Rehabilitation of Damaged Water Supply and Drainage Schemes of District Dadu, Sindh

ENVIRONMENTAL AND SOCIAL SCREENING REPORT (ESSR)

SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)

PLANNING & DEVELOPMENT DEPARTMENT (P&DD) COMPONENT

GOVERNMENT OF SINDH

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Final Report

May, 2024

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DOCUMENT ISSUE AND REVISION RECORD

This document and its contents have been prepared and intended solely for the information and use of the Government of Sindh, Project Implementation Unit (PIU) concerning the **SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)**

Document Information

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Description	Issue	Revision	Date	Originated	Reviewed	Approved
ESSR for Rehabilitation of Damage Water Supply and Drainage Schemes of District Dadu	01	-	13-05-2024	-	-	-

Note: The template of ESSR & E&S Checklist for one District i.e., Larkana is approved by the World Bank. As per the directions of WB on dated 12th April, 2023, the document is reviewed by the E&S team of PIU and submitted to WB team for record and post review purpose.

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1 PROJECT BACKGROUND

The Federal Government of Pakistan requested the global community and development partners for assistance to respond to the flood disaster following the Flood 2022 emergency. Subsequently, the World Bank (WB) task team visited the province and had a series of meetings with the provincial Govt. During the discussions held with the WB Mission, a two-pronged strategy was agreed i.e.,

- Restoration/Rehabilitation of Rural (Farm to Market) Roads in affected districts, talukas and UCs.
- Restoration of water supply, drainage and sanitation schemes in affected districts, Talukas and Union Councils.
- Provision of immediate financial assistance, cash for work is proposed to rehabilitate small community structures like rural roads, watersheds, watercourse (s) to carry irrigation water to Farm(s), Rehabilitation of village streets and restoration of village sanitation work including removal of stagnant water in villages. The exact number to be arrived at after assessment.
- Expansion of the Emergency Rescue Service (Sindh Emergency Rescue Services-1122) to 13 districts i.e., Jamshoro, Dadu, Sajawal, Badin, Qambar Shehdadkot, Shikarpur, Dadu, Thatta, Ghotki, Naushehro Feroz/Matiari, Umerkot, Sanghar and Shikarpur. Establishment of Satellite Rescue Station at Motorway and National Highways (N-5 & N-55) The Provincial Government has already launched Sindh Emergency Rescue 1122 in Six Districts HQs – Karachi, Hyderabad, Dadu, Shaheed Benazirabad, Sukkur, and Larkana.

1.1 Project Components

The proposed Sindh Flood Emergency Rehabilitation Project – SFERP falls into four main components.

- Component--1 Infrastructure Rehabilitation:
- Component--2 Livelihoods Restoration
- Component--3 Institutional Strengthening for Resilience and Technical Assistance
- Component--4 Project Management and Operational Cost

1.2 The Proposed Sub-Project

The proposed project under Flood 2022 Emergency Response is a sub-component that will support the rehabilitation and reconstruction of the flood-affected water supply and drainage schemes to improve health & hygiene of local communities by providing safe drinking water with uninterrupted supply. The location map of subproject is given in **Figure 1** and **Figure 2** and the details of the subproject sites are given below;

1.1 Sub-Project Description

In District Dadu, there are a total of 97 schemes, comprising 08 drainage schemes and 90 water supply schemes.

Project description	The sub-component "rehabilitation of water supply and drainage schemes" will rehabilitate the selected and prioritized water supply infrastructure that has been destroyed or damaged by the floods. The primary objective of this project is to evaluate the condition of water supply and drainage schemes, which includes assessing filtration techniques, piping, water quality, efficiency and adequacy of equipment, population coverage, and technology employed. This assessment will encompass a comprehensive

	study of network elements such as pumps, tanks, pipe materials, as well as parameters like diameters, flow rates, and the overall functionality of water supply and drainage systems constructed. The subproject schemes are located in Dadu District of Sindh, Pakistan. The main aim of the said project is to rehabilitate existing sources of water supply and drainage facilities for the flood effected people in District Dadu.
Environmental and Social Settings	The subproject land is owned by the Government. The proposed activities are the rehabilitation and restoration of damage water supply schemes and drainage facilities. These schemes are the properties of the Government body. There are no major environmental and social impacts of the project activities to the vicinity of the subproject areas. There are no water bodies within the sub-project sites. The subproject rehabilitation activities will not affect any flora, fauna and natural habitat of the area. There are few trees in the vicinity of the proposed subproject areas which will not be disturbed during the rehabilitation works. The environmental and social impacts will be kept at minimum by ensuring the mitigation measures and continuous monitoring. All measures will be planned, organized and implemented which are vital for health and safety of the workers. Instrumental Environmental Testing will be conducted on key parameters like air quality, water quality and noise level determination. Local flora is important to provide shelters for the birds, offer fruits and/or timber/fire wood, protect soil erosion and overall keep the environment very friendly to human living. As such cutting/chopping of flora will not be anticipated. Plantation has been proposed after the completion of the proposed subproject to enhance the aesthetic beauty of the project vicinity. No sub-projects related socioeconomic issues have been recorded during the baseline surveys of the sub-projects. Community and project beneficiaries are very much enthusiastic about the early rehabilitation and completion of the sub-projects. Settlements, including built-up areas such as homes, shops, mosques, graveyards, healthcare facilities and schools are located around sub-project schemes. Community is settled in villages which are actual project beneficiaries. No natural water spring is found in the proposed sub-project area. The site wise detailed of environmental and social setting of the proposed area are presented in the section 1.1.2.

Project Activities/ Scope of Work	Proposed Rehabilitation of Damaged Infrastructures of Water Supply Schemes (WSS) - Rehabilitation of Tube wells - Rehabilitation of Pumping Machinery i.e., Submersible Pumps, Centrifugal Pumps, - Rehabilitation of Solar System - Rehabilitation of Storage Tanks - Rehabilitation of Low Surface Reservoirs (LSRs) - Rehabilitation of Distribution Network i.e., Pipe network - Rehabilitation of Pumping Stations/Buildings - Rehabilitation and improvement of Electric and mechanical works transmission - provision and installation of disinfection system i.e., hypo-chlorinator equipment Rehabilitation of Damaged Infrastructures of Drainage Schemes - Rehabilitation of Street drains - Rehabilitation of Pumping Machinery i.e., sludge Pumps, Motors - Installation of Solar System for alternative power supply - Rehabilitation of Screening Chambers - Rehabilitation of Collecting Tanks - Rehabilitation of Drainage Pumping Station Building - Rehabilitation and enhancement of existing Electric system with automation Work - Rehabilitation of Rising Main network to dispose of the drainage
Proposed Date of Commencement of Work:	The Rehabilitation of water supplies and drainage activities will be started in June 2024 after completion of pre-requisite requirements.

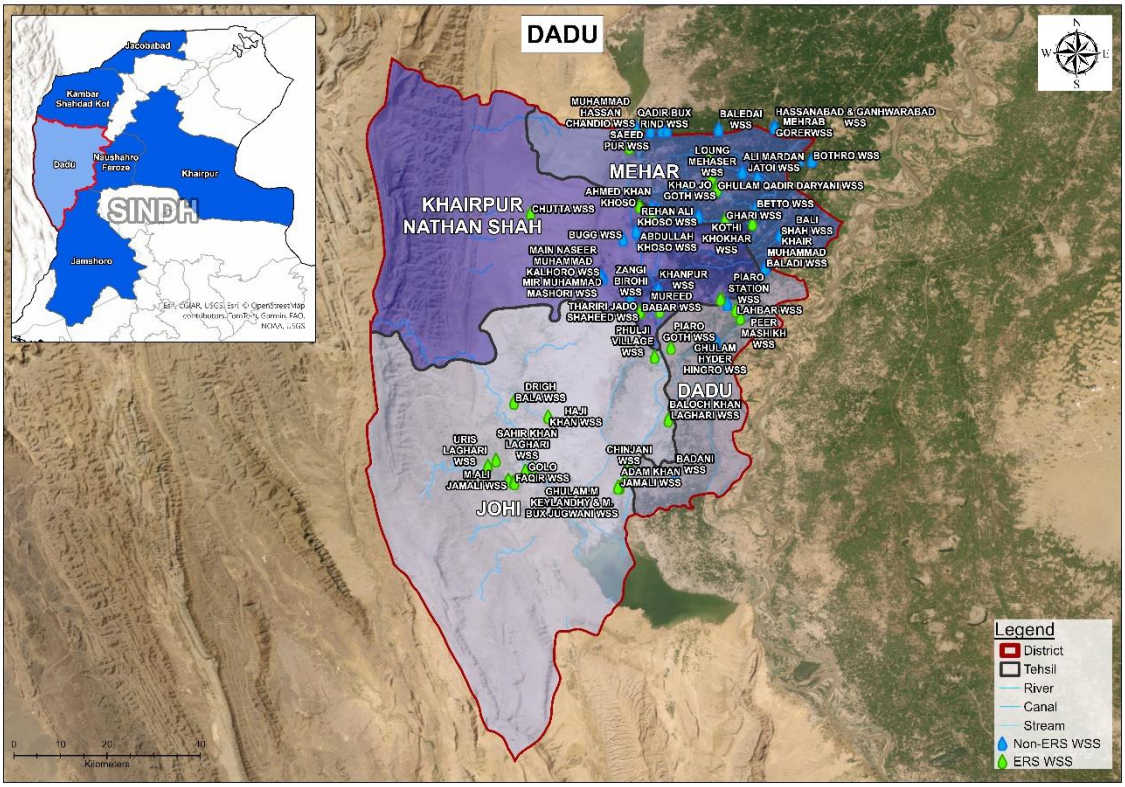


Figure 1: Study Area Map of District Dadu Water Supply Schemes

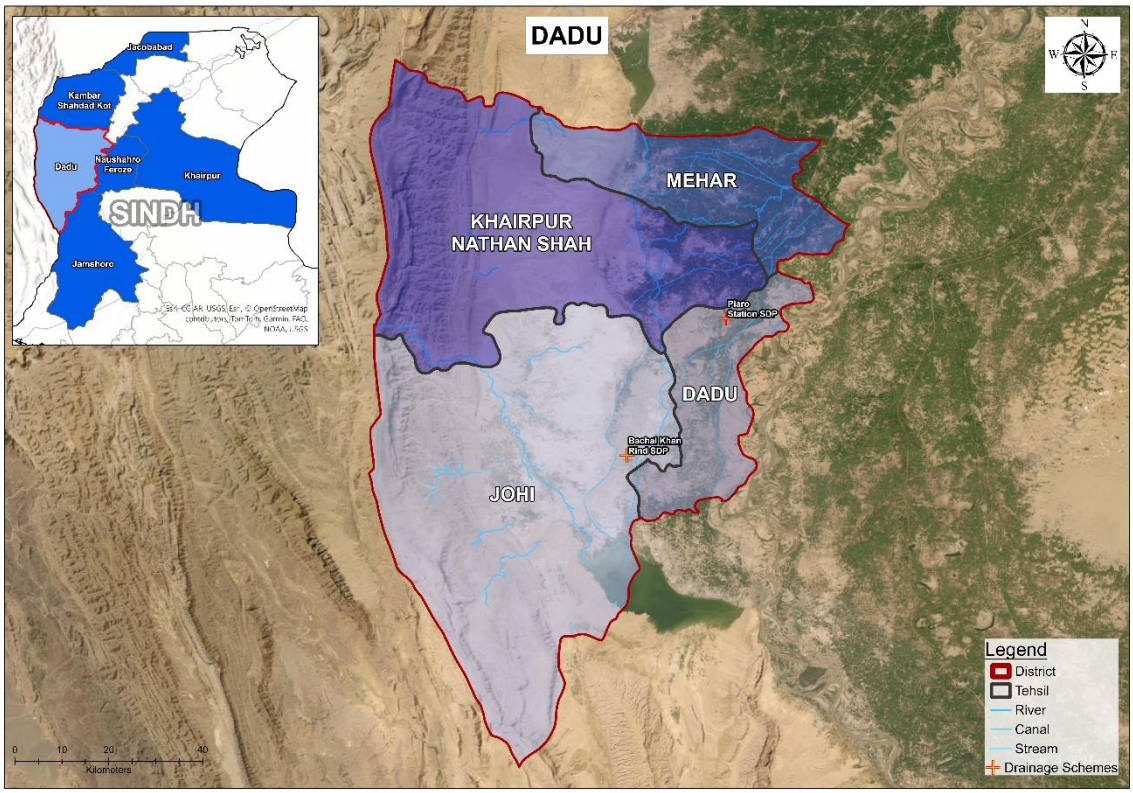


Figure 2: Study Area Map of District Dadu Drainage Schemes

1.2 Scheme Wise E&S Setting

No.	Schemes	Source and Status	Coordinates	Site Description
A	**Taluka K.N Shah Water Supply Schemes**			
1.	Burira	Tube Well Non-ERS	362257 mE, 2998709 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 464 & 3250 respectively. The area is surrounded by the agricultural fields and sparse settlements. There are no social sensitive receptors in the vicinity of proposed site.
2.	Sanghar	Tube Well Non-ERS	362184 mE, 2998723 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 357 & 2500 respectively. The area is surrounded by the agricultural fields and sparse settlements. There are no social sensitive receptors in the vicinity of proposed site.
3.	Bugg	Tube Well Non-ERS	362184 mE, 2998723 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Kutcha track from K.N Shah. The number of household and population is 393 & 2750 respectively. The area is surrounded by the agricultural fields and sparse settlements. There are no social sensitive receptors in the vicinity of proposed site.
4.	Khair Muhammad Baladi	Tube Well Non-ERS	390464 mE, 2991425 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link Road from K.N Shah. The number of household and population is 231 & 1620 respectively. The area is surrounded by the agricultural fields and human settlements. There are no social sensitive receptors in the vicinity of proposed site. Dadu canal is flowing adjacent to proposed sub-project site.

No.	Schemes	Source and Status	Coordinates	Site Description
5.	Mian Naseer Muhammnad Kalhoro	Surface Water	358996 mE, 2989850 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 384 & 2687 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., Government Primary School Sojhro Mashori at a distance of 444 m. A canal is flowing at a distance of 354 m to proposed sub-project site.
6.	Gharhi	Tube Well Non-ERS	359413 mE, 2989721 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 314 & 2200 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., Government Primary School Sojhro Mashori at a distance of 124 m. A canal is adjacent to proposed sub-project site.
7.	Zangi Birohi	Tube Well Non-ERS	364618 mE, 2985488 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 214 & 1500 respectively. The area is surrounded by the agricultural fields and human settlements. There are no social sensitive receptors in the vicinity of proposed site. A canal is adjacent to proposed sub-project site.
8.	Mir Muhammad Mashori	Tube Well Non-ERS	359452 mE, 2989560 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 228 & 1600 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., Government Primary

No.	Schemes	Source and Status	Coordinates	Site Description
				School Sojhro Mashori at a distance of 108 m. A canal is adjacent to proposed sub-project site.
9.	Ramzan Babar	Tube Well Non-ERS	364601 mE, 2985427 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 200 & 1400 respectively. The area is surrounded by the agricultural fields and human settlements. There are no social sensitive receptors in the vicinity of proposed site. A canal is adjacent to proposed sub-project site.
10.	Lal Bux Wadha	Tube Well Non-ERS	369008 mE, 3002813 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from K.N Shah. The number of household and population is 1187 & 8312 respectively. The area is surrounded by the agricultural fields, saline land and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., Government Girls Primary School Lal Bux Wadha at a distance of 590 m.
11.	Mado Tube wells Site	Tube Well Non-ERS	366635 mE, 3006564 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link Road from Mehar. The number of household and population is 357 & 2500 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., Village kanbhawani Chandio school at a distance of 87 m.
12.	Faqir Muhammad Birhmani	Tube Well Non-ERS	370194 mE, 2982383 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 242 & 1700 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., S.M Public School

No.	Schemes	Source and Status	Coordinates	Site Description
				Kakar and GBPS Mohammad yousif channa at a distance of 260 and 1.9 km.
13.	Khan Pur	Tube Well Non-ERS	369992 mE, 2986935 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 2089 & 14625 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational and healthcare facility i.e., GBPS Khanpur at a distance of 262 m and Basic Health Unit Khanpur (PPHI) at a distance of 377 m.
14.	Asraf Gadhi	Tube Well Non-ERS	369992 mE, 2986935 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 207 & 1450 respectively. The area is surrounded by the agricultural fields and human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational and healthcare facility i.e., GBPS Khanpur at a distance of 262 m and Basic Health Unit Khanpur (PPHI) at a distance of 377 m.
15.	Chutta	Tube Well Non-ERS	345805 mE, 3003474 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 325 & 2275 respectively. The area is surrounded by the vacant land and sparse human settlements. There are no social sensitive receptors in the vicinity of proposed site.
16.	Chandan Wara Burira	Tube Well Non-ERS	365904 mE, 2999453 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 346 & 2425 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are no social sensitive receptors in the vicinity of proposed site. A canal is flowing on western side at a distance of 535 m.

No.	Schemes	Source and Status	Coordinates	Site Description
17.	Abduullah Khoso	Tube Well Non-ERS	365873 mE, 2999341 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 225 & 1575 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are no social sensitive receptors in the vicinity of proposed site. A canal is flowing on western side at a distance of 535 m.
18.	Ahmed Khan Khoso	Tube Well Non-ERS	369017 mE, 3004561 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 244 & 1712 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are no social sensitive receptors in the vicinity of proposed site. A canal is flowing adjacent to subproject site.
19.	Suhrab Bughio	Tube Well Non-ERS	370075 mE, 3004064 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 260 & 1818 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational facility i.e., Government boys high school campus Sohrab Bughio ata a distance of 60m. A canal is flowing adjacent to subproject site.
20.	Chhore	Tube Well Non-ERS	366595 mE, 3004783 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55. The number of household and population is 300 & 2100 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are a few social sensitive receptors in the vicinity of proposed site like educational and healthcare facility i.e., Government Boys school and Basic Health Unit Chorre at a distance of 107 m and 223m respectively.

No.	Schemes	Source and Status	Coordinates	Site Description
21.	Loung Rahooja	Tube Well Non-ERS	381864 mE, 2984875 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 via link road from Kakkar. The number of household and population is 300 & 2100 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are no social sensitive receptors in the vicinity of proposed site.
22.	Andriya Taga	Tube Well Non-ERS	381944 mE, 2984956 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 via link road from Kakkar. The number of household and population is 245 & 1712 respectively. The area is surrounded by the agricultural lands and sparse human settlements. There are no social sensitive receptors in the vicinity of proposed site.
B	**Taluka Dadu Water Supply Schemes**			
23.	Water Supply Scheme Piaro Goth	Surface Water	380937 mE, 2975730 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Canal Road when moving rightward from Kakkar. The number of household and population is 357 & 2500 respectively. The area is surrounded by agricultural fields and dispersed settlements. There are no social sensitive receptors in the vicinity of proposed site.
24.	Water Supply Scheme Hazur Khan Chandio	Tube Well ERS	384710 mE, 2982455 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Link Road when moving rightward from Kakkar. The number of household and population is 114 & 800 respectively. The area is surrounded by agricultural fields and dispersed settlements. There are no social sensitive receptors in the vicinity of proposed site.
25.	Water Supply Scheme Darrah	Tube Well ERS	372265 mE, 2974597 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side. The number of household and population is 100 & 700 respectively. The

No.	Schemes	Source and Status	Coordinates	Site Description
				area is surrounded by agricultural fields and dispersed settlements. There are a few social sensitive receptors in the vicinity of proposed site like ducational facility i.e., GBPS Mithal Qambrani at a distance of 246m. A canal is flowing at a distance of 156m.
26.	Water supply scheme Piaro Station	Tube Well ERS	383147 mE, 2983789 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side. The number of household and population is 857 & 6000 respectively. The area is surrounded by agricultural fields and dispersed settlements. There are a few social sensitive receptors in the vicinity of proposed site like ducational facility i.e., Government Primary school at a distance of 552 m. A canal is flowing adjacent to subproject scheme.
27.	Water Supply Scheme Ibrahim Panhwar	Tube Well ERS	380631 mE, 2975524 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Canal Road when moving rightward from Kakkar. The number of household and population is 357 & 2500 respectively. The area is surrounded by agricultural fields and dispersed settlements. There are no social sensitive receptors in the vicinity of proposed site.
28.	Water Supply Scheme Ghulam Hyder Hingoro	Tube Well ERS	380718 mE, 2975534 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Canal Road when moving rightward from Kakkar. The number of household and population is 429 & 3000 respectively. The area is surrounded by agricultural fields and dispersed settlements. There are no social sensitive receptors in the vicinity of proposed site.
29.	Water Supply Scheme Lahbar	Tube Well ERS	384704 mE, 2982454 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Link Road when moving rightward from Kakkar. The number of household and population is 86 & 600 respectively. The area is surrounded by agricultural fields and dispersed settlements.

No.	Schemes	Source and Status	Coordinates	Site Description
				There are no social sensitive receptors in the vicinity of proposed site.
30.	Water Supply Scheme Badani	Tube Well ERS	372828 mE, 2947578 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the left side via Link from Khudabad. The number of household and population is 214 & 1500 respectively. The area is surrounded by agricultural fields and dispersed settlements. There are no social sensitive receptors in the immediate vicinity of proposed subproject site.
C	**Taluka Johi Water Supply Schemes**			
31.	Water Supply Scheme Phulji Village	Tube Well ERS	369126 mE, 297262 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 357 & 2500 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site. A canal is flowing at a distance of 1.4 km on eastern side.
32.	Water supply scheme Qasim Rodhrani	Tube Well ERS	341900 mE, 2946200 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 86 & 600 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
33.	Water supply scheme Khair Muhammad Jamali	Tube Well ERS	362166 mE, 2944865 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Johi link road. The number of household and population is 357 & 2500 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
34.	Water Supply Scheme Molvi	Tube Well	361840 mE, 2944911 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway

No.	Schemes	Source and Status	Coordinates	Site Description
	Noor Muhammad Rodhrani	ERS		N55 on the left side via Johi link road. The number of household and population is 173 & 1210 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
35.	Water supply scheme Golo Faqir	Tube Well ERS	342024 mE, 2946136 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 187 & 1310 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
36.	Water Supply Scheme Mureed Babar	Tube Well ERS	366594 mE, 2982303 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side from Kakkar. The number of household and population is 429 & 3000 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government primary school Khan Mohammed Shahi at a distance of 39m.
37.	Water Supply Scheme Fazul Jamali	Tube Well Non-ERS	362131 mE, 2944837 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side from Kakkar. The number of household and population is 329 & 2300 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
38.	Water Supply Scheme Charo	Tube Well ERS	362539 mE, 2945164 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Johi link road. The number of household and population is 180 & 1260 respectively. The area is surrounded by the agricultural fields, sparse vegetation and

No.	Schemes	Source and Status	Coordinates	Site Description
				settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
39.	Water Supply Scheme Mirza Channa	Tube Well Non-ERS	366419 mE, 2982287 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side from Kakkar. The number of household and population is 429 & 3000 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
40.	Water Supply Scheme Thariri Jado Shaheed	Tube Well ERS	348602 mE, 2960120 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side from Kakkar. The number of household and population is 571 & 4000 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Govt. Thariri Jado Shaheed School at a distance of 865 m.
41.	Water Supply Scheme Haji Khan	Tube Well ERS	363906 mE, 2949538 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 571 & 4000 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are some social sensitive receptors near to proposed sub-project site like educational and healthcare facilities i.e., Govt. Girls School 108 m away and some private schools, however, BHU Haji Khan in terms of healthcare facility at a distance of 133m.
42.	Water Supply Scheme Chinjani	Tube Well ERS	371404 mE, 2958104 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side vi Jhohi Link road. The number of household and population is 286 & 2000 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are some social sensitive

No.	Schemes	Source and Status	Coordinates	Site Description
				receptors near to proposed sub-project site like educational facility i.e., Govt. Primary School Chinjani at a distance of 484 m away.
43.	Water Supply Scheme Pir Mashaikh	Tube Well ERS	338519 mE, 2951008 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Dadu-Jhohi Link road. The number of household and population is 232 & 1625 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
44.	Water supply scheme Sahib Khan Leghari	Tube Well ERS	345511 mE, 2949349 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 277 & 1875 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are some social sensitive receptors near to proposed sub-project site like educational facilities i.e., Govt: Boys Primary School Sahib Khan Laghari at a distance of 96 m.
45.	Water Supply Scheme & Unit Muhabat Qambrani	Tube Well Non-ERS	342040 mE, 2946079 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 107 & 750 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
46.	Water Supply Scheme Sawiro	Tube Well ERS	371614 mE, 2959189 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 479 & 3350 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.

No.	Schemes	Source and Status	Coordinates	Site Description
47.	Water Supply Scheme Baloch Leghari	Tube Well ERS	363199 mE, 2946950 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N5 on the right side via Dadu-Jhohi Link road. The number of household and population is 416 & 2912 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project sites like educational and healthcare facility i.e., GBLSS Ala-Yarani School and Basic Health Unit Ala-yarani at a distance of 339 m and 533 m.
48.	Water Supply Scheme Khuda Bux Solangi	Tube Well ERS	342121 mE, 2963278 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via NH55-Juhi link road. The number of household and population is 357 & 2500 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
49.	Water Supply Scheme Drigh Bala	Tube Well ERS	362094 mE, 2944905 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via link road. The number of household and population is 786 & 5500 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational and healthcare facility i.e., Govt. High School Drigh Bala and HF RHC Drigh Bala IHS Center at a distance of 211m and 63m respectively.
50.	Water Supply Scheme Ghulam Muhammad Ji landhi	Tube Well Non-ERS	336939 mE, 2949656 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Johi link road. The number of household and population is 464 & 3250 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.

