientation session, development of data, acquisition plan, analyzing of data, review of existing data, primary and secondary data, collection survey, screening of potential environmental impact and mitigation measures and also interviews with people near the project area has been conducted to collect their opinion regarding the proposed project and after finding it has been concluded that the project will not have any major adverse impacts on the socioeconomics environmental of the existing community.

SCREENING *(Whether the project requires an IEE or EIA as per regulation)*

This EIA report has been prepared according to the format set by EPA in the —Guidelines for the Preparation and Review of Environmental Reports to identify likely environmental impacts of the proposed AWT Housing in and around the project area during construction and operational phases. Project falls in Clause H, Point-1 of Schedule II of the IEE / EIA Regulations 2022.

The report extends to the recommendations and necessary measures required to mitigate or eliminate negative environmental impacts and explain an outline of Institutional Requirements and Environmental Management and Monitoring Plan (EMMP).

The report also provides information as desired under the format used to help decision makers, in the present case, Environmental Protection Agency (EPA), Punjab before issuing the desired NOC.

(2)

SCOPING

2.1 SPATIAL & TEMPORAL BOUNDARIES OF ENVIRONMENTAL ASSESSMENT

First step (Pre-Environmental Impact Assessment)

The first step is to determine the types of processes to be chosen and the different potential sites to be studied. Following the financial and technical thinking throughout, the EIA becomes more precise at each phase, in order to propose the best processes and sites according to local resources and sensitivities.

Once the project is almost defined the EIA analyzes a small range of solutions which compares a few process variations and a few pre-selected sites. Sometimes there is only one site and only one process left.

Second step (detailed Environmental Impact Assessment)

The second step of the EIA begins by scoping and screening the main impacts to be studied. It is important to implement the “scoping” with local authorities and representatives of affected groups to avoid omitting potentially important impact. It is now appropriate to have the terms of reference of the EIA drawn up by a steering committee, in order to pinpoint the exact contents of the EIA and the best way to conduct it.

Pre-environmental Impact Assessment

This part constitutes the first step of the EIA. It leads from the pre-feasibility study to a well-defined project that can be shown to authorities and local representatives. This first step towards the project must be the result of a financial, technical and environmental analysis leading to the final project bringing together the best available technologies and the least sensitive sites. The environmental survey during this phase must analyze:

- Potential sites,
- Raw material
- Constructional processes,
- Transportation.

Site selection

The first task of this activity is to demarcate the site and other benchmarks, with the help of drawings prepared during the pre-construction and design phase of the project. Once marking

is complete; the land will be cleared and prepared for subsequent construction activities. The whole purpose is to maintain the harmony of the area during construction.

Pre-construction/Design Phase Site Investigation:

The geotechnical and soil investigation of the project site will be carried out for determining the suitability of a site to support the structures, and other development works.

Geotechnical/Soil Investigation:

An extensive soil investigation of the project site will be carried out. The topographical survey will be undertaken by the surveying consultant to demarcate the area and measure the ground elevation. Subsequently, engineering details will be worked out, and working drawings, specifications for equipment and material will be prepared.

Selection of Contractor:

Once, the engineering details become available Builders and Developers will start to work on the project.

Construction Phase Contractor Mobilization:

This component involves the transportation of construction machinery and equipment to the project site and the establishment of the contractor's camp and office. The contractor will be responsible for the activities being carried out at the project site.

Raw material

Fired bricks and clay blocks
Cement composites
Concrete
Sand
Stone
Steel
Plastic pipes

Varies

Deforestation and reforestation usually necessitate an assessment of the impact on:

- **The remaining stands:**
 - Falling trees and skidders. The number of non-target destroyed trees can be higher than that of target trees.
 - Selected removal of certain species can lead to biodiversity depletion,
 - Systematic removal of the best trees leads to genetic erosion,
 - The absence of seed trees endangers the regeneration of the forest,
 - Large gaps in the canopy expose the remaining stands to wind-throw risks,
 - Endemic species can be threatened, by deforestation or reforestation,
 - Fire risks have to be considered both in the case of deforestation and reforestation particularly when using sensitive species like pines.
- **Water resources:**

- Deforestation generally increases surface run-off which can involve erosion and floods,
- Soil preparation for reforestation exposes it to both wind and water erosion. This erosion usually produces turbidity in water and sedimentation in the river beds.
- Pollution can be generated by fuel leakage and the use of pesticides.
- **Air and climate:**
 - The major emissions into the air are smoke and dust which can hurt affected groups,
 - Climate changes can affect both micro-climate (generally increasing temperature and wind speed, and diminishing evaporation) and global climate with, for instance, the greenhouse effect caused by deforestation.
- **Soil:**
 - Deforestation and reforestation operations can lead to erosion, depletion of soil fertility and risks of landslides,
 - In some cases, fast growing plantations (i.e.: eucalyptus) can gradually both deplete soil fertility and acidify it.
- **Biodiversity:**
 - Destruction of large tracts of forest, without maintaining ecologically rich zones, is a major concern in forest exploitation,
 - Wildlife often suffers from noise pollution and increased pressure from poaching.

Constructional processes

It is important to note here that the EIA is implemented before project construction. This implies that data will not be available on site. The EIA team must at this stage include a process specialist to predict the various emissions and performances of the proposed processes and procedures.

Environmental issues are too complicated and interconnected to be solved one at a time. The limits of the “end of pipe” approach, commonly used during decades, are well-known and it is now necessary to use systematic approaches in order to introduce a more global conception of the environment and to address the source of the problems directly.

For the person conducting an EIA, this logical framework means that the sooner causes for concern are well understood, the better environmental issues are resolved. It is thus very important to put a strong emphasis on assessment before project implementation. This will prove not only more environmentally friendly but also more cost effective.

It is very important to note that technology is always evolving and, in the EIA team, it is the process specialist's role to propose the best available solution to any problem related to environmental considerations and human well-being. This chapter is mainly constructed to allow EIA authors to classify the project in comparison with international standards.

Transportation

In most cases, transport of raw materials, general supplies and final products causes an increase in traffic around the facilities. Transportation may have repercussions, hence the need to consider the five key activities concerned: planning transport development, siting transport facilities, the construction of transport infrastructure, maintenance and operation of transport infrastructure and the use of transport infrastructure and vehicle maintenance.

- **Planning transport development**

If the creation of the project involves important changes in traffic conditions, the EIA must study the transportation alternatives both for the siting of transport facilities and for the modes of transportation. It is important to compare at this stage the different possibilities of transportation (road, rail or shipping) and to choose the least expensive in terms of investment, maintenance, environment and security. A matrix analysis can be relevant in evaluating each possibility.

- **Siting transport facilities**

Roads, railways and harbours are infrastructures which generally need their own EIA. The project EIA must nevertheless study this problem and propose a global solution for the project services which truly respects the environment. Any change in the road capacity also has to be seriously addressed, mainly for affected communities.

Project justifications

Once the different sites are pre-selected and a comparative analysis effected, and once the best technologies available have been selected to remedy possible environmental problems, the project is well defined and can be presented to the authorities and the affected populations.

The definition of the project represents extensive studies and work. This aspect must be valorized at this stage of the EIA to explain as precisely as possible the reasons which have led to advocate the project as it stands. Matrix explanation of why each site, resource, process, infrastructure, have been chosen over others can help to justify the project.

Depending on the authorities' requirements, the owners' choice or other considerations, the EIA plan can vary from case to case. Some EIAs study the different alternatives right to the end of the assessment and leave the final decision to the authorities, some others, as presented

before, define the best project in the best site and then propose to study more precisely its environmental and social impacts. There are no standard best solutions, each case must be treated as a particular case where the best solution has to be defined by the steering committee.

2.2 IMPORTANT ISSUES AND CONCERNS RAISED DURING CONSULTATION

Local community perception with regard to the implementation of the project components has been carried out during this EIA study. This gave the perception of the general public about this project. The results of public consultation conducted in the study area showed a strong agreement among the attendees (official stakeholders, representatives, general public, local community leaders, etc.) that this project will improve overall socio-economic conditions of people of the area. They had little reservation regarding some adverse impacts on different environmental parameters during construction and operation stages of the proposed project.

1. Due to constructional activities of the project traffic issues will be come up.
2. Due to constructional activities dust emissions will be raised.
3. Due to constructional activities noise issues also be raised.
4. Others

To cure all these issues the proponent has already planned proper mitigation measures as discussed in accompanied Environmental Management Plan.

2.3 SIGNIFICANT IMPACTS AND FACTORS TO BE DETERMINE

The proposed public consultation schedule at various phases of the Project. During construction and operation of the project, public consultation is planned as follows:

- i. Suggestions of the general public may be sought through press or other mass media whenever deemed necessary.
- ii. Local NGOs (if any, at any time during project construction or life), particularly working in the sector of environmental sanitation, will actively be involved in public representation.

- iii. TMA will frequently be contacted on matters concerning the progress, adverse impacts and mitigation measures.
- iv. To identify and assess significant social impacts, of the project activities on the surrounding area and people;
- v. To propose suitable means for probable mitigation of the significant adverse social impacts.



CONSIDERATIONS OF ALTERNATIVES OF PROJECT

3.1 Site alternatives, their selection and rejection criteria:

The land is already acquired by the project proponent as prospecting license for housing unit. The area is considered suitable in terms of environment as well as geologically for establishment of AWT Housing. Following is the realistic detail in this regard:

i. Without or Zero or No Project Alternative

The “No Project Alternative” alternative would mean that: land and environment of project area is much suitable for the establishment of housing projects; therefore, development of proposed AWT Housing project would play its contribution towards housing sector’s progress in the Pakistan that is currently much needed. Additionally, potential for employment during all stages of project would be retained. Thus, establishment of current project is highly needed. Therefore, —No Project Option does not remain a suitable alternative here.

The ‘No-Action’ option, if taken, will prevent the country from reconnoitering the potential to increase its housing demands. The current activity offers a chance to improve Pakistan’s housing balance and decrease the gap between the requirements by the application of project.

Other impacts of the ‘No-Action’ option would be loss of employment opportunities and infrastructural development in the project area, as the project is bound to create jobs and improve the existing infrastructure of the surrounding areas.

3.2 Design / Technology Alternatives, Their Selection & Rejection Criteria:

While considering process and technology alternatives, it has been kept into mind that the proposed project shall play its role towards energy and water conservation and least amounts of wastes to be discharged.

Using EURO II fuel in engines like generators and other machinery instead of diesel or bad quality fuel oil would create less opportunity of gaseous emission. No need for effluent treatment as generated effluent are collected in effluent tank and after neutralization through alkaline method, are thrown to the main sewer line.

3.3 Environmental Alternatives, Their Selection & Rejection Criteria:

As the project proponent has already a vast experience of working in the field of housing, therefore, no alternative project was considered to be established. Some issues discussed below hereunder:

3.3.1-Shifting of the project to some other location

The third option for the project is to shift the project to some other location if it might be feasible but here in this case AWT Housing will operated in highly feasible area. Project will not be considered to shift to any other place due to following reasons.

3.3.1.1-Land ownership

Present land ownership is rest with the project Proponent i.e. Muhammad Asghar Khan Niazi. Although tools like *resettlement action plan* and *compensation entitlement framework* can address the land acquisition related social issues, often resentment remains among the communities.

Therefore, it is desirable that the site for the project is either located on land owned by the project proponent or is owned by another corporate body or a government agency. Since land is owned by proponent himself there is no issue of land ownership.

3.3.1.2-Estimated population on the surrounding of the site

In terms of the social and environmental soundness the most preferable site for housing project should be the one that has sufficient distance from the industrial area and number of persons residing in its surroundings. Potential issues related to noise, air pollution, and community safety become more difficult to mitigate if the project is located in relatively industrial areas or near to it. For this purpose the settlements falling inside a 5km radius of the sites are being considered and the number of people residing within the said radius is estimated. **Raiwind road** is near from the site and consists of size approximately 500-600 households including some farm houses. Therefore, surrounding of the project has little amount of population as said project is existed at Raiwind Road, the households of bahria town are situated at the opposite site of the project. The details of population residing and their life style are described in demography section of the report.

