

Environmental Management Plan

Project Number: 51036-002
November 2021

Pakistan: Khyber Pakhtunkhwa Cities Improvement Project

Construction of Neighborhood Park, Mingora

Prepared by Project Management Unit, Local Government, Elections and Rural Development Department, Government of Khyber Pakhtunkhwa for the Asian Development Bank.

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CURRENCY EQUIVALENTS

As of 18th November, 2021

Currency Unit – Pak Rupees (Pak Rs.)

Pak Rs 1.00 = \$ 0.0057

US\$1.00 = Pak Rs. 175

CONVERSIONS

1 meter = 3.28 feet

1 hectare = 2.47 acre

1 kanal = 0.125 acre

Acronyms

ADB	Asian Development Bank
CC	Construction Contractor
COVID-19	Corona Virus Infectious Disease-2019
CIU	City Implementation Unit
DC	Design Consultant
EE	Environmental Engineer
EMP	Environmental Management Plan
EPA	Environmental Protection Agency
IA	Implementing Agency
KP	Khyber Pakhtunkhwa
KPCIP	Khyber Pakhtunkhwa Cities Improvement Project
KP-EPA	Khyber Pakhtunkhwa Environmental Protection Agency
LGE&RDD	Local Government Election and Rural Development Department
NEQS	National Environmental Quality Standards
PMU	Project Management Unit
PPE	Personal Protective Equipment
PRF	Project Readiness Facility
RE	Resident Engineer
REA	Rapid Environmental Assessment
SC	Supervision Consultant
SPS	Safeguard Policy Statement
STD	sexually-transmitted disease
TMA	Tehsil Municipal Administration
UCCRTF	Urban Climate Change Resilience Trust Fund
WHO	World Health Organization

NOTE

In this report, “\$” refers to US dollars

Content Details

S/No.	Version	Date	Summary of Revisions made
1	1	26-7-2021	Draft Environmental Management Plan
2	2	18-11-21	Updated Environmental Management Plan

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1 Introduction

1.1 Project Overview

1. The Khyber Pakhtunkhwa Cities Improvement Projects (KPCIP) will improve the quality of life of the residents of five KP cities, including Abbottabad, Kohat, Mardan, Mingora, and Peshawar, directly benefitting about 6 million of urban population. KPCIP will help selected cities improve their access to quality urban services through three interlinked outputs: (i) Climate resilient and gender friendly urban infrastructure improve, (ii) Institutional capacities of urban service providers and governments strengthened, and (iii) Increased women's participation in urban governance and access to economic opportunities.
2. KPCIP will support the Government of Pakistan's development priorities, established in (i) the National Water Policy (2018), (ii) the Local Government Act (2019), and (iii) Pakistan Vision 2025¹. The project is also aligned with ADB's operational priorities of (i) addressing remaining poverty and reducing inequalities; (ii) accelerating progress in gender equality; (iii) tracking climate change, building climate and disaster readiness; (iv) making cities more livable; and (v) strengthening governance and institutional capacity, outlined in ADB's Strategy 2030, and is included in ADB's country operations business plan for Pakistan, 2021–2023.
3. The project readiness financing (approved in March 2019) has financed the preparation and engineering design of the KPCIP. The Department of Local Government, Elections and Rural Development Department (LGE&RDD), the Government of Khyber Pakhtunkhwa, will be the executing agency for the project and the city governments of the five target cities, including the respective Water and Sanitation Services Companies, will be the implementing agencies.
4. This report has been prepared based on detailed engineering designs, due diligence assessments, and studies conducted by the government and project readiness financing consultants. The Government of Pakistan, Asian Development Bank (ADB), and Asia Infrastructure Investment Bank (AIIB) are expected to approve KPCIP in Q3 2021.
5. The Khyber Pakhtunkhwa Cities Improvement Project (KPCIP) is being processed through the Project Readiness Finance (PRF) modality by Asian Development Bank (ADB) under Loan 6016-PAK, being executed by KP Local Government Election and Rural Development Department (LGE&RDD). The Project is focused on investments of subprojects related to water supply, sanitation and drainage, solid waste management, and urban/green spaces. The Project has the following four major components:
 - Improvement of water supply systems in five (5) cities.
 - Improvement of sewerage and drainage systems in five (5) cities, including provision of sewage treatment plants (STPs)
 - Provision of Integrated Solid Waste management (ISWM) system in five (5) cities

¹ Government of Pakistan. 2018. *The National Water Policy*. Islamabad; Government of Khyber Pakhtunkhwa. 2019. *The Khyber Pakhtunkhwa Local Government Act*. Peshawar; and Government of Pakistan. 2016. *Planning Commission, Ministry of Planning, Development & Reform: Pakistan Vision 2025*. Islamabad.

- Development of Urban/Green Spaces in five cities.
6. The proposed sub-project is construction of Neighborhood Park at Mingora. The project site is situated at abandoned slaughter house west of Swat Cricket Stadium, Swat. The site is situated north-east of the Jambil & Marghuzar Khwar within a densely populated neighborhood. Project area map is shown as **Figure 1.1**.
 7. The Construction of Neighborhood Park will, aim to:
 - Meet the shortfall of urban green spaces in Mingora City
 - Remediation of abandoned slaughter house
 - Construction of retaining wall to protect site from flash floods
 8. The sub-project will help in sustainable disposal of abandoned slaughter house remains and site will be remediated. The site will be remediated and developed as a Neighborhood Park with sitting spaces for families, play area for children, walking tracks for physical exercise, a tuck shop, parking spaces and a public washroom.

1.2 Project Need

9. The population of Mingora City (Swat) has grown from 173,836 to 331,091 between 1998 to 2017 (Pakistan Bureau of Statistics). Doubling in the size of the population has led to massive growth in the built-up environment but negligible development of green urban spaces in the city. Mingora lacks outdoor spaces with vegetation that are essential for the psychological well-being and physical health of its residents. This project aims to show how the shortfall in Mingora's green urban spaces can be met.

1.3 Project Categorization

10. The sub-project screening and categorization exercise has been conducted and the endorsement of the sub-project category by ADB has been obtained. Since the overall project activities will result in impacts that will mostly be localized, short term and easily manageable through implementation of best management practices, thus this sub-project has been classified as Category 'C' as per ADB SPS, 2009. The REA Checklist is provided as **Annexure A** of this document.
11. Thus, this Environmental Management Plan (EMP) document has been prepared for implementation by the Contractor to ensure compliance with all required measures as per ADB SPS, 2009.

1.4 Scope and Objective of the Project

12. Project will improve the environmental quality of the area and meet the demand for a family park in the local neighborhood. The project aims to promote the development of similar parks across Mingora and beyond.
13. The overall scope and objectives of the project are summarized in **Table 1.1**.

Table 1.1 Scope and Objective of Project

Sr. No	SCOPE	OBJECTIVES
1.	Urban forestry & row plantation (plantation of over 450 trees, shrubs & flowers)	<ul style="list-style-type: none"> Cooling effect on pathways from tree shading Shaded areas for sitting
2.	Food service (café)	<ul style="list-style-type: none"> Source of income generation for the park and employment for locals Encourage visitors to spend more time at the park
3.	Two parking areas (one at each end of park)	<ul style="list-style-type: none"> Secure ticketed Source of income for the park
4.	Sitting area and play area for children	<ul style="list-style-type: none"> Healthy social interactions Physical exercise Amusement for children
5.	Recycling dustbins	<ul style="list-style-type: none"> Encourage appropriate solid waste disposal
6.	Public washroom	<ul style="list-style-type: none"> For essential sanitation and hygiene requirements

1.5 Components of the Project

15. The following components are planned under the sub-project:
- Urban forestry & row plantation (plantation of over 450 trees, shrubs & flowers)
 - Food service (café)
 - Two parking areas (one at each end of park)
 - Sitting area and play area for children
 - Recycling dustbins
 - Public washroom connected to existing sewerage system
16. Master plan of the project is provided as **Figure 1.2**. No land acquisition involved under sub-project.
17. Keeping in view the size of proposed Neighborhood Park, the carrying is not expected to pose an issue since the visitors are expected to be distributed amongst the other recreational facilities in the area and thus. no congestion is expected.

1.6 Objective of EMP

18. The EMP provides an overall approach for managing and monitoring the potential impacts and describes the institutional framework and resource allocations to implement these measures.
19. The main objectives of EMP are to:
 - Provide details of the project impacts along with the proposed mitigation measures and the corresponding implementation activities;
 - Define the role and responsibilities of the Project Proponent, Contractor, Supervisory Consultants and other role players and effectively communicate environmental issues among them;
 - Define a monitoring mechanism, reporting frequency and identify monitoring parameters to ensure that all the mitigation measures are completely and effectively implemented;
 - Identify the resources required to implement the EMP and outline the corresponding financing arrangements;
 - Keeping in view the recent COVID-19 pandemic, specific health and safety measures and work practices issued by WHO and GoP have been provided to ensure occupational and community health and safety as far as possible and minimize the potential risk of infection and/or its transmission.