No.	Schemes	Source and Status	Coordinates	Site Description
51.	Water Supply Scheme Wahi Pandhi City	Tube Well ERS	336945 mE, 2949744 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Gorakh resort Road. The number of household and population is 839 & 5875 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are some social sensitive receptors near to proposed sub-project site like educational facility i.e., Gul Khan Laghari - RBCS 015 at a distance of 216m.
52.	Water Supply Scheme Uris Leghari	Tube Well ERS	341704 mE, 2946248 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Gorakh resort Road. The number of household and population is 554 & 3875 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are some social sensitive receptors near to proposed sub-project site like educational facility i.e., Gul Khan Laghari - RBCS 015 at a distance of 216m.
53.	Water Supply Scheme Hafiz Jamali	Tube Well ERS	362149 mE, 2944930 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 191 & 1337 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
54.	Water Supply Scheme Adam Khan Jamali	Tube Well ERS	340817 mE, 2946704 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Johi link road. The number of household and population is 321 & 2250 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
55.	Water Supply Scheme Unit	Tube Well ERS	344123 mE, 2948594 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household

No.	Schemes	Source and Status	Coordinates	Site Description
	Muhammad Ali Jamali			and population is 170 & 1187 respectively. The area is surrounded by the agricultural fields, sparse vegetation and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
56.	Water Supply Scheme Unit Joosani Jamali	Tube Well ERS	351923 m E 2957528 m N	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side. The number of household and population is 191 & 1340 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor near to proposed sub-project sites i.e., VSO Primary School Mossa Khan Jamali at a distance of 302m.
57.	Urban Water Supply Scheme Johi	Tube Well Non-ERS	351923 m E 2957528 m N	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via link road. The number of household and population is 286 & 2000 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor near to proposed sub-project sites i.e., Bazmaal Khoso Government Boys Primary School at a distance of 738 m.
58.	Paryo Jamali R.O Plant	Tube Well Non-ERS	341222 mE 294755 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via link road. The number of household and population is 600 & 4200 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is no social sensitive receptor in the immediate vicinity of proposed sub-project sites.
D	**Taluka Mehar Water Supply Schemes**			
59.	Water supply scheme Masoo Jalbani	Tube Well Non-ERS	392606 mE, 3008595 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Mehar-Radhan road. The number of household and population is 666 & 4664 respectively. The area is surrounded by the agricultural fields and settlements at a

No.	Schemes	Source and Status	Coordinates	Site Description
				distance. There are a few social sensitive receptors near to proposed sub-project sites like educational and healthcare facility i.e., Government Primary School Wali Muhammad Gorar and Basic Health Unit Tharri Mohbbatat a distance of 627m and 1.4 km. A canal is flowing adjacent to proposed sub-project site.
60.	Water supply scheme Bago Tewano	Tube Well ERS	381077 mE, 3008021 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road. The number of household and population is 441 & 3086 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project sites like educational facility i.e., Govt Girls and Boys School Essa Khan Mahesar at a distance of 305 m.
61.	Water supply scheme Qazi Arif	Tube Well ERS	381415 mE, 3008165 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road. The number of household and population is 952 & 6663 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
62.	Water supply scheme Loung Tunio	Tube Well ERS	380136 mE, 3015202 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via link road. The number of household and population is 441 & 3086 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
63.	Water Supply Scheme Muhammad Hassan Chandio	Tube Well Non-ERS	366144 mE, 3008021 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via link road. The number of household and population is 301 & 2104 respectively. The area is surrounded by the agricultural fields and settlements at a distance.

No.	Schemes	Source and Status	Coordinates	Site Description
				There are no social sensitive receptors near to proposed sub-project sites.
64.	Water Supply Scheme Qadir Bux Rind	Tube Well Non-ERS	366148 mE, 3021409 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via link road. The number of household and population is 314 & 2200 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
65.	Water Supply Scheme Manjhy Ja Bhan	Tube Well Non-ERS	397288.29 mE, 3014397.50 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road. The number of household and population is 531 & 3720 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
66.	Water Supply Scheme Upper Aliwal	Tube Well ERS	364785 mE, 3017326 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via N55-Ghaibai Dero road. The number of household and population is 725 & 5078 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
67.	Water Supply Scheme Baledai	Tube Well Non-ERS	381826 mE, 3021018 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 601 & 4208 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
68.	Water Supply Scheme Murad Mengal	Tube Well Non-ERS	399541.67 mE, 3014163.62 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 214 &

No.	Schemes	Source and Status	Coordinates	Site Description
				1500 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor of healthcare facility i.e., BHU Seehar at a distance of 531 m from proposed sub-project sites.
69.	Water Supply Scheme Ghulam Qadir Daryani	Tube Well Non-ERS	381447 mE, 3008005 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road. The number of household and population is 350 & 2455 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor of educational facility i.e., Govt Boys School Essa Khan Mahesar at a distance of 329 m from proposed sub-project sites.
70.	Water supply scheme Sojhro Mirwani	Tube Well Non-ERS	372016 mE, 3020941 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 273 & 4909 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.
71.	Water supply scheme Bali Shah	Tube Well Non-ERS	393541.74 mE, 3016890.98 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road. The number of household and population is 601 & 4208 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. Dadu canal is flowing adjacent to proposed sub-project site.
72.	Water supply scheme Ali Mardan Jatoi	Tube Well Non-ERS	386284 mE, 3011843 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road. The number of household and population is 248 & 1739 respectively. The area is surrounded by the agricultural fields and settlements at a distance.

No.	Schemes	Source and Status	Coordinates	Site Description
				There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.
73.	Water supply scheme Kothi Khokhar	Tube Well ERS	388114 mE, 3000891 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road. The number of household and population is 475 & 3324 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project sites like educational and healthcare facility i.e., Government boys high school Sindhi butra and FWC Sindhi Butra – Hospital at a distance of 128m and 323 m respectively.
74.	Water supply scheme Gul Muhammad Jatoi	Tube Well Non-ERS	371022 mE, 3020937 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 401 & 2805 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.
75.	Water supply scheme Pipri	Tube Well Non-ERS	386698.62 mE, 3005288.56 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 291 & 2034 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal, Kakul Waah is flowing adjacent to proposed sub-project site.
76.	Water supply scheme Fareedabad	Tube Well ERS	364716 mE, 3017369 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via N55-Ghaibai Dero road. The number of household and population is 1992 & 13943 respectively. The area is surrounded by the agricultural fields and

No.	Schemes	Source and Status	Coordinates	Site Description
				settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites.
77.	Water supply scheme Saeed Pur	Tube Well Non-ERS	368845 mE, 3020857 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal link road. The number of household and population is 401 & 2805 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. Dhamrao Distributary is flowing adjacent to proposed sub-project site.
78.	Water Supply Scheme Hassanabad & Ganhwarabad	Tube Well Non-ERS	392590 mE, 3021317 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 487 & 3409 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.
79.	Water Supply Scheme Saban Balro	Tube Well Non-ERS	392517 mE, 3021350 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 244 & 1710 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.
80.	Water Supply Scheme Sojhro Gorer	Tube Well Non-ERS	392474 mE, 3021373 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 501 & 3507 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.

No.	Schemes	Source and Status	Coordinates	Site Description
81.	Water Supply Scheme Mehrab Gorer	Tube Well Non-ERS	392431 mE, 3021388 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Canal road. The number of household and population is 180 & 1262 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project sites. A canal is flowing adjacent to proposed sub-project site.
82.	Water Supply Scheme Rehan Ali Khoso	Tube Well Non-ERS	377830 mE, 3002460 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road. The number of household and population is 167 & 1170 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor near to proposed sub-project site i.e., Government Boys Middle School Kolachi at a distance of 147m. A waterbody, Kolachi distributary is flowing adjacent to proposed sub-project site.
83.	Water Supply Scheme Ghari	Tube Well ERS	382900 mE, 3001697 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road. The number of household and population is 501 & 3507 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor near to proposed sub-project site i.e., Government Boys Primary School Ghari at a distance of 498m. A waterbody is flowing adjacent to proposed sub-project site.
84.	Water Supply Scheme Betto	Tube Well Non-ERS	388784 mE, 3004118 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road from Mehar. The number of household and population is 842 & 5891 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There is only one social sensitive receptor near to proposed sub-project site i.e., Government Boys Primary School Patireji at a

No.	Schemes	Source and Status	Coordinates	Site Description
				distance of 423 m. A waterbody is flowing adjacent to proposed sub-project site.
85.	Water Supply Scheme Bothro	Tube Well Non-ERS	399625.42 mE, 3014316.80 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via link road. The number of household and population is 842 & 5106 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like healthcare facility i.e., BHU Seehar at a distance of 533 m. A waterbody is flowing adjacent to proposed sub-project site.
86.	Water Supply Scheme Loung Mehaser	Tube Well Non-ERS	380436 mE, 301083 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via N55-Ghaiabi Dero road. The number of household and population is 802 & 5611 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational and healthcare facility i.e., GBPS Allah Ditto Bhand and FWC Qazi Arif – Hospital at a distance of 480 and 594 m.
87.	Water Supply Scheme Khad Jo Goth	Tube Well Non-ERS	381478 mE, 3008022 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link road. The number of household and population is 173 & 1212 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Primary Teacher - Elementary school and Govt. Girls and Boys School Essa Khan Mahesar at a distance of 387 and 339 m. A waterbody is flowing adjacent to proposed sub-project site.
88.	Water Supply Scheme Haji Khan Khoso	Tube Well Non-ERS	389198 mE, 3010674 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link road. The number

No.	Schemes	Source and Status	Coordinates	Site Description
				of household and population is 197 & 1380 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site. A waterbody is flowing adjacent to proposed sub-project site.
89.	Water Supply Scheme Sohrab Bhatti	Tube Well Non-ERS	381465 mE, 3007985 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link road. The number of household and population is 181 & 1270 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Primary Teacher - Elementary school and Govt. Girls and Boys School Essa Khan Mahesar at a distance of 387 and 339 m. A waterbody is flowing adjacent to proposed sub-project site.
90.	Water Supply Scheme Raza Muhammad Rind	Tube Well Non-ERS	375299 mE, 3007802 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the left side via Link road. The number of household and population is 230 & 1613 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are no social sensitive receptors near to proposed sub-project site.
E	**Taluka Dadu Drainage Schemes**			
91.	Piaro Station	Drainage Scheme	381816 mE, 2981321 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Piaro road. The number of household and population is 857 & 6000 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government Primary school - Elementary school at a distance of 157m.

No.	Schemes	Source and Status	Coordinates	Site Description
F	**Taluka Johi Drainage Scheme**			
92.	Drainage scheme Bachal Khan Rind	Drainage Scheme	362648 mE, 2952503 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via N55-Johi Link road. The number of household and population is 739 & 5175 respectively. The area is surrounded by the agricultural fields and urban settlements. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government Boys Higher Secondary School Johi Dadu at a distance of 377 m.
G	**Taluka Mehar Drainage Scheme**			
93.	Drainage scheme Theba	Drainage Scheme	384148 mE, 3005048 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road from mehar. The number of household and population is 366 & 2560 respectively. The area is surrounded by the agricultural fields and urban settlements. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government primary school Goth Theba at a distance of 31 m.
94.	Drainage scheme Aghamani	Drainage Scheme	393577 mE, 3996637 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road. The number of household and population is 664 & 4650 respectively. The area is surrounded by the agricultural fields and urban settlements. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government Boys Higher Secondary School at a distance of 377 m.
95.	Drainage scheme Ahmed Pur	Drainage Scheme	387323 mE, 3001613 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road. The number of household and population is 150 & 1050 respectively. The area is surrounded by the agricultural fields and settlements at a distance.

No.	Schemes	Source and Status	Coordinates	Site Description
				There are a few social sensitive receptors near to proposed sub-project sites like educational and healthcare facility i.e., Government boys high school Sindhi butra and FWC Sindhi Butra – Hospital at a distance of 666 m and 829 m respectively.
96.	Drainage scheme Nau Goth	Drainage Scheme	401691 mE, 3000892 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Link road from Mehar. The number of household and population is 985 & 6895 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project sites like educational facility i.e., Govt.Boys High School Campus Noun Goth at a distance of 689 m.
97.	Drainage scheme Radhan	Drainage Scheme	395623.16 mE 3005677.27 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side via Radhan to Shah Panjo Road. The number of household and population is 754 & 5277 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project sites like educational and healthcare facility i.e., GBPS Shed Engine - Primary school and FWC Radhan Village – Hospital at a distance of 1.4 Km and 1.7 Km.
98.	Drainage scheme Kolachi	Drainage Scheme	377984 mE, 3003102 mN	The proposed site is located in District Dadu, it can be easily accessible by National Highway N55 on the right side. The number of household and population is 801 & 5611 respectively. The area is surrounded by the agricultural fields and settlements at a distance. There are a few social sensitive receptors near to proposed sub-project sites like educational facility i.e., GBPS Safar lakhiar – School at a distance of 1Km.

1.3 Sub-Projects Information

1.3.1 Brief introduction to the sub-project, its geographical location, components, and benefits.

The subproject sites are situated in District Dadu, Sindh, within the Government territory, specifically under the jurisdiction of the Public Health Engineering Department (PHED). The district has four Talukas; Dadu Taluka, Johi Taluka, Khairpur Nathan Shah, and Mehar Taluka. The aim is to rehabilitate and restore the water supply and drainage systems that were damaged or destroyed by the floods in 2022. These efforts will prioritize the selected water supply infrastructure, ensuring its recovery. Currently, the community in District Dadu has been suffering from a lack of safe drinking water due to high salinity as well as water contaminations and living in unhygienic conditions due to inadequate collection and treatment of storm water, which has led to the complete destruction of the drainage system.

The proposed subproject intends to address these issues by rehabilitating the water supply and drainage schemes to a resilient level. This will guarantee a continuous provision of safe drinking water to the community, while also ensuring the proper collection, treatment, and disposal of storm water in an environmentally friendly manner. The primary source of drinking water in the district is underground and surface water both. The water is extracted from underground or nearby canals using pumps and stored in Low Surface Reservoirs (LSRs) before being distributed to the community.

The aforementioned district lacks the presence of nearby main canals, sub-canals, or main distributary channels, resulting in the installation of bore water wells. To identify areas with access to abundant and good-quality water, there arises a requirement for conducting an Electric Resistivity Survey (ERS). In close alignment with the ERS findings and community water demands, the design phase ensued. New water sources, typically adjacent canals or watercourses, were identified and integrated into existing infrastructure. In cases where existing distribution networks were damaged, new pumping stations and distribution networks will be established.

The drinking water will undergo analysis in a recommended laboratory, and precautionary measures will be taken based on the results. surface water in the form of canals are available in some areas/schemes covered by the subproject. Overall, the proposed project aims to create a healthier environment in the area and uplift the socioeconomic conditions of the residents by providing them with safe water and employment opportunities for the locals.

1.3.2 Details about existing conditions of the area/facility and proposed scope of rehabilitation works.

The water supply and drainage schemes were not up to mark as almost all structures have been damaged by flood, 2022. The tube wells, pumping stations, distribution network and LSRs have been badly affected. As a result of which, the people of District Dadu are facing scarcity of safe drinking water. Comprehensive surveys have been conducted by the expert to monitor the sites and assessed the damages and restoration of infrastructures. Rehabilitation of damaged infrastructure will provide the capacity and efficiency for uninterrupted safe drinking water supply to the community.

Currently, community of District Dadu is living in unhygienic condition as drainage system has been broken-down and blocked in flood, 2022. The sewage disposal ponds (SDPs) including pumping stations and drainage network have also been affected. The damages have been assessed through proper survey and rehabilitation work is being made part of Sub-projects PC-1 of District.

The flood damaged the Water Supply and Drainage Schemes which affected the community. The community has been deprived by drinking water facility. Due to broken lines and blockages in the drainage lines wastewater stagnate in the area after rain causes disturbance to the residents. The stagnant

water provides breeding grounds to mosquitoes and flies which serve as vector of many diseases in the area. At some places, water supply lines are passing beside the storm water drains which also affect the quality of drinking water. Due to unavailability or insufficient supply of water, community have to fetch water from far flung areas and from pumping stations which creates social stress. Security and privacy of the local people has been disturbed as well. There is a need to rehabilitate the existing damaged water supply and drainage schemes in order to resolve the socioeconomic issues of the sub project area. The sub-project areas are located in different areas of District Dadu, the schemes and systems are operated under the Government territory. The activity involves in the subproject is restoration and rehabilitation of damaged Water Supply and Drainage Schemes of District Dadu.

i. Flora of Sub-Project Area

The major trees observed along the roads and canal banks include gum Arabic or khumbat (*Acacia Senegal*), kikar or babul (*Acacia nilotica*), jand or kandi (*Prosopis cineraria*), forest fire or lahura (Tecomella undulata), ber (Zizyphus nummularia), mukul mirrh (*Commiphora wightii*), karir (*Capparis deciduas*) mostly. However, other species were also observed during surveys were harmal (*Rhazya stricta*), phalsa or raisin bush (*Grewia tenax*), mallow raisin (*Grewia villosa*), wild asparagus (*Asparagus capensis* and *Asparagus gharoensis*), tooth brush tree or miswak (*Salvadora persica* L.), wild cinnamon (*Senna holosericea*), prostrate sandmate (*Euphorbia prostrata*), dwarf palm or peesh (*Nannorrhops ritichieana*), and vann or peelu (*Salvadora oleoides*).

Important crops are wheat, rice, cotton, sugarcane, maize, barley, jowar, bajra, gram, sesame, tobacco, masoor, rapeseed, mustard, canola, sunflower, gowar seed, sugar beet, linseed, and safflower.[1].

[1] https://pakistanalmanac.com/sindh-dadu/#1633475204112-95409b75-4cec

ii. Fauna of the Sub-Project Area

The animal species has been disturbed due to increase in population of the subproject areas except domestic animals no other specie has been found during surveys.

The avifauna includes doves, striped bunting, finches, larks, hoopoe, shrikes, and wheatears, Green beater, Bank Myna, common babblers are found during survey.

1.3.3 Socio-Economic Condition of the Sub-Project Area

The total population of the district Dadu is 1,550,266 persons with 66% literacy rate[2]. Majority of the population of the district is Muslim. The culture life of the Muslims is greatly influenced by the Islamic way of life. After Muslims, Hindus, Christians and Ahmadis also hold great confidence in the district. The languages mostly spoken in District are Sindhi, Balochi, Punjabi, Saraiki and Urdu. However, Urdu is understood amongst all the population of district. The economy of Dadu is mainly based on Agriculture with its allied Livestock Breeding, Fishing & Hunting (56%), Elementary Occupations (30%), Others (14%). Major industries in the district Dadu are Agriculture, Forestry, Fishing & Hunting (57%), Community, Social & personal Services (30.1%) and other activities (15.3%) [3].

1.3.4 Explain, whether this is purely rehabilitation of existing facilities or will involve any new works

The subproject involves rehabilitation of damaged Drainage and Water Supply Schemes of the existing utilities which are being operated by the PHED. No new work is involved under sub-project scope.

1.3.5 Are consultations with stakeholders conducted?

The social and environmental specialist of construction supervisory consultation-CSC held series of consultation meetings with the local community and relevant stakeholders, residents of the sub-project areas in August and November, 2023. The field team visited the nearby communities briefed salient features of the sub-projects to get the views of the communities who could be affected and beneficiaries. Social Sensitive Receptors like religious structures (mosques, shrines and graveyards), basic/rural health centers (BHU/RHC), hospitals, schools, cultural and archeological aspects etc. were observed during the survey. The indirect impacts on the receptors have been evaluated at 200 meters' buffer zone of the proposed sub-project sites. Most of the social receptors are located in an urban settlement and far away from proposed sub-project sites hence would not be affected by project activities. The community was

[2] https://www.pbs.gov.pk/census-2017-district-wise/results/084

[3] https://pakistanalmanac.com/sindh-dadu/#1633475204112-95409b75-4cec

very blissful by the rehabilitation work carried out by the involvement of the Govt. of Sindh. They appreciated for taking up the initiative of rehabilitation and restoration of damaged water supply and drainage schemes. The team assured that all the concerns raised by them would be addressed. Mitigation measures will be proposed to minimize the impacts during rehabilitation activities. According to the community, the rehabilitation works would provide them safe and sufficient drinking water and ensure safe disposal of wastewater. The detailed concerns of community are described in the section 3 of this ESSR.

The damaged utilities are owned by the PHED of District Dadu. Consultation with Line Department have also been completed. The subprojects were installed in Government owned land and no additional land will be acquired for rehabilitating the sub-projects.

1.3.6 Will this sub-project involve any ancillary impact/ activity away from the work site?

There is no secondary impact in the sub-project areas. All the impacts are minor, temporary and site specific during the rehabilitation/restoration phase. The project falls under the category C which creates minor or low environmental impacts limited to rehabilitation/restoration phase.

1.3.7 Timeframe for starting and completion of sub-project

The subproject will be started in June, 2024 and will be completed in June, 2025.

1.3.8 Drainage and Water Supply Schemes Design and Demand details

The main rehabilitation or restoration components of water supply schemes are transmission main, low surface reservoir tanks (LSR), existing water storage reservoirs, pump house, staff quarters, water filtration tanks, alternate energy source i.e. (solar system) and compounds walls. The drainage schemes include the rehabilitation of collection drains, screening chambers, collecting tanks, pumping machinery, and drainage disposal pipes.

The capacities of these structures have been designed with respect to population sizes including future growth pattern and water demand & supply of proposed subproject areas. The drawings and typical cross sections of components are provided in **Annexure-2**. However, the current and future drainage generation capacities and water supply demand are given in **Table-2** and **Table-3.**

The tentative details of major equipment, machineries and manpower that will be utilized for upgrading existing structures during rehabilitation works are given below **(Table-1)** However, exact number and quantities will be finalized at the stage of engaging contractors for bids based on the volume of work.

Table 1: Details of Equipment/Machineries and Manpower for Rehabilitation Works

Equipment/Machineries	Quantity	Manpower
Small Concrete Mixers	02	**Skilled:**
Generators	01	Mason, Steel Fixer, Plumber, Electrician,
Dewatering Pumps	02	Carpenter, Machine Operators etc.
Excavators	01	**Unskilled:**
Dumpers	02	Labors, Security Guards etc.
Tractor Trolley	02	
Bowser	01	

Table 2: Population Size and Wastewater Generation of District Dadu Drainage Schemes

Description	Total Population	Per Capita Sanitation Generation	Sanitation Generation	Total Population	Per Capita Sanitation Generation	Sanitation Generation	Total Population	Per Capita Sanitation Generation	Sanitation Generation
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	GPCD	GPD	Person	GPCD	GPD	Person	GPCD	GPD
E. Taluka Dadu Drainage Schemes									
Piaro Station Drainage Scheme	6,000	8.8	52800.0	6,212	8.8	54664.2	9,585	8.8	84345.8
F. Taluka Johi Drainage Schemes									
Drainage scheme Bachal Khan Rind	5,175	8.8	45540.0	5,358	8.8	47147.8	8,267	8.8	72748.2
G. Taluka Mehar Drainage Scheme									
Drainage scheme Theba	2,560	8.8	22528.0	2,650	8.8	23323.4	4,089	8.8	35987.5
Drainage scheme Aghamani	4,650	8.8	40920.0	4,814	8.8	42364.7	7,428	8.8	65368.0
Drainage scheme Ahmed Pur	1,050	8.8	9240.0	1,087	8.8	9566.2	1,677	8.8	14760.5
Drainage scheme Nau Goth	6,895	8.8	60676.0	7,138	8.8	62818.2	11,014	8.8	96927.3
Drainage scheme Radhan	5,277	8.8	46437.6	5,463	8.8	48077.1	8,430	8.8	74182.1
Drainage scheme Kolachi	5,611	8.8	49376.8	5,709	8.8	50240.9	8,963	8.8	78877.3

Table 3: Population Size and Water Supply Demand of District Dadu Water Supply Schemes

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
A. Taluka K.N Shah Water Supply Schemes									
Faqir Muhammad Birhmani WSS	1,700	11	18700.0	1,760	11	19360.2	2,716	11	29872.5
Lal Bux Wadha WSS	8,312	11	91432.0	8,605	11	94660.1	13,278	11	146058.7
Chhutta WSS	2,275	11	25025.0	2,355	11	25908.5	3,634	11	39976.4
Chhore WSS	2,100	11	23100.0	2,174	11	23915.6	3,355	11	36901.3
Andriya Taga WSS	1,712	11	18832.0	1,772	11	19496.9	2,735	11	30083.3
Loung Rahooja WSS	2,100	11	23100.0	2,174	11	23915.6	3,355	11	36901.3
Burira WSS	3,250	11	35750.0	3,365	11	37012.2	5,192	11	57109.1
Sanghar WSS	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Bugg WSS	2,750	11	30250.0	2,847	11	31318.0	4,393	11	48323.1
Khair Muhammad Baladi WSS	1,620	11	17820.0	1,677	11	18449.2	2,588	11	28466.7
Mian Naseer Muhammnad Kalhoro WSS	2,687	11	29557.0	2,782	11	30600.5	4,292	11	47216.0
Gharhi WSS	2,200	11	24200.0	2,278	11	25054.4	3,514	11	38658.5
Zangi Birohi WSS	1,500	11	16500.0	1,553	11	17082.6	2,396	11	26358.0
Mir Muhammad Mashori WSS	1,600	11	17600.0	1,656	11	18221.4	2,556	11	28115.3
Ramzan Babar WSS	1,400	11	15400.0	1,449	11	15943.7	2,236	11	24600.8