3.3.1.3-Access to the site

Raiwind Road access to the project site is present as the project front. The issues that are related to access road include community safety, dust emission, and noise due to project

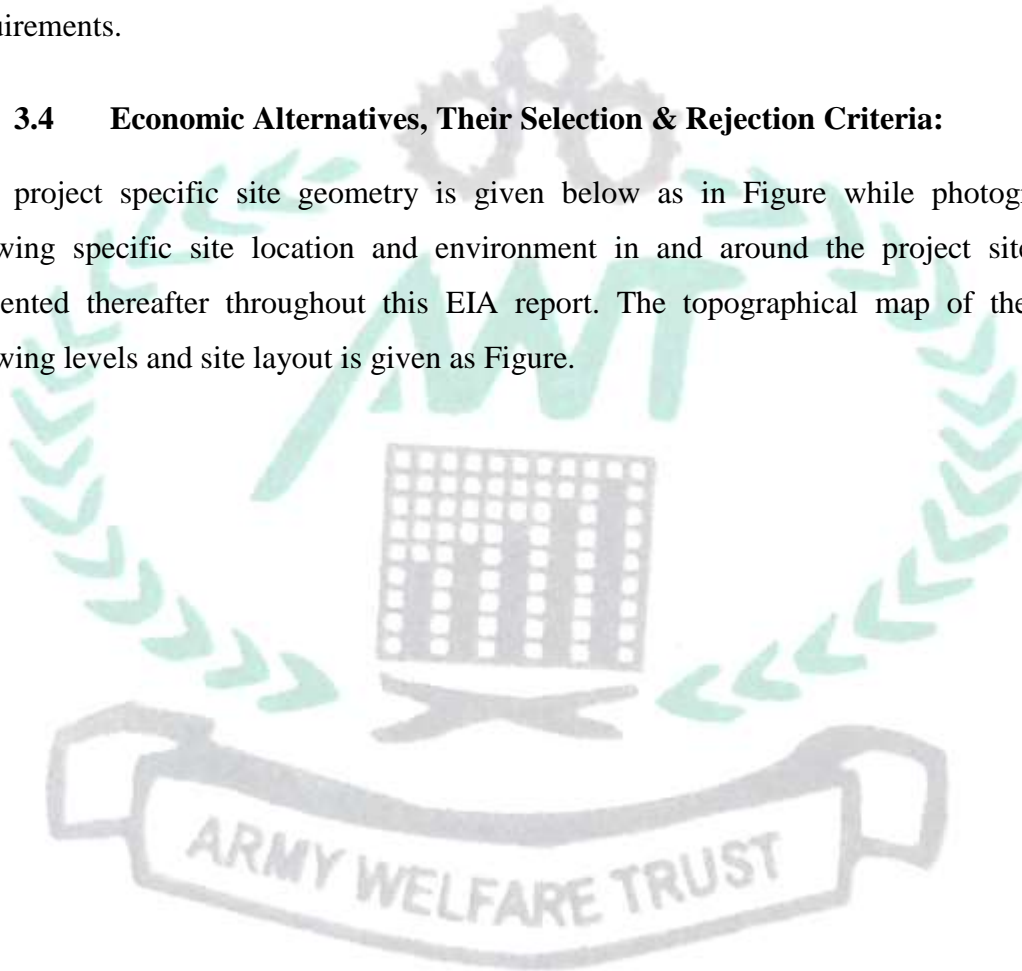
related traffic particularly during the transportation of raw material. As already discussed, two dumpers have hired for services for the movement of raw material; Therefore, accessibility to the project is easier.

3.3.1.4-Availability of water and other utilities

The water and other basic requirements such as telecommunication lines, electricity facilities for the project are available within the premises of the area. The environmental issue regarding the use of water by the project is that it can potentially affect the water availability in the area and make it difficult for the community to fulfill its water requirements.

3.4 Economic Alternatives, Their Selection & Rejection Criteria:

The project specific site geometry is given below as in Figure while photographs showing specific site location and environment in and around the project site are presented thereafter throughout this EIA report. The topographical map of the site showing levels and site layout is given as Figure.



DESCRIPTION OF THE PROJECT

4.1 Introduction

This chapter provides description of the project, its salient features, location, components, and various phases.

4.2 Type and Category of the Project

The proposed project is the construction of AWT Housing Project, which falls in Schedule II of Punjab Environmental Protection Agency (Review of IEE and EIA) Regulation 2022 under category H.

4.3 Objective of the Project

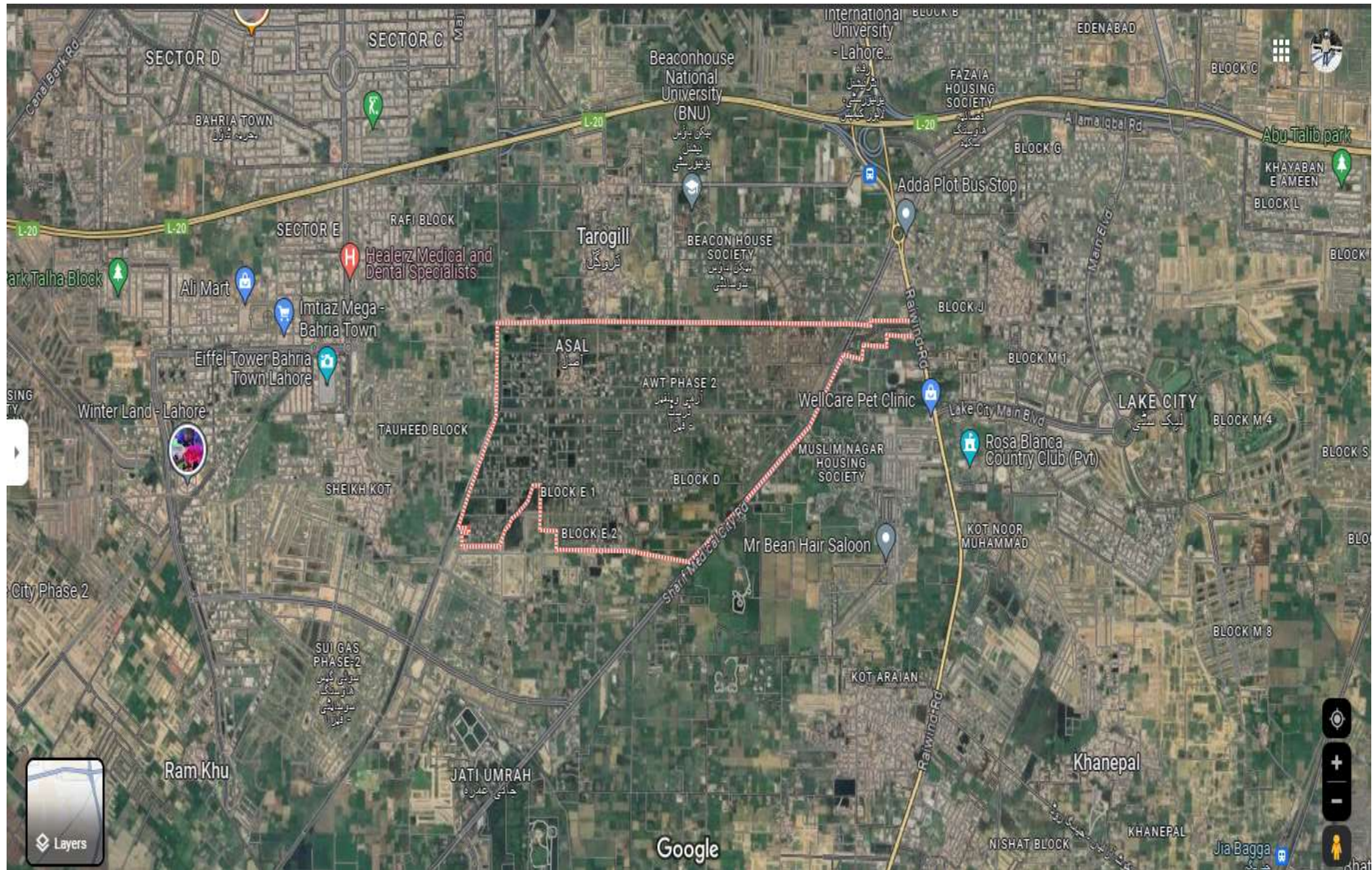
The objective of the project is to provide residential and commercial plots to middle and low-income groups with state-of-the-art amenities. The need for the project arises from the fact that Real Estate Developers in District consider providing residence to people with high incomes, whereas the AWT Housing Project, which consists of small residential plots, will provide housing facilities to middle and low income groups.

4.4 Project Location and Accessibility

The proposed project is located in Mouza Asal Lakhwal, Ramkot and Janjaty, Tehsil City, District Lahore. The housing societies that are present in the vicinity of the project area.

The proposed project site is accessible via Canal Road. The coordinates of the project site are 31.3527965, 74.1951669,14. The surrounding areas near the project are as follows:

The location and accessibility to the project are shown in Figure 4.1



Army Welfare Trust (AWT) Housing Project, District Lahore

4.5 Description of the Project

AWT Housing Developers intends to establish a housing society namely AWT Housing at Mouza Asal Lakhawal, Ramkot and Janjaty, Tehsil Raiwind, District Lahore.

The aim of the project is to provide affordable housing facility to middle and low-income groups, synonymous with its name, strives to set new qualitative standards in the housing sector of Pakistan by building environment-friendly infrastructure/public facilities conforming to international planning standards. The company has allocated a sector of Low-income plots for the Prime Minister's Low-income housing program.

The layout plan foresees 5630 residential plots having sizes 25x45, 30x60 and 35x70 and 49 commercial plots having sizes 30x40 & 30x30.

Table 4.1: No. & Size of Residential Plots of AWT Housing

Detail of Residential Plots in Revised Plan of AWT Housing Scheme Phase II						
Sr No.	Block Name	Plot Category				
		2 Kanal	1 Kanal	10 Marla	5 Marla	Total
1	A	1	567	9	-	577
2	B	-	299	1	-	300
3	C	-	356	6	-	362
4	C1	-	160	263	-	423
5	D	-	604	403	8	1015
6	E	-	558	246	2	806
7	E1	-	15	332	2	349
8	E2	-	-	323	41	364
9	F	-	-	305	40	345
Total		1	2560	1888	93	4541

Detail of Residential Plots in Additional Area of AWT Housing Scheme Phase II

Sr No.	Block Name	Plot Category				
		2 Kanal	1 Kanal	10 Marla	5 Marla	Total
1	A	-	36	-	-	36
2	B	-	6	-	-	6
3	C	-	-	-	-	-
4	C1	-	4	5	-	9
5	D	-	47	107	6	160
6	E	-	18	7	3	28
7	E1	-	-	30	7	37
8	E2	-	-	108	40	148
9	F	-	-	21	32	53
Total		-	111	278	88	477

Detail of Commercial Plots in Revised Plan of AWT Housing Scheme Phase II

Sr No.	Block Name	Plot Category								Total
		1 Kanal	10 Marla	8 Marla	5 Marla	4 Marla	3.64 Marla	3 Marla	2.5 Marla	
1	A	6	33	45	16	45	-	-	37	182
2	B	-	-	-	-	-	-	22	158	180
3	C	-	-	-	-	-	-	-	-	-
4	C1	-	-	-	-	-	12	-	8	20
5	D	-	-	-	14	9	-	-	20	43
6	E	-	10	8	-	12	-	-	52	82
7	E1	-	-	-	-	-	-	-	40	40
8	E2	-	-	-	-	-	-	-	16	16
9	F	-	-	-	14	5	-	-	-	19
Total		6	43	53	44	71	12	22	331	582

Detail of Commercial Plots in Additional Area of AWT Housing Scheme Phase II

Sr No.	Block Name	Plot Category								Total
		1 Kanal	10 Marla	6.6 Marla	4.8 Marla	4 Marla	3.6 Marla	3 Marla	2.5 Marla	
1	A	-	-	-	-	-	-	-	-	-
2	B	-	-	-	-	-	-	-	-	-
3	C	-	-	-	-	-	-	-	-	-
4	C1	-	-	-	-	-	-	-	-	-
5	D	-	-	7	-	9	-	-	-	16
6	E	-	-	-	-	-	-	-	-	-
7	E1	-	-	-	-	-	-	-	-	-
8	E2	-	-	-	-	-	-	-	-	-
9	F	-	-	-	14	-	-	-	-	14
Total		-	-	7	14	9	-	-	-	30

The facilities provided by the management includes provision of roads, link road in RoW areas, principal road RoW area, residential area, commercial area, parks and open spaces,

graveyard, public facilities such as water supply network, drainage, and sewerage network, electrification, solid waste management and sewerage treatment plant, electrification network, natural gas distribution network, laying of telephone lines, street lights, overhead and underground water tanks, construction of tube wells, etc. in the proposed area.

The accessibility of AWT Housing will be further enhanced after the construction of two Principal Roads 60 feet each passing through the society in the Southern and North Eastern side in accordance with the master plan. The site is in very close proximity to the Highway Raiwind Road.

The estimated project cost is Rs.735-Million and will be completed in 3 years.

4.6 Occupancy of AWT Housing Project

AWT Housing Project will comprise of 5630 Plots/units of different sizes. The estimated population of the proposed AWT Housing Project will be 2395 persons assuming a household size of 5. The expected population is shown in **Table 4.2**.