Figure 1.1 Project area map of Neighborhood Park

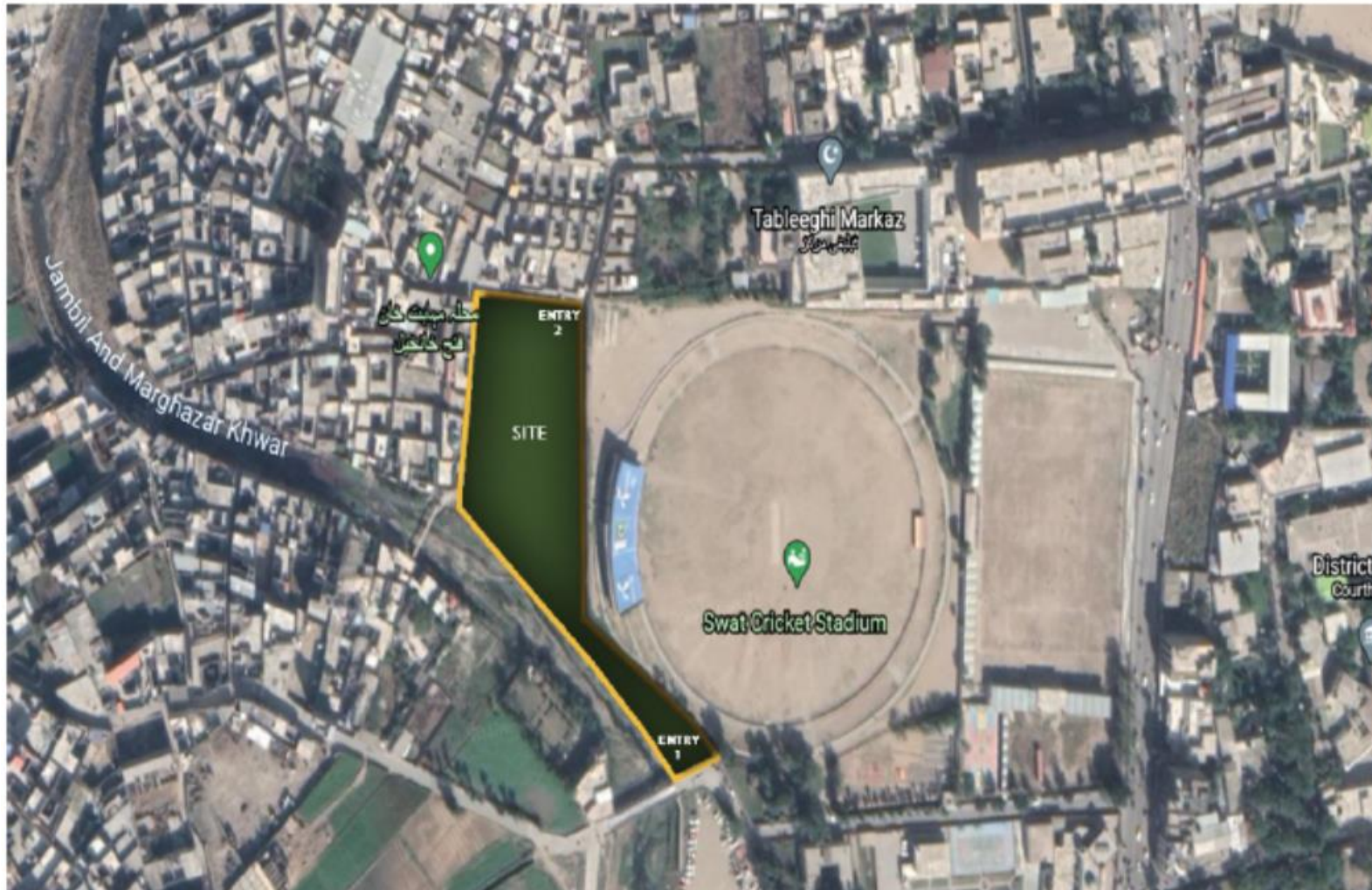
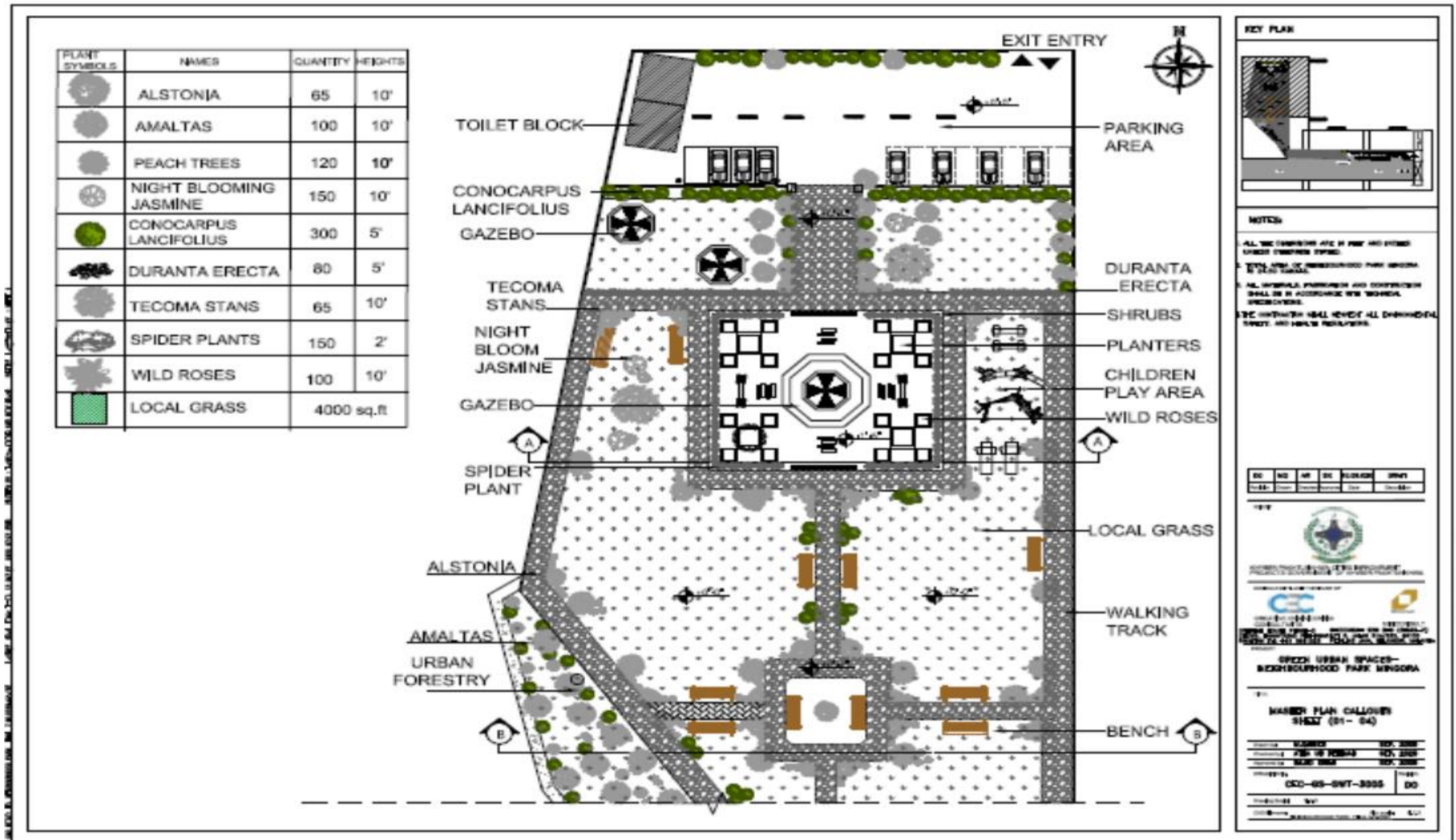
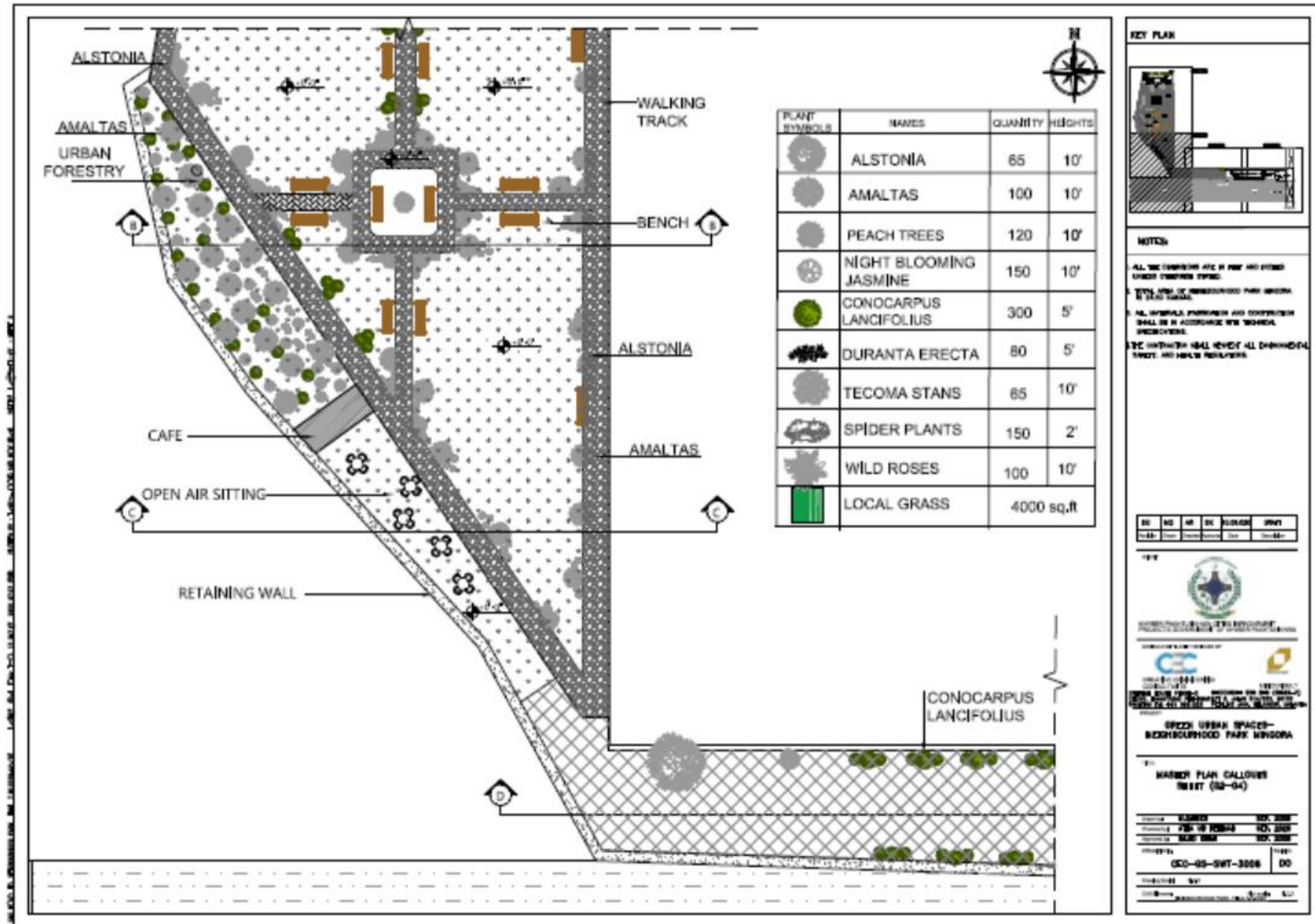
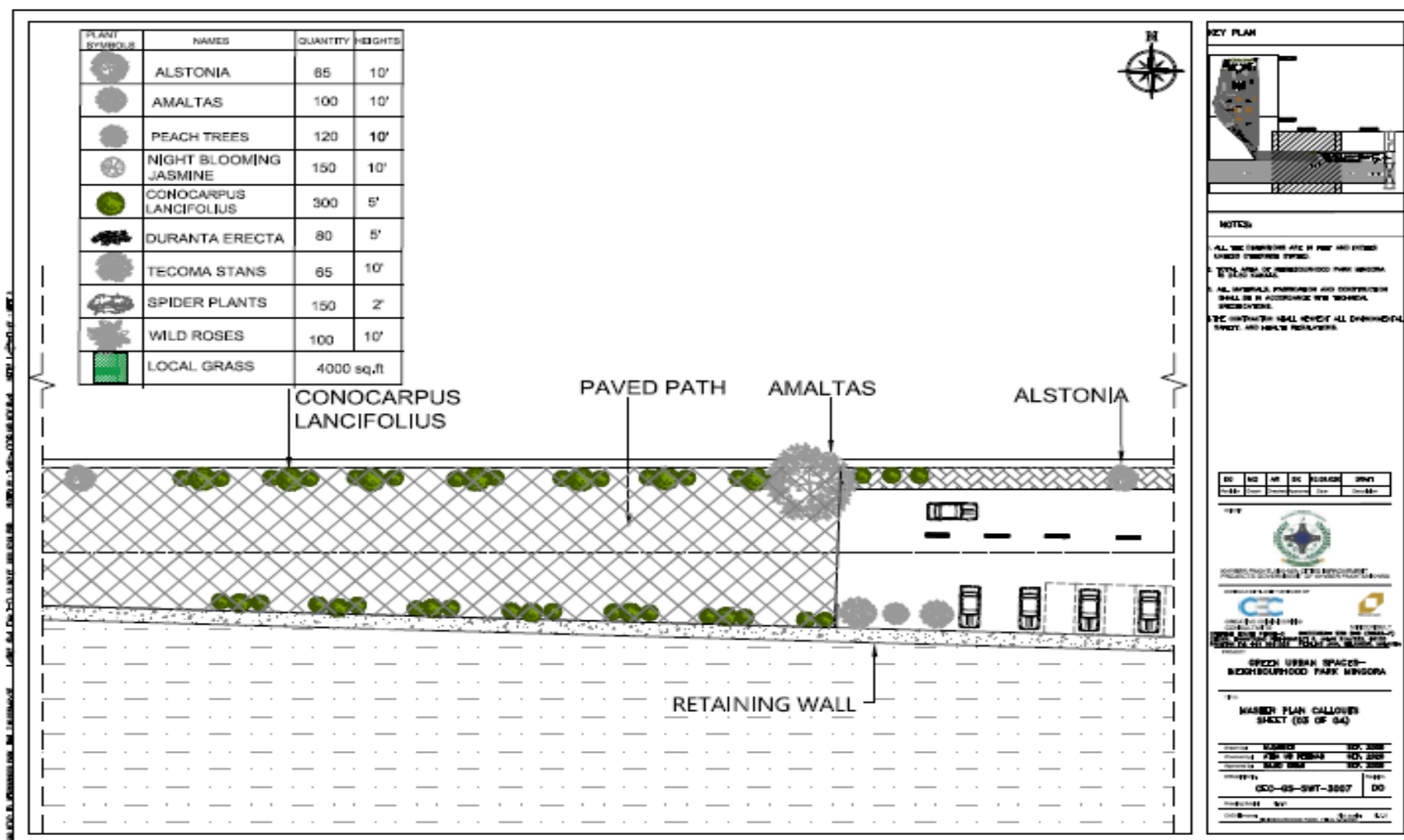


Figure 1.2 Master Plan of Neighborhood Park







2 Project Description

2.1 Project Location

20. The project site is situated at abandoned slaughter house west of Swat Cricket Stadium, Swat. The site is situated north-east of the Jambil & Marghuzar Khwar within a densely populated neighborhood of Makan Bagh and Aman Kot. Location of proposed project is provided in **Figure 1.1**.

2.2 Scope of Construction Works



21. Scope of major construction works is listed below.
- Demolition and renovation of built abandoned structure
 - Construction of retailing wall for flood protection
 - Construction of food service Café, public wash rooms and parking areas
 - The project construction will incorporate the conservation of existing trees. Most of proposed infrastructure facilities are planned on those spots on site with no existing trees.
 - Tree plantation

2.3 Condition Assessment of Old Slaughter House

22. Condition assessment of the site was carried out by project design consultant. Below are the site observations and findings. Salient features of site are presented as **Figure 2.1**.
- Abandoned built structures on the site can be demolished or renovated for reuse
 - The site is a dysfunctional slaughterhouse contaminated with decomposing animal remains and solid waste
 - Retaining wall along the southern boundary of the site facing Jambil & Marghuzar Khwar
 - The design proposal will consider improving flood protection measures for public safety.
 - Non-operational fire brigade station located at the north-western end of the site.
 - Eucalyptus tree plantation

Figure 2.1 Existing conditions of old slaughter house



Main slaughterhouse building	Small building with renovation potential
	
Solid waste dumping on the site	Jambil & Marghuzar Khwar

2.4 Stakeholder Consultations

23. The Engineering Design & Construction Management (EDCM) Team held 3 to 4 consultative sessions with the District Administration of Swat. Listed below are the outcomes of the meetings:
- Deputy Commissioner showed willingness towards the conversion of the old slaughterhouse into a park
 - Project Director (PMU-KPCIP) visited the site with EDCM team members and briefed them on how to design the site
24. Focus Group Discussions (FGD) with residents of Mingora were held on June 16th and July 28th regarding the conversion of the Old Slaughterhouse site into a park for the local neighborhood. The views, concerns and suggestions of seven female participants and sixteen male participants have been summarized below:
- Decomposition of animal waste, carcasses and solid waste on the site attract rodents, insects and mosquitoes – residents in the surrounding exposed to disease-causing pests and mosquitoes.
 - The community will benefit from improved physical and psychological health if a park is developed.
 - Participants demanded a swimming pool for children.
 - Both male and female participants suggested that access to the park shall be limited to women and children only. There is a lack of outdoor spaces where women can exercise.
 - Development of park will lead to removal of detrimental environmental hazards.
 - The park shall be fenced, have plenty of vegetation and have a cycling track and gym for women.

2.5 Climate Change Risks

25. The different features of Neighbourhood Park are designed in line with the natural contour without disturbing the topography of the site. In the design no storm water pumping system has been proposed. For rain water drainage, the drainage system is based on the “nature based solution”, concreted lined drains are provided to carry away the access water. Also spaces in depression are kept as it to act spaces for

the ponding of rainwater to stay for a day or more time and enable groundwater recharge. There is no rainwater flooding is expected in the Neighbourhood park.

26. There are no cyclones observed and projected in the project area, however infrastructure will be constructed to withstand high speed winds (if any).