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Mado Tube wells Site WSS	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Khan Pur WSS	14,625	11	160875.0	1,882	11	20704.1	23,363	11	256991.0
Asraf Gadhi WSS	1,450	11	15950.0	1,760	11	19360.2	2,316	11	25479.4
Chhandan Wara Burira WSS	2,425	11	26675.0	8,605	11	94660.1	3,874	11	42612.2
Abduullah Khoso WSS	1,575	11	17325.0	2,355	11	25908.5	2,516	11	27675.9
Ahmed Khan Khoso WSS	1,712	11	18832.0	2,174	11	23915.6	2,735	11	30083.3
Suhrab Bughio WSS	1,818	11	19998.0	1,772	11	19496.9	2,904	11	31946.0
B. Taluka Dadu Water Supply Schemes									
Lahbar Water Supply Scheme	600	11	6600.0	621	11	6833.0	958	11	10543.2
Darrah Water Supply Scheme	700	11	7700.0	725	11	7971.9	1,118	11	12300.4
Baloch Leghari Water Supply Scheme	2,912	11	32032.0	3,015	11	33162.9	4,652	11	51169.8
Water Supply Scheme Pir Mashaikh	1,625	11	17875.0	1,682	11	18506.1	2,596	11	28554.6
Water Supply Scheme Piaro Goth	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Water Supply Scheme Hazur Khan Chandio	800	11	8800.0	828	11	9110.7	1,278	11	14057.6
Water supply scheme Piaro Station	6,000	11	66000.0	6,212	11	68330.2	9,585	11	105432.2

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Water Supply Scheme Ibrahim Panhwar	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Water Supply Scheme Ghulam Hyder Hingoro	3,000	11	33000.0	3,106	11	34165.1	4,792	11	52716.1
Water Supply Scheme Badani	1,500	11	16500.0	1,553	11	17082.6	2,396	11	26358.0
C. Taluka Johi Water Supply Schemes									
Water Supply Scheme Chinjani	2,000	11	22000.0	2,071	11	22776.7	3,195	11	35144.1
Drigh Bala Water Supply Scheme	5,500	11	60500.0	5,694	11	62636.0	8,786	11	96646.2
Haji Khan Water Supply Scheme	4,000	11	44000.0	4,141	11	45553.5	6,390	11	70288.1
Water Supply Scheme Khuda Bux Solangi	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Phulji Village Water Supply Scheme	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Unit Muhabat Qambrani Water Supply Scheme &	750	11	8250.0	776	11	8541.3	1,198	11	13179.0
Sawiro Water Supply Scheme	3,350	11	36850.0	3,468	11	38151.0	5,351	11	58866.3
Qasim Rodhrani Water supply scheme	600	11	6600.0	621	11	6833.0	958	11	10543.2

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Golo Faqir Water supply scheme	1,310	11	14410.0	1,356	11	14918.8	2,093	11	23019.4
Hafiz Jamali Water Supply Scheme	1,337	11	14707.0	1,384	11	15226.2	2,136	11	23493.8
Unit Muhammad Ali Jamali Water Supply Scheme	1,187	11	13057.0	1,229	11	13518.0	1,896	11	20858.0
Unit Joosani Jamali Water Supply Scheme	1,340	11	14740.0	1,387	11	15260.4	2,141	11	23546.5
Uris Leghari Water Supply Scheme	3,875	11	42625.0	4,012	11	44129.9	6,190	11	68091.6
Wahi Pandhi City Water Supply Scheme	5,875	11	64625.0	6,082	11	66906.7	9,385	11	103235.7
Sahib Khan Leghari Water supply scheme	1,875	11	20625.0	1,941	11	21353.2	2,995	11	32947.6
Adam Khan Jamali Water Supply Scheme	2,250	11	24750.0	2,329	11	25623.8	3,594	11	39537.1
Khair Muhammad Jamali Water supply scheme	2,500	11	27500.0	2,588	11	28470.9	3,994	11	43930.1
Ghulam Muhammad Ji landhi Water Supply Scheme	3,250	11	35750.0	3,365	11	37012.2	5,192	11	57109.1

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Molvi Noor Muhammad Rodhrani Water Supply Scheme	1,210	11	13310.0	1,253	11	13779.9	1,933	11	21262.2
Charo Water Supply Scheme	1,260	11	13860.0	1,304	11	14349.3	2,013	11	22140.8
Thariri Jado Shaheed Water Supply Scheme	4,000	11	44000.0	4,141	11	45553.5	6,390	11	70288.1
Mureed Babar Water Supply Scheme	3,000	11	33000.0	3,106	11	34165.1	4,792	11	52716.1
Water Supply Scheme Fazul Jamali	2,300	11	25300.0	2,381	11	26193.2	3,674	11	40415.7
Water Supply Scheme Mirza Channa	3,000	11	33000.0	3,106	11	34165.1	4,792	11	52716.1
Urban Water Supply Scheme Johi	2,000	11	22000.0	2,071	11	22776.7	3,195	11	35144.1
Paryo Jamali R.O Plant	4,200	11	46200.0	4,348	11	47831.1	6,709	11	73802.5
D. Taluka Mehar Water Supply Schemes									
Loung Mehaser Water Supply Scheme	5,611	11	61721.0	5,809	11	63900.1	8,963	11	98596.7
Water Supply Scheme Ghari	3,507	11	38577.0	3,631	11	39939.0	5,602	11	61625.1

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Kothi Khokhar Water supply scheme	3,324	11	36564.0	3,441	11	37854.9	5,310	11	58409.4
Loung Tunio Water supply scheme	3,086	11	33946.0	3,195	11	35144.5	4,930	11	54227.3
Bago Tewano Water supply scheme	3,086	11	33946.0	3,195	11	35144.5	4,930	11	54227.3
Qazi Arif Water supply scheme	6,663	11	73293.0	6,898	11	75880.7	10,644	11	117082.4
Fareedabad Water supply scheme	13,943	11	153373.0	14,435	11	158788.0	22,273	11	245006.8
Water Supply Scheme Upper Aliwal	5,078	11	55858.0	5,257	11	57830.1	8,112	11	89230.8
Water supply scheme Masoo Jalbani	4,664	11	51304.0	4,829	11	53115.4	7,451	11	81956.0
Water Supply Scheme Muhammad Hassan Chandio	2,104	11	23144.0	2,178	11	23961.1	3,361	11	36971.6
Water Supply Scheme Qadir Bux Rind	2,200	11	24200.0	2,278	11	25054.4	3,514	11	38658.5
Water Supply Scheme Manjhy Ja Bhan	3,720	11	40920.0	3,851	11	42364.7	5,943	11	65368.0
Water Supply Scheme Baledai	4,208	11	46288.0	4,357	11	47922.3	6,722	11	73943.1

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Water Supply Scheme Murad Mengal	1,500	11	16500.0	1,553	11	17082.6	2,396	11	26358.0
Water Supply Scheme Ghulam Qadir Daryani	2,455	11	27005.0	2,542	11	27958.4	3,922	11	43139.3
Water supply scheme Sojhro Mirwani	4,909	11	53999.0	5,082	11	55905.5	7,842	11	86261.1
Water supply scheme Bali Shah	4,208	11	46288.0	4,357	11	47922.3	6,722	11	73943.1
Water supply scheme Ali Mardan Jatoi	1,739	11	19129.0	1,800	11	19804.4	2,778	11	30557.8
Water supply scheme Gul Muhammad Jatoi	2,805	11	30855.0	2,904	11	31944.4	4,481	11	49289.5
Water supply scheme Pipri	2,034	11	22374.0	2,106	11	23163.9	3,249	11	35741.5
Water supply scheme Saeed Pur	2,805	11	30855.0	2,904	11	31944.4	4,481	11	49289.5
Water Supply Scheme Hassanabad & Ganhwarabad	3,409	11	37499.0	3,529	11	38822.9	5,446	11	59903.1
Water Supply Scheme Saban Balro	1,710	11	18810.0	1,770	11	19474.1	2,732	11	30048.2
Water Supply Scheme Sojhro Gorer	3,507	11	38577.0	3,631	11	39939.0	5,602	11	61625.1

Description	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand	Total Population	Per Capita Water Demand	Water Supply Demand
	2023			2025 (First Operational Year)			2050 (Last Operational Year)		
	Person	UK GPCD	GPD	Person	UK GPCD	GPD	Person	UK GPCD	GPD
Improvement & Extension for Water Supply Schemes at Various Taluka's of District Dadu									
Water Supply Scheme Mehrab Gorer	1,262	11	13882.0	1,307	11	14372.1	2,016	11	22175.9
Water Supply Scheme Reham Ali Khoso	1,170	11	12870.0	1,211	11	13324.4	1,869	11	20559.3
Water Supply Scheme Betto	5,891	11	64801.0	6,099	11	67088.9	9,411	11	103516.8
Water Supply Scheme Bothro	5,106	11	56166.0	5,286	11	58149.0	8,157	11	89722.8
Water Supply Scheme Khad Jo Goth	1,212	11	13332.0	1,255	11	13802.7	1,936	11	21297.3
Water Supply Scheme Haji Khan Khoso	1,380	11	15180.0	1,429	11	15715.9	2,204	11	24249.4
Water Supply Scheme Sohrab Bhatti	1,270	11	13970.0	1,315	11	14463.2	2,029	11	22316.5
Water Supply Scheme Raza Muhammad Rind	1,613	11	17743.0	1,670	11	18369.4	2,577	11	28343.7

1.3.9 **Would rehabilitation works done by considering the climate resilient factor?**

The restoration and rehabilitation efforts prioritize climate resilience to enhance structural durability. To ensure this, civil works have been designed based on engineering design standards and ACI codes. The main goal of the subproject is to enhance resilience through a "build back better" approach. Key elements, like the pump house and compound walls, are designed with free board to withstand floods by raising them above flood levels. To address electricity shortages in remote Sindh areas, a resilient solar power system will be mounted on elevated structures to protect against flood damage. Additionally, the use of HDPE material for the rising main ensures long-term viability.

1.3.10 Scenario if there are any alternative designs options of sub-project

Here are some alternative approaches considered earlier for water supply and drainage systems but not opted for because the scope of proposed project which is to rehabilitate the existing water supply and drainage network infrastructure. On the other hand, these options require high maintenance, less cost effective and not feasible in the current scenario.

Rainwater Harvesting: Implementing rainwater harvesting techniques can help collect and store rainwater for later use. This alternative reduces the reliance on underground sources and provides a sustainable water supply.

Grey water Recycling: Instead of disposing of grey water from sinks, showers, and washing machines, it can be treated and reused for non-potable purposes such as toilet flushing or irrigation. This approach reduces the strain on freshwater resources and promotes water conservation.

Decentralized Water Treatment Systems: Instead of relying on a centralized water treatment plant, decentralized systems can be established at the community level. These systems utilize small-scale treatment methods such as filtration, disinfection, and purification to provide safe drinking water to local residents.

Sustainable Drainage Systems (SDS): SDS employ environmentally friendly techniques to manage storm water runoff. This includes features like permeable pavements, green roofs, and rain gardens that help absorb and filter rainwater, reducing the burden on drainage systems and preventing flooding.

Water Efficiency Measures: Promoting water-efficient practices and technologies, such as low-flow fixtures, dual-flush toilets, and water-efficient appliances, can significantly reduce water consumption in households, industries, and public facilities.

Desalination: In areas where freshwater resources are scarce, desalination plants can be utilized to convert brackish into potable water. Although this option requires substantial investment and energy, it provides an alternative water source for regions facing severe water shortages.

Water Reuse and Reclamation: Implementing advanced water treatment processes can enable the reuse of treated wastewater for various non-potable applications, such as irrigation, industrial processes, and groundwater replenishment. This approach reduces the demand for freshwater resources.

Aquifer Recharge: Managed aquifer recharge involves intentionally infiltrating excess surface water into underground aquifers, replenishing depleted groundwater resources. This technique helps to stabilize water levels and improve the sustainability of water supply systems.

Community-Based Water Systems: Engaging local communities in the planning, implementation, and maintenance of water supply and drainage systems can foster a sense of ownership and ensure sustainability. This approach empowers communities to take responsibility for their water resources.

Integrated Water Management: Adopting a holistic approach that considers the entire water cycle, including water supply, wastewater treatment, storm-water management, and water conservation, can lead to more efficient and sustainable water management practices.

It's important to assess the specific conditions, needs, and feasibility of each alternative before implementing them in a particular project or region.

2 ENVIRONMENTAL AND SOCIAL SCREENING TOOLS

2.1 Environmental and Social Management Screening

Project Area	Dadu District of Sindh, Pakistan
Project Title	Sindh Flood Emergency Rehabilitation Program (SFERP), P&DD Component, Sindh
Sub-project Title	Rehabilitation of Damaged Water Supply and Drainage Schemes

Table 4: Environmental and Social Screening Checklist

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
	A. Project Siting							
1.	Adjacent to or within any environmentally sensitive areas like Archeological/Cultural heritage site, Protected Forests, Wetlands, Wildlife Sanctuaries, Game Reserves etc.?	□	√	√	□	□	□	No environmental sensitive or cultural heritage site is in the vicinity of these project areas.
2.	Adjacent to or within any Buffer zone of protected area	√	□	√	□	□	□	No buffer zone viz. a sanctuary, forest, national park in its immediate surroundings. A few wild vegetation and trees were found outside of the proposed boundaries which will not be disturbed during the project activities.
3.	Are there any potential pollution sources in water supply network?	√	□	□	√	□	□	Yes, there are few potential pollution sources in the water supply network due to poor maintenance and flood affects like damages to the

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								existing infrastructure as the structures are old and material of existing structure could not stand with flood. The construction work will solely focus on rehabilitation and improvement of the existing system.
4.	Are there any potential sources that can damage drainage network? Or Is it affected by flood?	√	□	□	√	□	□	Natural disasters like flood and intensification in the urban population are the main factors for the destruction of existing drainage network. The scope of the proposed schemes is to rehabilitate the existing drainage network to resist with floods and cater the demands properly.
5.	Is there a possibility that the project will adversely affect the local landscape?	□	√	□	□	□	□	Local landscape will not be affected by the subproject activities because it doesn't involve any work outside the boundary and establishment of new infrastructure.
6.	Is the project site or discharge area located in protected areas designated by the country's laws or international treaties and conventions?	□	√	□	□	□	□	The project sites or discharge areas are not located in protected areas designated by the country's laws or any international treaties and conventions.
	B. Potential Impacts at Construction Phase							
7.	Will construction camp site cause land clearing and tree be cutting?	□	√	□	□	□	□	No construction camp will be constructed; existing built-in structures will be utilized as camp site. Also, it will not cause any land clearing and tree cutting activity as the subproject activities will involve upgrading existing structures.
8.	Will construction works create any disturbance/ hindrance/obstruction	□	√	□	√	□	□	No such issue of mobility/accessibility issues will be caused during the sub-project development. Few vehicles on specific timings will be used

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
	for public movement/access?							during construction work which will not obstruct access routes on road. **Mitigation Measures:** • Reduce traffic speeds on all unpaved surfaces to 15 km/ hour or less. • Contractor will strictly implement speed limits and defensive driving policies. • Traffic control will be maintained work sites. • Contractor machinery and equipment will not hamper the traffic at main road and sites. • Necessary training, information will be provided to the workers regarding traffic rules.
9.	Is there any sensitive receptor (school, mosque, health unit, community very close to the scheme) that will be impacted due to construction activities?	√	□	□	√	□	□	Some social sensitive receptors might be affected indirectly due to dust, noise or construction vehicles movements but suggested mitigations will reduce it effects. **Mitigation Measures:** • GRM must be communicated to the internal staff and the general public. Community grievances will be recorded and responded to on an urgent basis. • Provision of proper safety and diversion signage, particularly at socially sensitive receptors areas; • Ensure the placement of a proper sign board that the site is restricted from the entry of irrelevant people particularly children;

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								• Timely public notification on planned construction works should be communicated to the communities; • Setting up speed limits in close consultation with the traffic police with luminescence sign boards.
10.	Will construction activities require tree cutting?	□	√	□	□	□	□	No such activity will be done and if needed then for every tree that needs to be cut down, five saplings of approved tree species will be planted, emphasizing reforestation and the replenishment of tree cover.
11.	Will construction activities result in damaging existing local roads, bridges or other infrastructure?	□	√	□	□	□	□	The Sub-project activities do not involve damage to any nearby and existing road, bridge and any other infrastructure. The rehabilitation activities are limited to the demarcated boundary of existing facilities of WS & DS.
12.	Will construction activities generate noise?	√	□	□	√	□	□	Yes, noise will be generated from various sources such as plumbing, drilling, generators, rehabilitation activities and vehicular movement that will be limited to the proposed boundary of the sub-project and nearby community will not be affected. **Mitigation Measures:** • The contractors would ensure keeping noise levels from construction vehicles and machinery to be within safe limits. • Construction activities will not be allowed at nighttime. • Noisy machines and vehicles will not be allowed to be used at the sub project sites (noise level will not be more than 85 dBA at 7.5 m distance), properly tuned machinery and vehicles will be allowed only.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								• Workers will use noise protection equipment when working in a noisy area. • Notifying and coordinating with locals adjacent to project area prior to construction to inform them of the possibility of temporary noise disruption, and how to report noise complaints in accordance with the proposed GRM. The contractor will adhere to the requirements of the mitigation plan contained in the contract documents with true spirit and regular monitored as per SEQs.
13.	Will construction activities generate dust?	√	□	□	√	□	□	There will be construction vehicles and machines which may generate dust emissions. The machinery used in rehabilitation work will be tractors and trolleys for fetching material. **Mitigation Measures:** • Regular water sprinkling will be the responsibility of the contractor at the dust generation points during construction activities. Water will also be sprinkled at vehicular and machinery movement routes and sensitive receptor's location to avoid dust spreading to the nearby community. • Necessary PPE i.e., face mask will be provided to workers. • Contractor will ensure that dust emissions due to vehicular traffic are minimized by reducing the speed. • Well maintained and tuned vehicles will be used for the transportation and disposal of material.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
14.	Will construction activities cause air pollution due to stack emissions from generators, construction machines and vehicles?	□	√	□	√	□	□	The activities include rehabilitation of damaged water and drainage schemes in which air pollution at minor extent during the rehabilitation work will be caused. **Mitigation Measures:** • The emissions from generators, (if used) and vehicular/machinery movement at the site can affect the ambient air quality at sub project sites. It will be the responsibility of the contractor to use well maintained generators and vehicles/machines to keep ambient air quality within the desired level. The contractor will be obliged to provide fitness certificate/maintenance records of the generators, vehicles and machines before deploying them at the construction sites.
15.	Will construction activities cause soil pollution?	□	√	□	□	□	□	During construction work, various mitigation measures can be employed to address soil pollution. **Mitigation Measures:** • Implementing barriers and containment systems to prevent the spread of pollutants from construction sites to surrounding soil. • Ensuring proper disposal of construction waste, including hazardous materials, to prevent soil contamination. This involves following appropriate waste management procedures and regulations. • Implementing spill prevention measures and having protocols in place to quickly respond to any accidental spills of chemicals or pollutants that could contaminate the soil.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								• Contaminated soil management: If contaminated soil is encountered during construction, proper management procedures would be followed, including containment, removal, and disposal in accordance with local regulations. • Regular monitoring: Conducting regular soil quality monitoring throughout the construction process to detect any signs of pollution and take corrective actions promptly. • Providing training to construction personnel regarding the importance of soil protection and pollution prevention measures to ensure their active participation in maintaining a pollution-free construction site. By implementing these mitigation measures, construction activities can minimize soil pollution and contribute to environmental sustainability.
16.	Will construction activities generate construction debris?	√	□	□	√	□	□	Yes, as the sub-project will involve civil works for the development of Water Supply and Drainage Schemes, which may generate a very small quantity of construction debris. **Mitigation Measures:** • The debris (rejected material) and WS&DS broken materials produced during construction would be disposed-off in Government approved/allocated disposal sites by engaging third party which is certified from SEPA. Leftover material would not be dumped into storm water drains or watercourses, because such practices can clog these man-made and natural drainage systems and cause many other problems for the residents/Local Commuters.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
17.	Will construction activities generate hazardous solid waste?	□	√	□	□	□	□	No hazardous waste will be generated during construction phase of the project.
18.	Will construction take place near to water bodies? Or cause contamination of the surface water resources	□	√	□	√	□	□	Yes, there are a few water supply schemes that are near to surface water bodies like canals. The potential impacts of water pollution during the construction can be minimized, helping to protect water resources and aquatic ecosystems in the surrounding area. **Mitigation Measures:** • Contractor must provide the following facilities at each campsite: Latrines; lined washing areas; septic tanks, and soaking pits for toilet waste. • Soak pits will be built in absorbent soil and located 250 m away from a surface water source or groundwater well. • Diesel, oil, and lubricants should be properly stored following petroleum regulations. This will be the responsibility of the contractor. • Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; • Conduct surface water quality inspection according to the Environmental and Social Management and Monitoring Plan while adhering to SEQS 2016 and WHO standards.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
19.	Will construction activities take place near wastewater/ storm water drains and how quality of wastewater will be ensured?	√	□	□	√	□	□	Yes, construction work will be performed near wastewater or storm water drains but it will only be limited to pumping station boundary. To ensure the quality of wastewater before disposing is not in the scope of work. However, wastewater quality analysis will be performed complaint to SEQS 2016 so that characteristics of wastewater could be recorded.
20.	Will construction activities result in damaging or relocating the utilities at site like electricity, gas, telecommunication etc.?	□	√	□	□	□	□	Neither relocation nor destruction of utilities will be involved in the construction scope. However, the sub-project scope is already restoration and rehabilitation of WS&DS of the proposed subproject area.
21.	Will construction activities involve excavation?	√	□	□	√	□	□	The excavation will be done for the foundation works of pump house, disposal stations/drainage works, boundary walls, collecting tanks and screening chambers. **Mitigation Measures:** • The excavation will be done carefully to avoid the damages. • Excavation area will be barricaded. • Contractor will use safety signs to warn and aware the local people during construction activities. • Contractor will be ensured availability of adequate Personal Protective Equipment (PPE) at the sub-project sites.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								• Risk assessment will be carried out by contractor before initiation of excavation work. • The contractor will ensure that all workers on site will be properly trained and certified to handle an excavation machine.
22.	Will construction involve heavy machinery?	□	√	□	□	□	□	No, despite few machines like excavators will be used for the civil works on need basis; however, the contractor will ensure safety precautions during construction phase of the sub-projects.
23.	Will construction activities/machines be the safety hazards for the workers or any anticipated OHS impacts?	√	□	□	√	□	□	Yes, Occupational Health & Safety issues are anticipated from the proposed rehabilitation work and mitigation measures have been proposed below. Risk can occur from machinery usage, vehicles, and civil work activities. General occupational hazards that may be encountered (e.g., moving machinery and motorized equipment, working at heights, repetitive motions, falling of objects, injuries etc. **Mitigation Measures:** • Ensure and strictly implement the SOPs regarding communicable diseases including daily body temperature check, PPEs, emergency response, and drills. • Unauthorized personnel will not be allowed to enter project site without permission and safety permits. • Assess the hazards associated with the required works and prepare and follow the safety procedures required for the specific works such as electrical works and works at height.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								• Provision of first aid facilities for workers at site for meeting the emergency needs of workers, and providing basic medical training to specified work staff and basic medical service and supplies to workers. • Observe and maintain standards of Health and Safety towards all employees in line with WB EHS Guidelines along with Sindh Occupational Health and Safety Law. • Contractor will install safety signs and markings to demarcate the construction zone. • Contractor will ensure provision of controlled access points for the prevention of an unauthorized access to the site. The Contractor will maintain a record of the persons who enter or exit from the sub-project site.
	C. Potential Social Impacts During Design and Construction							
24.	Will involuntary resettlement cause by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?	□	√	□	□	□	□	There will be no involuntary resettlement because sub-project sites are located in Government own land.
25.	Will there a possibility that the project adversely affects the living conditions of inhabitants?	□	√	□	√	□	□	The proposed subproject will positively impact inhabitants and improve their social wellbeing. There is no possibility that the project will adversely affect the living conditions of inhabitants.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
26.	Will the construction cause any labor issues such as labor living and working conditions?	√	□	□	√	□	□	Labor condition or rights related issues will be complied such as working hours, leaves, benefits, wages, and other related facilities like provision of foods, clean water, transportation etc. However, no labor camps are anticipated as it involves small scale activities which doesn't involve any living conditions. **Mitigation Measures:** • The Workers' Grievance Redress Mechanism (GRM) will be developed and communicated among workers to lodge complains. • Workers should be provided with clean drinking water for free.
27.	Will construction activities cause community Health and Safety issues? Or any other such impacts.	□	√	□	√	□	□	No such impacts are anticipated, though following will be applicable to the project activities. **Mitigation Measures:** • GRM must be communicated to the general public. • Close consultation with local communities to identify optimal solutions where needed. Community grievances will be recorded and responded to on an urgent basis. • Contractor shall give preference to local community members in subproject areas, to the extent feasible, with respect to the employment of unskilled labor. • No Hazardous and non-hazardous waste will be dumped outside any community.

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
								• There should be sufficient signage to warn of dangers and hazards on a construction or worksite. Signs should be clear and accompanied by ropes, cones, and other equipment to cordon off dangerous areas. • Conduct worksite inspections daily to identify any potential dangers or hazards. Dangers and hazards should be cordoned off immediately.
28.	Have contents of the project and the potential impacts been adequately explained to the Local stakeholders based on appropriate procedures, including information disclosure?	√	□	√	□	□	□	Local Stakeholders have been consulted and their comments mentioned in stakeholders' consultation have been noted which will be addressed with true spirit during construction phase.
29.	Will the construction activities cause the socio- cultural issues or conflicts among workers and communities?	√	□	□	√	□	□	• Contractor should take proper measures and raise awareness among the communities and workers to address and resolve issues relating to harassment, intimidation (particularly those related to issues of labor influx), and exploitation, especially against women. • Measures to prevent Gender based violence (GBV), Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) the Contractor must include relevant clauses in the workers' code of conduct. • Workers should not be allowed to crowd in the residential communities nearby the site.
30.	Are appropriate measures taken to	√	□	□	√	□	□	Yes, as the security guards will be deployed at subproject sites and they

S. No	SCREENING QUESTIONS	Yes	No	Impact Severity Ranking				Remarks/Mitigation Measures
				NR	1	2	3	
	ensure that security guards involved in the project not to violate safety of other individuals involved, or local residents?							are not allowed to move outside or provide entrance to anybody without permission of the site engineer.