Table 4.2: Expected Population of AWT Housing Project

Description	Unit	Person	Population
No. of Plot	5630	5	28150

Source: Proponent's Estimates

4.7 Facilities to be provided at AWT Housing Project

AWT Housing Project will have state of the art facilities as follows:

4.7.1 Water Demand and Storage

Presently there are many villages and colonies in the vicinity of the project site including new Lahore city, bahria town and in front side Raiwind Road etc. and water is supplied from a number of tube wells in the project area. The AWT Housing Project will be dug borewells at the project site to meet the water demand and will be made operational as per demand by the residents.

For the provision of clean water, an extensive water supply network will be installed along with a water filtration unit. A slow sand filtration plant will be established for the proposed project.

The total water demand for AWT Housing Project during the operational phase is 380 m³/day. The main source of water supply for the residents of the AWT Housing will be groundwater. The water storage requirements and provisions calculated for AWT Housing is given in **Table 4.3**.

Table 4.3: Water Demand

Proposed No. of Residential Units		5630	
Estimated No. of Person per Unit		05	
Total			28150
i.	Domestic Water Demand “Residential”		
	Proposed No. of Persons	28150	
	Average Water Demand g/d	40	
	Sub Total of Res. Water Demand g/d		11,26,000
ii.	Institutional & Commercial Water Demand		
iii.	For public & Commercial Building		
iv.	Proposed no. of Person (20% of People of the total population)	5630	
	Average Water Demand g/d	10	
	Sub Total		56300
Average water demand of AWT Housing Project			
v.	Total of Sub totals above (i. & iv.)		11,82,300
	For Peak hours Water Demand	@ plus 25% on average	
vi.	Extra 25% of average water demand	295575	
Total Water for AWT Housing Project		1477875	

4.7.2 Sewerage System

A proper Sanitary Sewerage System will be designed under the proposed project and will be properly maintained.

According to the topography of the area, sewerage shall be collected and treated. The main trunk sewer line will be installed to transport the sewerage to the Sewerage Treatment Plant (STP). The effluent from the proposed STP will meet the NEQS requirement for the discharge of effluent into public water bodies.

4.7.3 Sewage Treatment Plant

Sewage Treatment Plant will be constructed to manage the wastewater generated during the operational phase from AWT Housing Project. The design of the Sewerage Treatment Plant for AWT Housing has been prepared as follows:

The proposed land for wastewater treatment plant is designated at southern side of the project boundary. An area of **0.96 Kanal** has been reserved for the construction of wastewater treatment plant as well as **0.52-Kanal** plot is reserved for solid waste management system at AWT Housing Project.

The proposed sewage treatment plant has been designed to cater to sewage/wastewater flows from AWT Housing, Rawalpindi.

The total estimated sewage flow generated from the AWT Housing area is about 80% of the total water demand 380 m³ /day. The proposed sewerage treatment plant has been designed to cater to the current as well as ultimate future flows from AWT Housing, Rawalpindi.

The sewage will be treated in such a way that the effluent characteristics will be 80 mg/lit of BOD, 150 mg/lit of COD, and 200 mg/lit of TSS.

Description	Average Flow (MGD)
	Estimated
Estimated Sewage Flows from AWT Housing, RWP	
Design flow for the STP	80 m ³ /day
Average Daily Flow	80 m ³ /day
Peak hour Factor	50
Design Peak hourly Flow	19 m ³ /hour

The various components of the sewage treatment plant are:

- Coarse Screens
- Pump Station
- Primary Settling Tank
- Aeration Tank
- Air Blowers Building

- Secondary Settling Tank
- Return Sludge Pumping Station
- Gravity Sludge Thickener
- Sludge Holding Tank
- Sludge Filter Press
- Plant Piping

The process flow diagram of a conventional Activated Sludge Process is shown in Figure 4.3.

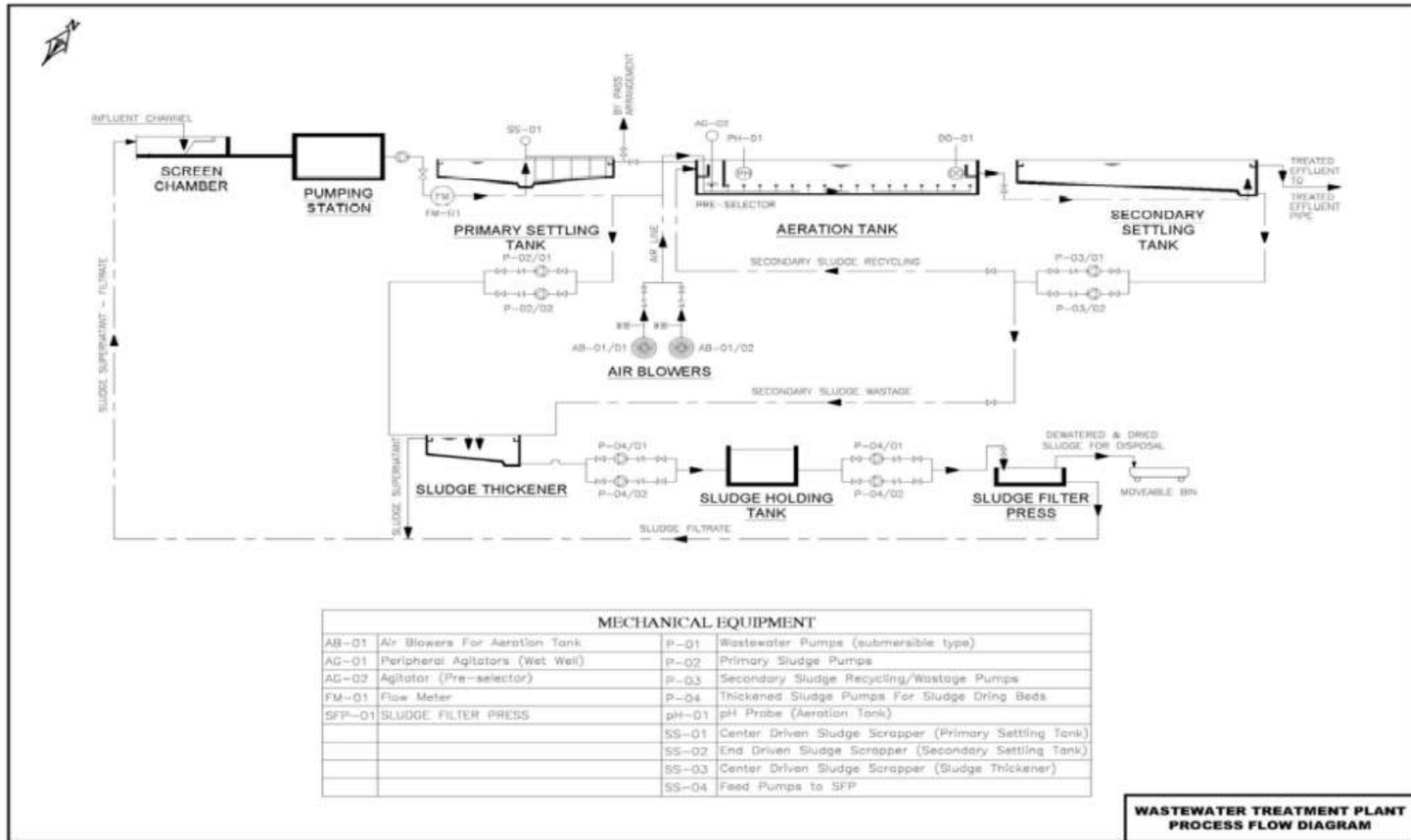
Design Flows and Adopted Treatment Technology: The proposed sewerage treatment plant has been designed based on the ultimate sewage flow of 0.35 cusec. Primary, Secondary and Sludge treatment facilities are provided.

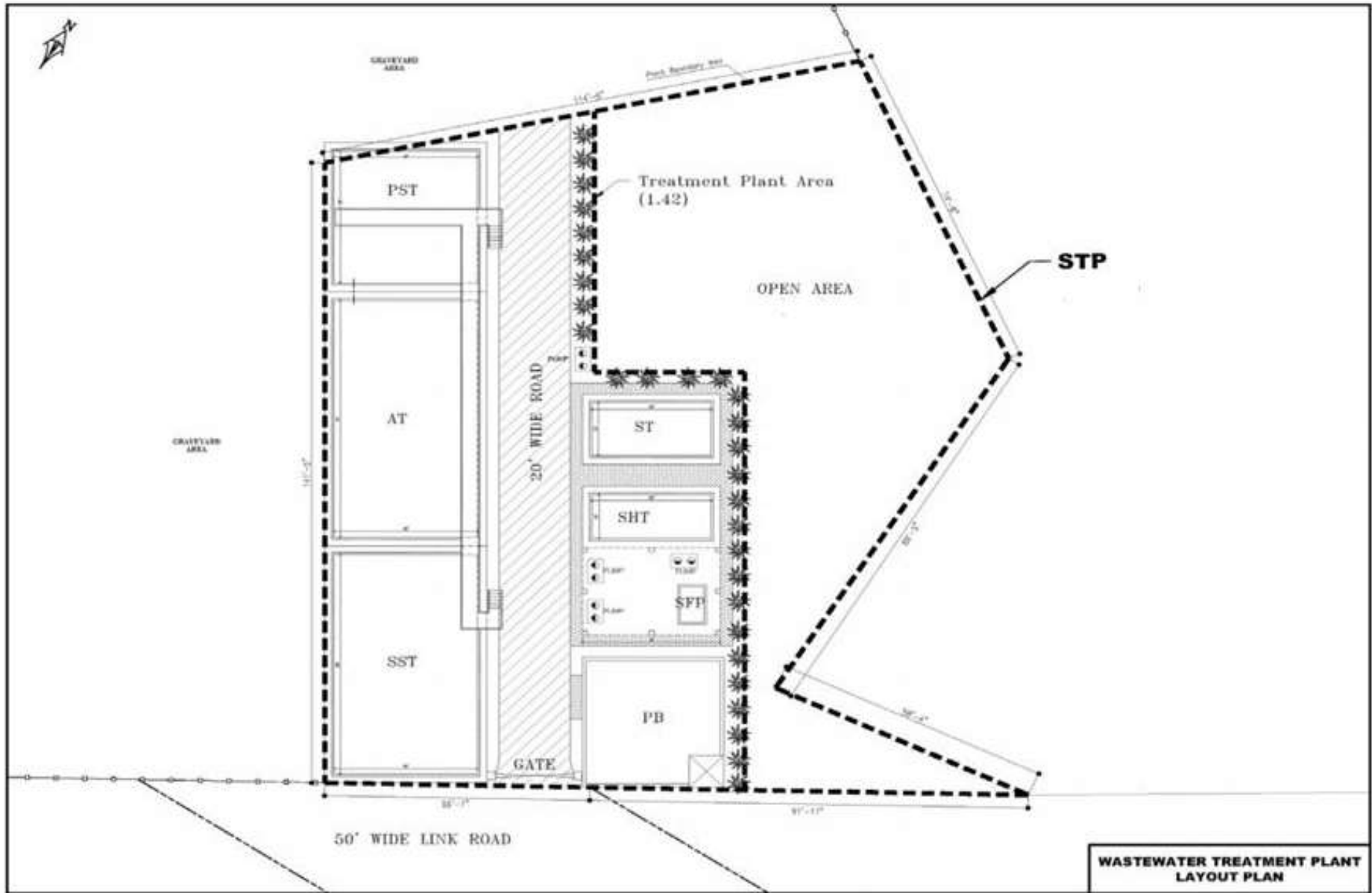
Adopted biological treatment technology is based on the Conventional Activated sludge Process (ASP), where micro-organisms are kept in suspension in a basin and oxidation of organic matter take place through a continuous supply of air. APS is widely used for the treatment of domestic and industrial wastewater.

The Overall Plant layout for the proposed Sewage Treatment Plant, AWT Housing, RWP shown in Figure 4.4.

Figure 4.3: Process Flow Diagram of Conventional Activated Sludge Process







4.7.4 Solid Waste Management

AWT Housing will have a proper solid waste management plan for Project. Approximately, 1 tons of solid waste will be generated at AWT Housing Project based on the assumption of a waste generation rate of 0.686kg/c/day according to the Baseline Survey of Solid Waste Management in Rawalpindi.

There are five main waste sources in the project that are: residential waste, commercial waste, institutional waste, green waste and construction and demolition waste.

The solid waste from residential and commercial areas will be collected through bins placed at suitable locations in both residential and commercial areas.