2.6 Detailed Architectural and Engineering Design

27. This section outlines architectural features of Neighborhood Park details of which are provided below. Sections of master plan are shown as **Figure 2.2 and Figure 2.3.**

- **Permeable walkway:** 15,162 sq.ft of walkway paved with tuff tiles have been proposed as illustrated in the masterplan. Two steel trellises will cover segments of the walkway and the main entrance.
- **Family area:** This entire park is designed for families and children. 4 gazebos (steel), 42 straight benches with back support (steel & wood) and 1 circular bench (concrete & bricks) proposed.
- **Two parking spaces with sheds:** The parking lots will have surface areas of 19,642 SFT and 11,380 SFT. The surfaces of the lots will be paved in three layers: course asphalt, course aggregate and sub-grade.
- **Urban forest:** This segment will have dense tree plantation of Alstonia and Peach trees.
- **Gates, boundaries and flood protection:** The Park will have two main gates and its boundary will be fenced. A 12-feet high retaining wall will be constructed along the Jambil & Marghuzar Khwar for protection against seasonal flash floods.
- **Services:** A café within a renovated building, service area building block and 1 public washroom block.
- **Plantation:** 4 types of trees and 2 types of shrubs will be planted at the park. Refer to Table 2 for more information on plantation.

Figure 2.2 Section A-A of Master Plan

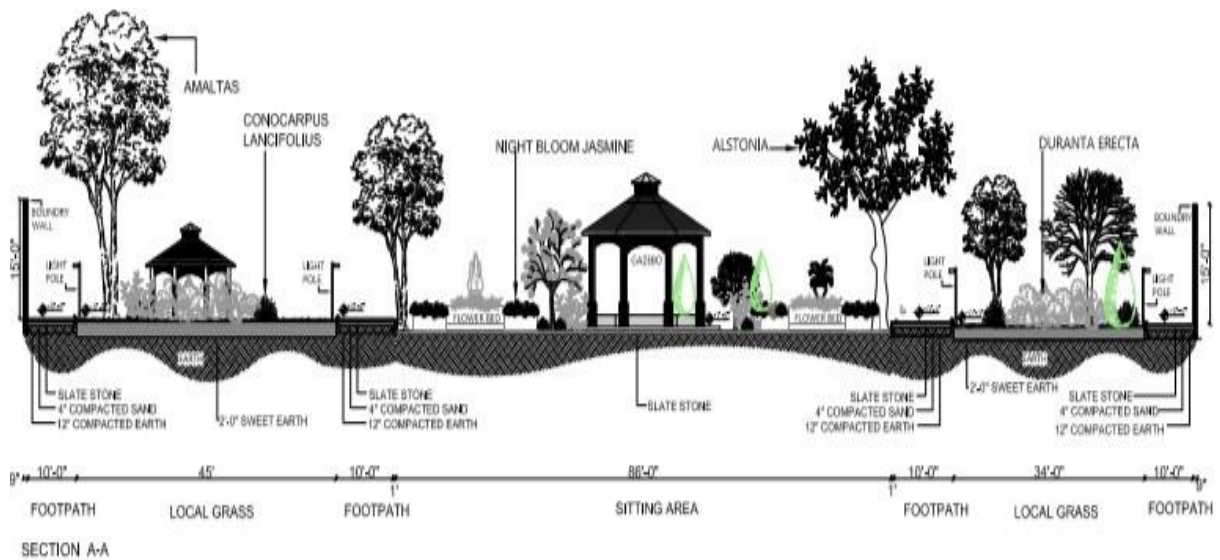
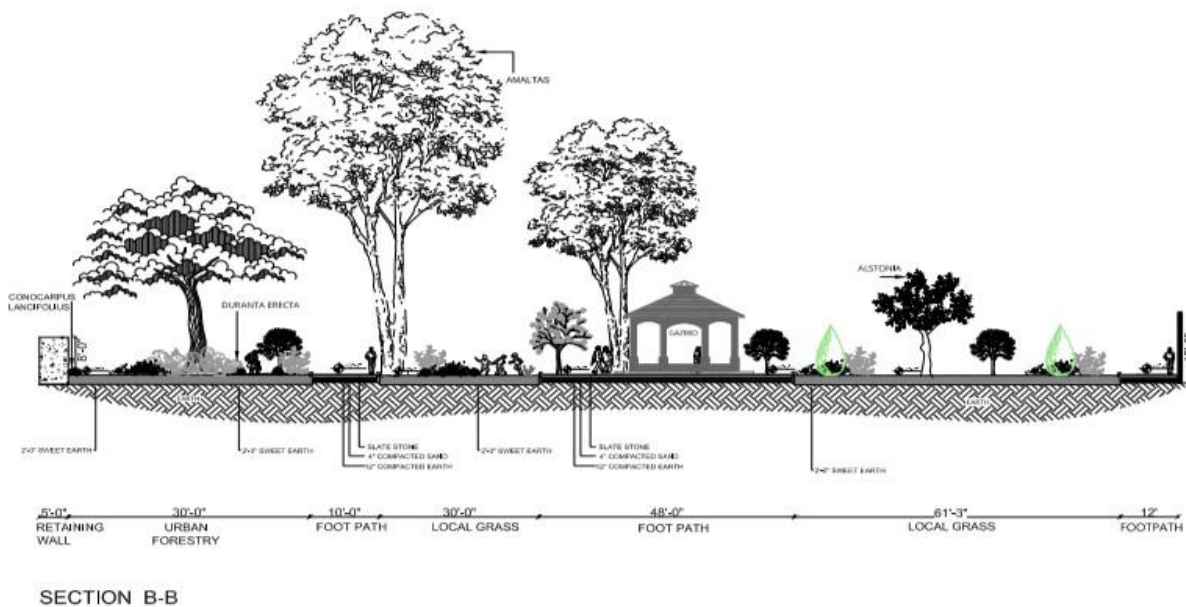









Figure 2.3 Section B-B of Master Plan



28. Names, appearance, characteristics and quantities of plants proposed for the neighborhood park are provided in **Table 2-1**.

Table 2.1 Scope and Objective of Project

	Plant Name	Appearance	Character	Quantity
1.	Alstonia		Shady, Evergreen	65
2.	Conocarpus Lancifolius		Hedge, Evergreen	300
3.	Rose Bush		Flowering Bush, Evergreen	100
4.	Peach Tree		Fruit, Deciduous	120

5.	Amaltas		Ornamental, Semi-Evergreen	100
6.	Spider plant		Bush, Evergreen	150
7.	Local Grass		Ornamental	114,409 SFT

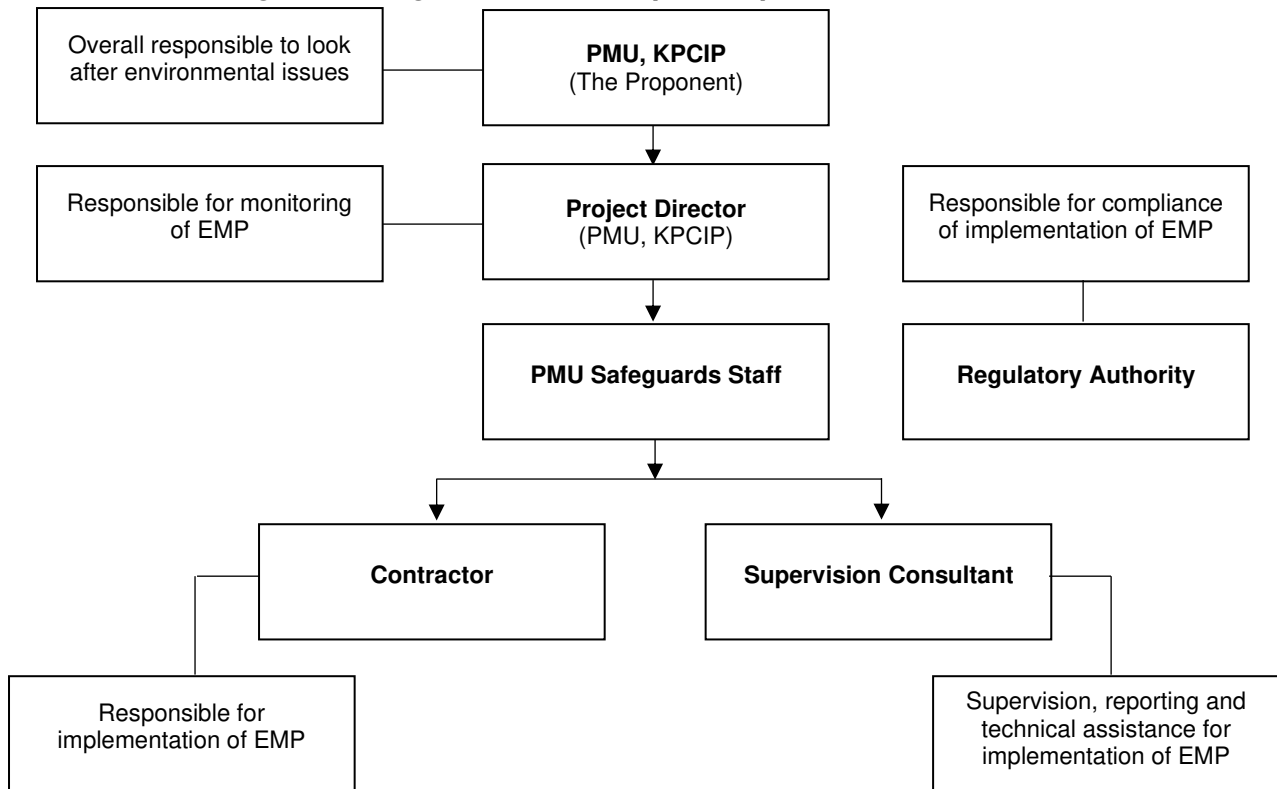
3 Institutional Arrangements and Capacity Building

3.1 General

29. The main purpose of the EMP is to provide a strategy for environmental protection. According to EMP, all the activities associated with the project will be controlled and monitored during the design, construction and operation phase. EMP will propose a plan of actions that will indicate responsibilities and required measures to prevent or minimize the potential environmental impacts.

3.2 Organizational Set-up for Implementation of EMP

30. The following functionaries will be involved in the implementation of EMP;
- Program Management Unit (PMU) KPCIP;
 - City Implementation Unit (CIU) KPCIP;
 - Supervision Consultant's Environmental Engineer;
 - Contractor's Site Environmental Engineer; and
 - KPK EPA (Regulatory Authority)
31. Organizational set-up for implementation of EMP is shown in **Figure 3.1** below.
32. The PMU will be overall responsible for implementation of this EMP and for the environmental management and supervisory affairs during the construction phase of the proposed project. For effective environmental management, the PMU will assign the necessary responsibilities through Project Director, to an Environmental Expert and a Social Expert in implementing the mitigation measures proposed in EMP.
33. The Contractor will be responsible for the implementation of EMP under the Supervision Consultant. The Contractor shall be bound to follow the provisions of the Contract documents, especially about environmental protection and apply good construction techniques and methodology without damaging the environment. Obligation of the Contractor is to safeguard, mitigate adverse impacts and rehabilitate the environment and it shall be addressed through environmental provisions in the Contract document and through adequate implementation at site. Regulatory Authority will be responsible for compliance of implementation of EMP.
34. During operation phase overall responsibility of EMP implementation lies with TMA Mingora.

Figure 3.1 Organizational Setup for Implementation of EMP

3.3 Role and Responsibilities of PMU

3.3.1 Project Management Unit (PMU)

35. Design and Construction of the project is the core responsibility of PMU, KPCIP LGERDD. The major role and responsibilities related to environment and social management during design, construction phase are:

- To ensure that the Project design and specifications adequately reflected in the EMP.
- To ensure the Project compliance with the environmental regulations and donor requirements;
- To ensure that the TOR for the Supervisory Consultants adequately cover the environmental and social issues; and

3.3.2 Project Director (PD)

36. The specific responsibilities of Project Director are as follows:

- Setting up systems for EMP compliance monitoring and reporting through Environment and Social safeguard staff at PMU
- Ensuring that the Contractor(s) develop and carry out environmental implementation plans that are consistent with the EMP;

3.3.3 Responsibilities of Environmental Engineer of Supervision Consultant

37. The Environmental Engineer (EE) of the Supervision Consultant (SC) will oversee the performance of Contractor through periodic monitoring to make sure that the Contractor is carrying out the work in accordance with EMP.

38. The EE of SC will provide guidance to the Contractor's Environmental Engineer for implementing each of the activities as given in the EMP. The EE of SC will be responsible for record keeping providing instruction through the Resident Engineer (RE) for corrective actions and will ensure the compliance of various statutory and legislative requirements. The EE will maintain close coordination with the Contractor and PMU for successful implementation with environmental safeguard measures. However, overall responsibilities of EE of SC are as follows:

- Directly reporting to the RE;
- Discussing various environmental issues and environmental mitigation, enhancement and monitoring actions with all concerned directly or indirectly;
- Inspect, supervise and monitor all the construction and allied activities related to the EMP for the project;
- Assist the RE to ensure the environmental sound engineering practices;
- Assisting contractor and PMU in all matters related to public contacts including public consultation pertaining to environmental and community health & safety issues;
- Assisting PMU Safeguards staff to carry out environmental monitoring;
- Organizing training to the EE of Contractor and field staff; and
- Preparing and submitting monthly and quarterly environmental progress/compliance reports to the PMU.

3.4 Responsibilities of Site Environmental Engineer of Construction Contractor

39. The Site Environmental Engineer of Construction Contractor will carry out the implementation of mitigation measures at construction site. Construction Contractor will be bound through Contract documents to appoint the Site Environmental Engineer with relevant educational background and experience. Responsibilities of EE of Contractor are as follows:

- Preparing sub plans including monitoring plan, traffic control/diversion plan, site rehabilitation plans etc. and will submit all the plans to the EE of SC.
- Implementation of EMP and to take effective measures against corrective actions plan;
- Preparing the compliance reports as per schedule and will submit it to the SC;
- Providing proper Personal Protective Equipment (PPEs) to the workers and train them for their proper use; and

- Providing environmental and health & safety trainings to the workers /labor.