NR: Not Relevant

1. No or Minor Impact
2. Moderate, Short Term, Reversible Impact
3. Severe, Long Term, Irreversible Impact

	Category	A	B	**C**
	Environmental Management Required	N/A	N/A	√
	Type of Environmental Management Tool to be Used	**Social and Environmental Screening Checklist**		

3 STAKEHOLDER CONSULTATION

Stakeholder consultation during a construction project is crucial for ensuring transparency, addressing concerns, and promoting collaborative decision-making.

Table 5: List of Stakeholders Consulted for Water Supply and Drainage Schemes of Dadu

No.	Schemes	Coordinates	Name of the Goth/Community	Date of Consultation
A	**Taluka K.N Shah Water Supply Schemes**			
1.	Mian Naseer Muhammnad Kalhoro	358996 mE, 2989850 mN	Qadir Bux Brohi	1/11/2023
2.	Zangi Birohi	364618 mE, 2985488 mN	Brohi Goth	1/11/2023
3.	Mir Muhammad Mashori	359452 mE, 2989560 mN	Qadir Bux Brohi	1/11/2023
4.	Lal Bux Wadha	369008 mE, 3002813 mN	Goza Goth	1/11/2023
5.	Faqir Muhammad Birhmani	370194 mE, 2982383 mN	Pir Diar Shah Colony	2/11/2023
6.	Khan Pur	369992 mE, 2986935 mN	Khanpur Goth	2/11/2023
7.	Suhrab Bughio	370075 mE, 3004064 mN	Mangwani Goth	2/11/2023
8.	Chore	366595 mE, 3004783 mN	Chorre Goth	2/11/2023
B	**Taluka Dadu Water Supply Schemes**			
9.	Water Supply Scheme Piaro Goth	380937 mE, 2975730 mN	Piaro Samo Goth	31/8/2023
10.	Water Supply Scheme Ibrahim Panhwar	380631 mE, 2975524 mN	Ibrahim Panhwar Goth	31/8/2023
11.	Water Supply Scheme Lahbar	384704 mE, 2982454 mN	Jawan Panhwar Goth	31/8/2023
12.	Water Supply Scheme Badani	372828 mE, 2947578 mN	Mangneja Phakka Goth	31/8/2023
C	**Taluka Johi Water Supply Schemes**			
13.	Water Supply Scheme Charo	362539 mE, 2945164 mN	Charo Goth	30/8/2023
14.	Water Supply Scheme Thariri Jado Shaheed	348602 mE, 2960120 mN	Thari Jadu Shaheed Goth	30/8/2023
15.	Water Supply Scheme Haji Khan	363906 mE, 2949538 mN	Goth Haji Khan	30/8/2023
16.	Water supply scheme Sahib Khan Leghari	345511 mE, 2949349 mN	Goth Sahib Khan	30/8/2023
17.	Water Supply Scheme & Unit Muhabat Qambrani	342040 mE, 2946079 mN	Goth Hashim chandio	30/8/2023
18.	Water Supply Scheme Khuda Bux Solangi	342121 mE, 2963278 mN	Miran Solangi Goth	3/11/2023
19.	Water Supply Scheme Drigh Bala	362094 mE, 2944905 mN	Goth Drigh Bala	3/11/2023
20.	Water Supply Scheme Wahi Pandhi City	336945 mE, 2949744 mN	Wahi Pandi City	3/11/2023

No.	Schemes	Coordinates	Name of the Goth/Community	Date of Consultation
21.	Water Supply Scheme Unit Muhammad Ali Jamali	344123 mE, 2948594 mN	M. Ali Jamali Goth	3/11/2023
22.	Water Supply Scheme Unit Joosani Jamali	351923 m E 2957528 m N	Moosa Khan jamali Goth	3/11/2023
23.	Urban Water Supply Scheme Johi	351923 m E 2957528 m N	Hussainabad	3/11/2023
D	**Taluka Mehar Water Supply Schemes**			
24.	Water supply scheme Bago Tewano	381077 mE, 3008021 mN	Esa Khan Mahesar Goth	4/11/2023
25.	Water Supply Scheme Qadir Bux Rind	366148 mE, 3021409 mN	Goth Qadir Bux Rind	4/11/2023
26.	Water Supply Scheme Murad Mengal	399541.67 mE, 3014163.62 mN	Seehar Station Goth	4/11/2023
27.	Water Supply Scheme Ghulam Qadir Daryani	381447 mE, 3008005 mN	Syed Goth	4/11/2023
28.	Water supply scheme Kothi Khokhar	388114 mE, 3000891 mN	Goth Sindhi Butra/Kakkar	4/11/2023
29.	Water supply scheme Gul Muhammad Jatoi	371022 mE, 3020937 mN	Goth Gul Muhammad Jatoi	4/11/2023
30.	Water supply scheme Fareedabad	364716 mE, 3017369 mN	Faridabad Goth	4/11/2023
31.	Water supply scheme Saeed Pur	368845 mE, 3020857 mN	Goth Garhi	4/11/2023
32.	Water Supply Scheme Rehan Ali Khoso	377830 mE, 3002460 mN	Kolachi Goth	4/11/2023
33.	Water Supply Scheme Betto	388784 mE, 3004118 mN	Patreji Goth	5/11/2023
34.	Water Supply Scheme Loung Mehaser	380436 mE, 301083 mN	Qazi Arif Town	5/11/2023
35.	Water Supply Scheme Raza Muhammad Rind	375299 mE, 3007802 mN	Goth Raza M Rind	5/11/2023
E	**Taluka Dadu Drainage Schemes**			
36.	Piaro Station	381816 mE, 2981321 mN	Piyaro Goth	31/8/2023
F	**Taluka Johi Drainage Scheme**			
37.	Drainage scheme Bachal Khan Rind	362648 mE, 2952503 mN	Goth Bachal Khan	30/8/2023
G	**Taluka Mehar Drainage Scheme**			
38.	Drainage scheme Theba	384148 mE, 3005048 mN	Theba Mahar Goth	5/11/2023
39.	Drainage scheme Aghamani	393577 mE, 3996637 mN	Khan Aghmani	5/11/2023
40.	Drainage scheme Ahmed Pur	387323 mE, 3001613 mN	Sindhi Butra Goth	5/11/2023
41.	Drainage scheme Nau Goth	401691 mE, 3000892 mN	Nou Goth Saeedi Moosani	5/11/2023
42.	Drainage scheme Radhan	395623.16 mE 3005677.27mN	Radhan City	5/11/2023

No.	Schemes	Coordinates	Name of the Goth/Community	Date of Consultation
43.	Drainage scheme Kolachi	377984 mE, 3003102 mN	Goth Kolachi	5/11/2023

3.1 Community Concerns

Comments /Observations	Action /Response
Questions regarding concerns and issues encountered during the monsoon season or following floods were asked by the community members.	They notified the team that the area is experiencing severe load shedding, which is a primary factor in the present water supply and drainage system's collapse. During the monsoon, most of the area is covered with stagnant water, fowl smells and the water turns quite murky and might induce stomach problems. There are rising mains concerns that need to be fixed, pumps that are broken or not functioning properly, and regular drain cleaning. Although solar panels are erected, but due to no maintenance it got dysfunctional. Community also highlighted that at most of the drainage schemes, there is no drainage lines available. Wastewater from pumping station disposed in nearby open grounds causes spreading of diseases.
Community raised point regarding basic need of the pump operators at water supply and drainage scheme i.e., to provide toilet and room facility where it is not available or in bad condition.	Site team od CSC ensured that it is already in the scope and noted during initial assessments. However, this will be provided or rehabilitated as per approved BOQ during execution phase.
Community expressed their concern regarding the sustainability and long-term upkeep of the drainage and water delivery systems.	The community was informed that the Department will guarantee operation and maintenance plans, that PHED is in charge of the project, and that any steps made to guarantee the infrastructure's long-term survival will be reported. Operational staff recruited by the GoS is present in every scheme undergoing rehabilitation.
Concerns over the overall effects of drainage and water supply plans on public health and sanitation were expressed by community members.	The community was informed of the advantages to their health that come with having better access to clean water, and efficient drainage systems. The community's specific health problems will be handled appropriately by installation of Hypo-chlorinator, and steps taken to guarantee public safety will be outlined.

Comments /Observations	Action /Response
Discussion regarding the importance and usefulness of rehabilitation of water supplies and drainage schemes was held.	The proposed water supply and drainage schemes will improve the socioeconomic status of the area by rehabilitating drainage schemes and offer clean drinking water, according to the approved scope of work.
Stakeholders/ Local Community members asked about the operations and maintenance of Water Supply & Drainage Schemes.	The team responded that safe drinking water will be provided to the community without any interruption and Public health Engineering Department (PHED) will be responsible for operations and maintenance.
Local Community inquired about the project execution and its completion.	In response, the technical team stated that the project will start in June 2024 and be finished in June 2025. The proposed project area's current facilities will be the only ones undergoing repair, and it will be finished in a year.
The community urged to provide of semi-skilled and unskilled jobs for local labor.	Locals will be given preference for unskilled works during construction.
Typically, women in the sub-project area retrieve water from pumping stations. Some residents expressed concern that the privacy of the surrounding communities might not be violated, particularly in cases when the villages are close to or adjacent to pumping stations.	It was clarified that local labor would be employed to complete the project, and all staff members would be subject to limitations in order to protect people's privacy and local customs. There would be no labor interaction with women or children. And if community continue to have problems, they can contact SFERP GRC via email or at the toll-free number displayed at each scheme with project information board.
Concerns from the community were also expressed over the possibility of noise, dust, traffic jams, and brief service outages resulting from construction projects related to drainage and water supply.	Community was assured that these disruptions will be minimized to the extent possible, provide a clear timeline of the construction activities, and communicate any alternative arrangements made to mitigate inconveniences.
Community had reservations about the proper maintenance of rehabilitated system and no availability of resources.	Community was informed that after rehabilitation works the system will be handed over to PHED who do proper maintenance and resource utilization.
The community asked for a comprehensive needs assessment to be conducted in order to pinpoint the shortcomings and challenges in drainage and water supply plans, as well as to address other concerns including the availability of health and education	The community was informed that the proposed subproject will be carried out following a thorough needs assessment and an evaluation of the flood damage. Additionally, it was disclosed that budget will be available for the restoration of drainage and water infrastructure, but the construction contractor would be urged to take

Comments /Observations	Action /Response
facilities, simple access to water supplies, and, if feasible, metaled access routes.	appropriate steps to fulfill their corporate social duty.

Sr. No	Department
1.	XEN PHED Department
2.	Deputy Director SEPA
3.	Representative of Municipal Administrator

Hatin' Chandio, Taluka johi, District Dadu

Village Kakar Taluka, Mehar, District Dadu

Ibrahim Panhwar Goth, Taluka District Dadu

Mangwani Goth, Taluka K.N. Shah, District Dadu

Figure 3: Stakeholders Consultation

3.2 Institutional Consultation

The Environment and Social team conducted consultations with concerned Government Department in November, 2023. The team briefed the officers of Government Departments regarding the salient features of the proposed sub-projects. It was informed that the "Detailed Design of the Project, under PIU-SFERP-P&DD being implemented and funded by the World Bank. They were informed that the project intends to rehabilitate the damaged Water Supply and Drainage Schemes destroyed in flood 2022. The primary goal of the project is to meet the present and future requirements regarding provision of safe drinking water and drainage system. It was also briefed that the project will bring positive impacts on the lives of the local population.

According to the officials, the rehabilitation/restoration of the proposed Schemes will be beneficial for the residents of the project regions. The officials expressed their support for the planned project during the meeting and assured their full cooperation as a Line Department.

Table 6: Summary of Concerns Raised by Institutional Stakeholders

Comments/Observations	Actions/ Responses
The majority of the participants involved had favorable opinions on the restoration of drainage and water supply systems.	The participants were largely in support of the project and agreed that it is desperately needed given the situation of the water supply and drainage schemes after the devastating floods of 2022.
Detailed discussions were held regarding the environmental and social issues of the area due to proposed rehabilitation activity.	The inhabitants, local flora, and fauna won't be negatively impacted by the project. The project is located on land owned by the government, and during the project's constructing phase, no significant social or environmental problems are anticipated. To counteract environmental deterioration, mitigating strategies will be suggested.
According to the stakeholders, if the proposed project is executed appropriately and with an effective team, it will improve the socioeconomic status of the community in the project areas.	The team acknowledged and responded that the proposed Water Supply and Drainage Schemes will be beneficial for community residing in the area. The living standard of the community would be elevated after rehabilitation of the schemes.
The stakeholders suggested that care must be given to protect biodiversity of the area during the construction phase and construction waste should not be disposed-off in nearby surroundings.	The plantation would be undertaken with the preference of local species; no exotic species will be promoted. No cutting of trees will be involved during the execution of the project activities. Plantation activity will be done around the boundary wall to enhance aesthetic beauty of the project area. It will be monitored to cut minimum number of trees. At few sites, trees will be cut or chopped and 1:10 trees will be planted in compensation and the Line Department would be responsible for caring the newly planted trees after construction phase. CSC team ensured that Construction debris would be disposed only at TMA lands and other materials will be handed over to SEPA certified waste contractors.
The Stakeholder shows their concern regarding the impacts during the construction stage on waste management and land acquisition	CSC team briefed that all type of waste would be handled properly as stated by SEPA through TMA approved lands and certified waste contractors. There are no issues regarding land acquisition, the land is vacant and owned by the Government. If the issues occur, then these matters will be dealt with Revenue Department.
The stakeholders suggested to engage local people during project activities and take care of local customs and traditions during construction.	The teams responded that locals will be considered during construction activities while during operation priority will be given to the locals if not available then will be sourced from other regions. Privacies would be

Comments/Observations	Actions/ Responses
	ensured. It was also assured that norms, ethics and traditions of community will not be disturbed.
	
	

Figure 4: Institutional Consultation

4 ENVIRONMENTAL AND SOCIAL MANAGEMENT & MONITORING PLAN

The purpose of the ESMMP for the rehabilitation works is to ensure that all necessary identified measures should be adopted during construction and operation phase for all schemes to protect the environment and social situations and to comply with the country's environmental and social legislation and applicable World Bank standards. After the preparation of ESMF, PIU has outlined site-specific EMP for the Contractors and executing agency.

Table 7: Environmental and Social Management and Monitoring Plan (ESMMP)

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
1.	**Land Use**	**Construction Phase** Civil Works **Operation Phase** None	- The work will be carried out in the land of PHED which comprised of rehabilitation work only. - No need to clear land or cutting of trees is envisaged.	NA	None
2.	**Dust Emission**	**Construction Phase** Movement of construction vehicles. **Operation Phase** None	- Water will be sprinkled daily or when as required to avoid the dust emission near proposed project vicinity. - For dust control, cordon off the construction area through dust control net.	Daily during Construction Phase	**Construction phase** Contractor
3.	**Noise Emission**	**Construction Phase** Construction Equipment, Generator, Vehicle Movement **Operation Phase** None	- Proper design, maintenance and repair of construction machinery and equipment will be ensured.	Twice a month during Construction Phase	**Construction phase** Contractor

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
4.	**Water Management**	**Construction Phase** Construction activities Water sprinkling for dust minimization **Operation Phase** Supply of water and maintaining its quality will be managed by the PHED	- Contractor will handle and manage waste generated from the construction activities without contamination to natural environment/water bodies and it will reduce risk to general public who stay close to sites. - Water contamination during construction will be avoided through proper disinfection. - Excess use of water will be avoided and monitored in routine basis. - Water Tankers/water bowsers and bore water will be proposed for the utilization of water during project activities. - Clean and safe drinking water will be provided to the workers during working hours.	- Daily during Construction Phase - Water quality analysis at the beginning and end of construction phase	**Construction phase** Contractor **Operational phase** PHED
5.	**Ecological Impact**	**Construction Phase** Construction activities Clearance of top Soil No habitat loss	- As the subproject develops, plantation is grown in and around the subproject vicinity as a CSR.	None	None

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
		No tree cutting at site **Operation Phase** None			
6.	**Solid Waste Management**	**Construction Phase** In construction phase, cement bags, woods remain, debris will be generated. **Operation Phase** Food Waste and Recyclables Material like; paper, plastic etc.	- Waste reduction methodologies will be implemented. - On spot segregation will be ensured. - Covered bins shall be ensured. - Separate Bins for recyclable material and other type of solid waste shall be ensured. - Ensure the disposal of waste properly from the site on daily basis to avoid odor and maintained the site esthetics. - Food waste will be disposed of separately. - Waste inventory of hazardous and non-hazardous waste generated will be prepared and periodically updated. - Scrap metal waste generated from designing and construction	Daily during Construction Phase	**Construction phase** Contractor **Operational phase** PHED

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
			activities will be collected and stored separately in a waste yard and sold to local recyclers for reuse purposes. - Solid waste generated during construction and operation activities will be segregated disposed of appropriately. - Waste will be disposed of properly at designated disposal area. - Food waste and recyclables viz. paper, plastic, glass etc. will be stored in designated waste bins /containers. The recyclables will be periodically sold to local recyclers while food waste will be disposed through proper waste handling mechanism. - Separate bins with symbols shall be placed at construction area. - Secondary containment shall be ensured to avoid the leakages and seepages. - Waste disposal will not be allowed in agriculture lands.		

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
7.	**Soil and Land Contamination**	**Construction Phase** No any chemical or hazardous substance is used in the construction phase therefore there is no chance of soil or land contamination **Operation Phase** None	- Debris, Waste generated from construction material will be properly covered and stored and disposed-off periodically during the construction phase. No leftover construction waste will be left on the site. Maintenance of machinery will only be carried out at designated places to avoid any fuel spill if require. - Reinstate and protect cleared areas as soon as possible. - Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turnings/tree plantations. - Locate stockpiles away from drainage lines. - Remove debris from drainage paths and sediment control structures. - Keep the final or finished surface of all the raised lands free from any kind of depression that causes water logging. - Reinstate the natural landscape of	Weekly during Construction Phase	**Construction phase** Contractor **Operational phase** PHED

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
			the ancillary construction sites after completion of works.		
8.	**Waste Water**	**Construction Phase** Water used in the construction material during preparing bed and lean activity, construction of pump house, septic tanks, LSRs and other works **Operation Phase** Sanitary waste water from the office	- Conduct daily inspections at the site to ensure removal of construction debris. - Store construction material containing fine particles in an enclosure so that sediment laden water does not drain into nearby water drains. - Sanitary waste will be drained to the drainage system properly.	- Visual inspection on daily basis during Construction Phase - Wastewater quality analysis at the beginning and end of construction phase	**Construction phase** Contractor
9.	**Safety Hazards**	**Construction Phase** Project related vehicular traffic Driving Injuries related with civil works and electrical works Heat Waves Cold Waves Communicable Diseases	- Ensure the World Bank EHS guideline will be followed. - Personal Protective Equipment will be provided during construction to the workers. - First Aid kits will be provided at sites. - Strict code of conduct will be followed. - Make safety precautions and display on the notice board of entry	Daily during Construction and operation phase	**Construction phase** Contractor **Operational phase** PHED

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
			gate in both national and local language.		
		Operation Phase Injuries during Operational phase	- During heat wave, working hours will be revised to make sure that labor work force work only in early hours or late evening hours. - Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly. - Adjustment of work and rest periods according to temperature stress management procedures such as providing easy access to adequate hydration such as drinking water or electrolyte drinks depending on the temperature and workloads. - Providing temporary shelters to protect against the elements during working activities or for use as rest areas. - Implementation of health and hygiene practices to mitigate the communicable diseases.		

Sr. No.	Activity	Potential Impacts	Mitigation Measures	Monitoring & Reporting Frequency	Responsibility
10.	**Socio-Economic Environment**	**Construction Phase** Traffic and vehicle movement Noise generated form subproject activities Labor requirement form the nearby area Occupational health & safety issue of working labor **Operation Phase** Employment opportunities Awareness to local people to emergency situation Gender Issues, Gender inclusion GBS and VAC related impacts	- Plan temporary traffic arrangements during construction within the construction area. Review the plan periodically with respect to site conditions. - Give special consideration to local traffic management. - Take adequate precautions to prevent danger from electrical equipment (switches and wiring). - Provide a readily available first aid unit including an adequate supply of sterilized dressing material and appliances. - GRM shall be develop and ensure the accessibility to the local community and labor.	**Construction Phase** GRM for labor and community	**Construction phase** Contractor **Operational phase** PHED

5 PICTORIAL PROFILE OF PROJECT SITES

5.1 Aghamani Drainage Scheme, Taluka Mehar, District Dadu

5.2 Hafiz Jamali Water Supply Scheme, Taluka Johi, District Dadu

5.3 Mian Naseer Muhammad kalhoro WSS, Taluka K.N. Shah, District Dadu

5.4 Payro Jamali R.O Plant, Taluka District Dadu

6 ENVIRONMENTAL AND SOCIAL IMPLEMENTATION BUDGET

There are total 74 schemes in District Dadu in which 08 are Drainage Schemes and 90 are water supply schemes. Environmental Quality Analysis for Air Quality Monitoring, Testing of Water and Wastewater Quality and Noise Level monitoring will be conducted at each sub-project site at the start and at completion of the sub-projects. The detail of cost has been given in table below. It is worthy to mention here that sub-projects are located in Government owned land and there will be no resettlement or land acquisition issues during the rehabilitation work.

Table 8: Environmental Compliance Cost

Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
A. Environmental Analysis at Start of Civil Works								
1	Wastewater	1 Sample from Each Drainage Scheme	Once at the Start of Construction	17,000	1	8	8	136,000
2	Drinking Water	One Sample from each water supply scheme		15,000	1	90	90	1,350,000
3	Ambient Air	1 Sample from each subproject scheme		15,000	1	98	98	1,470,000
4	Ambient Noise	1 Sample from each subproject scheme		1,000	1	98	98	98,000
							Sub Total - A	**3,054,000**
B. Environmental Analysis Cost at Completion Phase (12 months)								
1	Drinking Water	One from camp area at each water supply scheme site	Once at the End of Construction	15,000	1	90	90	1,350,000
2	Wastewater	1 Sample from Each Drainage Scheme		17,000	1	8	8	136,000
3	Generators/Stack Emission (If available)	One Sample from construction site		10,000	1	98	98	980,000
4	Ambient Air	One from the camp area		15,000	1	98	98	1,470,000
5	Ambient Noise	One from the camp area		1,000	1	98	98	98,000
6	Mobilization Charges	At each water supply and drainage scheme		10,000	1	98	98	980,000
							Sub Total - B	**5,014,000**
C. EHS Management								
1	Personal Protective Equipment		Bi annual	6,000	1	25	25	150,000
2	Waste Disposal from Construction Sites						Lump sum	100,000
3	Project dissemination materials such as banners, flayers, notice board etc.			10000	1	98	98	980,000
							Sub Total - C	**1,230,000**

Item No.	Item	Rational	Frequency	Average Rate (Rs.)/unit*	Site-wise Quantity	No of units/sites	Total Quantity	Estimated Amount (Rs.)
D. EHS Administrative Cost								
1	Training/Capacity Building (Environment, Social, Gender, & OHS)		50 persons	20,000	1	98	98	1,960,000
2	Social Expert (for social compliance & GRM implementation) Salary			120,000	12	1	12	1,440,000
3	GRM running & General Community support needs (if any)						Lump sum	500,000
4	Environmental & OHS Officer Salaries (120 thousand for each person)			120,000	12	1	12	1,440,000
							Sub Total - D	**5,340,000**
							TOTAL OF (A TO D)	**14,638,000**

*** Schemes wise testing will be performed at start of civil works**

7 OPERATION AND MAINTENANCE (O&M)

Operation and maintenance (O&M) of Water Supply (WS) and Drainage Systems is a critical task that ensures the continued provision of safe and reliable water and drainage services to communities. O&M activities can be divided into two main categories: preventive maintenance and corrective maintenance.

Preventive maintenance is carried out on a regular basis to prevent problems from occurring. This includes activities such as cleaning and inspecting pipes, valves, and other equipment; lubricating the moving machines etc. Corrective maintenance is carried out to address problems that have already occurred. This includes activities such as repairing broken pipes, replacing damaged equipment, and clearing blockages in drainage systems. In addition, the PHED should also ensure timely procurement of disinfectant chemicals for disinfection of the water and keep a sufficient stock of such chemicals so that there is no interruption in making the water safe for human consumption.

O&M of WS and Drainage Systems is a complex and challenging task. It requires a skilled workforce, a well-maintained inventory of spare parts, and a comprehensive set of procedures and documentation. However, the benefits of effective O&M are significant. By preventing problems from occurring and addressing problems quickly, O&M can help to ensure the continued provision of safe and reliable water services to communities. After completion of rehabilitation work, the project will be handed over to the PHED who will operate and maintain the project. PHED department has technical staff for operation and maintenance of proposed rehabilitation schemes. Moreover, GoS yearly allocates substantial budget for operation and maintenance of these schemes. After rehabilitation these schemes will be operationalized under PHED through its O&M section which is adequately staffed with required skills and expertise. Training of these staff would be required to operate new machinery installed during rehabilitation.