A total of 100 bins of 120 litres will be placed in the residential area whereas, 15 bins having a capacity of 360 litres will be placed in the commercial areas. The solid wastes will be collected by sanitary workers from the bins and then loaded into mini tipper vehicles.

All the solid waste will be used to transport to a transfer station located near the Sewerage Treatment Plant. The proposed land for wastewater treatment plant and Solid Waste Management is designated at eastern side of the project boundary. Total 0.5 Kanals land is allocated for construction of wastewater treatment plant as well as solid waste management system.

The collected solid waste will be compacted through a compactor at the transfer station, and a Compactor will be transported to the designated dumping site at Rawalpindi. AWT Housing will make an agreement with Rawalpindi Waste Management Company for disposal of their waste at the dumping site.

4.7.5 Roads

Access Road

The Raiwind Road is access road to the AWT Housing Scheme.

Internal Roads:

Developers has planned to construct Principal Roads 60 feet and 50 feet each passing through the society in the Southern and North East side in accordance with the master plan. Apart

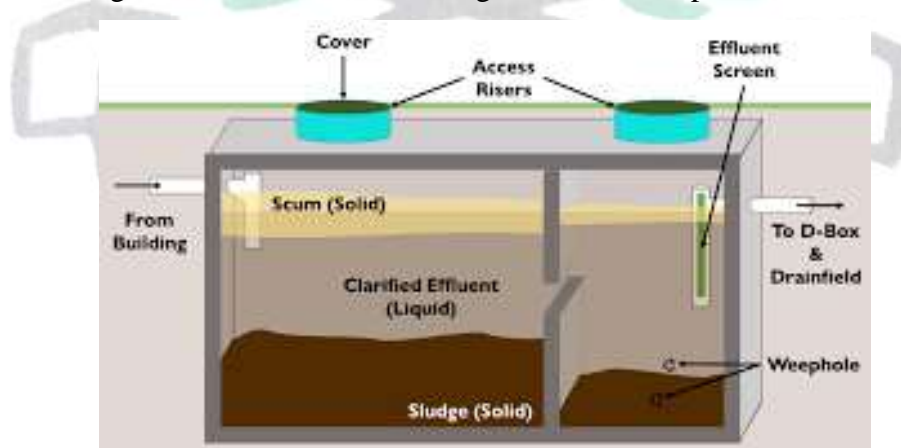
from that 30 feet and 40 feet roads will be constructed to access the residential and commercial areas.

The site is in very close proximity to the Raiwind Road.

4.7.6 Landscape Plan

There is a landscape plan for AWT Housing, which provides details for plantation along with all 30 feet, 40 ft, 50 feet, 60 feet roads. The landscape plan will be carried out by taking into consideration three main priorities:

- AWT Housing will encourage its residents to use Oxo-biodegradable D2W plastic bags.
- AWT Housing will install Wastewater Treatment Plant on the project site.
- Septic tanks will be provided in all residential plots and will be connected to the main sewer line. The size of the septic tank will vary depending on commercial and residential plots.
- Refuse chutes will be provided in the multistory building for disposal of solid waste, and all other buildings are provided with adequate storage space.
- AWT Housing expects the residents to help in the plantation and protection of trees/saplings. The service area can only be used for plantation purpose. Furthermore, parks and green belts will be built along the roads to improve aesthetics.



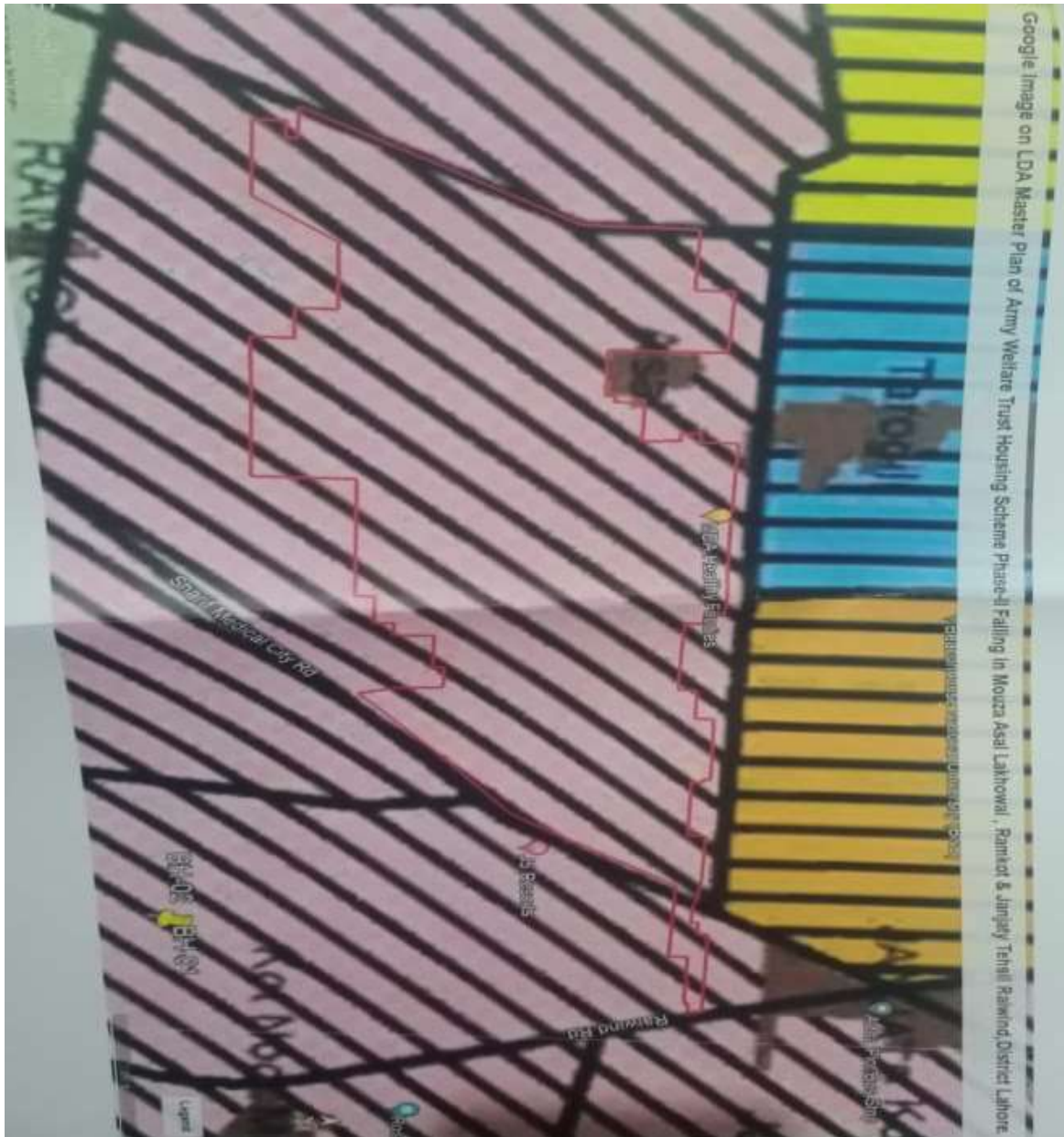
4.8 Vegetation features of the site

The land designated for the AWT Housing Project is a nonagricultural land and there are a total of 6 trees at the project site. Every effort will be made to avoid cutting the tree through

astute planning. If tree cutting is unavoidable, then every effort will be made to transplant the tree within AWT Housing.

4.9 Land acquisition

The land for the AWT Housing Project has been acquired by Proponent and is under the legal possession of Proponent.



There is no issue of land acquisition and resettlement of communities due to the project.

4.10 Current Land Use of the Project Site

Presently, the project site is lying vacant.

4.11 Current Status of the Project

There is no construction activity at the project site.

4.12 Cost of the Project

The estimated cost of the infrastructure development of AWT Housing Project is Pak Rs.735-Million as shown in Table 4.6

Table 4.6: Estimated Cost of AWT Housing Project

Sr.	Description	Estimated Cost (Million)
1	Road & Earthworks	735
2	Drainage System	
3	Water Supply System	
4	Sewerage Treatment Plant	
5	Landscaping	
6	Electrical Works	
Total		735

4.13 Government Approvals

The project AWT Housing scheme is proposed and has Copies of Fard Milkiat, NEC, approved layout map etc. All these approvals are annexed.

The groundwater and drainage approval from WASA and the other government approvals are pending, all these departments have been required Environmental Approval first.

4.14 Time Schedule

The development works for AWT Housing Project will be completed in a period of 36 months.

Table 4.7: Time Schedule/Flow Chart AWT Housing Project

Activity/Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36			
Detail design & Specialized Studies	█	█	█																																				
Mobilization				█	█																																		
Construction / Structure						█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	
External Façade Work																					█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█		
Demobilization																																					█	█	█





4.15 Project Phases

The construction of AWT Housing Project will be implemented in three phases, i.e., Pre-construction/ Design, Construction, and Operation.

4.15.1 Pre-construction/Design Phase

Site Investigation:

The geotechnical and soil investigation of the project site will be carried out for determining the suitability of a site to support the structures, and other development works.

Geotechnical/Soil Investigation:

An extensive soil investigation of the project site will be carried out. The topographical survey will be undertaken by the surveying consultant to demarcate the area and measure the ground elevation.

Subsequently, engineering details will be worked out, and working drawings, specifications for equipment and material will be prepared.

Selection of Contractor:

Once, the engineering details become available Management will start to work on the project.

4.15.2 Construction Phase

Contractor Mobilization:

This component involves the transportation of construction machinery and equipment to the project site and the establishment of the contractor's camp and office. The contractor will be responsible for the activities being carried out at the project site.

Site Preparation:

Usually, this activity involves the operation of heavy earth-moving machinery and substantial land clearing, levelling and grading, as well as cutting and filling activities.

The first task of this activity is to demarcate the site and other benchmarks, with the help of drawings prepared during the pre-construction and design phase of the project. Once marking



is complete; the land will be cleared and prepared for subsequent construction activities. The whole purpose is to maintain the harmony of the area during construction.

Construction Activities:

The construction activities will be carried out using the conventional methodology and sequence of work. The activities will include excavation, masonry work, carpentry, wiring, piping and plumbing, flooring, painting and installation of fixtures. Other activities will include the laying of cables, water supply, sewerage and storm drainage systems, junction boxes and providing connections to the individual buildings. Supervision of this whole activity will be carried out by the AWT Housing Project management and the consultant.

Staffing:

Construction crews will have the responsibility of the civil contractor and its petty contractor. It is estimated that a maximum of 100 personnel will be working at the site at a given time during the peak construction period.

These will essentially include masons, carpenter, electricians, painters, plumbers and general labourers. For unskilled employment, preference will be given to local residents of the project area. **Table 4.8** details the staffing requirement during the construction phase of the project.

Table 4.8: Construction Phase Personnel

Sr.	Description	For Construction
1	Technical Staff	15
2	Skilled Workers (technicians, labours, plumbers)	25
3	Unskilled Labour	40
Total		80

Following steps will be taken for effective management of construction crew:

- A complaint cell for workforce will be established, where they can register their reservations related to work.



- Management will develop an effective system of communication/consultation and will ensure that the staff concerns are addressed.
- Employees will be discouraged from working excessive hours and/or missing break periods (this may involve a detailed job evaluation).
- Child labour will be avoided.
- Incidents of bullying, sexual and racial harassment will be monitored and, where necessary disciplinary actions will be taken.
- Clear job descriptions will be developed for the workforce, and it will be ensured that the individual is matched to them.

Construction Machinery:

The following construction machinery is expected to be present at the project site:

- Dozer/ Loader
- Excavators/Jack Hammer
- Concrete Mixing Plant
- Tractor Trolley
- Water tanker
- Water and concrete pumps
- Tower Crane

The exact number of the above equipment and vehicles will vary depending upon the work schedule.

Construction Material:

The construction material will include cement, sand, crush, bricks, steel bars, paint, piping material, electrical material and finishing material. Most materials will be procured from Rawalpindi. The Bills of Quantities of the material will depend upon the construction activities.

Cement Mixing Plant:

With the construction and operation of the concrete mixing plant, air quality, noise nuisance, water quality and visual impact induced by the barges transportation minimized significantly. All sensitive receivers around the project site and along the site would benefit from the reduction. Control discharge of highly alkaline wastewater, dust, and excess noise.



Concrete mixing plant combines various ingredients to form concrete. Some of these inputs include sand, water, aggregate, fly ash, potash, and cement. The plant has a variety of parts and accessories, including mixers, cement batches, aggregate batches, conveyors, radial stackers, aggregate bins, cement bins, heaters, chillers, cement silos, batch plant controls, and dust collectors (to minimize environmental pollution). The centre of the concrete batching plant is the mixer. Used to mix stiff consistency concrete, semi-stiff consistency concrete, lightweight aggregate concrete and so on.