3.5 Non-Compliance of the EMP

40. The implementation of the proposed EMP involves inputs from various functionaries as discussed earlier. The Contractor will be primarily responsible for ensuring implementation of the mitigation measures proposed in the EMP, which will be part of the Contract documents. The provision of the environmental mitigation cost will be made in the total cost of project, for which Contractor will be paid on the basis of monthly compliance reports. The Contractor will not be allowed to proceed further until the mitigation measures as proposed in the EMP are taken and approved by Supervision Consultant.

3.6 Environmental Technical Assistance and Training Plan

41. In order to raise the level of professional and managerial staff, there is a need to upgrade their knowledge in the related areas. The SC will play a key role in this respect and supervise the arrangements of trainings.
42. Contractor's environmental awareness and appropriate knowledge of environmental protection is critical to the successful implementation of the EMP as without appropriate environmental awareness, knowledge and skills required for the implementation of the mitigation measures, it will be difficult for the Contractor(s) workforce to implement effective environmental protection measures. A suitable training program is proposed to train the Contractor(s) staff who will be involved in the Construction Phase and the professional staff from the client involved at the operational stage of the project.
43. The PMU, KPCIP will engage consultants or through its safeguard team will manage the environmental training program. The objective of such trainings will be to help in establishment of appropriate systems, and to train senior project staff and Environmental Expert responsible for managing environment, operations, and planning. The details of this training program are presented in **Table-3.1**.

Table 3.1 Personnel Training Program

Provided by	Contents	Trainees/Events	Duration
Consultants/ organizations specializing in environmental management and monitoring	Short seminar and a course on: EMP Awareness Public Sensitization EMP Monitoring EMP Reporting	One seminar for PMU/CSC and contractor Site management	1 day
Consultants/ organizations specializing in social management and monitoring	Short seminar and course on: Social awareness Public Grievances	One seminar for project staff dealing in Social/land matters	1 day
Consultants/ organizations specializing in Occupational, health and safety issues	Short lecture relating to Occupational Safety and Health and Environmental Issues	One seminar for contractor's staff	2 days

4 Environmental Management Plan

4.1 General

44. The Environmental Management Plan (EMP) provides the framework for the implementation of the mitigating measures and environmental management and monitoring during the construction and operation phases of the proposed project. The proper implementation of the EMP will ensure that any adverse environmental impacts are adequately mitigated, either totally prevented or minimized to an acceptable level and required actions to achieve those objectives are successfully taken by the concerned institutions or regulatory agencies. The implementation of EMP will be carefully coordinated with the design, construction and operation programs of the project to ensure that relevant mitigation measures are implemented at the appropriate stage and adequate resources are properly allocated to achieve the desired results.
45. The **Table 4.1** depicts impacts, targets, mitigations and the responsible authorities for the implementation of the mitigation measures during design, construction and operational phases.

Table 4.1 Environmental Management Plan

Sr. No.	Parameters	Target	Mitigation	Responsibility
Design/pre-construction Phase				
1	Design & Layout Planning	To convert old slaughter house into public park	<ul style="list-style-type: none"> All structural, layout and engineering designing of project shall be strict in accordance with the applicable by laws and engineering parameters. Project facilities shall fulfill present and future need of park visitors Old slaughter house remains shall be disposed off properly. 	PMU, KPCIP
2	Drainage	To prevent flooding and pooling	<ul style="list-style-type: none"> A 12-feet high retaining wall shall be constructed along the Jambil & Marghuzar Khwar for protection against seasonal flash floods. Provision of appropriate drainage structures within and along the park Proper slopes shall be incorporated in design feature to avoid the formation of the water layer on grass and other surfaces in rainy seasons. 	PMU, KPCIP
3	Public Utilities	To avoid disturbance to the public.	<ul style="list-style-type: none"> The design engineer shall consider the adjustments of the proposed plans, where feasible and within acceptable design standards, to avoid relocation or adjustment of major or costly utilities without changing the scope of the project. The design engineer shall consider the feasibility and possible choices of electrical works and installations of lights keeping in view health and safety of workers and general public. 	PMU, KPCIP
4	Seismic Hazard	To minimize the structural damage	<ul style="list-style-type: none"> The proposed building and structures will be designed and constructed to withstand low to moderate earthquakes. For seismic hazard analysis, updated structural and seismic evaluations will be consulted. 	PMU, KPCIP

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> Project structures shall be designed to cater for the requirements of Zone 3 of Building Code of Pakistan (2007). 	
5	Traffic Management	To minimize traffic problems in the project area	<ul style="list-style-type: none"> Proper traffic management plan shall be formulated and announced before construction to avoid traffic jams/public inconvenience; In case of closure of roads alternative routes shall be defined and communicated. Plan the timing for movement of construction materials carrying vehicles to reduce traffic load and avoid inconvenience to the local residents. Means of communication of recommended alternative routes shall be planned to avoid inconvenience and traffic blockades during construction Close coordination with district administration shall be maintained. 	PMU, KPCIP
6	Health and Safety	To minimize health risks	<ul style="list-style-type: none"> Preparation of health and safety plan to minimize health risks; and An emergency response plan shall be formulated which emphasizes line of action for rescue, medical emergencies, natural disasters and firefighting operations. 	PMU, KPCIP
7	Solid Waste Management	To manage (i.e. collect and dispose) the solid waste safely at appropriate sites.	<ul style="list-style-type: none"> Incorporate technical design features for refuse collection at park; and Devise plan(s) for safe handling, storage and disposal of harmful materials PMU KPCIP will bound construction contractor to remove all sort of demolitions from the old slaughter house and it will be disposed at designated site 	PMU, KPCIP
8	Public Nuisance	To avoid public nuisance during project execution	<ul style="list-style-type: none"> PMU KPCIP will ensure close coordination with district administration. 	PMU, KPCIP

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> PMU KPCIP will ensure close liaison with local community in order to receive and resolve any grievances PMU KPCIP will ensure that any received grievance has been addressed to the satisfaction of affected person PMU KPCIP will make arrangements for community feedback surveys about the project PMU KPCIP will take appropriate actions in light of feedback received from nearby community PMU KPCIP will take care that contractors are aware about the local norms of the area 	
Construction Phase				
1	Topography	To make ensure minimum changes in topography of the project area.	<ul style="list-style-type: none"> Excavations shall be kept confined to the specified location as per the approved engineering drawings and unnecessary excavations shall be avoided. 	CC, SC, CIU
2	Soil	To minimize soil erosion and contamination.	<ul style="list-style-type: none"> All spoils shall be disposed of as desired and the site will be restored back to its original conditions; Unnecessary excavations shall be avoided; Washout from washing of equipment and gadgets will be drained into either a septic tank or a sand-gravel bed for removal of the grit and contaminants. Machinery washing will not be allowed at site Machinery maintenance will not be allowed at site Chemicals/paints etc. shall be stored at Tarpaulin sheets and secured to avoid spills 	CC, SC, CIU
3	Remediation of Old Slaughter House	To dispose of hazardous solid waste from the site and to reduce health risk and public nuisance	<ul style="list-style-type: none"> Prior to starting of work, the contractor shall prepare a method statement for remediation works. This shall be simple and explain the contractor's work process that is actually conducted on site, with safety and safeguard concerns. 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> • Method Statement shall be prepared through participation from PMU, SC, CC and district administration. • Method Statement shall be in a Table format with appended site layout map and cover the following: <ul style="list-style-type: none"> • Work description • No. of workers (skilled & unskilled) • Details of equipment, machinery and vehicles • Work duration (total, and activity-wise, for example for earth work, street work, roads and sidewalk, plantation and toilets blocks). • PPE (helmet, gloves, boots, etc.) details for each type of work • Details of materials at each site (type & quantity) • Risks/hazards associated with the work • Construction waste/debris generated (details & quantity) • Detail the sequence of work process (step-by-step) including specific details of each work • Contractor's supervision & management arrangements for the work • Emergency: Designate (i) responsible person on site, and (ii) first aider • Typical site layout plan including details of construction activities at site, placement of material, excavated earth, barricading etc. • PMU KPCIP in consultation with local administration will identify suitable places for disposal of waste generated from the project. 	
4	Material Storage Sites	To minimize loss of assets and vegetation due to labor movement and to prevent	<ul style="list-style-type: none"> • Contractors will identify material storage sites keeping in view the minimum disruption to motorized and pedestrian traffic 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
		degradation of environment due to construction material storage sites.	<ul style="list-style-type: none"> Material storage shall be kept minimum as per requirements Housekeeping around material storage sites shall be carried out. Preparation of waste Management Plan addressing the classification, storage and disposal of all solid wastes and the training of employees for handling the hazardous materials. Training will be provided to all staff members on camp management rules and overall discipline and cultural awareness. 	
5	Health and safety of workers and associated communities	To minimize health risks	<ul style="list-style-type: none"> Obligatory insurance against accidents for labourers/workers shall be ensured; Basic medical training shall be imparted to specified work staff and basic medical service and supplies to workers; Layout plan for camp site, indicating safety measures taken by the contractor, e.g. fire-fighting equipment, safe storage of hazardous material, first aid, security, fencing, and contingency measures in case of accidents; Work safety measures and good workmanship practices are to be followed by the contractor to ensure no health risks for laborers; Protection devices (ear plugs) shall be provided to the workers doing job in the vicinity of high noise generating machines; Provision of protective clothing for laborers handling hazardous materials, e.g. helmet, adequate footwear for bituminous pavement works, protective goggles and gloves etc; Ensure strict use of wearing these protective clothing during work activities; 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> • Emergency number shall be placed at worksites; • Elaboration of contingency planning in case of major accidents; • Instruct construction supervisor to strictly enforce the keeping out of non-working persons, visitors, particularly children, off work sites; and • Adequate signage, lightning devices, barriers, yellow tape and persons with flags during construction to manage traffic at construction sites, haulage and access roads. • There shall be proper control on construction activities and oil spillage leakage of vehicles; • The labour staff with any transmittable diseases shall be restricted within the construction site; • Efforts will be made to create awareness about road safety among the drivers operating construction vehicles; • Timely public notification on planned construction works; • Provision of proper safety and diversion signage, particularly at sensitive/accident-prone spots; • Setting up speed limits in close consultation with the local stakeholders; • The communicable disease of most concern during construction phase, like sexually-transmitted disease (STDs) such as HIV/AIDS, shall be prevented by successful initiative typically involving health awareness; education initiatives; training of workers in disease treatment; immunization program and providing health service; and • Reducing the impacts of vector borne diseases on long-term health effect of workers shall be accomplished through implementation of diverse 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			interventions aimed at eliminating the factors that lead to disease, which includes Prevention of larval and adult propagation of vectors through sanitary improvements and elimination of breeding habitat close to human settlements and by eliminating any unusable impounding of water.	
6	Air Pollution	To minimize air pollution	<ul style="list-style-type: none"> • All excavation work will be sprinkled with water to control dust; • The excavated material shall be covered and shall not be stored for long intervals; • All vehicles, machinery, equipment and generators used during construction activities shall be kept in good working condition and be properly tuned and maintained in order to minimize the exhaust emissions; • All vehicles, machinery and equipment used for the construction shall be plugged off or switched off immediately after completion of their work to avoid idling condition; • Filter shall be installed at the point sources (machinery or equipment) of air emissions and shall be replaced regularly; • Emissions from power generators and construction machinery are important point sources at the construction sites. Proper maintenance and repair is needed to minimize the hazardous emissions; • Open burning of solid waste from the Contractor's camps shall be strictly banned; • Preventive measures against dust shall be adopted for on-site mixing and unloading operations. Regular water sprinkling of the site shall be carried out to suppress excessive dust emission(s); 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> Construction workers shall be provided with masks for protection against the inhalation of dust; and NEQS applicable to gaseous emissions generated by construction vehicles, equipment and machinery shall be enforced during construction works. 	
7	Noise and Vibration	To minimize noise pollution	<ul style="list-style-type: none"> Selection of up-to-date and well-maintained equipment with reduced noise levels ensured by suitable in-built damping techniques or appropriate muffling devices; Confining excessively noisy work to normal working hours in the day, as far as possible; Providing the construction workers with suitable hearing protection like ear cap, or ear plugs and training them in their use; Preferably, restricting construction vehicles movement during night time; Avoid use of heavy drill machines to avoid the vibration effect on the outlived buildings. Vehicles and equipment used shall be fitted, as applicable, with silencers and properly maintained; Use of low noise machinery, or machinery with noise shielding and absorption; Contractors shall comply with submitted work schedule, keeping noisy operations away from sensitive points; implement regular maintenance and repairs; and employ strict implementation of operation procedures 	CC, SC, CIU
8	Construction Waste and Hazardous Waste	To minimize the construction and hazardous waste	<ul style="list-style-type: none"> Wastewater effluent from contractor's workshop and equipment washing yards will be passed through gravel/ sand beds to remove oil/ grease contaminants before discharging it into natural streams; 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> • Training of working force in the storage and handling of materials and chemicals that can potentially cause soil contamination; • Solid waste generated during construction and camp sites will be safely disposed in demarcated waste disposal sites and the contractor will provide a proper waste management plan; • Burning of waste will be prohibited; • Proper labelling of containers, including the identification and quantity of the contents, hazard contact information etc.; • Training employees involved in the transportation of hazardous material regarding emergency procedures; • Providing the necessary means for emergency response on call 24 hours/day; • The sewage system for camps will be properly designed (pit latrines or, as required, septic tanks) to receive all sanitary wastewaters; and • Lined wash areas will be constructed at site, for the receipt of wash waters from construction machinery. • Covering material during heavy rainfall; • Locating stockpiles to minimize potential visual impact, and • Minimizing land intake of stockpiles areas as far as possible. • Recyclable and reusable waste shall be segregated and handed over to recycling contractor • Contractor environmental staff will pay visit to construction sites to ensure the waste is being managed and not left unattended • Record of waste generation at construction sites shall be maintained and reported 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
9	Water Use	Sustainable use of water resources	<ul style="list-style-type: none"> • Wastage of water shall be controlled through providing proper valves and through controlling pressure of the water; • Water jets and sprays shall be used for watering surfaces rather than using overflow system; • Water use shall not disturb the existing community water supplies; • Reuse of construction waste materials; • Unnecessary equipment washings shall be avoided; • A good camp design and an efficient worksite management plan can help the contractor to reduce the water demand to the lowest levels • Inventory of water use/consumption shall be maintained. • Training shall be provided to workers with respect to water conservation • Record of such trainings shall be maintained • Water required for construction is obtained in such a way that the water availability and supply to nearby communities remain unaffected; 	CC, SC, CIU
10	Energy Efficiency	To minimize energy efficiency	<ul style="list-style-type: none"> • Ensure adequate insulation to reduce heat loss through batching plants; • Regularly monitor CO and CO₂ content of the flue gases to verify that combustion systems are using practical excess air volumes; 	CC, SC, CIU
11	Surface and Groundwater	To protect the ground and surface water resources from any kind of pollution due to project	<ul style="list-style-type: none"> • Protection of surface and groundwater reserves from any source of contamination such as the construction and oily waste that will degrade its potable quality; • Wastewater effluent from contractor's workshop and equipment washing yards shall be passed through gravel/ sand beds to remove oil/ grease contaminants before discharging it into existing drains 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> • For construction purposes, water shall be drawn from existing tube-well; • Periodic water quality monitoring according to determined sampling schedule; • The contractor shall ensure that construction debris do not find their way into the drainage network of Jambil and Marghuzar Khwar , which may get clogged; • To maintain the surface water flow/drainage, proper mitigation measures will be taken, like drainage structures • Prohibit washing of machinery and vehicles in surface waters, provide sealed washing basins and collect wastewater in sedimentation/retention pond; • Construction work close to the Jambil & Marghuzar Khwar will be avoided, especially during monsoon period; • Take precautions construct temporary or permanent devices to prevent water pollution due to increased siltation; and • Waste must not be disposed off into any surface water body. 	
12	Flora and fauna	To minimize the impact on flora and fauna	<ul style="list-style-type: none"> • The Contractor's staff and labour will be strictly directed not to damage any vegetation such as trees or bushes; and • Contractor will provide gas cylinders at the camps for cooking purposes • Cutting of trees/bushes for fuel will not be allowed. • Hunting, poaching and harassing of animals will be strictly prohibited and Contractor will warn their labour accordingly; • The camps will be properly fenced and gated to check the entry of animals in search of eatable goods. 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>Similarly, waste of the camps will be properly disposed off to prevent the chances of eating by animals, which may become hazardous to them;</p> <ul style="list-style-type: none"> • Special measures will be adopted to minimize impacts on the birds, such as avoiding noise generating activities during critical periods of breeding; • Staff working on the project shall be given clear orders, not to shoot, snare or trap any bird. 	
13	Public Utilities/ Infrastructure	To minimize the disturbance to public utilities and infrastructure	<ul style="list-style-type: none"> • All public utilities likely to be affected by the proposed project need to be relocated well ahead of the commencement of construction work; • Unnecessary excavation shall be avoided; and • Excavations shall be carried out carefully to avoid damaging infrastructure in the surroundings of the project area. • Contractors will engage utility owners while relocating utilities 	CC, SC, CIU
14	Traffic Management	To minimize traffic problems in the project area	<ul style="list-style-type: none"> • Proper traffic management plan will be needed to avoid traffic jams/public inconvenience; • Movement of vehicles carrying construction materials shall be restricted during the daytime to reduce traffic load and inconvenience to the local residents; • Availability of continuous services of the Traffic Wardens in the diversion and control of traffic; and; • The executing agency is required to maintain liaison between the Traffic Police, local residents/shop keepers/visitors/ travellers and the contractor to facilitate traffic movement during construction stage. Traffic management plan is provided as Annexure C. 	CC, SC and Traffic Police
15	Communicable diseases including COVID-19	To minimize the spread of corona virus	<p>COVID-19 specific measures</p> <ul style="list-style-type: none"> ▪ All workers must perform complete sanitization at the site as per SOPs/guidelines issued by WHO. 	CC, SC, CIU