7.1 Key aspects of O&M for WSS and Drainage systems:

7.1.1 Operation:

i. Regular monitoring of water sources, such as reservoirs, wells, or treatment plants, to ensure a consistent water supply.

ii. Operation of pumps, valves, and control systems to regulate the flow of water through the distribution network.

iii. Monitoring and maintaining water pressure levels within acceptable limits.

iv. Disinfecting the water all the times prior to supplying to the consumers.

v. Managing water quality, including regular testing and treatment to ensure compliance with health and safety standards.

vi. Coordinating with the local community and consumers to address their water supply needs and concerns.

7.1.2 Maintenance

i. Routine inspection of pipelines, valves, and fittings to identify and repair leaks, cracks, or any other damages.

ii. Clearing blockages in pipelines, channels, and drains to maintain an unobstructed flow of water.

iii. Cleaning and desilting of reservoirs, tanks, and drainage channels to prevent sedimentation and maintain capacity. After every cleanup operation, the tanks, reservoirs and / or pipelines must be disinfected prior to putting them back to use.

iv. Repair and maintenance of water treatment plants, pumping stations, and other infrastructure components.

v. Regular calibration and maintenance of measuring instruments and control systems.

vi. Periodic maintenance of equipment such as pumps, motors, and generators.

7.1.3 Emergency Response

i. Developing contingency plans and emergency response protocols to address unexpected events such as equipment failures, natural disasters, or water contamination incidents.

ii. Establishing a communication system to notify the public and relevant authorities in case of emergencies.

iii. Rapid response and repair of damages during emergencies to restore the system's functionality as quickly as possible.

7.1.4 Water Conservation

i. Implementing water conservation measures, such as promoting public awareness campaigns, encouraging responsible water usage, and identifying and repairing water wastage points.

ii. Monitoring and managing water losses and leakages in the distribution network.

iii. Regular assessment and optimization of the system to reduce energy consumption and improve overall efficiency.

7.1.5 Data Management

i. Maintaining comprehensive records of system performance, maintenance activities, and water quality data.

ii. Utilizing data analysis and predictive modeling to optimize the operation and maintenance activities.

iii. Incorporating modern technologies, such as remote sensing, real-time monitoring systems, and data analytics, to improve decision-making and efficiency.

7.1.6 Documentation and Handover

i. Compile project documentation (operation and maintenance manuals, as-built drawings, warranties).

ii. Hand over documentation to the PHED for future reference.

7.1.7 Facilities Management

i. Establish a comprehensive facilities management plan.

ii. Outline responsibilities, protocols, and schedules for maintenance, inspections, repairs, and upgrades.

7.1.8 Staffing and Training

i. Increase adequate staffing.

ii. Provide necessary training for personnel deputed for O&M.

iii. Increase maintenance technicians, engineers, custodial staff, security personnel, and administrative support.

7.1.9 Preventive Maintenance

i. Implement a preventive maintenance program.

ii. Conduct regular inspections, cleaning, lubrication, adjustments, and equipment testing.

7.1.10 Repairs and Corrective Maintenance

i. Respond promptly to issues and conduct repairs.

ii. Establish an inventory of spare parts.

iii. Maintain relationships with reliable contractors or suppliers.

7.1.11 Safety and Compliance

i. Enforce safety protocols.

ii. Conduct regular inspections and provide safety training.

iii. Ensure compliance with relevant codes and regulations.

7.1.12 Energy Efficiency and Sustainability

i. Promote energy efficiency and sustainable practices.

ii. Implement energy management systems.

iii. Optimize equipment performance.

iv. Utilize renewable energy sources and green building practices.

7.1.13 Asset Management

i. Track and monitor equipment and systems.

ii. Maintain an asset inventory.

iii. Conduct periodic assessments and plan for replacements or upgrades.

7.1.14 Stakeholder Communication

i. Establish clear communication channels.

ii. Receive and address maintenance requests.

iii. Maintain effective communication with stakeholders.

7.1.15 Continuous Improvement

i. Regularly evaluate and seek feedback.

ii. Analyze maintenance records.

iii. Conduct user surveys.

iv. Involve the maintenance team in identifying areas for improvement.

7.1.16 Cleaning and maintenance of solar system

i. Regularly clean solar panels to remove dust, debris, and dirt.

ii. Inspect for any damage or wear and tear on the panels.

iii. Check the wiring and connections for any loose or damaged parts.

iv. Monitor the performance of the solar system to ensure it is generating the expected amount of energy.

v. Conduct preventive maintenance such as tightening bolts and screws, and replacing faulty components.

vi. Schedule professional inspections and maintenance by qualified solar technicians.

vii. Keep records of cleaning and maintenance activities for future reference.

viii. Follow manufacturer's guidelines and recommendations for cleaning and maintenance.

ix. Consider scheduling cleaning during periods of low sunlight or in cooler temperatures for safety reasons.

x. Ensure the safety of personnel when performing maintenance tasks on the solar system.

7.1.17 Regular maintenance and monitoring of Hypo-chlorinator

i. Routine inspections: Conduct regular inspections of the hypo-chlorinator system to identify any visible signs of damage, leaks, or malfunctions. Inspect all components, including injection systems, pipes, valves, and storage tanks.

ii. Calibration of equipment: Calibrate the hypo-chlorinator equipment periodically to ensure accurate dosing or injection of chlorine. Follow the manufacturer's guidelines for calibration procedures and frequency.

iii. Replacement of parts: Replace worn-out or damaged parts of the hypo-chlorinator system as needed. This may include valves, seals, gaskets, tubing, or other components. Use genuine manufacturer-approved parts for replacements.

iv. Monitoring chlorine levels: Regularly monitor chlorine levels in the water supply to ensure that the desired disinfection levels are being maintained. This can be done through manual sampling and testing or by using automated monitoring systems. Adjust the hypo-chlorinator settings if necessary to achieve the desired chlorine concentration.

v. System optimization: Continuously assess the performance of the hypo-chlorinator system and optimize its operation for efficiency and effectiveness. This may involve adjusting dosing rates, ensuring proper mixing of chlorine, optimizing contact time, and considering factors such as water temperature and flow rate.

vi. Documentation: Maintain detailed records of maintenance activities, inspections, calibrations, and chlorine monitoring results. This documentation serves as a reference for future maintenance, helps track system performance, and aids in regulatory compliance.

vii. Training and awareness: Regularly train and update the personnel responsible for operating and maintaining the hypo-chlorinator system. Ensure they are aware of proper maintenance procedures, safety protocols, emergency response measures, and any updates or changes in regulations.

7.1.18 PHED Responsibility

i. PHED solely responsible for operation and maintenance.

ii. Customize O&M plans for long-term success.

Overall, O&M of WSS and Drainage System requires a combination of technical expertise, regular monitoring, preventive maintenance, and prompt response to ensure the uninterrupted supply of clean water and effective wastewater management. The Public Health Engineering Division (PHED) would

typically be responsible for the operation and maintenance of public infrastructure projects related to Water Supply and Drainage System. They would be the primary entity overseeing the operation and maintenance activities to ensure the functionality and sustainability of the constructed assets. By considering these aspects and implementing effective O&M practices, the project can function optimally and provide long-term benefits to its users and stakeholders.

7.2 Key benefits of effective O&M of WSS and Drainage Systems

i. **Improved water quality:** O&M activities can help to prevent the contamination of water supplies, which can lead to waterborne diseases.

ii. **Increased water availability**: O&M activities can help to reduce leakages and improve the efficiency of water distribution systems, which can lead to increased water availability for communities.

iii. **Reduced flooding:** O&M activities can help to prevent flooding by clearing blockages in drainage systems and improving the capacity of storm water management systems.

iv. **Improved public health:** O&M activities can help to prevent the spread of waterborne diseases by improving the quality of water supplies and reducing the risk of flooding.

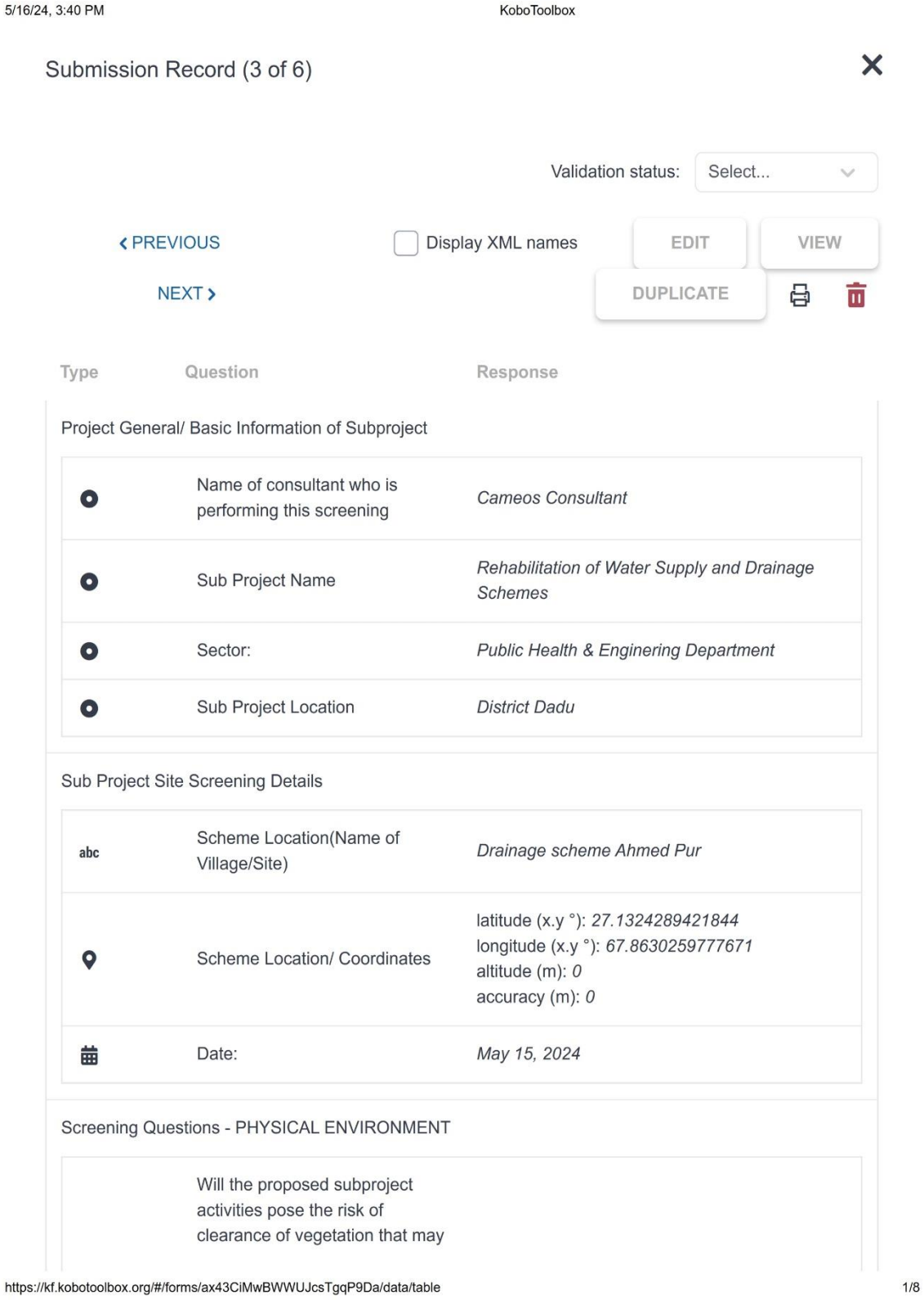
v. **Increased property values:** Communities with well-maintained WSS and drainage systems typically have higher property values.

The cost of O&M can be significant, but the benefits far outweigh the costs. By investing in effective O&M, communities can ensure the continued provision of safe and reliable water services to their residents.

ANNEXURE 1:

Environmental & Social Screening Checklist of All Schemes of District Dadu

Annexure 1: Environmental & Social Screening Checklist of All Schemes of District Dadu



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Submission Record (3 of 6)

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Type	Question	Response
Project General/ Basic Information of Subproject		
	Name of consultant who is performing this screening	*Cameos Consultant*
	Sub Project Name	*Rehabilitation of Water Supply and Drainage Schemes*
	Sector:	*Public Health & Enginering Department*
	Sub Project Location	*District Dadu*
Sub Project Site Screening Details		
abc	Scheme Location(Name of Village/Site)	*Drainage scheme Ahmed Pur*
	Scheme Location/ Coordinates	latitude (x.y °): *27.1324289421844* longitude (x.y °): *67.8630259777671* altitude (m): *0* accuracy (m): *0*
	Date:	*May 15, 2024*
Screening Questions - PHYSICAL ENVIRONMENT		
	Will the proposed subproject activities pose the risk of clearance of vegetation that may	

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⊙	result in an increase in the level of suspended solids washing into nearby water bodies?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities pose a risk of contaminating drinking water sources due to construction activities?	*No*
abc	Remarks	
⊙	Is there any potential pollution source in water supply network?	*No*
abc	Remarks	
⊙	Is there any potential source that can damage drainage network? Or Is it affected by flood?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions deplete groundwater because of the water used during rehabilitation activities?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in an increase in ambient air pollution, including chemical and particulate matter due to the construction and operation of related machinery?	*Yes*
abc	Remarks	
	Will the proposed subproject interventions result in an increase in ambient noise levels	

⊙	and vibrations due to the operation of construction machinery/vehicles?	*Yes*
abc	Remarks	
⊙	Will these ambient noise levels be beyond the specifications in the SEQS?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities lead to increased soil erosion?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in the generation of hazardous and/or non-hazardous waste?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions result in potentially increased health risks for subproject workers and communities (e.g., communicable diseases)?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions being implemented in an area with high natural hazard risk? (e.g., floods, earthquakes, droughts, etc.)	*No*
abc	Remarks	

Screening Questions- ECOLOGICAL ENVIRONMENT

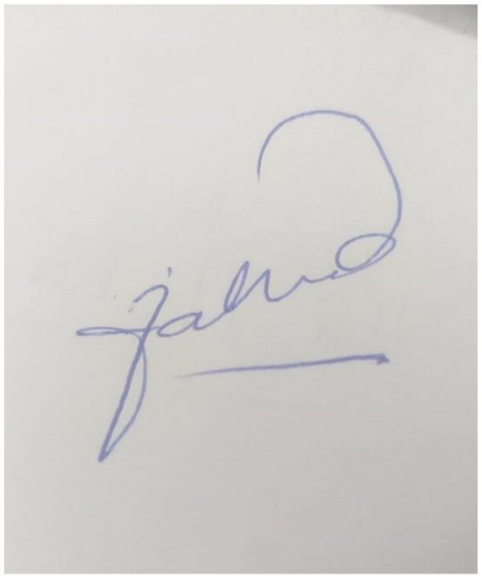
⊙	Will the proposed subproject interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services?	*No*
abc	Remarks	
⊙	Will any rehabilitation work be located in areas that would promote the conversion of natural habitats?	*No*
abc	Remarks	
⊙	Will any proposed subproject interventions be located on or near sensitive environmental areas, including national parks and protected areas?	*No*
abc	Remarks	*There are a few social sensitive receptors near to proposed sub-project sites like educational and healthcare facility i.e., Government boys high school Sindhi butra and FWC Sindhi Butra – Hospital at a distance of 666 m and 829 m respectively.*
⊙	Are the proposed subproject interventions activities likely to pose risks to any endangered species?	*No*
abc	Remarks	

Screening Questions- SOCIAL ENVIRONMENT

⊙	Will the proposed subproject activities involve land acquisition?	*No*
abc	Remarks	
	Are there any forced labor or child labor risks associated with	

⊙	contractors or other third parties involved in implementing this proposed subproject intervention?	*No*
abc	Remarks	
⊙	Is labor influx (outside labor force) expected during the construction of the proposed subproject?	*No*
abc	Remarks	
⊙	Will local labor be used for the proposed subproject construction activities?	*Yes*
abc	Remarks	
⊙	Will there be any temporary or permanent displacement as a result of the proposed subproject construction or operation activities?	*No*
abc	Remarks	
⊙	Are there expected to be any traffic-related issues as a result of the proposed subproject intervention activities, particularly during the construction phase?	*No*
abc	Remarks	
⊙	Are the proposed subproject activities likely to have impacts on important religious/cultural heritage sites?	*No*
abc	Remarks	
	Have there been any past security-related issues at the	

⊙	proposed subproject sites?	*No*
abc	Remarks	
⊙	Has stakeholder engagement taken place in the proposed subproject areas?	*Yes*
abc	Remarks	*The community also raised concerns about the construction activities associated with water supply and drainage schemes can cause disruptions to daily life, including noise, dust, traffic congestion, and temporary service interruptions.*
⊙	Were vulnerable groups involved in stakeholder consultations? (e.g., women, minorities, economically disadvantaged individuals, etc.)	*Yes*
abc	Remarks	*Yes. Females were concerned about their mobility for daily purposes during construction.*
🖼	Site Photo	

	Signature	
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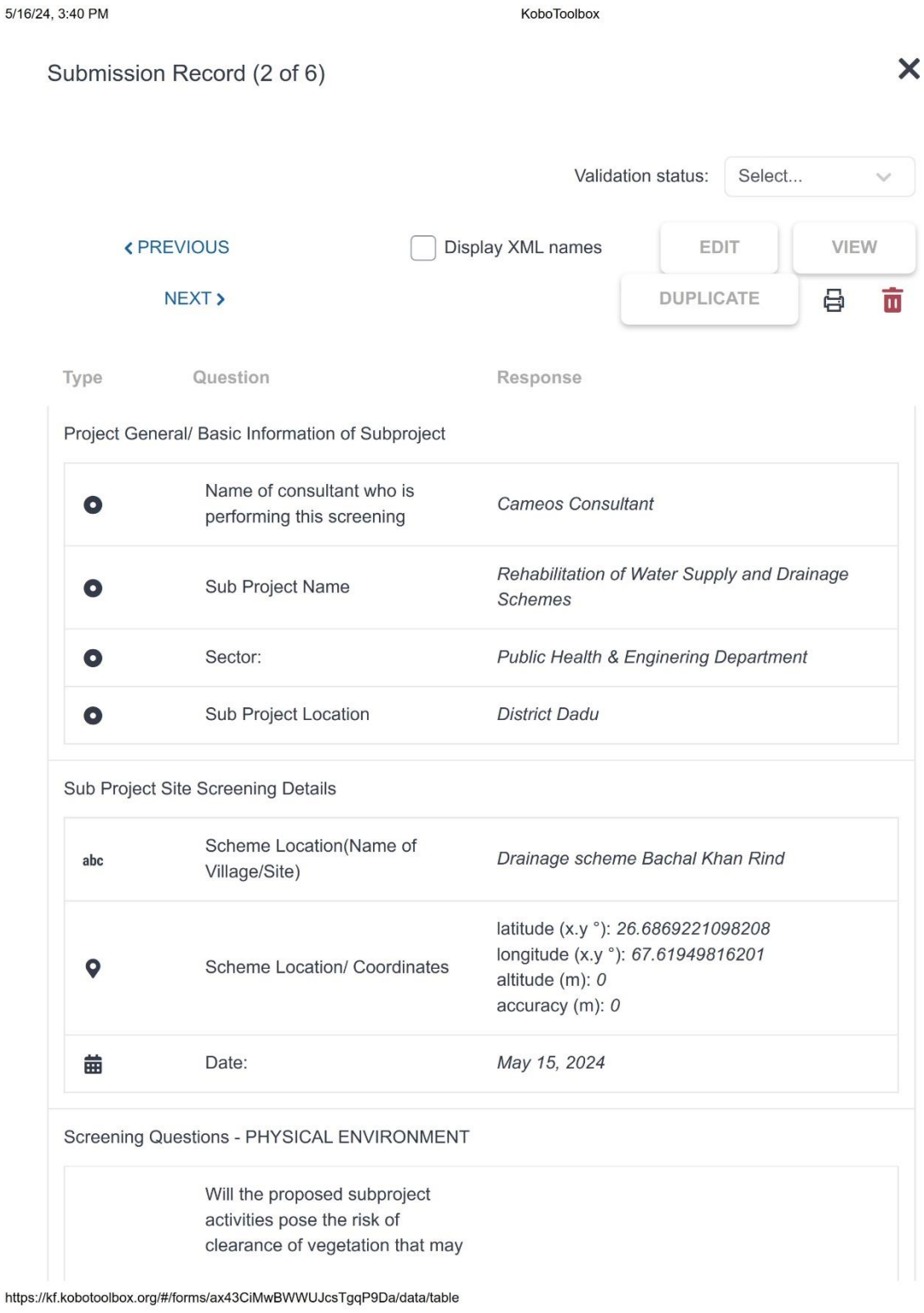

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Submission Record (2 of 6)

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Type	Question	Response
Project General/ Basic Information of Subproject		
	Name of consultant who is performing this screening	*Cameos Consultant*
	Sub Project Name	*Rehabilitation of Water Supply and Drainage Schemes*
	Sector:	*Public Health & Enginering Department*
	Sub Project Location	*District Dadu*
Sub Project Site Screening Details		
abc	Scheme Location(Name of Village/Site)	*Drainage scheme Bachal Khan Rind*
	Scheme Location/ Coordinates	latitude (x.y °): *26.6869221098208* longitude (x.y °): *67.61949816201* altitude (m): *0* accuracy (m): *0*
	Date:	*May 15, 2024*
Screening Questions - PHYSICAL ENVIRONMENT		
	Will the proposed subproject activities pose the risk of clearance of vegetation that may	

https://kf.kobotoolbox.org/#/forms/ax43CiMwBWWUJcsTgqP9Da/data/table 1/8

⊙	result in an increase in the level of suspended solids washing into nearby water bodies?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities pose a risk of contaminating drinking water sources due to construction activities?	*No*
abc	Remarks	
⊙	Is there any potential pollution source in water supply network?	*No*
abc	Remarks	
⊙	Is there any potential source that can damage drainage network? Or Is it affected by flood?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions deplete groundwater because of the water used during rehabilitation activities?	
abc	Remarks	
⊙	Will the proposed subproject interventions result in an increase in ambient air pollution, including chemical and particulate matter due to the construction and operation of related machinery?	*Yes*
abc	Remarks	
	Will the proposed subproject interventions result in an increase in ambient noise levels	

⊙	and vibrations due to the operation of construction machinery/vehicles?	*Yes*
abc	Remarks	
⊙	Will these ambient noise levels be beyond the specifications in the SEQS?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities lead to increased soil erosion?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in the generation of hazardous and/or non-hazardous waste?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions result in potentially increased health risks for subproject workers and communities (e.g., communicable diseases)?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions being implemented in an area with high natural hazard risk? (e.g., floods, earthquakes, droughts, etc.)	*No*
abc	Remarks	

Screening Questions- ECOLOGICAL ENVIRONMENT

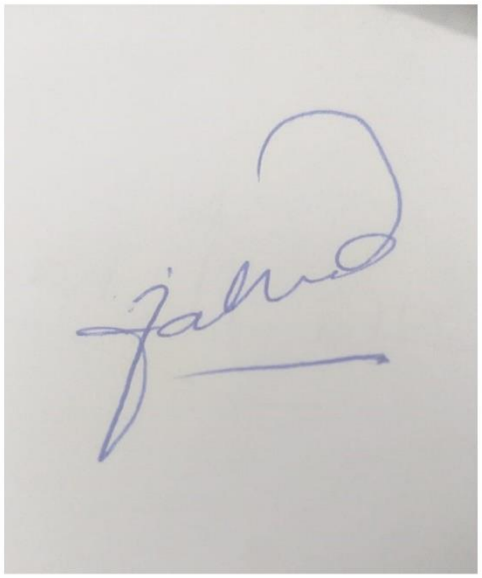
⊙	Will the proposed subproject interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services?	*No*
abc	Remarks	
⊙	Will any rehabilitation work be located in areas that would promote the conversion of natural habitats?	*No*
abc	Remarks	
⊙	Will any proposed subproject interventions be located on or near sensitive environmental areas, including national parks and protected areas?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions activities likely to pose risks to any endangered species?	*No*
abc	Remarks	*There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government Boys Higher Secondary School Johi Dadu at a distance of 377 m.*

Screening Questions- SOCIAL ENVIRONMENT

⊙	Will the proposed subproject activities involve land acquisition?	*No*
abc	Remarks	
	Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this	

⊙	proposed subproject intervention?	*No*
abc	Remarks	
⊙	Is labor influx (outside labor force) expected during the construction of the proposed subproject?	*No*
abc	Remarks	
⊙	Will local labor be used for the proposed subproject construction activities?	*Yes*
abc	Remarks	
⊙	Will there be any temporary or permanent displacement as a result of the proposed subproject construction or operation activities?	*No*
abc	Remarks	
⊙	Are there expected to be any traffic-related issues as a result of the proposed subproject intervention activities, particularly during the construction phase?	*Yes*
abc	Remarks	
⊙	Are the proposed subproject activities likely to have impacts on important religious/cultural heritage sites?	*No*
abc	Remarks	
⊙	Have there been any past security-related issues at the proposed subproject sites?	*No*

abc	Remarks	
◉	Has stakeholder engagement taken place in the proposed subproject areas?	*Yes*
abc	Remarks	*The community also raised concerns about the construction activities associated with water supply and drainage schemes can cause disruptions to daily life, including noise, dust, traffic congestion, and temporary service interruptions*
◉	Were vulnerable groups involved in stakeholder consultations? (e.g., women, minorities, economically disadvantaged individuals, etc.)	*Yes*
abc	Remarks	*Yes. Females were concerned about their mobility for daily purposes during construction*
🖼	Site Photo	