This machine can be used as a separated mixing machine or used as the supporting machine of the ready-mix concrete plant. When matched with the batching plant, they can form a simple mixing plant with more environmental benefits.

Disposal of Excavated/ Construction Waste:

Construction waste will be recycled by the contractor if possible. Otherwise, it will be disposed-off at TMA's designated site for excavated material/construction waste.

Electricity:

The project will get proper electricity connection from IESCO for the construction activities and camp.

Camp Supplies:

Camp supplies will be procured from Rawalpindi and transported to the project site.

Camp Site Sanitation Facilities:

Septic tank with a soakage pit at the construction will be constructed to treat sewerage generated by the campsite.

Traffic Load during Mobilization and Demobilization:

All of the constructions equipment and vehicles will be transported to the site via Raiwind Road. The supplies will be preferred at night time.

Traffic Load for Construction Materials Supplies:



It is estimated that on average, 8-10 truckloads per day during the peak construction period will be supplying different types of construction materials to the project site during the peak construction period.

Other Supplies Water:

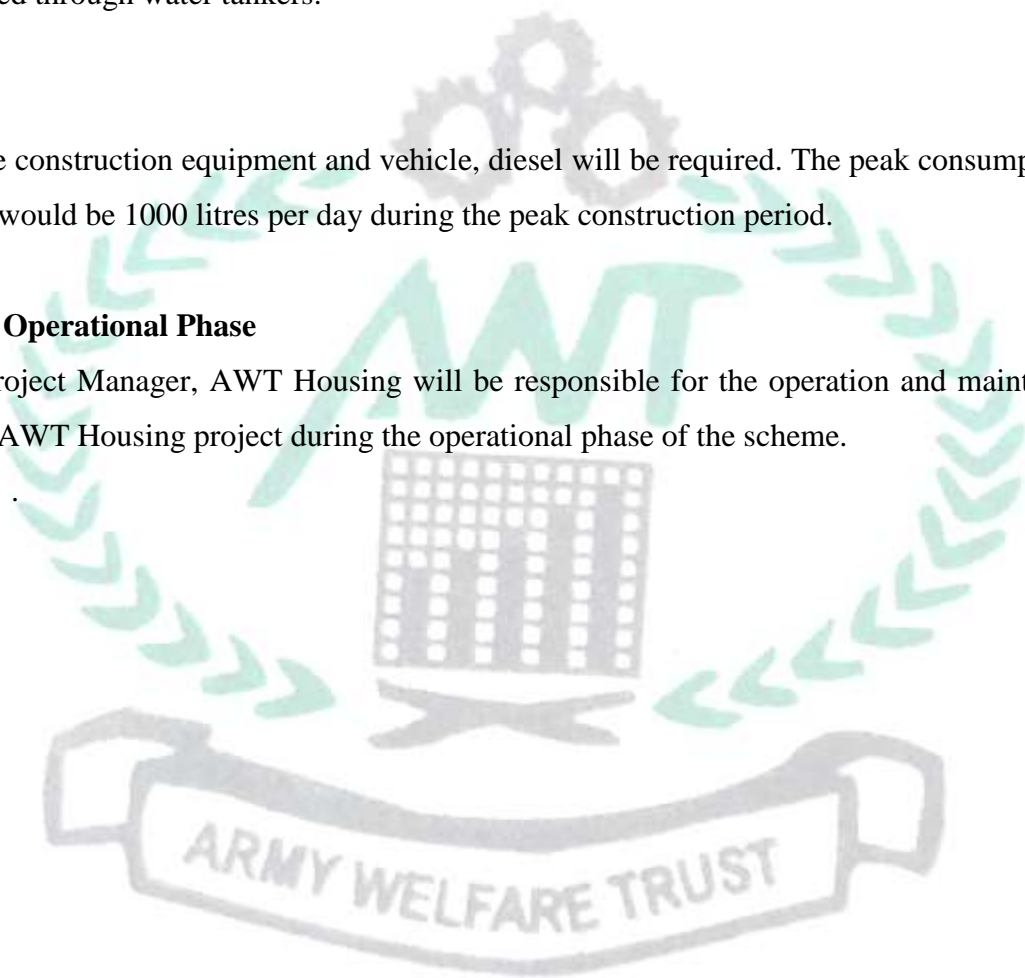
During the construction phase, a maximum of about 5,000 gallons per day of water will be required for construction activities and human consumption. The water supply will be arranged through water tankers.

Fuels:

For the construction equipment and vehicle, diesel will be required. The peak consumption of diesel would be 1000 litres per day during the peak construction period.

4.15.3 Operational Phase

The Project Manager, AWT Housing will be responsible for the operation and maintenance of the AWT Housing project during the operational phase of the scheme.





(5)

DESCRIPTION OF ENVIRONMENT

It presents information on existing environmental and socioeconomic conditions of the proposed project area. It discusses aspects pertaining to geology and soils, climatic conditions, hydrology, ambient air quality and noise levels as well as land use. Further, the chapter presents details related to flora and fauna as well as socio-economic environment.

5.1 Physical Environment / Resources

Environmental Impact Assessment (EIA) report provides details of physical environment.

5.1.1 Topography

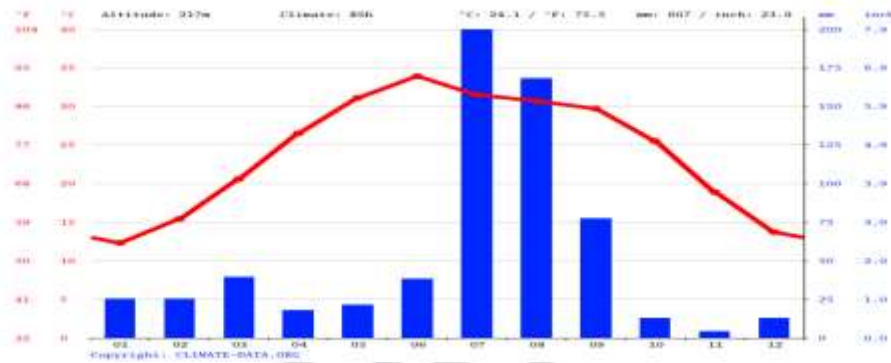
Topographically speaking, Lahore District has River Ravi which flows about 43-KM from the project site. The district may be divided into two parts, a low lying or riverine area along the two bordering rivers and upland, away from the rivers. The riverine area is generally inundated during monsoon season. The water level in this area is higher than in the upland. The soil is sandy. The upland is flat plains sloping from north-west to south-west. The general height of the district Lahore is 216 meters above from sea level.

5.1.2 Climate

The climate conditions of the project area are same as the condition of the district Lahore. Lahore has extremes of climate; the summer season begins from last span of April and continues till mid of September. June is the hottest month. The mean maximum and minimum temperature for this month are about 45 and degree Celsius respectively. The winter seasons lasts from November to February. January is the coldest month. The mean maximum and minimum temperature for the coldest month are 22 and 0 degree Celsius respectively. Rainfall towards the end of June monsoon conditions appear and during the following two and a half months the rainy season alternatives with sultry weather. The winter



rain falls during January. February and March ranging from 23 to 31 millimeters.



5.1.3 Temperature

Over the course of a year, the temperature typically varies from 5°C to 30°C and is rarely below 2°C or above 42°C. At an average temperature of 30.4°C, June is the hottest month of the year. The lowest average temperatures in the year occur in January, when it is around 12.5°C.



5.1.4 Precipitation

Precipitation is the lowest in November, with an average of 2.5 mm. The greatest amount of precipitation occurs in July, with an average of 120 to 200 mm.

Between the driest and wettest months, the difference in precipitation is 120 mm. The variation in temperatures throughout the year is 22°C.



5.1.5 Air Quality

Atmospheric pollution, particularly in industrial areas has a strong impact on daily life. Project site is located at Link Multan Road, District Lahore where few industrial activities are already in process. Industries and vehicles are major source of air pollution. Monitoring was conducted at the project site by using Fine Dust Sampler IPM-FDS 2.5/10 μ and Ambient Air Analyzer.

To record the baseline ambient air quality of the project area, monitoring was conducted at advised locations to assess the concentration of priority pollutants (Carbon monoxide, Nitrogen dioxide, Sulphur dioxide and PM₁₀) in the air.

5.1.6 Noise Level Monitoring

Details as described below

5.1.7 Basic Environmental Conditions

During the measurement following conditions were prevailed in workplace.

5.1.8 Metrological Conditions

During the noise level monitoring weather was dry and sky was clear. Air was blowing at normal speed.

5.1.9 Monitoring Instruments



The description of the instrument used for the noise level monitoring is given below:

Name: Digital sound level meter

Model: AR824

Company: Intel Instruments plus

Frequency Range: 31.5Hz to 8kHz

5.1.10 Methodology Adopted

Noise level was monitored at four points; lab results are attached.

5.1.11 Ground Water

The underground water will be used as a source of water at the project site. Sample was taken from the tube well near the project area to test its parameters. Lab results are attached.

5.2 Ecological Resources

Biodiversity has an important role in the functioning of the ecosystem. Human being is one of the species of the ecosystem and that species is the end user in the food chain. Fauna and flora are the important components of the ecosystem. The observed species of fauna and flora at the project site are described below.

5.2.1 Flora

Native plants of the Punjab have been restricted to the graveyards and other protected sites/area. The observed flora in and around the project area is being mentioned below.

- a) Kikar (*Acacia arbica*),
- b) Beri (*Zizyphus jajaba*),
- c) Shisham or Tali (*Dalbergia sissoo*)

5.2.2 Fauna



Birds including sparrows and crows were observed in the vicinity of the project area. And during the interview of the local peoples, reported the presence of dogs in the night.

5.3 Socioeconomics Environment

“The socioeconomics environment is one the component of the regional ecosystem.” The development projects can impact either negatively or positively to the regional socio-economic environment.

5.3.1 Population

According to the govt. statistics and the local / provincial govt. the estimated population of District Lahore is approximately 15-Million persons. Lahore is the provincial Head Quarter of the Punjab Province.

5.3.2 Profession

Main profession of the area is Business / Trading. However, because of provincial head quarter and provincial secretariat a large number of people are doing job in different institutes of govt. / private sector.

5.3.3 Education Level

Literacy rate in the area is approximately ranging from 64.7% (source: Bureau of Statistics).

5.3.4 Language

The popular language of the area is “Punjabi”

5.3.5 Cultural Diversity

The important cultural events in the district are the Urs of Hazrat Data Gunj Buksh ®, and Tableegi Ijtima in which monthly basis Ijtama were held and a grand Ijtama is also held yearly on national / international level.



5.4 Quality of Life Values

Quality of life the in the project area is standard as there are proper sanitation system and basic health facilities. Some of the important factors are discussed are below;

5.4.1 Heath and Education

Basic health & education facilities are available in the District. There are 1218 Govt. Schools and a very high number of private schools and some Big Hospitals (Mayo, Jinnah, Ganga Ram & General Hospital etc) are present. People have to visit the District Lahore for the proper health and educational facilities.

5.4.2 Compensation in Money Terms

As the project has been developed on the land of proponent and people are not getting affected from the project.

5.5 Archaeological and Historical Treasures

Archaeological or historical treasures within the project area are not available.

5.6 Lab reports of environmental analysis

Lab reports of ambient air, drinking water and noise level monitoring of project area is annexed.



(6)

SCREENING OF POTENTIAL ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

The following chapter describes the overall possible impacts of said project on the physical, biological and socioeconomic environment due to the location, Design, during construction phase, during operation phase of the project and mitigation measures to minimize the significance of the possible impacts. The anticipated impacts related to propose housing have been assessed and mitigation measures are provided accordingly.

6.1 Assessment Criteria for Potential Impacts

The impacts were assessed in the light of criteria given as under:-

- Magnitude or degree of impact
- Time and duration of impact
- Likelihood of impact occurrence
- Sensitivity of impact
- Risk related to impact

6.2 Environmental Impact due to Project Location

The subject proposed project is construction of the housing scheme under the name & style of “AWT Housing Scheme” situated at Mouza Asal Lakhwal, Ramkot and Janjaty, Tehsil Raiwind, District Lahore. This scheme will have different plots of different size for housing and commercial purposes.

6.2.1 Impacts

Area is suitable for the development of subject scheme. So, if the proponent / Developer fulfills all the HSE conditions and Society development laws and rules than this scheme will not cause any adverse environment impacts on the society. Development of this society will increase the living standards and employments for the local people of the District. Overall the impacts of this development due to the location are positive on the local community of District Lahore and country.