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> All workers must wear a mask as soon as they arrive at site and must keep wearing it at all times while present at the work site/hospital premises. As soon as workers arrive at work site, their body temperature must be checked and in case any worker is assessed to be running a fever or suffering from a flu or cough, he must be informed to leave immediately and self-isolate for a two-week period and not report for work until this two-week mandatory period has been completed. At the work site(s), social distancing measures must be strictly implemented and gathering of workers at any location at the work site(s) must be strictly forbidden. In case of workers not taking this measure seriously, strict penalties must be imposed to ensure implementation. The work tasks must be divided into shifts, as far as possible, to reduce the workforce present at the work site(s) at any one moment and improve the working speed/efficiency. All workers will be strictly advised to wash their hands as frequently as practicable and not to touch their face during work. A supply of safe drinking water will be made available and maintained at the project site(s). COVID awareness sign boards must be installed at the clinic premises and at the work site(s). 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<ul style="list-style-type: none"> Contact details of all workers will be kept in a register on site in order to efficiently trace and manage any possible workers that might experience symptoms of COVID-19. Prohibition of entry for local community/any unauthorized persons at work sites. Proper hygiene practices in the toilets and washrooms will be implemented with proper and adequate use of soaps and disinfectant spray. Social distancing must be maintained during the pick-up and dropping off of workers from their residences to and from the work site(s). <p>COVID-19 specific measures GOP</p> <p>Advice for Site Managers:</p> <ul style="list-style-type: none"> Every construction project shall make proper arrangements for uninterrupted building services including but not restricted to, electricity, fuel, water supply, water disposal and sanitation, communication links, washrooms with hand hygiene and shower facility and with proper and adequate supply of soaps and disinfectants. Workers shall not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site. Ensure the availability of the thermal gun at the entry and exit of the construction site and no worker shall be allowed without getting his/her 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>temperature checked.</p> <ul style="list-style-type: none"> Site manager must maintain a register of all contact details with NID number and addresses of all present at the site in case a follow up or tracing and tracking of contacts is required at a later stage. Develop the employee roster to decrease the number of people on the site very day. Split the shifts of the workers in morning and evening with limit of each shift to 8 working hours. Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours' end. In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must be provided with a face mask. It must be ensured that everyone during his or her presence at the site continues to wear the mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands. Non-essential work trainings must be postponed avoiding gathering of people. Ensure the physical distance by creating more than one route of entry and exit to the site. Instruct the workers to inform the construction 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>manager (or authorities) if</p> <ul style="list-style-type: none"> ▪ They develop any symptoms of cough, flu or fever. ▪ They have been exposed to someone suspected or confirmed with COVID 19. ▪ They have met someone who has a travel history of COVID 19 endemic country. They have travelled in last couple of days or plan to travel soon. ▪ All incidences of appearance of the symptoms of COVID-19 shall be immediately documented and maintained at the site and information regarding which shall be immediately communicated through e-mail or else, to the designated health facility, and the sick worker shall be transported to the health facility for further advice and action. The site manager must establish a link with a nearby healthcare facility with arrangements for quick transportation of workers in case of an emergency. ▪ Persuade the workers to inform the authorities for their safety and of other if they observe any signs and symptoms in a colleague. ▪ Do not allow any worker at the construction site who has the symptoms ▪ Display the awareness banners about hand hygiene and physical distancing, where you can, around the work site. ▪ Everyone on the construction site must observe 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>sneezing and coughing etiquettes. Workers shall be requested and required to wash their hands as frequently as practicable and shall also be advised not to touch their face with their hands during work.</p> <ul style="list-style-type: none"> Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermixing. Only sanitizable dinning surfaces shall be used, which must be cleaned before each service. The lunch breaks and stretch breaks of the workers must be staggered to avoid the clustering of workers. Workers must not sit at less than 2 meters' distance while having meals and while any other activity requiring interpersonal communications. Adequate ventilation shall be provided in dining areas, resting places and sleeping areas. In the wake of current restrictions on transportations site mangers will ensure safe transport arrangements for worker which shall not be crowded and shall have social distancing in place during the entire process from pickups till drops at destination. In case of workers sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms in a well ventilated 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>area.</p> <ul style="list-style-type: none"> A supply of safe drinking water must be made available at the project site and maintained. <p>Advice for Construction Workers:</p> <ul style="list-style-type: none"> All possible and prescribed measures shall be taken to ensure your and others health. Enter your contact details in the register maintained at the site, in case a follow up or tracing and tracking of contacts is required at a later stage. Follow hygiene practices at washrooms and shower facility with proper and adequate use of soaps and disinfectants. Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours' end. In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must use face mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands. Workers shall wash their hands as frequently as practicable and shall not to touch their face with their hands during work. Everyone on the construction site must observe 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>sneezing and coughing etiquettes.</p> <ul style="list-style-type: none"> Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermix. Sick worker shall immediately inform the site manager and must get medical advice from nearby health Centre. Only sanitizable dining surfaces shall be used. Do not sit at less than 2 meters' distance while having meals and while any other activity requiring interpersonal communications. Do not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site. Use safe transport arrangements which shall not be crowded and shall have social distancing in place during the entire process from pickups till drops at destination. In case sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms in a well ventilated area 	

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>Deliveries or Other Contractors Visiting the Site:</p> <ul style="list-style-type: none"> ▪ Non-essential visits to the construction sites shall be cancelled or postponed. ▪ Delivery workers or other contractors who need to visit the construction site must go through temperature check before entering and shall be given clear instructions for precautions to be taken while on site. ▪ Designate the workers, with protective gears or at least gloved and mask, to attend to the deliveries and contractors. ▪ Make alcohol-based hand sanitizer (at least 70%) available for the workers handling deliveries. • Instruct the visiting truck drivers to remain in their vehicles and whenever possible make use of contactless methods, such as mobile phones, to communicate with your workers 	
Operational Phase				
1	Natural Hazard	To minimize the risk of structural collapse and flooding in parks	<ul style="list-style-type: none"> • Ensure the stability and integrity of flood retaining wall constructed for flood protection from Jambil & Marghuzar Khwar • Ensure that the new structures can withstand earthquake impacts; • Inspections shall be conducted at appropriate intervals by qualified personnel to ensure integrity of structures; and • Develop an emergency response plan for the rainwater flooding in park. 	TMA Mingora

Sr. No.	Parameters	Target	Mitigation	Responsibility
2	Waste	To minimize and to store the solid waste	<ul style="list-style-type: none"> Proper waste management system including provision of waste bins, regular sweeping and collection of waste will be adopted during operational phase. 	TMA Mingora
3	Drainage	To prevent flooding and pooling	<ul style="list-style-type: none"> Routine inspection and maintenance of the drainage system shall be scheduled and implemented. 	TMA Mingora
4	Aesthetics improvements	To maintain good aesthetics in parks	<ul style="list-style-type: none"> Routine inspection will be carried out to check the maintenance of park; Plantation will be monitored weekly Any tree that poses a concern to public safety will be immediately barricaded and evaluated. Issues of immediate concern will be trees or branches that are leaning or broken that may fall onto an area of pedestrian or vehicular activity; Landscaping carried out as part of project shall be maintained TMA Mingora shall consider actions and review design to further improve the aesthetic appeal of the area 	TMA Mingora
5	Health Hazard (Respiratory illness caused by COVID-19 Infection that may lead to fatality)	To avoid Spread of Corona Virus	<ul style="list-style-type: none"> Reporting employees who are showing symptoms such as fever or high body temperature, coughing, difficulty of breathing or chest pain. Sending them to clinic or nearest hospital immediately. Body temperature monitoring through Thermal Scanner or other devices to monitor the body temperature of each employee entering/leaving the site or at camp. Awareness and implementation of Quarantine Procedure for all employees who came back from vacation. No Handshake Policy and ensure at least 1 meter distance at workplace. Conduct regular housekeeping and sanitation for all access/egress points as well as Log-in/Log-out 	TMA Mingora

Sr. No.	Parameters	Target	Mitigation	Responsibility
			<p>devices. If possible, deactivate Log-in/Log-out devices such as biometrics. Conduct awareness on how to protect yourself against the infection of COVID-19 through campaign (posters, distribution of brochure). Communicating and implementing COVID-19 Guidelines</p> <ul style="list-style-type: none"> • Ensure Disinfection of offices and machinery periodically, temperature screening at project entrances, provision of hand sanitizers to office and labor staff, provision of surgical face masks, instruction boards and signage at different locations for COVID-19 awareness • TMA Mingora shall ensure that COVID-19 SOPs issued by GOP, WHO and GoKP are implemented. 	

DC	Design Consultant
CC	Construction Contractor
CIU	City Implementation Unit
SC	Supervision Consultant
TMA	Tehsil Municipal Administration, Mingora

5 Environmental Monitoring

5.1 General

46. Environmental Monitoring is undertaken during both the construction and operational phases to ensure the effectiveness of the proposed mitigation measures. Certain environmental parameters are selected and quantitative & qualitative analyses are carried out. The results of analysis are compared with the guidelines; standards and pre-project condition to investigate whether the EMP and its implementation are effective for the mitigation of impacts or not.
47. Parameters to be analyzed during construction & operation of the project, responsibilities for monitoring & reporting and monitoring cost have been discussed in this section.

5.2 Environmental Monitoring during Pre-Construction, Construction and Operation Phases

48. The respective monitoring to be conducted during the three project development phases is provided in **Tables 5.1 to 5.3** below.

5.3 Responsibilities for Monitoring and Reporting

49. The PMU KPCIP will be responsible for environmental monitoring and reporting throughout the construction and operation phases. A monitoring report will be prepared on quarterly basis and one comprehensive report will be prepared on bi-annual basis for submission to ADB.