	Signature	
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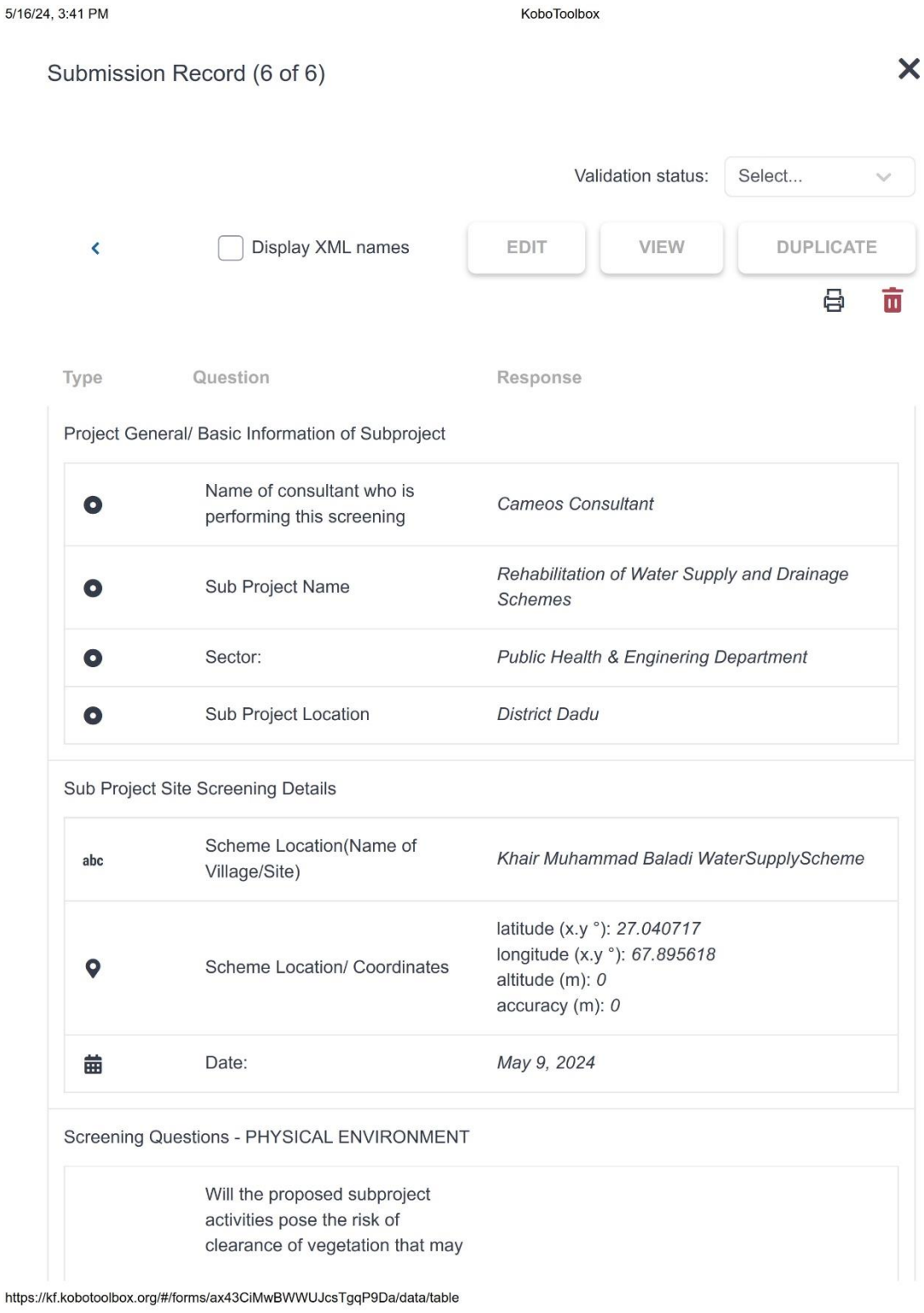
	Submitted by	

SFERP- ENVIROMENTAL ... 173 submissions



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Submission Record (6 of 6)

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	Name of consultant who is performing this screening	*Cameos Consultant*
	Sub Project Name	*Rehabilitation of Water Supply and Drainage Schemes*
	Sector:	*Public Health & Enginering Department*
	Sub Project Location	*District Dadu*
Sub Project Site Screening Details		
abc	Scheme Location(Name of Village/Site)	*Khair Muhammad Baladi WaterSupplyScheme*
	Scheme Location/ Coordinates	latitude (x.y °): *27.040717* longitude (x.y °): *67.895618* altitude (m): *0* accuracy (m): *0*
	Date:	*May 9, 2024*
Screening Questions - PHYSICAL ENVIRONMENT		
	Will the proposed subproject activities pose the risk of clearance of vegetation that may	

https://kf.kobotoolbox.org/#/forms/ax43CiMwBWWUJcsTgqP9Da/data/table 1/8

⊙	result in an increase in the level of suspended solids washing into nearby water bodies?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities pose a risk of contaminating drinking water sources due to construction activities?	*No*
abc	Remarks	
⊙	Is there any potential pollution source in water supply network?	*No*
abc	Remarks	
⊙	Is there any potential source that can damage drainage network? Or Is it affected by flood?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions deplete groundwater because of the water used during rehabilitation activities?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in an increase in ambient air pollution, including chemical and particulate matter due to the construction and operation of related machinery?	*Yes*
abc	Remarks	
	Will the proposed subproject interventions result in an increase in ambient noise levels	

⊙	and vibrations due to the operation of construction machinery/vehicles?	*Yes*
abc	Remarks	
⊙	Will these ambient noise levels be beyond the specifications in the SEQS?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities lead to increased soil erosion?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in the generation of hazardous and/or non-hazardous waste?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions result in potentially increased health risks for subproject workers and communities (e.g., communicable diseases)?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions being implemented in an area with high natural hazard risk? (e.g., floods, earthquakes, droughts, etc.)	*No*
abc	Remarks	

Screening Questions- ECOLOGICAL ENVIRONMENT

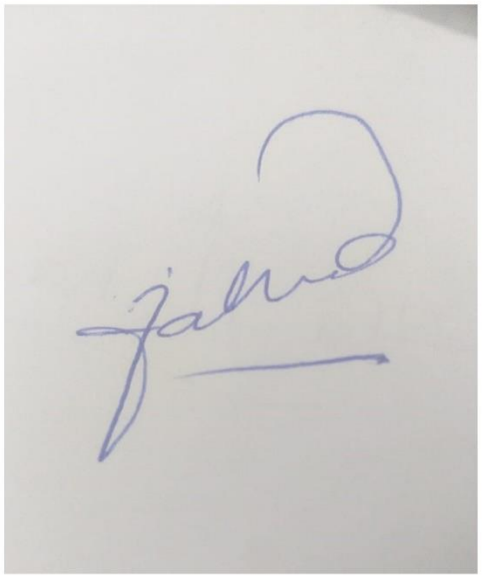
⊙	Will the proposed subproject interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services?	*No*
abc	Remarks	
⊙	Will any rehabilitation work be located in areas that would promote the conversion of natural habitats?	*No*
abc	Remarks	
⊙	Will any proposed subproject interventions be located on or near sensitive environmental areas, including national parks and protected areas?	*No*
abc	Remarks	*Dadu canal is flowing adjacent to proposed sub-project site.*
⊙	Are the proposed subproject interventions activities likely to pose risks to any endangered species?	*No*
abc	Remarks	

Screening Questions- SOCIAL ENVIRONMENT

⊙	Will the proposed subproject activities involve land acquisition?	*No*
abc	Remarks	
⊙	Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this	*No*

	proposed subproject intervention?	
abc	Remarks	
◉	Is labor influx (outside labor force) expected during the construction of the proposed subproject?	*No*
abc	Remarks	
◉	Will local labor be used for the proposed subproject construction activities?	*Yes*
abc	Remarks	
◉	Will there be any temporary or permanent displacement as a result of the proposed subproject construction or operation activities?	*No*
abc	Remarks	
◉	Are there expected to be any traffic-related issues as a result of the proposed subproject intervention activities, particularly during the construction phase?	*Yes*
abc	Remarks	
◉	Are the proposed subproject activities likely to have impacts on important religious/cultural heritage sites?	*No*
abc	Remarks	
◉	Have there been any past security-related issues at the proposed subproject sites?	*No*

abc	Remarks	
◉	Has stakeholder engagement taken place in the proposed subproject areas?	*Yes*
abc	Remarks	*Yes, community requested to resolve the specific health and hygiene challenge in the community due to stagnant water*
◉	Were vulnerable groups involved in stakeholder consultations? (e.g., women, minorities, economically disadvantaged individuals, etc.)	*Yes*
abc	Remarks	*Yes, some female members share hygiene issues due to unavailability of drainage system especially on monsoon and after it.*
🖼	Site Photo	

	Signature	
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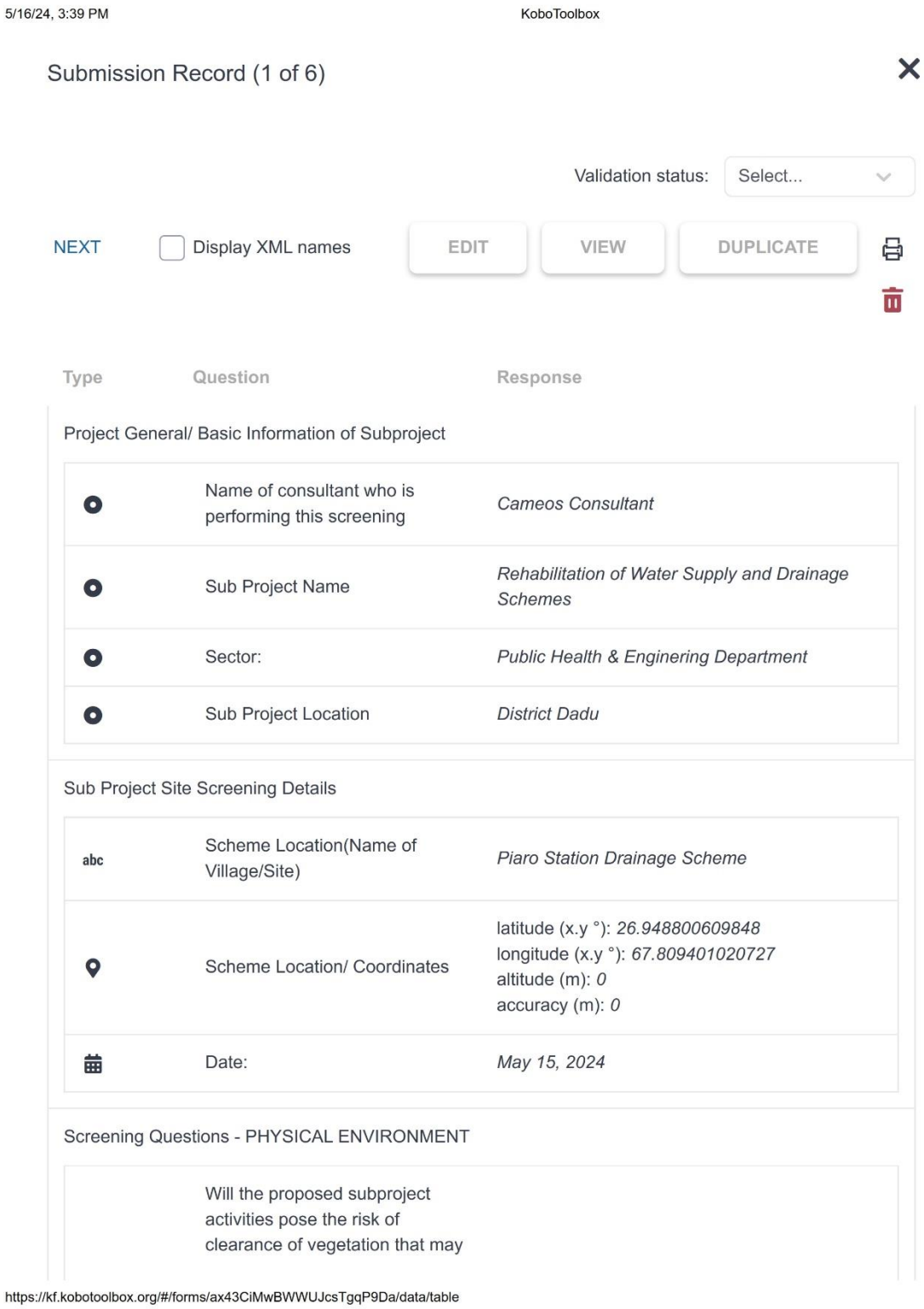
SFERP- ENVIROMENTAL ... 173 submissions



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Submission Record (1 of 6)

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	Sub Project Name	*Rehabilitation of Water Supply and Drainage Schemes*
	Sector:	*Public Health & Enginering Department*
	Sub Project Location	*District Dadu*
Sub Project Site Screening Details		
abc	Scheme Location(Name of Village/Site)	*Piaro Station Drainage Scheme*
	Scheme Location/ Coordinates	latitude (x.y °): *26.948800609848* longitude (x.y °): *67.809401020727* altitude (m): *0* accuracy (m): *0*
	Date:	*May 15, 2024*
Screening Questions - PHYSICAL ENVIRONMENT		
	Will the proposed subproject activities pose the risk of clearance of vegetation that may	

https://kf.kobotoolbox.org/#/forms/ax43CiMwBWWUJcsTgqP9Da/data/table 1/8

⊙	result in an increase in the level of suspended solids washing into nearby water bodies?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities pose a risk of contaminating drinking water sources due to construction activities?	*No*
abc	Remarks	
⊙	Is there any potential pollution source in water supply network?	*No*
abc	Remarks	
⊙	Is there any potential source that can damage drainage network? Or Is it affected by flood?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions deplete groundwater because of the water used during rehabilitation activities?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in an increase in ambient air pollution, including chemical and particulate matter due to the construction and operation of related machinery?	*Yes*
abc	Remarks	
	Will the proposed subproject interventions result in an increase in ambient noise levels	

⊙	and vibrations due to the operation of construction machinery/vehicles?	*Yes*
abc	Remarks	
⊙	Will these ambient noise levels be beyond the specifications in the SEQS?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities lead to increased soil erosion?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in the generation of hazardous and/or non-hazardous waste?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions result in potentially increased health risks for subproject workers and communities (e.g., communicable diseases)?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions being implemented in an area with high natural hazard risk? (e.g., floods, earthquakes, droughts, etc.)	*No*
abc	Remarks	

Screening Questions- ECOLOGICAL ENVIRONMENT

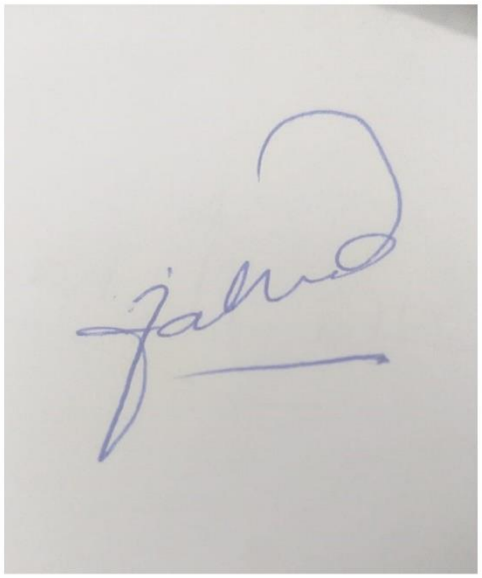
⊙	Will the proposed subproject interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services?	*No*
abc	Remarks	
⊙	Will any rehabilitation work be located in areas that would promote the conversion of natural habitats?	*No*
abc	Remarks	
⊙	Will any proposed subproject interventions be located on or near sensitive environmental areas, including national parks and protected areas?	*No*
abc	Remarks	*There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government Primary school - Elementary school at a distance of 157m.*
⊙	Are the proposed subproject interventions activities likely to pose risks to any endangered species?	*No*
abc	Remarks	

Screening Questions- SOCIAL ENVIRONMENT

⊙	Will the proposed subproject activities involve land acquisition?	*No*
abc	Remarks	
	Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this	

⊙	proposed subproject intervention?	*No*
abc	Remarks	
⊙	Is labor influx (outside labor force) expected during the construction of the proposed subproject?	*No*
abc	Remarks	
⊙	Will local labor be used for the proposed subproject construction activities?	*Yes*
abc	Remarks	
⊙	Will there be any temporary or permanent displacement as a result of the proposed subproject construction or operation activities?	*No*
abc	Remarks	
⊙	Are there expected to be any traffic-related issues as a result of the proposed subproject intervention activities, particularly during the construction phase?	*Yes*
abc	Remarks	
⊙	Are the proposed subproject activities likely to have impacts on important religious/cultural heritage sites?	*No*
abc	Remarks	
⊙	Have there been any past security-related issues at the proposed subproject sites?	*No*

abc	Remarks	
◉	Has stakeholder engagement taken place in the proposed subproject areas?	*Yes*
abc	Remarks	*The community also raised concerns about the construction activities associated with water supply and drainage schemes can cause disruptions to daily life, including noise, dust, traffic congestion, and temporary service interruptions.*
◉	Were vulnerable groups involved in stakeholder consultations? (e.g., women, minorities, economically disadvantaged individuals, etc.)	*Yes*
abc	Remarks	*Yes. Females were concerned about their mobility for daily purposes during construction*
🖼	Site Photo	

	Signature	
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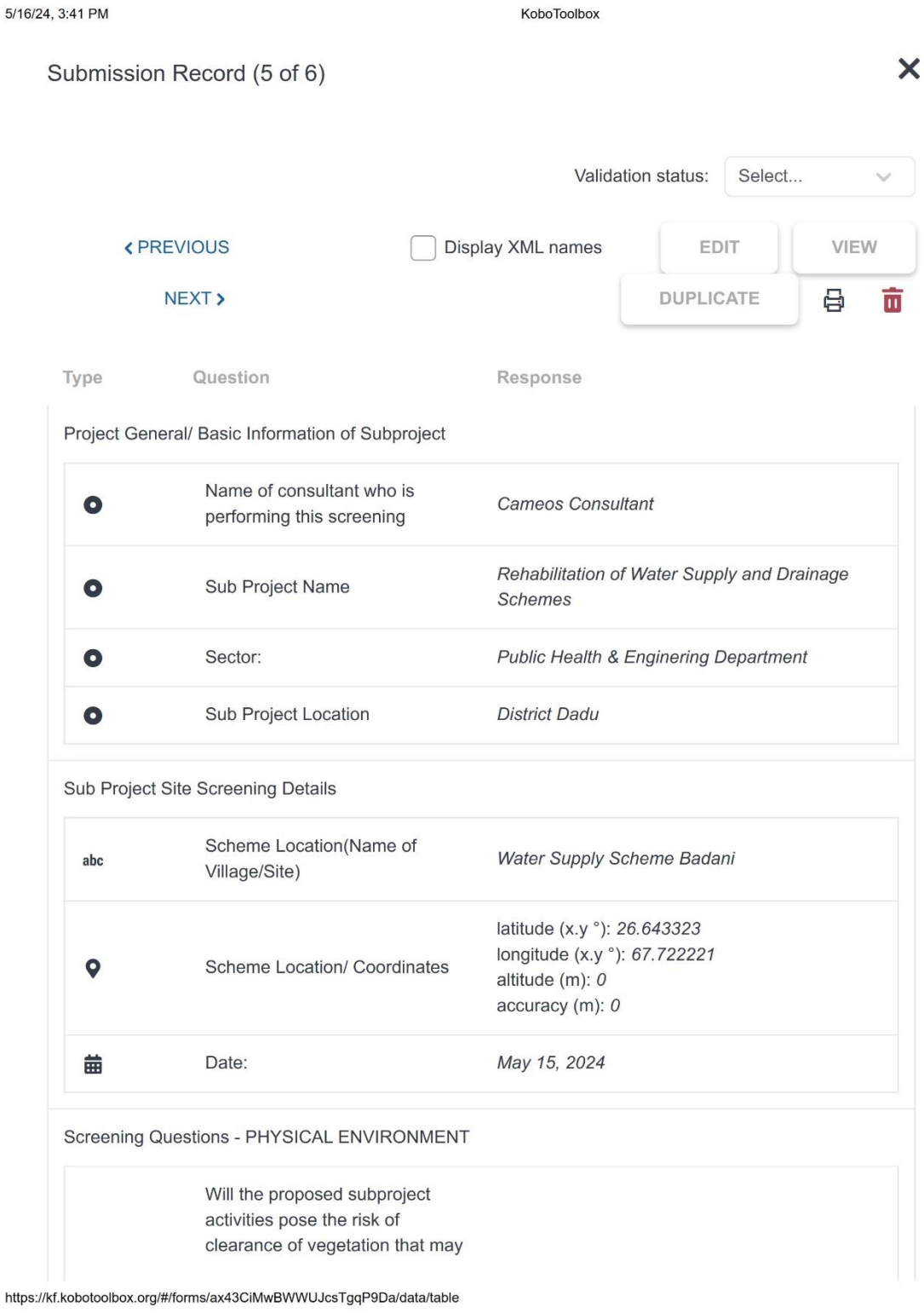

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Submission Record (5 of 6)

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	Sub Project Name	*Rehabilitation of Water Supply and Drainage Schemes*
	Sector:	*Public Health & Enginering Department*
	Sub Project Location	*District Dadu*
Sub Project Site Screening Details		
abc	Scheme Location(Name of Village/Site)	*Water Supply Scheme Badani*
	Scheme Location/ Coordinates	latitude (x.y °): *26.643323* longitude (x.y °): *67.722221* altitude (m): *0* accuracy (m): *0*
	Date:	*May 15, 2024*
Screening Questions - PHYSICAL ENVIRONMENT		
	Will the proposed subproject activities pose the risk of clearance of vegetation that may	

https://kf.kobotoolbox.org/#/forms/ax43CiMwBWWUJcsTgqP9Da/data/table 1/8

⊙	result in an increase in the level of suspended solids washing into nearby water bodies?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities pose a risk of contaminating drinking water sources due to construction activities?	*No*
abc	Remarks	
⊙	Is there any potential pollution source in water supply network?	*No*
abc	Remarks	
⊙	Is there any potential source that can damage drainage network? Or Is it affected by flood?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions deplete groundwater because of the water used during rehabilitation activities?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in an increase in ambient air pollution, including chemical and particulate matter due to the construction and operation of related machinery?	*Yes*
abc	Remarks	
	Will the proposed subproject interventions result in an increase in ambient noise levels	

⊙	and vibrations due to the operation of construction machinery/vehicles?	*Yes*
abc	Remarks	
⊙	Will these ambient noise levels be beyond the specifications in the SEQS?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities lead to increased soil erosion?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in the generation of hazardous and/or non-hazardous waste?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions result in potentially increased health risks for subproject workers and communities (e.g., communicable diseases)?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions being implemented in an area with high natural hazard risk? (e.g., floods, earthquakes, droughts, etc.)	*No*
abc	Remarks	

Screening Questions- ECOLOGICAL ENVIRONMENT

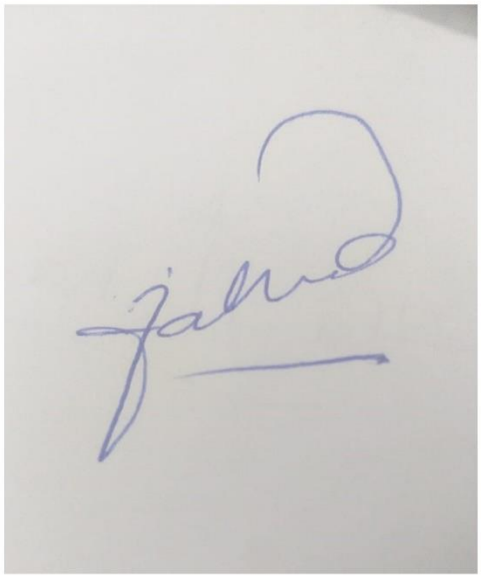
⊙	Will the proposed subproject interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services?	*No*
abc	Remarks	
⊙	Will any rehabilitation work be located in areas that would promote the conversion of natural habitats?	*No*
abc	Remarks	
⊙	Will any proposed subproject interventions be located on or near sensitive environmental areas, including national parks and protected areas?	*No*
abc	Remarks	*There are no social sensitive receptors in the immediate vicinity of proposed subproject site*
⊙	Are the proposed subproject interventions activities likely to pose risks to any endangered species?	*No*
abc	Remarks	

Screening Questions- SOCIAL ENVIRONMENT

⊙	Will the proposed subproject activities involve land acquisition?	*No*
abc	Remarks	
⊙	Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this	*No*

	proposed subproject intervention?	
abc	Remarks	
◉	Is labor influx (outside labor force) expected during the construction of the proposed subproject?	*No*
abc	Remarks	
◉	Will local labor be used for the proposed subproject construction activities?	*Yes*
abc	Remarks	
◉	Will there be any temporary or permanent displacement as a result of the proposed subproject construction or operation activities?	*No*
abc	Remarks	
◉	Are there expected to be any traffic-related issues as a result of the proposed subproject intervention activities, particularly during the construction phase?	*Yes*
abc	Remarks	
◉	Are the proposed subproject activities likely to have impacts on important religious/cultural heritage sites?	*No*
abc	Remarks	
◉	Have there been any past security-related issues at the proposed subproject sites?	*No*

abc	Remarks	
◉	Has stakeholder engagement taken place in the proposed subproject areas?	*Yes*
abc	Remarks	*The community also raised concerns about the construction activities associated with water supply and drainage schemes can cause disruptions to daily life, including noise, dust, traffic congestion, and temporary service interruptions.*
◉	Were vulnerable groups involved in stakeholder consultations? (e.g., women, minorities, economically disadvantaged individuals, etc.)	*Yes*
abc	Remarks	*Yes. Females were concerned about their mobility for daily purposes during construction.*
🖼	Site Photo	