Impact significance: Very Low or may be positive

Nature of impact: Direct



Duration: Long-Term

Timing: Operation Phase

Reversibility: NA

Likelihood: Low (unlikely),

Consequences: Very low or may be positive

6.2.2 Mitigation Measures and Recommendations:

- Proponent/Developer should firstly build the boundary wall all around the project site.
- Proponent/developers should enhance the road infrastructure within the scheme and main link road.
- Proponent/Developers should place all the safety and location signs and maps at the specific indemnified place.
- Proper parking arrangements should be maintained during the construction and operational phase of the development.
- Location can be considered as positive impact on the community due to the facilities provided to the community.

6.3 Environmental Impact due to Project Design

Total area for the scheme as per site is 548-Kanal 01-Marla 135-Sqft, which will comprise residential plots, commercial plots, parks and roads. Health & safety plan, Tree Plantation Plan, and emergency response plan will be incorporated during the design phase of the project. The main buildings are;

- Houses
- Commercial shops/Market
- Parks
- Solid waste
- Main office

Following are the major Environmental impacts due to the development related to the design:

6.3.1 Impacts

- Structural stability of the proposed houses and whole society
- Soil structure and soil bearing capacity



- Road infrastructure design
- Emergency exit in the houses as well as society for the emergency situations
- Wastewater disposal system design
- Rain water harvesting capacity of the drainage system
- Electricity hazardous

Impact significance: Moderate to High or may be negative

Nature of impact: direct

Duration: Long-term

Timing: Constructional phase & Operation phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

6.3.2 Mitigation Measures and Recommendations:

Following are the mitigation measures and recommendations to minimize the anticipated impacts due to the project design:

- Road infrastructure should be properly designed and there should be strict application of the laws and regulations, so that traffic congestion problems may not arise.
- Emergency exit points should be designed during the designing phase and should be kept in proper working condition to use in case of any emergency.
- Wastewater disposal system should be designed and managed properly and wastewater treatment facility should be installed within the design of the housing society.
- Waste water drainage should be designed vast to bear the rain water capacity of the society.
- Electricity system should be designed safe and sound; electricity wires should be covered by thick plastic/electricity resistant covers.
- All the design should be approved from the local authority to minimize the impacts due to the design of the project.



6.4 Environmental Impact due to Construction Phase

Project site is surrounded by open land and road. So the construction of the proposed project will not have harmful impacts on the surrounding areas.

6.4.1 Impacts on Physical Environment

Impacts related to the construction phase of the subject project are discussed below:

- **Grubbing and Stripping**

Grubbing and stripping may be a minor and short-term impact on the physical environment during the construction phase. It may also be a health and safety hazard for the workers.

- **Leveling and Compaction of the Land**

Leveling and compaction of the land is also a short term and minor impact on the physical environment and it may also be a health and safety hazard for the workers.

- **Demarcation of project Building and Other Facilities**

It may also be a minor impact on the physical environment due to the subject project.

- **Generation of Dust During Loading and Unloading of construction Materials**

It is also a minor and short term impact on the physical environment and also for health and safety, which may arise during the construction phase.

- **Generation of Noise on Account of Vehicular Use and Construction Activities**

It is also a minor and short term impact on the physical environment and also for health and safety, which may arise during the construction phase.

- **Gaseous Emission due to the Vehicles and Stand by Generator (if any)**

It may also be a minor impact on the physical environment during the construction phase, if vehicles and generators are not properly tuned.

- **Local Flooding due to Over-use of Water and Leakage of Pipes**



It may be a minor and short-term impact on the physical environment if precautionary measures have not been taken.

- **Safety to Construction Workers, People in the Surrounding and Passersby**
Health and safety issues may arise during the construction phase if proper precautionary measures will not be taken.
- **Any Outbreak of Fire due to Electrical and Other Failures**
This issue may arise due to carelessness or improper management, and it may be a serious hazard which may affect the environment or may also cause the loss of property or life.
- **Solid Waste Generation due to Domestic and Construction activities**
Solid waste generation due to domestic and construction activities may be a negative impact on environment if not managed properly.
- **Wastewater Generation from the Domestic and Constructional Activities**
Wastewater generation due to domestic and construction activities may be a negative impact on environment if proper wastewater treatment and management system will not be implemented.
- **Ground Water Quality**
Ground water quality may be affected by the development if proper mitigation measures will not be implemented.

6.4.2 Impacts on Biological Environment

Impacts on Fauna and Flora

Construction will impact flora / vegetation cover and fauna present at the project site.

6.4.3 Impacts on Socio-Economics Environment

- **Security Threat**

Security threat is a major socioeconomics impact which may arise during the construction phase.



- **Impact on Land Value**

Construction of the subject project may cause positive or negative impact on the land value.

- **Loss of Public and Private Infrastructure**

Construction of the subject project may cause loss of public and private infrastructure if any, which is also a negative impacts on the socioeconomic environment.

Impact significance: Moderate to High or may be negative

Nature of impact: direct

Duration: Short-term

Timing: Construction phase

Reversibility: NA

Likelihood: moderate

Consequences: moderate

6.4.4 Mitigation Measures & Recommendations

- Precautionary measures should be adopted to save the environment from the impacts of grubbing, stripping, levelling and compaction and Health & Safety of workers should be ensured during these construction phases.
- Demarcation of project building and other facilities should be according to the laws and regulations.
- Sprinkling of water on dusty tracks is recommended to avoid the generation of dust on dusty tracks.
- Vehicles should be properly tuned to reduce the impacts of dust and noise.
- Mitigation measures should be taken to meet the PEQs at the stack of generators.
- Proper mitigation measures should be taken to reduce the noise generation during the construction activities.
- PPEs i.e. ear muffs, helmets and masks etc. should be provided to workers to ensure their health and safety during the construction activities.
- Precautionary measures should be taken to reduce the local flooding due to over-use or leakage of pipes.



- Health & Safety of construction workers, people in the surroundings and nearby must be ensured.
- Constructional waste should be used for landfilling purpose.
- Domestic solid waste should be used for landfilling purpose.
- Domestic solid waste should be kept in dust bins and should be handed over to local contractors.
- Wastewater treatment facility should be incorporated in the design of the project to treat the waste water produced due to constructional and domestic activities before the final disposal.
- Add more vegetation to restore the land by more plantations.
- Essential services like water supply, sewerage disposal and solid waste management must be in working conditions.
- Construction timings should be schedule to cause minimum disturbance to neighbors.
- Because of presence of security guards round the clock the security at the projects site will improve as well as in its vicinity. Impact will be moderate positive.
- Land value in the surrounding area will be increased due to completion of the present project. Impact will be moderate positive.
- The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.
- No moveable or immovable property and infrastructure of public and private sectors will be lost or damage during construction and operation stages. Impact will be nil.

6.5 Environmental Impact due to Operational Phase

There will not be any significant environmental problems relating to gaseous emissions, particulate matter or noise during operation of the scheme. Environmental issues associated with operation of the proposed project could include soil contamination caused by inappropriate waste disposal, surface and ground water contamination, water consumption, safety hazards, public health and nuisances, damage to infrastructure, and increase in noise and vehicular activity. However, the magnitude of these impacts shall be much less than those related to impacts during the construction. These impacts and the mitigation measures are discussed briefly.



6.5.1 Impacts on Physical Environment

Impacts related to the operation phase of the subject project are discussed below:

- **Groundwater quality and level**

The proposed project would not affect the quality and level of groundwater. Projected impact is nil.

- **Land utility**

It will increase significantly since the project has been planned to be constructed on the existing unused area.

- **Solid waste generation due to domestic activities**

Solid waste generation due to domestic activities is a long term and major of the subject project.

- **Waste water due to domestic activities**

Production of waste water due to domestic activities is a long term and major impact of the subject project.

- **Vehicular emissions**

It is also a major impact on the environment caused by the subject project.

6.5.2 Impacts on Biological Environment

- **Flora**

The project site is devoid of any significant vegetative cover. Only few plants are present. Nil impact is envisaged.

- **Fauna**

The fauna including wildlife species do not exist at the project site. The impact will be nil.

6.5.3 Impacts on Socio-Economic Environment

- **Security**



Because of presence of security guards round the clock the security at the project site will improve as well as in its vicinity. Impact will be moderate positive.

- **Land Value**

Land value in the surrounding area will increase due to completion of the present project. Impact will be moderate positive.

6.5.4 Resettlement Issues

- **Dislocation of Population**

The project does not involve dislocation of the people. There is no requirement of resettling a single person. Impact is nil.

- **Loss of Property / Infrastructure**

No moveable or immovable property and infrastructure of public and private sectors will be lost or damaged during construction and operation stages. Impact will be nil.

Impact significance: Moderate to High or may be negative

Nature of impact: direct

Duration: Short-term

Timing: Operational phase

Reversibility: NA

Likelihood: moderate to high

Consequences: moderate to high or may be negative

6.5.5 Mitigation Measures & Recommendations

- Solid waste bins should be regularly cleaned and solid waste must be handed over to the local contractors.
- There should be different bins for different types of solid wastes for proper segregation of solid waste.
- Wastewater treatment facility should be constructed on the reserved place to treat the domestic waste water.
- Proper plan for waste water collection should be devised.



- Proper mitigation measures should be devised to cope with the emissions generating from kitchen area.
- Properly tuned vehicles should be used and non-tuned vehicles should be banned.
- Traffic management system should be ensured.

6.6 Potential Environmental Enhancement Measures

The proposed project will be installed with all precautionary measures to enhance and safe the environment. Following necessary measures will be adopted during construction and operation.

- Sprinkling of water will be done on dusty road and tracks.
- PPEs will be provided during construction and operational activities.
- Constructional waste and domestic solid waste will be disposed-off or utilized properly.
- Local people will be informed in advance when work is about to start in an area.
- Machinery will never be left unattended.
- Efforts should also be made to discuss traffic conditions so that regular traffic is not disturbed. Transporters engaged for the project would be forced to adhere to the load specifications of the access road. No overloading would be allowed in any case.
- Safety signs and boards will be placed during construction.
- Waste water will be treated through waste treatment plant that will be installed within the industry.
- Proper SOPs will be followed with proper schedule along with the HSE conditions.
- Area will be restored with native plants. A proper tree plantation plan will be formulated to save the environment.
- Solid waste will be handed over to contractors and agreement will be made.
- Noise will be controlled by adopting proper measures.
- Safety signs will be placed at all locations where required.
- Hygienic conditions will be ensured and proper quality will be maintained by quality control testing.
- First aid facilities will be made available.



- Any possible measure will be adopted to make the project safe and environmental friendly.

6.7 Purpose of Mitigation Measures

Purpose of mitigation measures should include:

- What is the problem i.e. in terms of “Major Environmental Impacts” which may arise by the subject project activity?
- When the problem will occur and when it should be addressed?
- Where the problem should be addressed?
- And how the problem should be addressed?

The major impacts may arise by the subject project are solid waste generation due to domestic activities, waste water due to domestic activities, fire due to short circuits and other activities, health hazards. Other impacts are of minor importance. These impacts will arise during construction and operation but precautionary measures will be adopted prior to start the activity, during the activity and post activity.

Any impact that would arise due to the subject project activity will be addressed on site. Trainings will be conducted on site prior to start work while other precautionary measures will also be adopted to make the project safe and environmental friendly.

HSE manager / environmental manager along with site manager will be appointed to access any impact that could be arisen during the both phases. He would responsible to address the problem and to mitigate it.

6.8 Ways of Achieving Mitigation Measures

By adopting proper mitigation measures, any anticipated major or minor environmental impacts could be controlled or mitigated. The details of impacts and mitigation measures have been discussed in previous chapters.

Management shall take appropriate measures to provide pollution free and safe environment during the proposed project activity by implementing improved management practices and monitoring techniques suggested in EMP.



AWT Housing (Housing Scheme) will adopt such plan that will assure the minimum impact on the environment and health by implementing proper mitigation measures. Design of the project will assure the structure stability and project life in a long run.

AWT Housing (Housing Scheme) Restoration / Reclamation or tree plantation plan to restore the project area. Maximum plantation will be done with native species within the unit, along the boundary wall and along the road side if directed by EPA. Also, in-front of main area, horticulture plan will be formulated and area for this will be kept reserved.





(7)

ENVIRONMENTAL MANAGEMENT PLAN & MONITORING PROGRAM

7.1 Purpose & Objective of EMP

The primary objectives of the EMP are to:

- Facilitate the implementation of the mitigation measures identified in the EIA.
- Define the responsibilities of the project proponent.
- Define a monitoring mechanism and identify monitoring parameters in order to:
- Ensure the complete implementation of all mitigation measures
- Ensure the effectiveness of the mitigation measures
- Provide a mechanism for taking timely action in the face of unanticipated environmental situations
- Identify training requirements at various levels.