5.4 Cost of Environmental Monitoring

50. The **Table 5.4** below provides cost estimates for 'Pre-Construction phase' monitoring while **Tables 5.5** and **5.6** provides cost estimates for 'Construction phase' and 'Operation phase' monitoring of key environmental parameters.

Table 5.1 'Pre-Construction' Monitoring Plan for Baseline Development

Parameter to be measured	Objective of Monitoring	Parameters to be Monitored	Measurements	Location*	Frequency	Responsibility
Ambient Air Quality	To establish baseline air quality levels	CO, NO ₂ , SO ₂ , O ₃ & PM ₁₀ (particulate matter smaller than 10 microns) concentration at receptor level	1-hr and 24-hr concentration levels	At three random receptor locations in the project area	Once	SC
Ambient Noise	To establish baseline noise levels	Ambient noise level near receptors in project area	A-weighted noise levels – 24 hours, readings taken at 15 s intervals over 15 min. every hour, and then averaged	At three random receptor locations in the project area	Once	SC
Groundwater Quality	To establish groundwater quality in project area	Groundwater quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Once	SC
Surface water quality	To establish surface quality in project area	Surface water quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Once	SC

* Monitoring Locations to be finalized jointly between PMU Safeguards staff and Supervision Consultant (SC).

Table 5.2 Construction Phase Monitoring Requirements

Project Activity and Potential Impact	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
Noise Disturbance due to noise from construction activity	To determine the effectiveness of noise abatement measures on sound pressure levels	Ambient noise level at different locations in project area	A-weighted noise levels – 24 hours, readings taken at 15 s intervals over 15 min. every hour at 15 m from receptors, and then averaged	At three random receptor locations in project area	Quarterly basis on a typical working day	Contractor's Environmental officer, SC
Air Quality Dust emissions from construction vehicles and equipment	To determine the effectiveness of dust control program on dust at receptor level	CO, NO ₂ , SO ₂ , O ₃ & PM ₁₀ (particulate matter smaller than 10 microns) concentration at receptor level	1-hr and 24-hr concentration levels	At three random receptor locations in project area	Quarterly basis on a typical working day	Contractor's Environmental officer, SC
		Visible dust	Visual observation of size of dust clouds, their dispersion and the direction of dispersion	Construction site	Once daily during peak construction period	Contractor's Environmental officer, SC
Groundwater Quality	To establish groundwater quality in project area	Groundwater quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Quarterly	Contractor's Environmental officer, SC
Surface water Quality	To establish surface quality in project area	Surface water quality in project area	Water samples for comparison against NEQS parameters	At two locations around the site in the project area	Quarterly	Contractor's Environmental officer, SC
Safety precautions by workers	To prevent accidents for workers and general public	Number of near miss events and accidents taking place	Visual inspections	Construction site	Once Daily	Contractor's Environmental officer, SC

Project Activity and Potential Impact	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
Soil Contamination	To prevent contamination of soil from oil and toxic chemical spills and leakages	Incidents of oil and toxic chemical spills	Visual inspections	At construction site and at vehicle and machinery refuelling & maintenance areas	Once a month	Contractor's Environmental officer, SC
Solid Waste & Effluent disposal Insufficient procedures for waste collection, storage, transportation and disposal	To check the availability of waste management system and implementation	Inspection of solid and liquid effluent generation, collection, segregation, storage, recycling and disposal will be undertaken at all work sites in project area	Visual inspections	At work sites in project area	Once daily.	Contractor's Environmental officer, SC

* Monitoring Locations to be finalized jointly between PMU Safeguards staff and Supervision Consultant (SC).

Table 5.3 'Operation Phase' Environmental Monitoring Plan

Parameter to be measured	Objective of Monitoring	Parameters to be Monitored	Measurements	Location	Frequency	Responsibility
Solid Waste Management	To assess that solid waste generated from park operation is managed as per EMP requirements	All waste being generated is being managed and disposed off as per international good practices	Solid waste inventory audit	Neighbourhood Park	Bi-Annual	TMA

Table 5.4 Annual Cost Estimates for 'Pre-Construction Phase' Environmental Monitoring²

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Air Quality	CO, NO ₂ , SO ₂ , O ₃ , PM ₁₀	3 (Once only at 3 locations)	90,000	3 readings @ PKR 30,000 per sample
Noise Levels	dB(A)	3 (Once only at 3 locations)	90,000	3 readings @ PKR 30,000 per reading
Ground Water Quality	NEQS	2 (Once only at 2 locations)	60,000	2 readings @ PKR 30,000 per sample
Surface Water Quality	NEQS	2 (Once only at 2 locations)	60,000	2 readings @ PKR 30,000 per sample
Contingencies			15,000	5% of monitoring cost
Total (PKR)			315,000	

² For air quality monitoring: 'Passive samplers' such as test tubes can be used or 'Active samplers' with sorbent tubes can also be used.

Table 5.5 Annual Cost Estimates for 'Construction Phase' Environmental Monitoring³

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Air Quality	CO, NO ₂ , SO ₂ , O ₃ PM ₁₀	12 (Quarterly basis at 3 locations)	360,000	12 readings @ PKR 30,000 per sample
Noise Levels	dB(A)	12 (Quarterly basis at 3 locations)	360,000	12 readings @ PKR 30,000 per reading
Ground Water Quality	NEQS	8 (Quarterly basis at 2 locations)	240,000	8 readings @ PKR 30,000 per sample
Surface Water Quality	NEQS	8 (Quarterly basis at 2 locations)	240,000	8 readings @ PKR 30,000 per sample
Contingencies			60,000	5% of monitoring cost
Total (PKR)			1,260,000	

Table 5.6 Annual Cost Estimates for 'Operation Phase' Environmental Monitoring

Monitoring Component	Parameters	Quantity	Amount PKR	Details
Waste Management	Solid Waste	Bi-Annual	100,000	Twice @ PKR 50,000
Total (PKR)			100,000	

³ For noise monitoring: sampling equipment with duration greater than 1 hour can be used.

6 Environmental Mitigation and Monitoring Cost

6.1 General

51. The cost required to effectively implement the mitigation measures is important for the sustainability of the Project, both in the construction and operational phases.
52. Cost for Environmental Monitoring of air, noise, drinking & wastewater is already given in the previous section. Other relevant cost for mitigation of adverse environmental impacts of the proposed project are summarized in **Table 6.1** below.

Table 6.1 Environmental Mitigation Cost

Sr. No.	Activity	Basis	Cost (Rs.)
1	Medical screening for workers	Rs. 1200 per employee and for 100 employees	120,000
2	Material Storage, handling and use	Three (03) No. of tarpaulins of Rs. 20,000 each	60,000
3	Handling/ transportation of hazardous material	Rs. 12,000/month for a period of 12 months will be required for transportation of material	144,000
4	Handling of solid waste	Rs.10,000 per month (two trips per month) for a period of 12 months, which includes the cost of collection, transportation and disposal to the designated site	120,000
5	Cost of Personal Protective Equipment (PPE)*	For 100 employees for the provision of dust masks, safety shoes, gloves, first aid box, ear plugs	402,000
6	Cost of environmental training	Lump sum	200,000
7	Covid Management Cost	Lump sum	300,000
Grand Total			1,346,000

53. Detail of PPE cost is given in **Table 6.2** below.

Table 6.2 Break-up for PPEs Cost

Items	Quantity	Cost / Item (Rs.)	Total Cost (Rs.)
Personal Protective Equipment PPE			
Dust masks	4800	20	96,000
Safety Shoes	200	1200	24,000
Gloves	1200	200	240,000
First Aid Box	3	2000	6,000
Ear Plugs	1200	30	36,000
Total			402,000
Time required for Construction = 12 months			
No. of labour required during construction = 100			
Detail of Personal Protective Equipment PPE			
Dust mask	1 dust mask to be used in a week by each laborer		
Safety Shoes	1 safety shoe for six months for each laborer		
Gloves	2 pair of gloves for each laborer for a month		
First Aid Box	1 first aid box in each park		
Ear Plug	1 set of ear plug to be used for 1 month for each laborer		

ANNEXURE: A

REA Checklist

Rapid Environmental Assessment (REA) Checklist

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Pakistan/Khvber Pakhtunkhwa Cities Improvement Project (KPCIP)

Country/Project Title:

Development of Neighborhood Park at Old Slaughter House

Sector Division:

Screening Questions	Yes	No	Remarks
A. Project Sitting Is the project area...?			
• Densely populated?	✓		The site selected is situated north-east of the Jambil & Marghuzar Khwar within a densely populated neighborhood
• Heavy with development activities?	✓		The area around the proposed site is not heavy with development activities.
• Adjacent to or within any environmentally sensitive areas?		✓	The site is not adjacent to or within any environmentally sensitive area.
• Cultural heritage site		✓	The site is not adjacent to or within any Cultural heritage site.
• Protected Area		✓	The project site is not in any protected area.
• Wetland		✓	There are no wetland areas within or around the project site.
• Mangrove		✓	No, there are no mangroves located within or around the project site area.
• Estuarine		✓	No, there is no estuarine located within or around the project site.
• Buffer zone of protected area		✓	The project site does not enclose any buffer zones of protected areas.

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> Special area for protecting biodiversity 		✓	The project site is not located in any special area for protecting biodiversity.
<ul style="list-style-type: none"> Bay 		✓	There is no bay on the site.
B. Potential Environmental Impacts Will the Project cause...			
<ul style="list-style-type: none"> Impacts on the sustainability of associated sanitation and solid waste disposal systems and their interactions with other urban services. 		✓	The project aims to enhance urban green space and Improves the ecosystem. There will be no adverse impacts on the sustainability of the area.
<ul style="list-style-type: none"> Degradation of land and ecosystems (e.g. loss of wetlands and wild lands, coastal zones, watersheds and forests)? 		✓	Project will stop existing degradation of land and ecosystem and it will enhance the natural vegetation. It will help to improve the ecosystem.
<ul style="list-style-type: none"> Dislocation or involuntary resettlement of people? 		✓	The site does not have any settlements so there will be no relocation or involuntary resettlement issues.
<ul style="list-style-type: none"> Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable group? 		✓	There are no adverse impacts on vulnerable groups associated with the project.
<ul style="list-style-type: none"> Degradation of cultural property, and loss of cultural heritage and tourism revenues? 		✓	There are no cultural heritage sites around project area. Tourism will not be negatively affected, instead there may be a positive response in tourist activity with the project.
<ul style="list-style-type: none"> Occupation of low-lying lands, floodplains and steep hillsides by squatters and low-income groups, and their exposure to increased health hazards and risks due to pollutive industries? 		✓	The project will not increase the risk of health hazards to low-income and squatter groups.
<ul style="list-style-type: none"> Water resource problems (e.g. depletion/degradation of available water supply, deterioration for surface and ground water quality, and pollution of receiving waters? 		✓	Existing slaughter house remains will be remediated and plantation will be carried out. If project is not executed there are chances of further degradation of surface and ground water quality.
<ul style="list-style-type: none"> Air pollution due to urban emissions? 		✓	The project will help to control the air pollution due to urban emissions.
<ul style="list-style-type: none"> Risks and vulnerabilities related to occupational health and safety due to physical, chemical and biological hazards during project construction and operation? 	✓		There may be some minimal occupational health and safety risk during construction activities. This will be appropriately mitigated in the work plans and environmental management plan through proper training of workers.
<ul style="list-style-type: none"> Road blocking and temporary flooding due to land excavation during rainy season? 		✓	No excavation or heavy development will be required so temporary flooding or road blocking issues will not arise.

Screening Questions	Yes	No	Remarks
• Noise and dust from construction activities?	✓		Some amount of noise and dust may arise during construction, which will be adequately catered for in the work plan and environmental management plan, using best practices such as sprinkling of water and noise barriers.
• Traffic disturbances due to construction material transport and wastes?		✓	Construction activities and development work will be kept limited and within project area and not on to adjacent roads or paths.
• Temporary silt runoff due to construction?		✓	The site will be remediated and developed as a Neighborhood Park with sitting spaces for families, play area for children, walking tracks for physical exercise, a tuck shop, parking spaces and a public washroom. No siltation to arise from construction activities also most of the project activities are plantation and creating green spaces.
• Hazards to public health due to ambient, household and occupational pollution, thermal inversion, and smog formation?		✓	No pollution, thermal inversion, or smog is anticipated.
• Water depletion and/or degradation?		✓	Project maintenance activities will utilize water, but this is not expected to stress the existing supply network or additional groundwater sources.
• Overpaying of ground water, leading to land subsidence, lowered ground water table, and salinization?		✓	No such impacts from the project are envisaged.
• Contamination of surface and ground waters due to improper waste disposal?		✓	The project will not contaminate surface and ground water due to improper waste disposal.
• Pollution of receiving waters resulting in amenity losses, fisheries and marine resource depletion, and health problems?		✓	A 12-feet retaining wall will be constructed along the side of the park facing a riverine for protection against seasonal flash floods. Pollution of receiving water is expected if solid waste management plan is not executed accordingly.
• Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	The scale of the project is small enough that no migration or population influx is anticipated.
• Social conflicts if workers from other regions or countries are hired?		✓	No such conflicts are anticipated as the hiring of local laborers and horticulture firm will be given preference.
• Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?		✓	Project does not involve any use of hazardous substances.

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning? 		✓	There are no significant natural or accidental hazards associated with the project except riverine flooding for which 12 feet retaining wall is proposed. Sound project design will ensure that the community remains safe from hazards during operation.

PMU KPCIP Response:

Project fall in category: (A)_____ (B)_____ (C)_____ ✓ _____ (F)_____

ANNEXURE: B

WHO/GOP Guidance Related to COVID-19

Advice on the use of masks in the context of COVID-19

Interim guidance
6 April 2020



Background

This document provides advice on the use of masks in communities, during home care, and in health care settings in areas that have reported cases of COVID-19. It is intended for individuals in the community, public health and infection prevention and control (IPC) professionals, health care managers, health care workers (HCWs), and community health workers. It will be revised as more data become available.