	Signature	
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	Submitted by	

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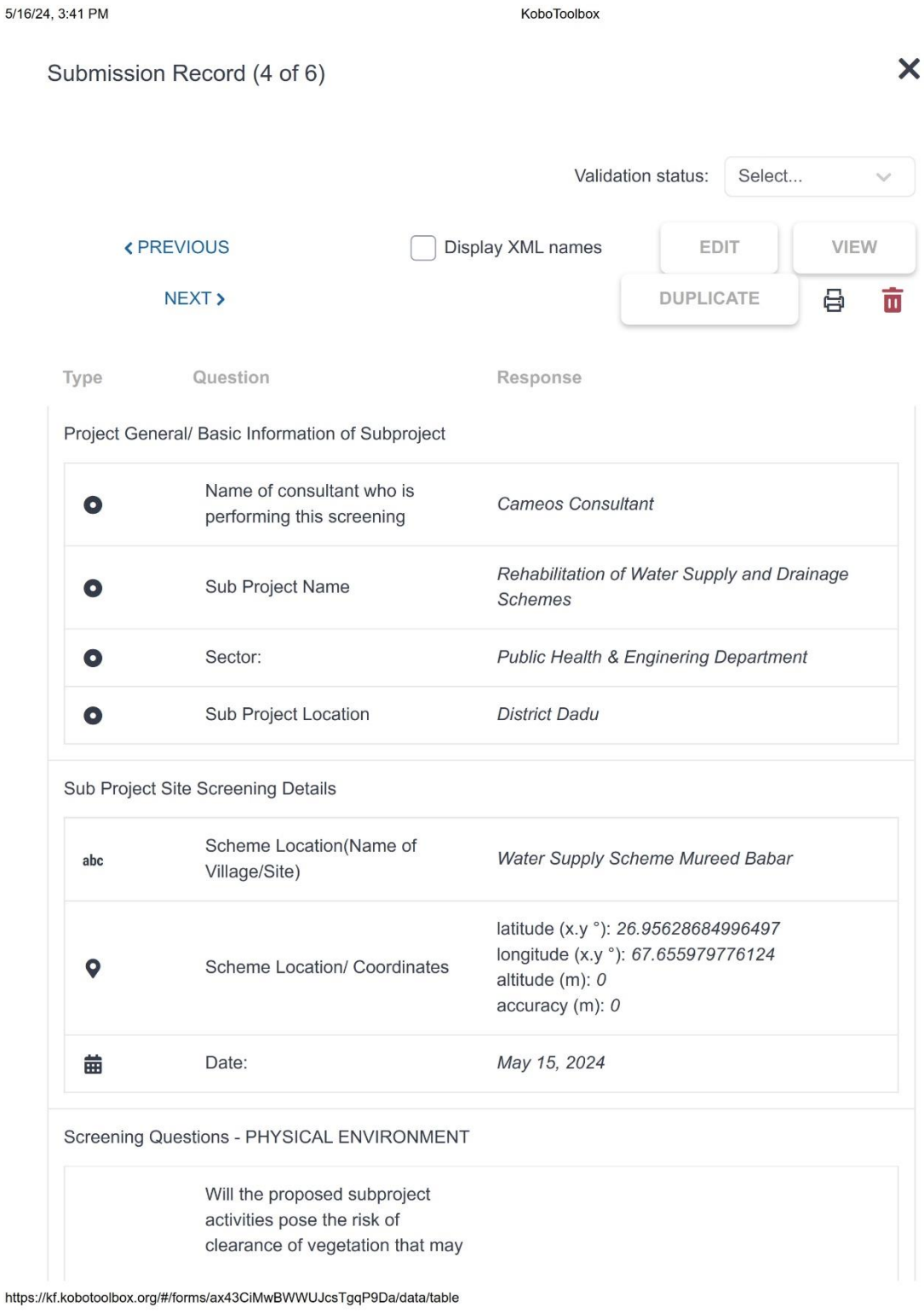

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Submission Record (4 of 6)

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	Sub Project Name	*Rehabilitation of Water Supply and Drainage Schemes*
	Sector:	*Public Health & Enginering Department*
	Sub Project Location	*District Dadu*
Sub Project Site Screening Details		
abc	Scheme Location(Name of Village/Site)	*Water Supply Scheme Mureed Babar*
	Scheme Location/ Coordinates	latitude (x.y °): *26.95628684996497* longitude (x.y °): *67.655979776124* altitude (m): *0* accuracy (m): *0*
	Date:	*May 15, 2024*
Screening Questions - PHYSICAL ENVIRONMENT		
	Will the proposed subproject activities pose the risk of clearance of vegetation that may	

https://kf.kobotoolbox.org/#/forms/ax43CiMwBWWUJcsTgqP9Da/data/table 1/8

⊙	result in an increase in the level of suspended solids washing into nearby water bodies?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities pose a risk of contaminating drinking water sources due to construction activities?	*No*
abc	Remarks	
⊙	Is there any potential pollution source in water supply network?	*No*
abc	Remarks	
⊙	Is there any potential source that can damage drainage network? Or Is it affected by flood?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions deplete groundwater because of the water used during rehabilitation activities?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in an increase in ambient air pollution, including chemical and particulate matter due to the construction and operation of related machinery?	*Yes*
abc	Remarks	
	Will the proposed subproject interventions result in an increase in ambient noise levels	

⊙	and vibrations due to the operation of construction machinery/vehicles?	*Yes*
abc	Remarks	
⊙	Will these ambient noise levels be beyond the specifications in the SEQS?	*No*
abc	Remarks	
⊙	Will the proposed subproject activities lead to increased soil erosion?	*No*
abc	Remarks	
⊙	Will the proposed subproject interventions result in the generation of hazardous and/or non-hazardous waste?	*Yes*
abc	Remarks	
⊙	Will the proposed subproject interventions result in potentially increased health risks for subproject workers and communities (e.g., communicable diseases)?	*No*
abc	Remarks	
⊙	Are the proposed subproject interventions being implemented in an area with high natural hazard risk? (e.g., floods, earthquakes, droughts, etc.)	*No*
abc	Remarks	

Screening Questions- ECOLOGICAL ENVIRONMENT

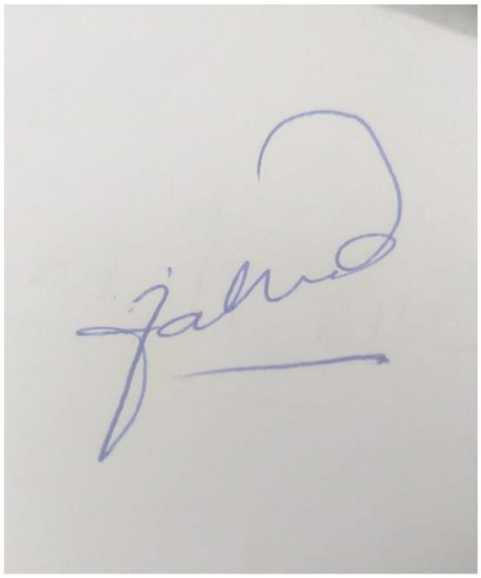
⊙	Will the proposed subproject interventions potentially cause any adverse impacts on habitats, ecosystems, and/or ecosystem services?	*No*
abc	Remarks	
⊙	Will any rehabilitation work be located in areas that would promote the conversion of natural habitats?	*No*
abc	Remarks	
⊙	Will any proposed subproject interventions be located on or near sensitive environmental areas, including national parks and protected areas?	*No*
abc	Remarks	*. There are a few social sensitive receptors near to proposed sub-project site like educational facility i.e., Government primary school Khan Mohammed Shahi at a distance of 39m.*
⊙	Are the proposed subproject interventions activities likely to pose risks to any endangered species?	*No*
abc	Remarks	

Screening Questions- SOCIAL ENVIRONMENT

⊙	Will the proposed subproject activities involve land acquisition?	*No*
abc	Remarks	
	Are there any forced labor or child labor risks associated with contractors or other third parties involved in implementing this	

⊙	proposed subproject intervention?	*No*
abc	Remarks	
⊙	Is labor influx (outside labor force) expected during the construction of the proposed subproject?	*No*
abc	Remarks	
⊙	Will local labor be used for the proposed subproject construction activities?	*Yes*
abc	Remarks	
⊙	Will there be any temporary or permanent displacement as a result of the proposed subproject construction or operation activities?	*No*
abc	Remarks	
⊙	Are there expected to be any traffic-related issues as a result of the proposed subproject intervention activities, particularly during the construction phase?	*Yes*
abc	Remarks	
⊙	Are the proposed subproject activities likely to have impacts on important religious/cultural heritage sites?	*No*
abc	Remarks	
⊙	Have there been any past security-related issues at the proposed subproject sites?	*No*

abc	Remarks	
◉	Has stakeholder engagement taken place in the proposed subproject areas?	*Yes*
abc	Remarks	*The community also raised concerns about the construction activities associated with water supply and drainage schemes can cause disruptions to daily life, including noise, dust, traffic congestion, and temporary service interruptions.*
◉	Were vulnerable groups involved in stakeholder consultations? (e.g., women, minorities, economically disadvantaged individuals, etc.)	*Yes*
abc	Remarks	*Yes. Females were concerned about their mobility for daily purposes during construction*
🖼	Site Photo	

	Signature	
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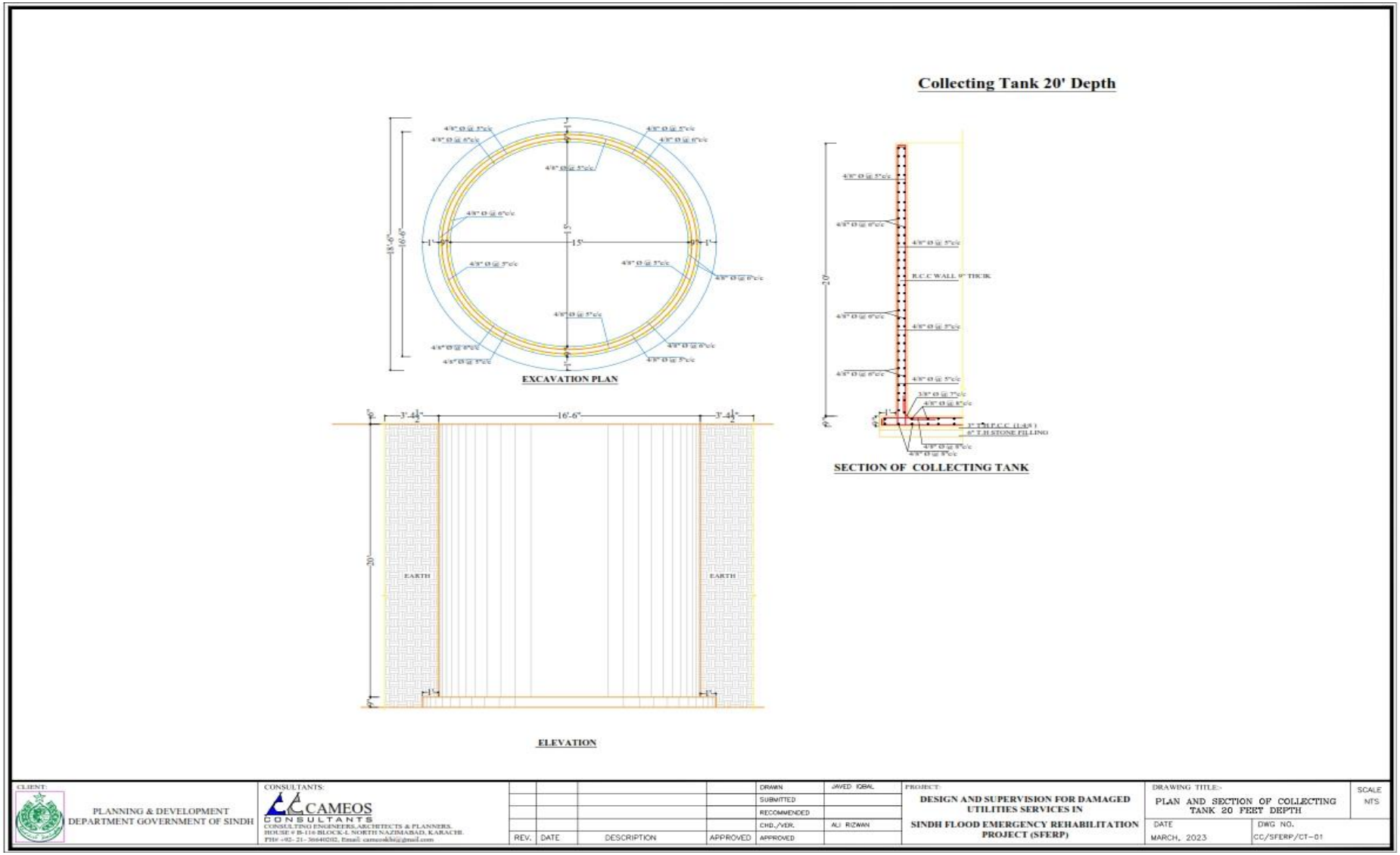
SFERP- ENVIROMENTAL ... 173 submissions

ANNEXURE 2:

Design Drawings of Water Supply Schemes & Drainage

Annexure 2: Design Drawings of Water Supply Schemes & Drainage



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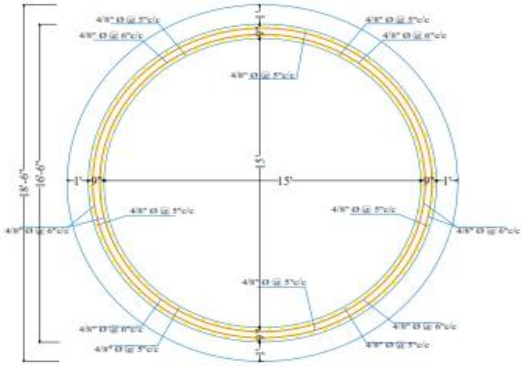

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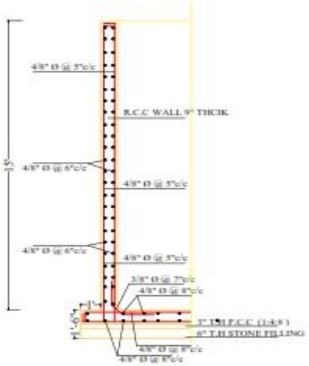

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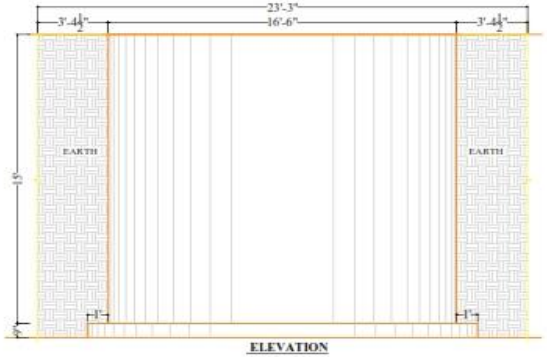
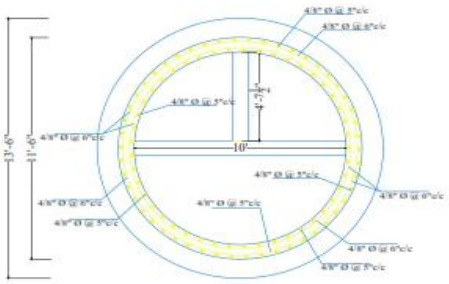


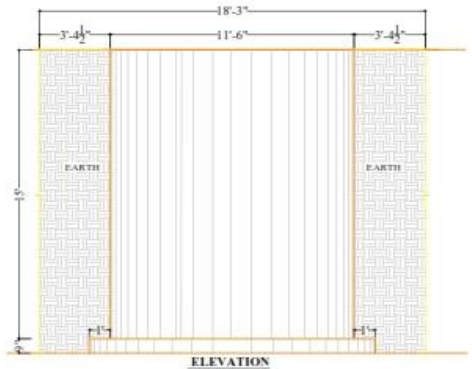
ELEVATION

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI, PH# +92-21-36640202, Email: cameoskhi@gmail.com					DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF COLLECTING TANK 15 FEET DEPTH	SCALE NTS
						SUBMITTED				
						RECOMMENDED				
						CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/CT-02
	REV.	DATE	DESCRIPTION	APPROVED		APPROVED				

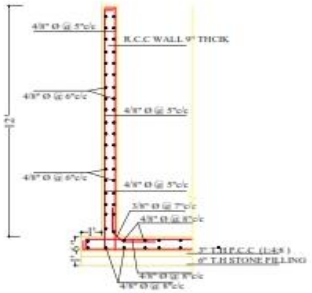
Collecting Tank 12' Depth



EXCAVATION PLAN

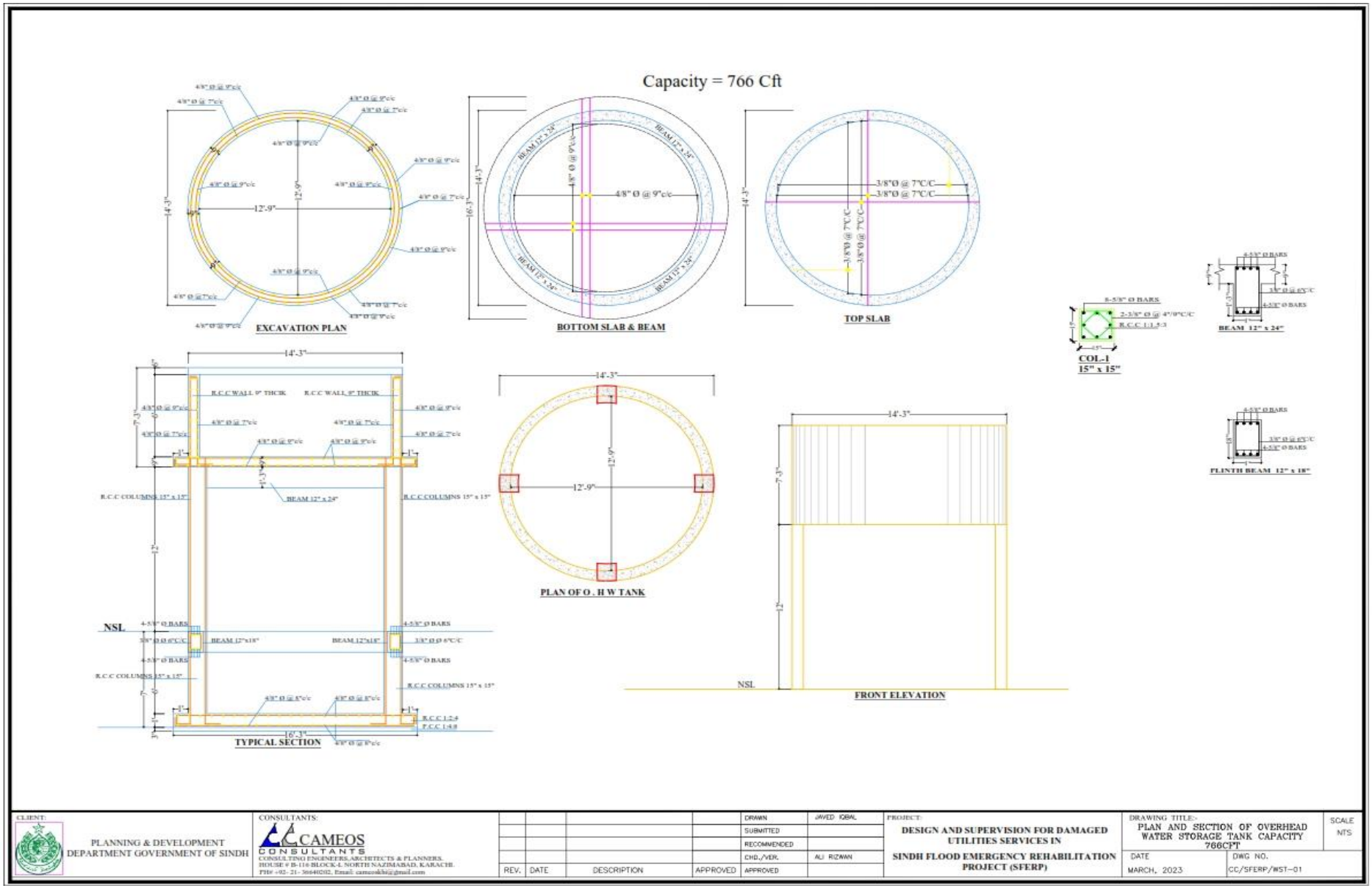


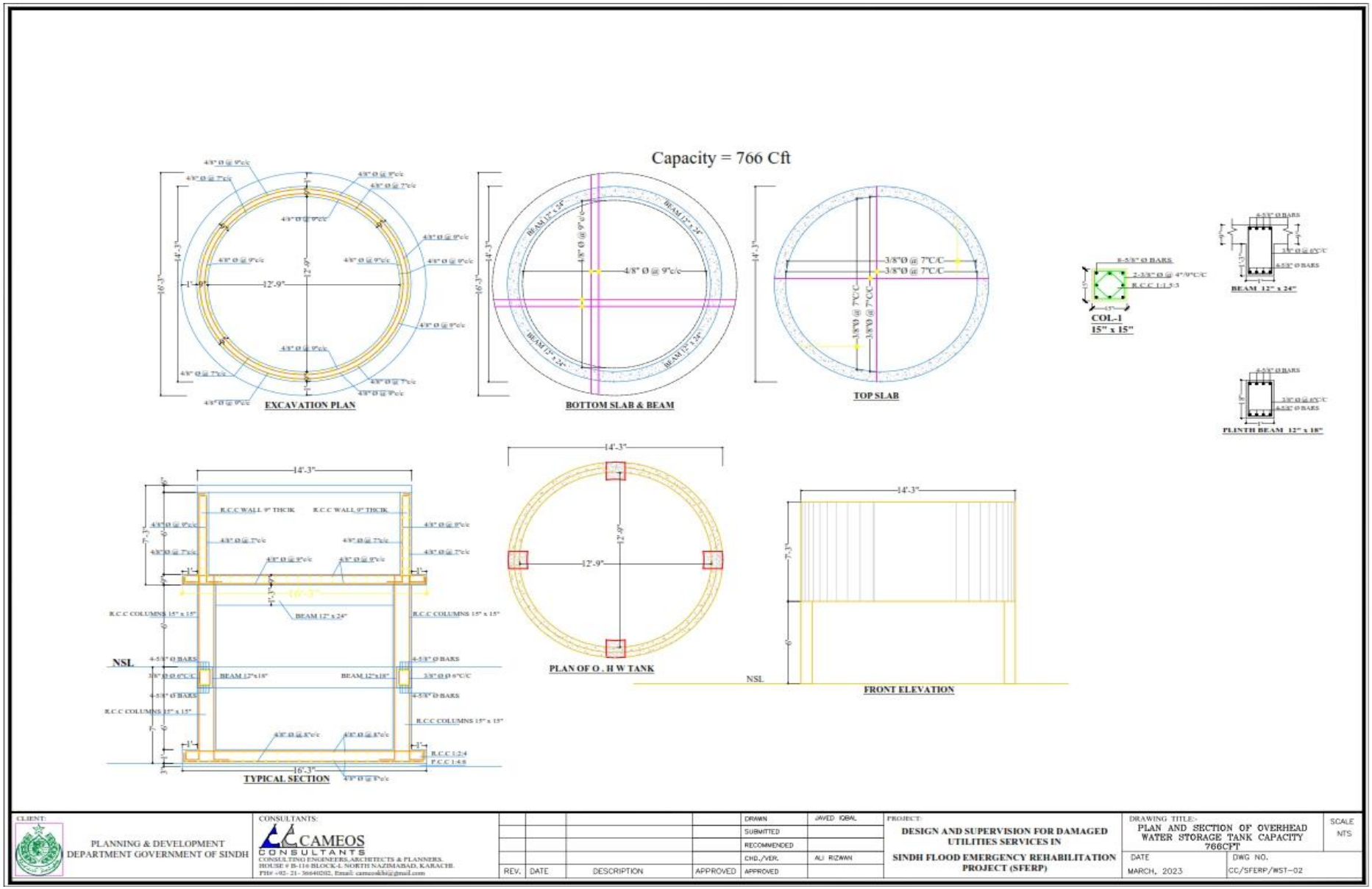
ELEVATION



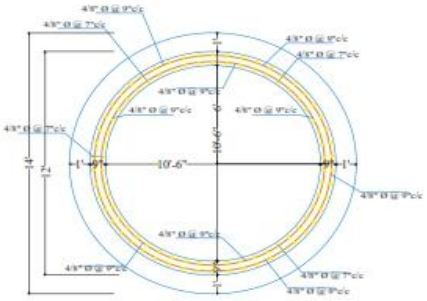
SECTION OF U.G.WATER TANK

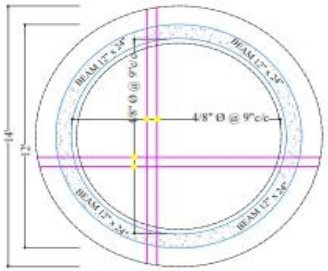
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92- 21- 36640202, Email: cameoskhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF COLLECTING TANK 12 FEET DEPTH	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/CT-03
	REV.	DATE	DESCRIPTION	APPROVED	APPROVED				

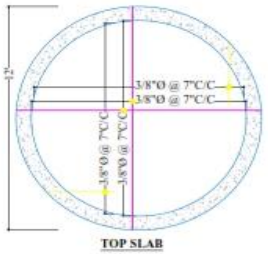

Capacity = 766 Cft
EXCAVATION PLAN
BOTTOM SLAB & BEAM
TOP SLAB
COL.-1
15" x 15"
BEAM 12" x 24"
PLINTH BEAM 12" x 18"
PLAN OF O . H W TANK
FRONT ELEVATION
TYPICAL SECTION
NSL
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CONSULTANTS
CAMEOS
CONSULTANTS
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
PLAN AND SECTION OF OVERHEAD WATER STORAGE TANK CAPACITY 766CFT
SCALE NTS
DATE MARCH, 2023
DWG NO. CC/SFERP/WST-01
DRAWN JAVED IQBAL
SUBMITTED
RECOMMENDED
CHD./VER. ALI RIZWAN
APPROVED