7.2 Management Approach

The overall responsibility for compliance with the environmental management plan rests with the project proponent.

A certain degree of redundancy is inevitable across all management levels, but this is in order to ensure that compliance with the environmental management plan is crosschecked.

7.3 Institutional Capacity

Following functionaries will be involved in the implementation of EMP:

- Project Proponent
- HSE/Project Manager
- In-Charge Administration
- Supervisor of project

7.4 Training Schedule

Training for the management/contractors/engineers and workers on environmental aspects of the project will be arranged. It will be imparted by a team of experienced trainers.

7.4.1. Training of Building Contractor



Training of building contractor & workers will be the part of the TORs regarding the construction of the scheme. TORs will be including the training and submission of reports in the following area:

- 1) Handling of Machinery in a safe way.
- 2) Use of PPEs.
- 3) Maintenance of vehicles and submission of Environmental Monitoring Reports.
- 4) Maintenance of Water Consumption records.
- 5) Testing of water and waste water and submission of Environmental Monitoring Reports.
- 6) Placement of safety signs/boards during construction.
- 7) Sprinkling of water on the roads and dusty tracks.
- 8) Monitoring of generator emissions.

Training regarding all other aspects of HSE will be ensured by the contractor during the construction phase.

7.4.2. Environmental Technical Assistance & Training Plan

In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. HSE/Project Manager should play a key role in this respect and arrange the training programs.

HSE/Project Manager will provide training to staff and workers about the best environmental management practices at the construction site and affective implementation of the EMP.

The training modules will include air, noise and water pollution monitoring, social awareness, Environmental Laws, Punjab Environmental Quality Standards (PEQS), Usage of personal protection equipment's and health and safety related issues on the construction site.

The HSE/Project Manager will train all workers & staff in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of Sexually Transmitted Infections (STI) HIV/AIDS and in general health and safety matters, and on the specific hazards of their work.



7.5. Responsibility of EMP

Overall responsibility for implementation of EMP will be that of project proponent. He will appoint a HSE/Project Manager of relevant qualification. HSE/Project Manager will act as Environmental Manager and will manage the all HSE condition at the PEQS.

7.6. Summary of Impacts & Their Mitigation Measures

Summary of Environmental Impacts and Mitigation measures is present in following table:

Sr.#	ENVIRONMENTAL ISSUES/IMPACTS	MITIGATION MEASURES
PLANING, SITE SELECTION AND DESIGN STAGE		
1	Acquisition of land	Project site is the property of the proponent and there is no land ownership issue.
2	Loss of environmentally sensitive areas	Avoid utilization such patches of land.
3	Changes in traffic pattern	Prepare suitable in / out traffic plan.
4	Potential conflicts with stakeholders	Settle the issues through scoping and specific group discussions.
5	Resettlement issues	No resettlement issues.
SITE DEVELOPMENT STAGE		
1	Erosion due to stripping and site clearance	Sprinkling of water on road side
2	Generation of Dust	Careful loading and unloading of construction material is recommended. Sprinkling of water on construction site and surrounding areas is recommended.
3	Generation of Noise	Avoid suing forbidden horns at the site. Do not throw heavy equipment and construction materials in haphazard manner.
4	Local flooding / ponding	Immediate repair and maintenance of water supply pipes and sewers in case of any defect will be undertaken.



5	Safety	Safety of the workers and others must be ensured. Privacy of the neighbors must not be disturbed.
6	Labor issues	Employ the local labor as far as possible.
CONSTRUCTION STAGE		
1	Minor erosion of land	Add more vegetation; restore the land by more plantations. Sprinkling of water on dusty tracks is recommended. Clearing of land should be step wise; vegetation should be removed only from the area where main building will be developed.
2	Contamination of land and water	Essential services like water supply, sewerage disposal and solid waste management must be in working condition.
3	Air Pollution (PM)	Sprinkling of water on dusty tracks is recommended. Do not throw heavy equipment and construction materials in haphazard manner. Prohibit idling of vehicles Workers on the site should be issued with dust masks during dry and windy conditions
4	Noise pollution	Construction should be carried out only during daytime Workers to wear ear muffs if working in noisy section
5	Traffic density	Proper signage put in place to notify neighbors of the activity and presence of heavy vehicles and to direct traffic. Presence of boards directing patrons to the site strict adherence to traffic rules. Provide adequate parking and driveways control and management of traffic through enforcement of speed limits. Provide bill boards at the site / entrance to notify motorists about the development.



6	Ecological consideration (flora & fauna)	The flora and fauna should be restored after construction by landscaping and maintenance the introduced plants.
7	Solid Waste	Excavation waste should be re-used or back filled. Waste generated should be collected by a privately constructed waste collection company. The site should have waste receptacles with bulk storage facilities at convenient point to prevent littering. Unusable construction waste, such as damaged pipes, formwork and other construction material is handed over to the local contractor. For wastewater treatment facility 1-Kanal is reserve in housing scheme.
8	First Aid	A well-stocked first aid kit shall be maintained by qualified personnel
9	Occupational Health and Safety	Train workers on personal safety and how to handle equipment and machines Report any accidents / incidences and treat and compensate affected sanitary workers To reduce health and safety risks, effective emergency response plans will be observed during construction. Proper personal protective equipment i.e. safety shoes, helmet, goggles, respiratory equipment and gloves shall be used at all times on site. Provide first aid kits and contact points in case of injury and accidents. Form a safety and health committee to coordinate safety and health issues at workplace. Provide regular safety awareness talks and trainings.
10	Material Transportation	All fine earth materials must be enclosed during transportation to the site to prevent spillage and



		<p>dusting. Trucks used for that purpose should be close properly and with tarpaulins to cover the materials.</p> <p>The transportation of lubricants and fuel to the construction site should only be done in the appropriate vehicles and containers, ie. Fuel tankers and sealed drums.</p> <p>As far as possible, transport of construction materials should be scheduled for off-peak traffic hours. This will reduce the risk of traffic congestion and of road accidents on the access roads to the site.</p>
OPERATION STAGE		
1	Safety / Security concerns	<p>Safety of the workers and others must be ensured.</p> <p>Privacy of the neighbors must not be disturbed.</p>
2	Malfunction of Utilities	<p>It is proposed to appoint maintenance engineer technicians like plumber and electrician for smooth operation of utility services.</p>
3	Occupational Health, Safety and Environment	<p>Regular medical check-ups are recommended to improve the working conditions and efficiency of workers.</p> <p>Safety of management, workers and visitors must be ensured.</p> <p>Observance of construction and safety codes must be ensured.</p>
4	Noise Pollution	<p>Workers to wear muffs if working in noisy section.</p> <p>Management to ensure that noise from the residents kept within reasonable levels.</p> <p>There should not be unnecessary honking of the involved machinery.</p>
5	Solid Waste Management	<p>Area for solid waste must be reserved within the subject project.</p> <p>The solid waste must be managed on regular basis.</p> <p>The domestic waste will be disposed-off in environment friendly way.</p>



		<p>Project related waste should be handed over to contractor for sale disposal / recycling.</p> <p>Waste bins should be placed at suitable places.</p> <p>Domestic waste should be handed over to contractors on regular basis.</p> <p>Proper segregation in collection of waste.</p>
6	Ecological considerations (flora & fauna)	<p>The flora and fauna should be restored after construction by landscaping and maintaining the introduced plants.</p>
7	Water consumption	<p>Avoid unnecessary toilet flushing.</p> <p>Promptly detect leaking taps and repair them.</p> <p>Turn off taps when not in use.</p> <p>Install water conserving taps that turn off immediately when water is not in use.</p> <p>Install a discharge water meter in the premises to check on total water use and for billing purpose.</p> <p>Install water meter for control of water use.</p>
8	Sewage treatment and disposal	<p>In every home there is a septic tank for the treatment of water. After treatment the treated water from septic tank of individual home will be collected in wastewater treatment facility for the further treatment from where it is discharge in sewerage system. The detail and specification of the project is given.</p> <p>Design of sewage system should be sound in terms of adequacy, gradient materials and standards and should connect to the proposed wastewater treatment system and should be monitored regularly to avoid leakages and spills.</p> <p>Regular emptying of the septic tank.</p>

7.7. Equipment Maintenance Detail

The proponent of the subject project will maintain records for Health Safety & Environment and will hire Environment / HSE manager to check and deal with the HSE issues. The subject project will maintain medical facilities, waste water treatment facility, solid waste Army Welfare Trust (AWT) Housing Project, District Lahore



management facility and records for their periodic replacement and will ensure proper housekeeping and essentials facilities.

7.8. Environmental Budget

The cost required to effectively implement the mitigation measures is important for the sustainability of the Project both in the construction and operation stages of the Project.

Project proponent will allocate the Environmental Budget for the Training, maintenance and management of Environment is **385-Thousand** annually that will include filling and maintenance of equipment's restoration, plantation, and strategic planning to cope with any emergency situation and formulate the disaster management plan to cope with natural disaster. Any equipment or devices failure or replacement will not be included in this budget.

ENVIRONMENTAL BUDGET	
Ambient Air Monitoring	55,000
Noise Monitoring	25,000
Water Quality Monitoring	25,000
Health & Safety	100,000
Tree Plantation / Green Belts	65,000
Solid Waste Management	30,000
Wastewater Treatment	85,000
Total	385,000



7.9. ENVIRONMENTAL MANAGEMENT PLAN FOR AWT HOUSING (HOUSING SCHEME)

Sr. #	Environmental Parameter / Element	Mitigation Measures to be taken during		
		Construction	Regular Operation	Responsibility
Physical Environment				
1	Waste Water	<p>The sewage to be generated shall be discharged into the septic tank for its primary treatment and then it will drain out into sewer.</p> <p>Domestic / construction waste water after Treatment in septic tank will be drained into nearby local sewage drain.</p>	<p>The sewage to be generated shall be discharged into the household level septic tank for treatment at PEQs levels. As there will be no chemical contamination, therefore, simple oxidation may reduce its pollution lead.</p> <p>Sewage and other waste effluents will be handled to avoid contaminating surface and groundwater.</p> <p>No contaminated effluents will be released into the environment without having been treated.</p> <p>Monitoring will be conducted by EPA certified LAB if required.</p>	Environmental / Project Manager
2	Health & Safety	<p>Local people will be informed in advance when work is about to start in an area.</p> <p>This may result in people keeping young</p>	<p>Basic health facilities will be provided to employees Security guards will be present round the clock.</p> <p>Job opportunity will be provided to the local</p>	Environmental / Project Manager



		<p>children away from work areas.</p> <p>Safe driving practices will be adopted, particularly while passing through settlements.</p> <p>Job opportunity will be provided to local people of the area.</p> <p>Basic health facilities will be provided to employees.</p> <p>Open fires will not be allowed anywhere outside the proposed site.</p>	<p>people of the area.</p>	
3	Water Supply	<p>It shall be ensured that no activity tempers with the water supply system.</p>	<p>It shall be ensured that no activity tempers with the water supply system.</p> <p>Project proponent committed to provide safe drinking water to all workers and staff.</p>	Environmental / Project Manager
4	Solid Wastes	<p>Limited solids wastes from the construction activities shall be segregated and duly disposed-off.</p> <p>The solid redundant materials will be disposed off away from the city adequately. None of these wastes shall be accumulated on site. It shall be</p>	<p>Solid waste will be handed over to the local contractors after collection from houses.</p> <p>Solid waste bins will be placed at suitable places.</p> <p>Area for solid waste bins will be placed at suitable places.</p> <p>Area for solid waste disposal will be allocated</p>	Environmental / Project Manager



		<p>ensured that none of the wastes or materials of construction spread on the public roads or on the foot path or else.</p> <p>Construction Solid Waste will be stored in solid waste bins and will be handed over to local contractors for further treatment or final disposal and also construction waste will be used for road repairing and maintenance purpose.</p>	<p>within the subject project.</p> <p>Proper solid waste management system will be adopted.</p>	
5	Noise	<p>In order to noise in the project area, vehicles to carry raw materials, shall be operated during night time as far as possible.</p> <p>The project construction activities don't involve any activity which may create high noise levels.</p> <p>Ear plugs will be provided & implemented.</p>	<p>In order to avoid noise in the project area, vehicles to carry domestic and commercial materials, shall be operated during night time as far as possible.</p> <p>No activity producing extra ordinary levels of noise will be allowed as a policy matter.</p> <p>Generators will be installed in a specially constructed room where its noise will be curtailed within the limiting values of the Punjab Environmental Quality Standards.</p> <p>Monitoring will be conducted by EPA certified LAB as per PEQs if required.</p>	Environmental / Project Manager