Current information suggests that the two main routes of transmission of the COVID-19 virus are respiratory droplets and contact. Respiratory droplets are generated when an infected person coughs or sneezes. Any person who is in close contact (within 1 m) with someone who has respiratory symptoms (coughing, sneezing) is at risk of being exposed to potentially infective respiratory droplets. Droplets may also land on surfaces where the virus could remain viable; thus, the immediate environment of an infected individual can serve as a source of transmission (contact transmission).¹

WHO has recently summarized reports of transmission of the COVID-19 virus and provided a brief overview of current evidence on transmission from symptomatic, pre-symptomatic, and asymptomatic^a people infected with COVID-19 (full details are provided in WHO COVID-19 Sitrep79).²

Current evidence suggests that most disease is transmitted by symptomatic laboratory confirmed cases. The incubation period for COVID-19, which is the time between exposure to the virus and symptom onset, is on average 5–6 days, but can be as long as 14 days. During this period, also known as the “pre-symptomatic” period, some infected persons can be contagious and therefore transmit the virus to others.^{3–8} In a small number of reports, pre-symptomatic transmission has been documented through contact tracing efforts and enhanced investigation of clusters of confirmed cases.^{3–8} This is supported by data suggesting that some people can test positive for COVID-19 from 1–3 days before they develop symptoms.^{9,10}

Thus, it is possible that people infected with COVID-19 could transmit the virus before symptoms develop. It is important to recognize that pre-symptomatic transmission still requires the virus to be spread via infectious droplets or through

touching contaminated surfaces. WHO regularly monitors all emerging evidence about this critical topic and will provide updates as more information becomes available.

In this document medical masks are defined as surgical or procedure masks that are flat or pleated (some are shaped like cups); they are affixed to the head with straps. They are tested according to a set of standardized test methods (ASTM F2100, EN 14683, or equivalent) that aim to balance high filtration, adequate breathability and optionally, fluid penetration resistance. This document does not focus on respirators; for guidance on use of respirators see IPC guidance during health care when COVID-19 infection is suspected.¹¹

Wearing a medical mask is one of the prevention measures that can limit the spread of certain respiratory viral diseases, including COVID-19. **However, the use of a mask alone is insufficient to provide an adequate level of protection, and other measures should also be adopted.** Whether or not masks are used, maximum compliance with hand hygiene and other IPC measures is critical to prevent human-to-human transmission of COVID-19. WHO has developed guidance on IPC strategies for home care¹² and health care settings¹¹ for use when COVID-19 is suspected.

Community settings

Studies of influenza, influenza-like illness, and human coronaviruses provide evidence that the use of a medical mask can prevent the spread of infectious droplets from an infected person to someone else and potential contamination of the environment by these droplets.¹³ There is limited evidence that wearing a medical mask by healthy individuals in the households or among contacts of a sick patient, or among attendees of mass gatherings may be beneficial as a preventive measure.^{14–23} However, there is currently no evidence that wearing a mask (whether medical or other types) by healthy persons in the wider community setting, including universal community masking, can prevent them from infection with respiratory viruses, including COVID-19.

Medical masks should be reserved for health care workers.

The use of medical masks in the community may create a false sense of security, with neglect of other essential measures, such as hand hygiene practices and physical distancing, and may lead to touching the face under the masks and under the eyes, result in unnecessary costs, and take

^a An asymptomatic laboratory-confirmed case is a person infected with COVID-19 who does not develop symptoms. Asymptomatic transmission refers to transmission of the virus from a person, who does not develop

symptoms. The true extent of asymptomatic infections will be determined from serologic studies.

masks away from those in health care who need them most, especially when masks are in short supply.

Persons with symptoms should:

- wear a medical mask, self-isolate, and seek medical advice as soon as they start to feel unwell. Symptoms can include fever, fatigue, cough, sore throat, and difficulty breathing. It is important to note that early symptoms for some people infected with COVID-19 may be very mild;
- follow instructions on how to put on, take off, and dispose of medical masks;
- follow all additional preventive measures, in particular, hand hygiene and maintaining physical distance from other persons.

All persons should:

- avoid groups of people and enclosed, crowded spaces;
- maintain physical distance of at least 1 m from other persons, in particular from those with respiratory symptoms (e.g., coughing, sneezing);
- perform hand hygiene frequently, using an alcohol-based hand rub if hands are not visibly dirty or soap and water when hands are visibly dirty;
- cover their nose and mouth with a bent elbow or paper tissue when coughing or sneezing, dispose of the tissue immediately after use, and perform hand hygiene;
- refrain from touching their mouth, nose, and eyes.

In some countries masks are worn in accordance with local customs or in accordance with advice by national authorities in the context of COVID-19. In these situations, best practices should be followed about how to wear, remove, and dispose of them, and for hand hygiene after removal.

Advice to decision makers on the use of masks for healthy people in community settings

As described above, the wide use of masks by healthy people in the community setting is not supported by current evidence and carries uncertainties and critical risks. WHO offers the following advice to decision makers so they apply a risk-based approach.

Decision makers should consider the following:

1. **Purpose** of mask use: the rationale and reason for mask use should be clear—whether it is to be used for source control (used by infected persons) or prevention of COVID-19 (used by healthy persons)
2. Risk of **exposure** to the COVID-19 virus in the local context:
 - The population: current epidemiology about how widely the virus is circulating (e.g., clusters of cases versus community transmission), as well as local surveillance and testing capacity (e.g., contact tracing and follow up, ability to carry out testing).
 - The individual: working in close contact with public (e.g., community health worker, cashier)
3. **Vulnerability** of the person/population to develop severe disease or be at higher risk of death, e.g. people with comorbidities, such as cardiovascular disease or diabetes mellitus, and older people

4. **Setting** in which the population lives in terms of population density, the ability to carry out physical distancing (e.g. on a crowded bus), and risk of rapid spread (e.g. closed settings, slums, camps/camp-like settings).
5. **Feasibility**: availability and costs of the mask, and tolerability by individuals
6. **Type** of mask: medical mask versus nonmedical mask (see below)

In addition to these factors, potential advantages of the use of mask by healthy people in the community setting include reducing potential exposure risk from infected person during the “pre-symptomatic” period and stigmatization of individuals wearing mask for source control.

However, the following potential risks should be carefully taken into account in any decision-making process:

- self-contamination that can occur by touching and reusing contaminated mask
- depending on type of mask used, potential breathing difficulties
- false sense of security, leading to potentially less adherence to other preventive measures such as physical distancing and hand hygiene
- diversion of mask supplies and consequent shortage of mask for health care workers
- diversion of resources from effective public health measures, such as hand hygiene

Whatever approach is taken, it is important to develop a strong communication strategy to explain to the population the circumstances, criteria, and reasons for decisions. The population should receive clear instructions on what masks to wear, when and how (see mask management section), and on the importance of continuing to strictly follow all other IPC measures (e.g., hand hygiene, physical distancing, and others).

Type of Mask

WHO stresses that it is critical that medical masks and respirators be prioritized for health care workers.

The use of masks made of other materials (e.g., cotton fabric), also known as nonmedical masks, in the community setting has not been well evaluated. There is no current evidence to make a recommendation for or against their use in this setting.

WHO is collaborating with research and development partners to better understand the effectiveness and efficiency of nonmedical masks. WHO is also strongly encouraging countries that issue recommendations for the use of masks in healthy people in the community to conduct research on this critical topic. WHO will update its guidance when new evidence becomes available.

In the interim, decision makers may be moving ahead with advising the use of nonmedical masks. Where this is the case, the following features related to nonmedical masks should be taken into consideration:

- Numbers of layers of fabric/tissue
- Breathability of material used
- Water repellence/hydrophobic qualities
- Shape of mask
- Fit of mask

Home care

For COVID-19 patients with mild illness, hospitalization may not be required. All patients cared for outside hospital (i.e. at home or non-traditional settings) should be instructed to follow local/regional public health protocols for home isolation and return to designated COVID-19 hospital if they develop any worsening of illness.⁷

Home care may also be considered when inpatient care is unavailable or unsafe (e.g. capacity is limited, and resources are unable to meet the demand for health care services). Specific IPC guidance for home care should be followed.³

Persons with suspected COVID-19 or mild symptoms should:

- Self-isolate if isolation in a medical facility is not indicated or not possible
- Perform hand hygiene frequently, using an alcohol-based hand rub if hands are not visibly dirty or soap and water when hands are visibly dirty;
- Keep a distance of at least 1 m from other people;
- Wear a medical mask as much as possible; the mask should be changed at least once daily. Persons who cannot tolerate a medical mask should rigorously apply respiratory hygiene (i.e. cover mouth and nose with a disposable paper tissue when coughing or sneezing and dispose of it immediately after use or use a bent elbow procedure and then perform hand hygiene.)
- Avoid contaminating surfaces with saliva, phlegm, or respiratory secretions.
- Improve airflow and ventilation in their living space by opening windows and doors as much as possible.

Caregivers or those sharing living space with persons suspected of COVID-19 or with mild symptoms should:

- Perform hand hygiene frequently, using an alcohol-based hand rub if hands are not visibly dirty or soap and water when hands are visibly dirty;
- Keep a distance of at least 1 meter from the affected person when possible;
- Wear a medical mask when in the same room as the affected person;
- Dispose of any material contaminated with respiratory secretions (disposable tissues) immediately after use and then perform hand hygiene.
- Improve airflow and ventilation in the living space by opening windows as much as possible.

Health care settings

WHO provides guidance for the use of PPE, including masks, by health care workers in the guidance document: Rational use of PPE in the context of COVID-19.²⁴ Here we provide advice for people visiting a health care setting:

Symptomatic people visiting a health care setting should:

- Wear a medical mask while waiting in triage or other areas and during transportation within the facility;
- Not wear a medical mask when isolated in a single room, but cover their mouth and nose when coughing or sneezing with disposable paper tissues. Tissues must be disposed of appropriately, and hand hygiene should be performed immediately afterwards.

Health care workers should:

- Wear a medical mask when entering a room where patients with suspected or confirmed COVID-19 are admitted.
- Use a particulate respirator at least as protective as a US National Institute for Occupational Safety and Health-certified N95, European Union standard FFP2, or equivalent, when performing or working in settings where aerosol-generating procedures, such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy are performed.
- Full infection prevention and control guidance for health care workers is provided [here](#).

One study that evaluated the use of cloth masks in a health care facility found that health care workers using cotton cloth masks were at increased risk of infection compared with those who wore medical masks.²⁵ Therefore, cotton cloth masks are not considered appropriate for health care workers. As for other PPE items, if production of cloth masks for use in health care settings is proposed locally in situations of shortage or stock out, a local authority should assess the proposed PPE according to specific minimum standards and technical specifications.

Mask management

For any type of mask, appropriate use and disposal are essential to ensure that they are effective and to avoid any increase in transmission.

The following information on the correct use of masks is derived from practices in health care settings:

- Place the mask carefully, ensuring it covers the mouth and nose, and tie it securely to minimize any gaps between the face and the mask.
- Avoid touching the mask while wearing it.
- Remove the mask using the appropriate technique: do not touch the front of the mask but untie it from behind.
- After removal or whenever a used mask is inadvertently touched, clean hands using an alcohol-based hand rub or soap and water if hands are visibly dirty.
- Replace masks as soon as they become damp with a new clean, dry mask.
- Do not re-use single-use masks.
- Discard single-use masks after each use and dispose of them immediately upon removal.

WHO continues to monitor the situation closely for any changes that may affect this interim guidance. Should any factors change, WHO will issue a further update. Otherwise, this interim guidance document will expire 2 years after the date of publication.