6	Gaseous emissions and particulate matter / dust emission	<p>Construction materials i.e. sand, clay and like shall be transported to the project site during night time and will be stored away from the road or foot path.</p> <p>They will be kept under cover to avoid any fugitive dust.</p> <p>Dust may generate during unloading of raw materials.</p> <p>All equipment, generators, and vehicles used during the project will be properly tuned and maintained in good working condition in order to minimize exhaust emissions.</p> <p>All project vehicles will be checked regularly to ensure that engines are in sound working condition and are not emitting smoke.</p> <p>Ambient air quality has been monitored by EPA certified LAB and results are incorporated within the report.</p>	<p>Generators should be maintained properly.</p> <p>Generators will be installed in a specially constructed room.</p> <p>Avoid off roads travels.</p> <p>Maintain vehicles speeds.</p> <p>Monitoring should be conducted as per instruction of Environment Project Agency.</p> <p>Speed for traffic movement in the scheme should be limited to avoid noise. Canopies should be built over generators to avoid noise pollution.</p>	Environmental / Project Manager
7	Soil disturbance /	The clearing vegetation along proposed	Maximum plantation is recommended within at	Environmental /



	erosion	<p>site will be minimized as far as possible. Minor & scattered vegetation is present that include shrubs and grasses only.</p> <p>Control earthworks and compact loose soils.</p> <p>Install drainage structure properly.</p> <p>Landscaping on project completion.</p> <p>Control activities during rainy conditions.</p> <p>Provide soil erosion control and conservation structures / means where necessary.</p> <p>To the greatest extent possible, phase site clearance so as to minimize the area of exposed soil at any given time.</p>	<p>outside the land subdivision and for this area is reserved. Tarpaulin sheets will be placed under generator (s), and other leaching substances.</p> <p>Land will be restored by planting indigenous plants. Landscaping on project completion.</p>	Project Manager
8	Traffic related problems	<p>The vehicles number will be regulated in a way that no stampedes occur on the site.</p> <p>As far as possible, large size vehicles in very limited number may visit the project site during night time.</p>	<p>The project site has additional area reserved exclusively for parking cars and motor cycles.</p>	Environmental / Project Manager



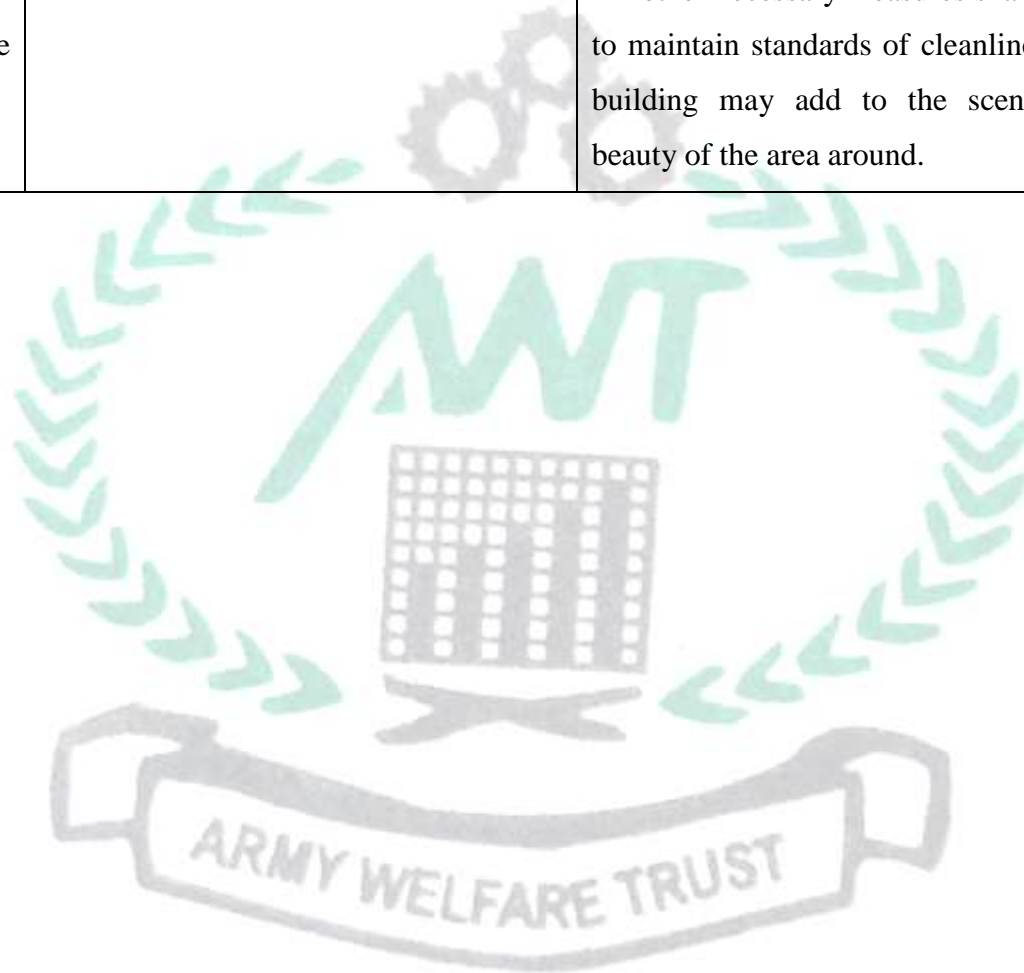
9	Trash Burning	No trash burning will be allowed on the roads and streets.	No trash burning will be allowed on the roads and streets.	Environmental / Project Manager
10	Dust	The open place will be duly cleaned after sprinkling of water to avoid any dust to spread around.	Plantation will be ensured in open space to avoid dust.	Environmental / Project Manager
BIOLOGICAL ENVIRONMENT				
11	Flora & Fauna	Proposed site is devoid – off any protected species of both flora n fauna.	Awareness programs will be planned regarding the protection of flora n fauna. Species of indigenous plants will be planted at site.	Environmental / HSE Manager
SOCIOECONOMICS IMPACTS				
12	Resettlement issues	There is not any issue of resettlement due to the construction of the subject project.	There will not be any issue of resettlement due to the operation of the subject project.	Environmental / HSE Manager
13	Change in cultural language	Maximum employment of local people is recommended to preserve the local culture language. It will help in communication with the local people to resolve any emerging issue near the project area.	Maximum employment of local people is recommended to preserve the local cultural language. It will help in communication with the local people to resolve any emerging issue near the project area.	Proponent
14	Education	Schools and colleges exists in the area.	Schools and colleges are exists in the area. The	Proponent



		The project proponent will initiate an educational awareness program.	project proponent is committed to initiate an educational awareness program.	
15	Health	Health facility already exists in the project site. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	Health facility already exists in the project site. The project proponent should provide first aid facilities at site and also social security and medical checkups of the workers.	Proponent
16	Culture, norms of the Area	Maximum local employment should be ensured to preserve the culture of the area.	Maximum local employment should be ensured to preserve the culture of the area.	Proponent
17	Gender inequality	Women involvement in decision making process should be ensured.	Women involvement in decision making process should be ensured.	Proponent
OTHERS				
18	Environment quality enhancement measures; flowers and plants and decoration lights.	-	Flowers pot containing flowers and plants will be planted in front of the buildings to add to the improvement of the environment around. Street lights will be provided in the roads and streets.	Environmental / Project Manger
19	Staff for catering the Environmental	-	Special staff will be recruited to implement this Environmental Management Plan on regular	



	Management Plan		basis.	
20	Enhancement of aesthetic beauty of the Building and the Area.	-	All other necessary measures shall also be taken to maintain standards of cleanliness so that the building may add to the scenic / aesthetic beauty of the area around.	





(8)

STAKEHOLDERS PARTICIPATION

The project proponent engaged an Environmental Expert Team who conducted a survey of the project site and had discussions with stakeholders and consult with the local people to evaluate the project socioeconomic impacts. People provide the massive information about the project and have positive remarks regarding the project development.

8.1 Methodology of Consultation

The team carried out public consultation at various locations around the Project Site. The stakeholder's consultation during this phase of the work targeted the project area, administrative and private offices, Govt. offices, shops, etc. near the Project Area:

- Selection of the stakeholders for consultation, reconnaissance of the project site and initial discussions with the neighboring factory workers, residents, shopkeepers, drivers etc.
- Environmental consultations and social specialists and documenting the opinions of the stakeholders expressed during the meetings etc.

Consultation was held with following:

8.1.1 Proponent

Possible impacts and mitigation measures related to the subject project were discussed with the project proponent and management. They assured to take all suggested mitigation measures to control any discrepancy arose by the project and to make the project environmental friendly.

8.1.2 The Responsible Authority

Management of the subject project is the responsible authority to take all measures prior to the activity.



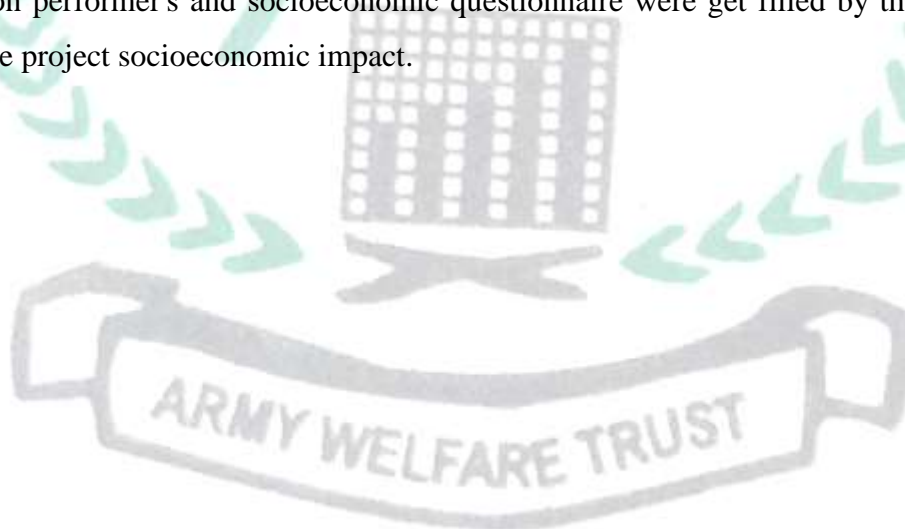
8.1.3 Some other Departments & Agencies

For the impact analysis details meetings were held with the management of the subject project, local community, education institutes, health institutes, hospital and NGOs. issues were discussed that may affect the environment and also the implementation of proposed project. All possible mitigation measures were considered and incorporated in the Environmental Management Plan.

Scoping sessions, focused group discussion and way side consultations were held with the relevant stakeholders in the area. The purpose of such consultations is to obtain the feedback from the relevant persons. Socioeconomic survey form are annexed.

8.2 Affected & Wider Community

There is no affected community present in the radius of our study area. Team has consulted with the inhabitants of the different villages. They provided positive remarks regarding the subject project and in the favor of the subject activities for the proposed housing scheme. Stakeholders participation performer's and socioeconomic questionnaire were get filled by the inhabitants to evaluate the project socioeconomic impact.





(9)

CONCLUSION & RECOMMENDATIONS

9.1 Conclusions.

- The EIA study reveals that the project is economically viable, socially acceptable and environment friendly.
- On completion of the project AWT Housing (Housing Scheme) will provide housing facility to local and general public.
- It will generate additional jobs during construction and operation phases.
- Project is environmental friendly and pollution free.
- The proponent has committed to implement the project in the environment friendly manner.
- Project proponent has ensured to install the Septic Tank to treat the domestic waste water prior to discharge into drain or use for irrigation purposes.
- Project proponent has ensured to adopt the proper solid waste management system.
- Proponent has ensured to adopt all the necessary measures to control any impact if resulting from the project.
- Project proponent has ensured to provide the safe drinking water to all workers and staff as well as in the scheme.
- Proponent of AWT Housing Scheme intends to register the project with local government.
- Project proponent has prepared and implemented very comprehensive Emergency Preparedness and Response Standard Operating Procedures.

9.2 Recommendations

- In view of the comprehensive screening process and findings of the present study there is no need of conducting further investigations.
- Tree plantation inside and near the society is recommended.
- Septic Tank will be installed for primary treatment of waste water.



- Proper Solid Waste Management System should be followed according to direction of the Local Government.
- The untreated wastewater should not be reused for irrigating the vegetation, lawns and green belts.
- High Standard of Bio-Security and safety should be enforced during operation phase.
- Safety of the workers should be top priority for the management.
- AWT Housing Scheme will continue to assist the local communities as a corporate / social responsibility.

The present EIA report is enough to meet the administrative and legal framework. Therefore, the Environmental Approval may be accorded for the present project.