References

1. Water, sanitation, hygiene and waste management for COVID-19 <https://www.who.int/publications-detail/water-sanitation-hygiene-and-waste-management-for-covid-19>
2. Coronavirus disease 2019 (COVID-19) Situation Report – 73. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200402-sitrep-73-covid-19.pdf?sfvrsn=5ae25bc7_6
3. Yu P, Zhu J, Zhang Z, Han Y. A familial cluster of infection associated with the 2019 novel coronavirus indicating possible person-to-person transmission during the incubation period. *J Infect* 2020 doi:10.1093/jiaa077
4. Huang R, Xia J, Chen Y, Shan C, Wu C. A family cluster of SARS-CoV-2 infection involving 11 patients in Nanjing, China *Lancet Infect Dis* 2020 doi: 10.1016/S1473-3099(20)30147-X
5. Pan X, Chen D, Xia Y et al. Asymptomatic cases in a family cluster with SARS-CoV-2 infection. *Lancet Infect Dis* 2020 doi: 10.1016/S1473-3099(20)30114-6.
6. Tong Z-D, Tang A, Li K-F, Li P, Wang H-L, Yi J-P, et al. Potential presymptomatic transmission of SARS-CoV-2, Zhejiang Province, China, 2020. *Emerg Infect Dis*. 2020 doi: 10.3201/eid2605.200198
7. Wei WE, Li Z, Chiew CJ, Yong SE, et al. Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. *MMWR*, 1 April 2020/69.
8. Kimball A, Hatfield KM, Arons M, James A, et al. Asymptomatic and Presymptomatic SARS-CoV-2 Infections in Residents of a Long-Term Care Skilled Nursing Facility — King County, Washington, March 2020. *MMWR*, 3 April 2020, 69(13);377–381.
9. WorldHealthOrganization.ReportoftheWHO-ChinaJointMissiononCoronavirusDisease2019(COVID-19) 16-24 February 2020 [Internet]. Geneva: World Health Organization; 2020 Available from: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf>
10. Wei WE, Li Z, Chiew CJ, Yong SE, et al. Presymptomatic Transmission of SARS-CoV-2 — Singapore, January 23–March 16, 2020. *MMWR*, 1 April 2020/69.
11. World Health Organization. [Infection prevention and control during health care when COVID-19 is suspected: interim guidance](#), (accessed 29 January 2020).
12. World Health Organization. [Home care for patients with COVID-19 presenting with mild symptoms and management of contacts: interim guidance](#) (accessed 29 January 2020)
13. Infection prevention and control of epidemic- and pandemic-prone acute respiratory diseases in health care. *Geneva*: World Health Organization; 2014 (https://apps.who.int/iris/bitstream/handle/10665/112656/9789241507134_eng.pdf, accessed 17 January 2020).
14. Aiello AE, Coulborn RM, Perez V, et al. A randomized intervention trial of mask use and hand hygiene to reduce seasonal influenza-like illness and influenza infections among young adults in a university setting. *International Journal of Infectious Diseases* 2010;14:E320-E20. doi: 10.1016/j.ijid.2010.02.2201
15. Cowling BJ, Fung ROP, Cheng CKY, et al. Preliminary Findings of a Randomized Trial of Non-Pharmaceutical Interventions to Prevent Influenza Transmission in Households. *Plos One* 2008;3(5) doi: 10.1371/journal.pone.0002101
16. Suess T, Remschmidt C, Schink SB, et al. The role of facemasks and hand hygiene in the prevention of influenza transmission in households: results from a cluster randomised trial; Berlin, Germany, 2009-2011. *BMC Infect Dis* 2012;12:26. doi: 10.1186/1471-2334-12-26.[published Online First: 2012/01/28]
17. Aiello AE, Perez V, Coulborn RM, et al. Facemasks, hand hygiene, and influenza among young adults: a randomized intervention trial. *PLoS One* 2012;7(1):e29744. doi:10.1371/journal.pone.0029744. Epub 2012 Jan 25. [published Online First: 2012/02/02]
18. Barasheed O, Almasri N, Badahdah AM, et al. Pilot Randomised Controlled Trial to Test Effectiveness of Facemasks in Preventing Influenza-like Illness Transmission among Australian Hajj Pilgrims in 2011. *Infect Disord Drug Targets* 2014;14(2):110-6. doi: 10.2174/1871526514666141021112855 [published Online First: 2014/10/23]
19. Canini L, Andreoletti L, Ferrari P, et al. Surgical mask to prevent influenza transmission in households: a cluster randomized trial. *PLoS One* 2010;5(11):e13998. doi:10.1371/journal.pone.0013998. [published Online First: 2010/11/26]
20. MacIntyre CR, Zhang Y, Chughtai AA, et al. Cluster randomised controlled trial to examine medical mask use as source control for people with respiratory illness. *BMJ Open* 2016;6(12):e012330. doi: 10.1136/bmjopen-2016-012330. [published Online First: 2017/01/01]
21. Lau JT, Tsui H, Lau M, Yang X. SARS transmission, risk factors, and prevention in Hong Kong. *Emerg Infect Dis*. 2004 Apr;10(4):587-92.
22. Wu J, Xu F, Zhou W et al. Risk factors for SARS among persons without known contact with SARS patients, Beijing, China. *Emerg Infect Dis*. 2004 Feb;10(2):210-6.



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Guidelines

Health & Safety of Building & Construction Workers during COVID-19 Outbreak

Objective

To provide guidelines for the workers involved in building and construction work during the current epidemic of COVID-19.

Rationale

Construction processes are dynamic with significantly varying number of workers on a construction project site from day to day. The workers coming from diverse environments and working closely together increases the risk of exposure to COVID 19.

Building construction involves earth work, procurement of materials and supplies and their storage, construction work done by masons, blacksmiths, electricians, carpenters, plumbers, painters, supervisors, managers and security personnel. These guidelines provide the safety measure to be implemented at the construction site having a dusty environment, continuous flow of different materials and make-shift type of arrangements for storage, food and sanitation calls for implementation of safety precautions at the very basic level of personal hygiene only.

Advice for Site Managers:

Without prejudice to the following, all possible and prescribed actions shall be taken at the project site, as should facilitate the health of all life present at the site.

- Every construction project shall make proper arrangements for uninterrupted building services including but not restricted to, electricity, fuel, water supply, water disposal and sanitation, communication links, washrooms with hand hygiene and shower facility and with proper and adequate supply of soaps and disinfectants.
- Workers should not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site
- Ensure the availability of the thermal gun at the entry and exit of the construction site and no worker should be allowed without getting his/her temperature checked.
- Site manager must maintain a register of all contact details with NID number and addresses of all present at the site in case a follow up or tracing and tracking of contacts is required at a later stage.
- Develop the employee roster to decrease the number of people on the site very day. Split the shifts of the workers in morning and evening with limit of each shift to 8 working hours.



- Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours end.
- In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must be provided with a face mask. It must be ensured that everyone during his or her presence at the site continues to wear the mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands.
- Non-essential work trainings must be postponed avoiding gathering of people.
- Ensure the physical distance by creating more than one route of entry and exit to the site.
- Instruct the workers to inform the construction manager (or authorities) if
 - They develop any symptoms of cough, flu or fever.
 - They have been exposed to someone suspected or confirmed with COVID 19.
 - They have met someone who has a travel history of COVID 19 endemic country
 - They have travelled in last couple of days or plan to travel soon.
- All incidences of appearance of the symptoms of COVID-19 shall be immediately documented and maintained at the site and information regarding which shall be immediately communicated through e-mail or else, to the designated health facility, and the sick worker shall be transported to the health facility for further advice and action. The site manager must establish a link with a nearby healthcare facility with arrangements for quick transportation of workers in case of an emergency.
- Persuade the workers to inform the authorities for their safety and of other if they observe any signs and symptoms in a colleague
- Do not allow any worker at the construction site who has the symptoms
- Display the awareness banners about hand hygiene and physical distancing, where you can, around the work site.
- Everyone on the construction site must observe sneezing and coughing etiquettes.
- Workers shall be requested and required to wash their hands as frequently as practicable and shall also be advised not to touch their face with their hands during work.
- Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermix.
- Only sanitize-able dinning surfaces shall be used, which must be cleaned before each service. Food must be heated to a temperature to no less than 70° C before consumption and shall preferably be served in disposable utensils. If reusable utensils are used, these must be washed with soap and water immediately after use and stored at a safe place.
- The lunch breaks and stretch breaks of the workers must be staggered to avoid the clustering of workers. Workers must not sit at less than 2 meters distance while having meals and while any other activity requiring interpersonal communications.
- In the wake of current restrictions on transportations site managers will ensure safe transport arrangements for worker which should not be crowded and should have social distancing in place during the entire process from pickups till drops at destination

- In case of workers sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms
- A supply of safe drinking water must be made available at the project site and maintained.

Advice for Construction Workers:

- All possible and prescribed measures shall be taken to ensure your and others health
- Enter your contact details in the register maintained at the site, in case a follow up or tracing and tracking of contacts is required at a later stage.
- Follow hygiene practices at washrooms and shower facility with proper and adequate use of soaps and disinfectants.
- Every worker must change into standard working attire at the time of commencement of duty and change back to their regular dress after taking shower when their duty hours end.
- In addition to all other internationally recognized safety precaution for construction workers and other staff, every individual must use face mask. Face mask shall be replaced as and when soiled or otherwise removed. Outer surface of face mask must not be touched with hands.
- Workers should wash their hands as frequently as practicable and shall not to touch their face with their hands during work.
- Everyone on the construction site must observe sneezing and coughing etiquettes.
- Workers must maintain no less than two arm lengths between them before, during after work at all the times. They shall not make physical contact and shall be required to maintain separate personal gears and assets which must be clearly labelled and stored without intermix.
- Sick worker should immediately inform the site manager and must get medical advice from nearby health centre.
- Only sanitize able dinning surfaces shall be used. Food must be heated to a temperature to no less than 70° C before consumption and shall preferably be in disposable utensils. If reusable utensils are used, these must be washed with soap and water immediately after use and stored at a safe place.
- Do not sit at less than 2 meters distance while having meals and while any other activity requiring interpersonal communications.
- Do not use biometric attendance machines or crowd during attendance, entry or exit to the premises of the construction site.
- Use safe transport arrangements which should not be crowded and should have social distancing in place during the entire process from pickups till drops at destination.
- In case sleeping in at the site of construction, a safe distance of 2 meters must be ensured in the sleeping rooms.

Deliveries or Other Contractors Visiting the Site

- Non-essential visits to the construction sites should be cancelled or postponed.



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Regulations & Coordination

- Delivery workers or other contractors who need to visit the construction site must go through temperature check before entering and should be given clear instructions for precautions to be taken while on site.
- Designate the workers, with protective gears or at least gloved and mask, to attend to the deliveries and contractors.
- Make alcohol-based hand sanitizer (at least 70%) available for the workers handling deliveries.
- Instruct the visiting truck drivers to remain in their vehicles and whenever possible make use of contactless methods, such as mobile phones, to communicate with your workers.

Note: The above recommendations are being regularly reviewed by the Ministry of National Health Services, Regulations & Coordination and will be updated based on the international & national recommendations and best practices.

The Ministry acknowledges the contribution of Irfan Mirza, Syeda Shehrihana Akhtar and HSA/ HPSIU/ NIH team to compile these guidelines.

For more information, please contact:

HSA/ HPSIU/ NIH, PM National Health Complex, Islamabad

<http://covid.gov.pk/>

<http://nhsr.gov.pk/>

<https://www.facebook.com/NHSRCoOfficial>

<http://www.hsa.edu.pk/>

<https://twitter.com/nhsrcoofficial>

<https://www.nih.org.pk/>

https://www.youtube.com/channel/UCdYuzeSP4Ug1f_ZZKJ

ANNEXURE C

Traffic Management Plan

C.1 Need for Plan

The project works will take over 24 months and in this period, huge vehicular movement carrying large amount of material and machinery is expected. This will definitely interrupt the local traffic and is therefore important to manage the traffic to avoid the nuisance to local residents in terms of noise, dust, congestion and inconvenience.

C.2 The plan

The Objective of Traffic Management Plan (TMP) is to define the requirements that shall be implemented to mitigate any potential negative risks to the environment, workers or the community resulting from construction traffic.

The TMP will advise and inform site Contractors and external suppliers of equipment and materials of access and entry points along with other key information such tipping areas and wash-out areas. It is intended to compliment and work alongside relevant ESMMP. The TMP will be classed as “live” and therefore be subjected to updates as required.

Contractor, at the time of the execution of the project will prepare a comprehensive TMP in coordination with local traffic police department, PMU, emergency services and local administrative department. The PMU and SC will review and approve contractors TMP. The contractor’s TMP shall include following mitigation measures during its preparation:

Undertake a road conditions assessment prior to and following the peak construction period, to assess any damage to road infrastructure that can be attributed to Project construction.

Repair damage as appropriate or enter into a voluntary agreement with the relevant roads authority to reimburse the cost of any repairs required to the public road network as a result of the Project.

Spoil dumpsites located close to Project site to minimize journey distance and limit movements to site access roads.

Concrete mixing plant located at Project site limiting traffic movements associated with concrete delivery to site access roads

Construction of worker accommodation on site to reduce light vehicle movements relating to travel to/ from the site

Provision of bus/minibus services for personnel living in nearby settlements

Movements of construction workers will be planned to avoid the busiest roads and times of day when traffic is at its greatest.

Schedule deliveries and road movements to avoid peak periods

Road maintenance fund to leave a useful asset for communities after the construction phase.

Driver training for HGV drivers and refresher course every six months for Project drivers

Speed restrictions for project traffic travelling through communities (to be agreed with Traffic Management Authority)

Run a safety campaign to improve the people’s knowledge of the traffic hazard on their roads, public information and other activities to address the issues.

Run a pedestrian awareness programmer

Temporary signage

The traffic management plan is provided below.

C.3 Other Recommendations

It is important to manage public access routes during construction because it can cause delay to local traffic and create a safety hazard both on and offsite. People working and living near

the project site will be annoyed by the emissions, noise and visual intrusion of queuing vehicles. Some important factors involved in access routes and site traffic are as follows:

C.3.1 Public Access Routes

The use of public road for site access may be restricted in terms of:

Vehicle size, width and type of load

Time limits

Parking

Pedestrian conflicts

Contractor shall have consultation with the local police or local authority to address these issues and to effectively manage them before the beginning of the construction.

C.3.2 Site Workers Traffic

Site personnel shall not be permitted to park vehicles near the site boundary; this will lead to disruption in material deliveries. Designated parking area with appropriate parking space will be needed for this purpose; any plain area near construction site can be used for this purpose.

C.3.3 Site Rules

Access to and from the site must be only via the specified entrance.

On leaving the site, vehicles must be directed to follow the directions given.

Drivers must adhere to the site speed limits.

All material deliveries to site must keep allocated time limits.

No material or rubbish shall be left in the loading-unloading area.

Develop a map for alternate routes showing material delivery services.

Assign designated personnel on site to receive deliveries and to direct the vehicles.

Monitor vehicle movement to reduce the likelihood of queuing or causing congestion in and around the area.

Project vehicles shall have a unanimous badge or logo on windscreen displaying that they belong to the Neighborhood Park.

C.4 Contractor's Obligation

The traffic management plan of the Contractor shall be safe enough and widening of access roads and construction of the detours must be completed before start of project construction activities so that heavy vehicular transportation for construction activities do not hinder the normal course of traffic lanes. Contractor must ensure that road closures are carried out by a competent person. The Contractor obligation must include the display of traffic signs according to the need to divert the traffic volume and to guide the road users in advance. The traffic sign, traffic light shall be placed from any diverting route or road marking.

The Contractor shall consider the environmental and social impacts of the traffic during construction. It will be sole responsibility of the Contractor to implement a plan which produces minimum nuisance to the local people and to the environment. Safety of the people shall be given due importance. It will be under Contractor obligation to notify the traffic management plan and its later changes to SC, PMU, emergency services and Traffic Police, and also publish weekly programmer in local newspapers.