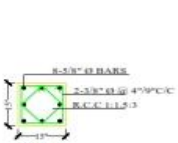

Capacity = 766 Cft
EXCAVATION PLAN
BOTTOM SLAB & BEAM
TOP SLAB
COL.-1
15" x 15"
BEAM 12" x 24"
PLINTH BEAM 12" x 18"
TYPICAL SECTION
PLAN OF O . H W TANK
FRONT ELEVATION
NSL
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CAMEOS CONSULTANTS
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
PLAN AND SECTION OF OVERHEAD WATER STORAGE TANK CAPACITY 766CFT
MARCH, 2023
CC/SFERP/WST-02

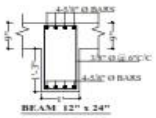
Capacity = 520 Cft

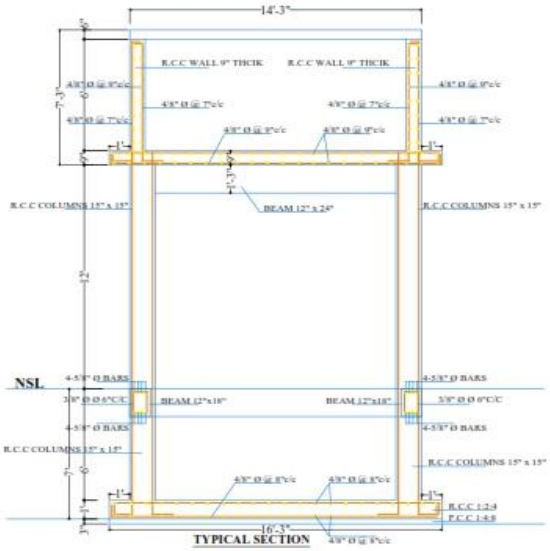


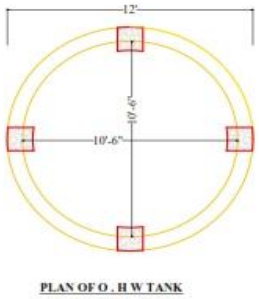


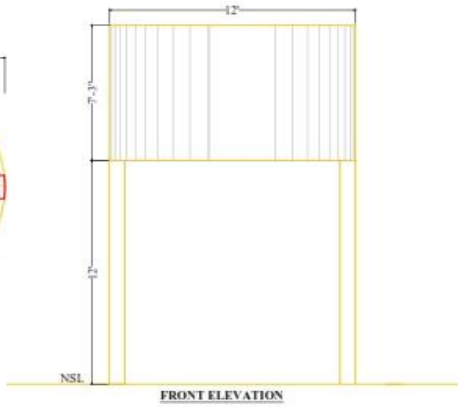


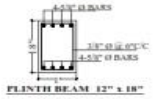






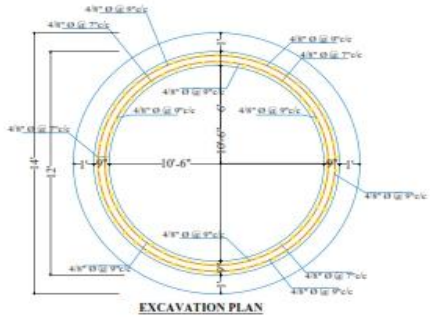


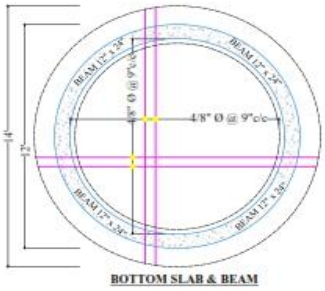


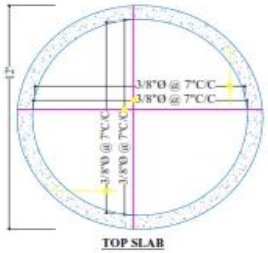


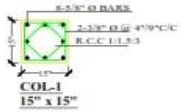
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92- 21- 36640202, Email: cameoskhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF OVERHEAD WATER STORAGE TANK CAPACITY 520CFT	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/WST-03
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED			

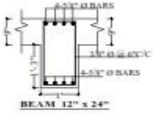
Capacity = 520 Cft

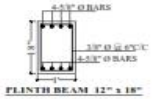


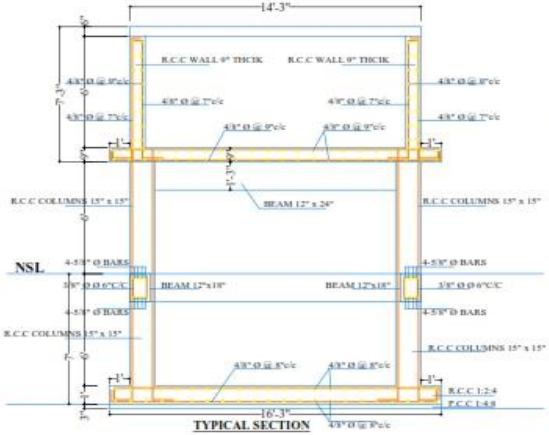


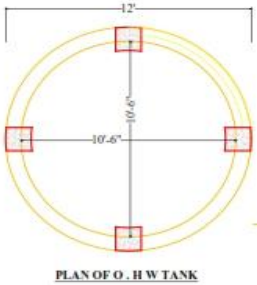


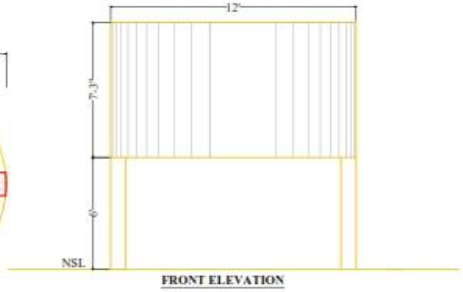






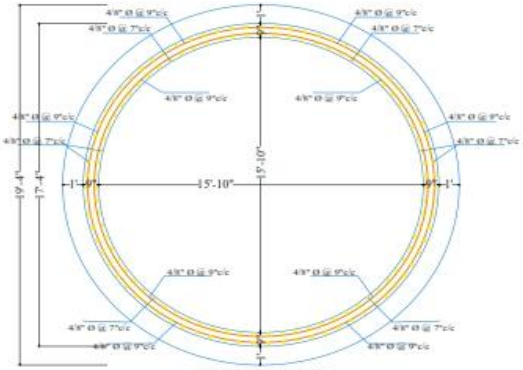




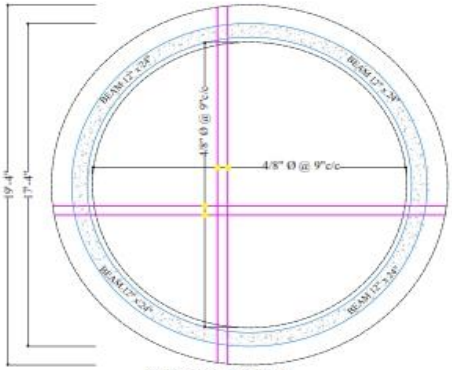


CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92- 21- 36640202, Email: cameoskhi@gmail.com					DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF OVERHEAD WATER STORAGE TANK CAPACITY 520CFT	SCALE NTS
						SUBMITTED				
						RECOMMENDED				
						CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/WST-04
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED				

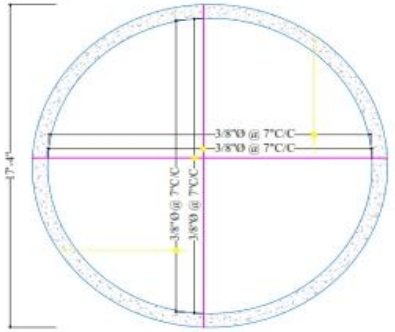
Capacity = 1180 Cft



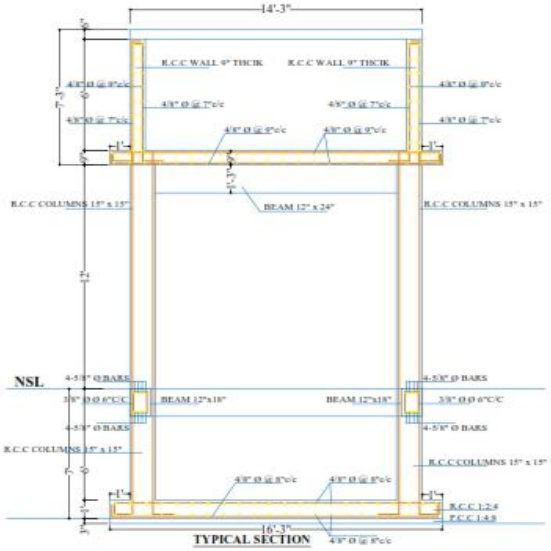
EXCAVATION PLAN



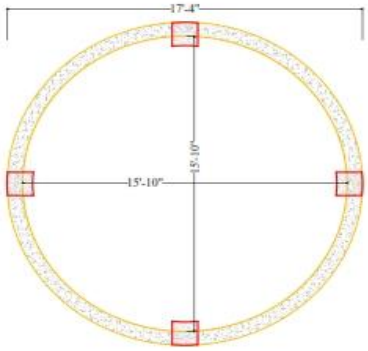
BOTTOM SLAB & BEAM



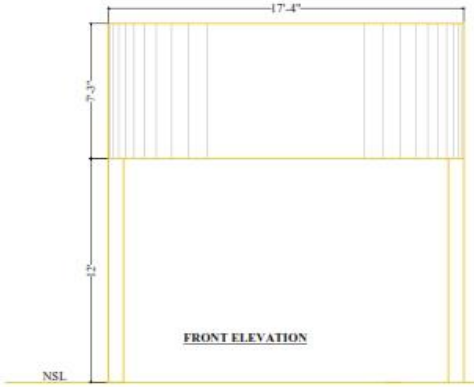
TOP SLAB



TYPICAL SECTION

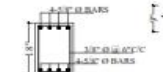


PLAN OF O . H W TANK

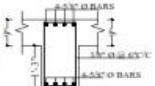


FRONT ELEVATION

COL-1
15" x 15"



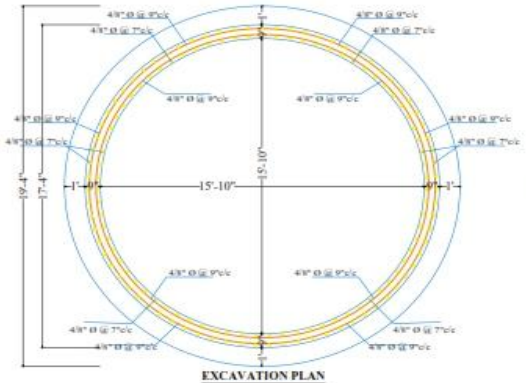
PLINTH BEAM 12" x 18"



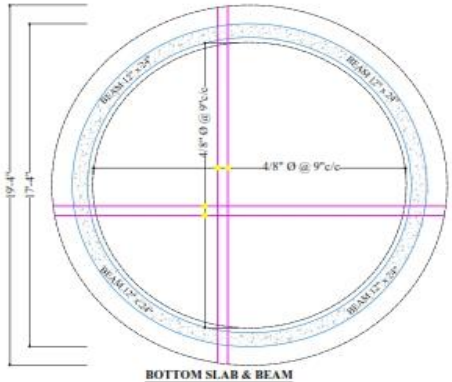
BEAM 12" x 24"

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92- 21- 36640202, Email: cameoskhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF OVERHEAD WATER STORAGE TANK CAPACITY 1180CFT	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/WST-05
	REV.	DATE	DESCRIPTION	APPROVED	APPROVED				

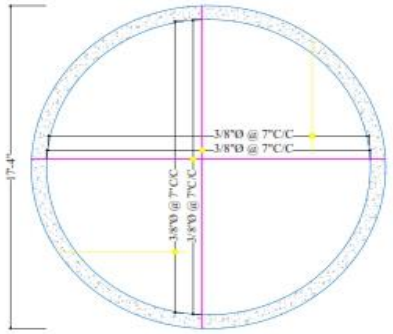
Capacity = 1180 Cft



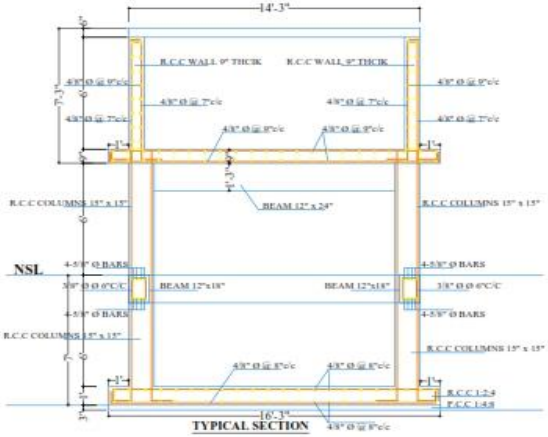
EXCAVATION PLAN



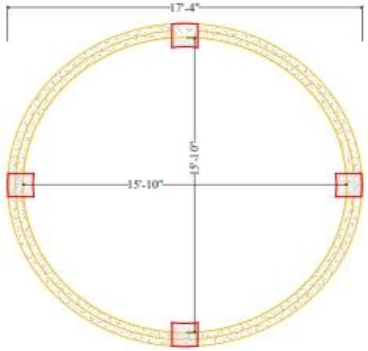
BOTTOM SLAB & BEAM



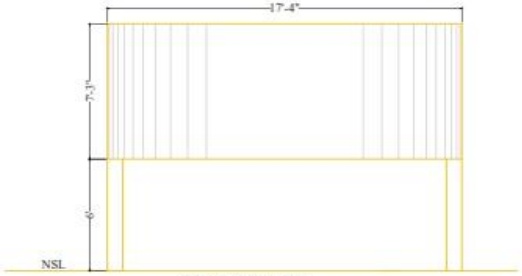
TOP SLAB



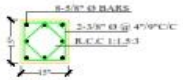
TYPICAL SECTION



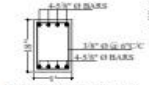
PLAN OF O . H W TANK



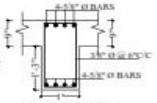
FRONT ELEVATION



COL-1
15" x 15"

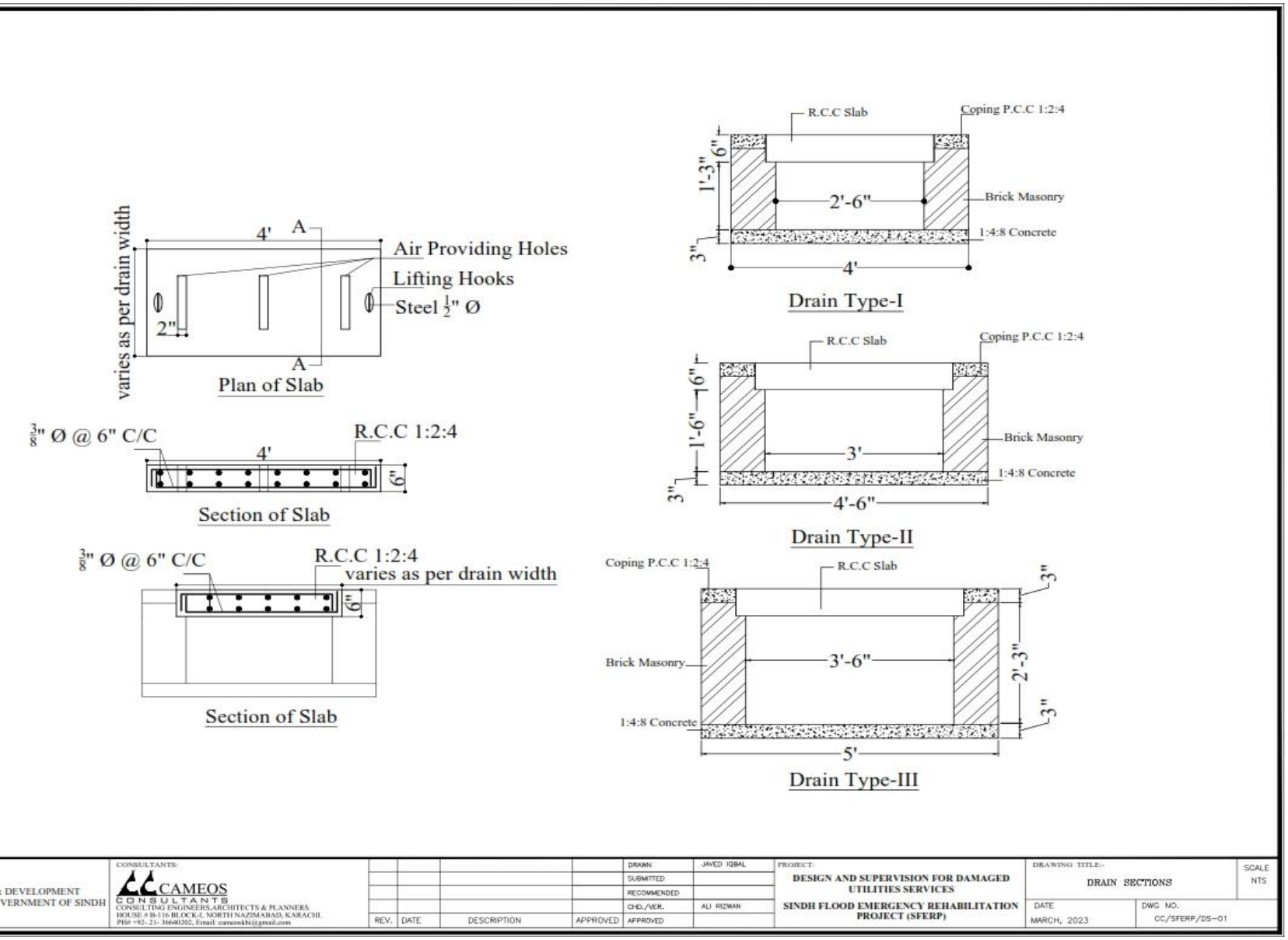


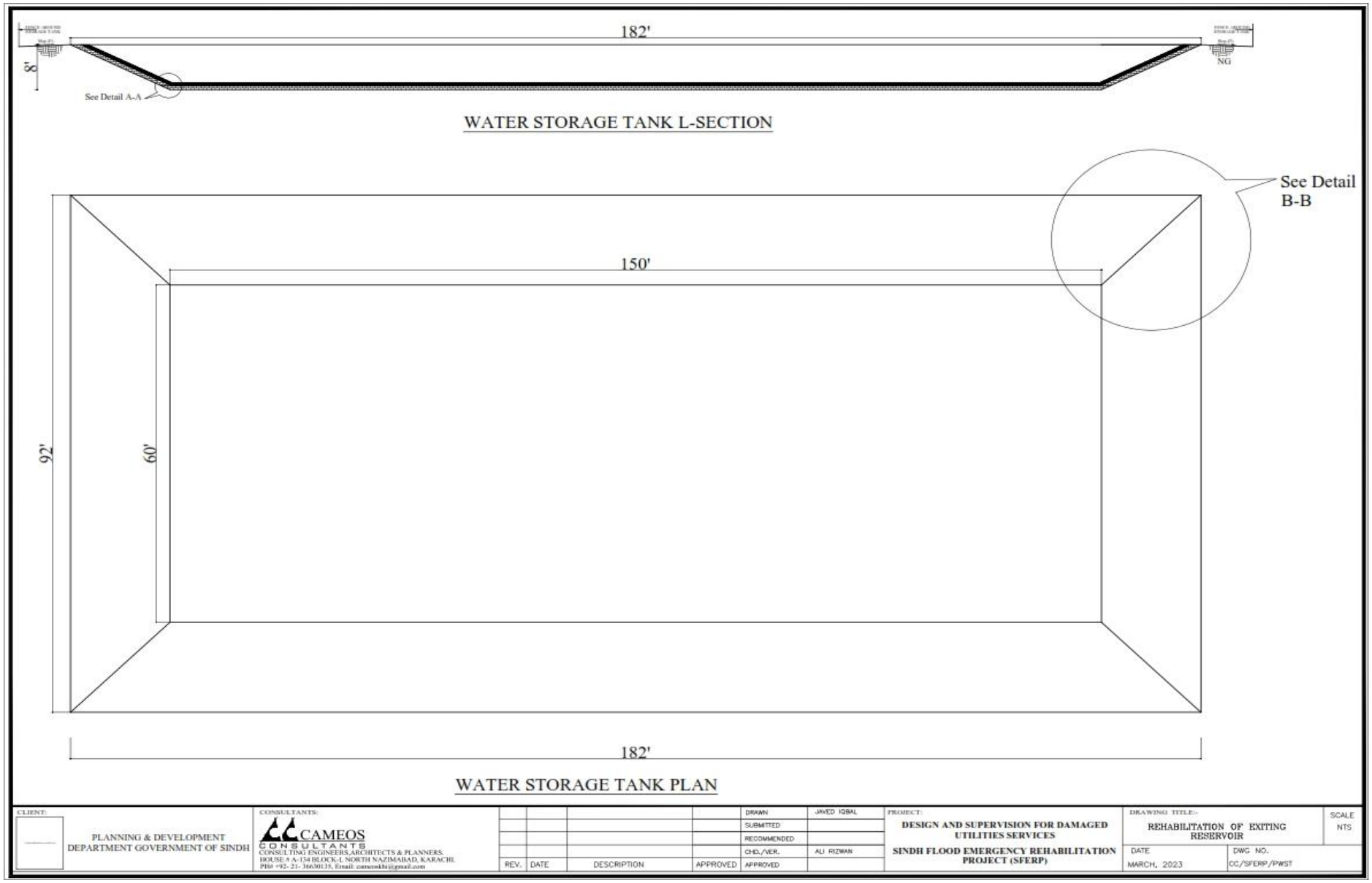
PLINTH BEAM 12" x 18"

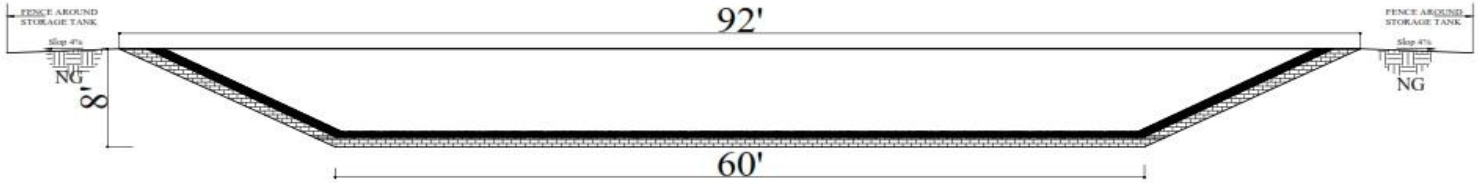


BEAM 12" x 24"

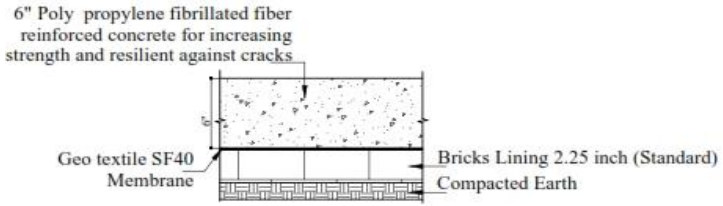
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92- 21- 36640202, Email: cameoskhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES IN SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF OVERHEAD WATER STORAGE TANK CAPACITY 1180CFT	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/WST-06
		REV.	DATE	DESCRIPTION	APPROVED	APPROVED			


varies as per drain width
4'
A
A
2"
Air Providing Holes
Lifting Hooks
Steel ½" Ø
Plan of Slab
⅜" Ø @ 6" C/C
4'
R.C.C 1:2:4
6"
Section of Slab
⅜" Ø @ 6" C/C
R.C.C 1:2:4
varies as per drain width
6"
Section of Slab
R.C.C Slab
Coping P.C.C 1:2:4
1'-3"
6"
2'-6"
Brick Masonry
1:4:8 Concrete
3"
4'
Drain Type-I
R.C.C Slab
Coping P.C.C 1:2:4
1'-6"
6"
3'
Brick Masonry
1:4:8 Concrete
3"
4'-6"
Drain Type-II
Coping P.C.C 1:2:4
R.C.C Slab
3"
Brick Masonry
3'-6"
2'-3"
1:4:8 Concrete
3"
5'
Drain Type-III
CLIENT:
PLANNING & DEVELOPMENT
DEPARTMENT GOVERNMENT OF SINDH
CONSULTANTS:
CAMEOS
CONSULTANTS
CONSULTING ENGINEERS,ARCHITECTS & PLANNERS.
HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI.
PH# +92- 21- 36640202, Email: cameoskhi@gmail.com
REV.
DATE
DESCRIPTION
APPROVED
DRAWN
JAVED IQBAL
SUBMITTED
RECOMMENDED
CHD./VER.
ALI RIZWAN
APPROVED
PROJECT:
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
DRAWING TITLE:-
DRAIN SECTIONS
SCALE
NTS
DATE
MARCH, 2023
DWG NO.
CC/SFERP/DS-01

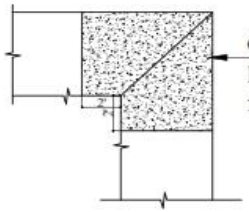

182'
8'
See Detail A-A
NG
WATER STORAGE TANK L-SECTION
See Detail B-B
150'
92'
60'
182'
WATER STORAGE TANK PLAN
CLIENT:
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CONSULTANTS:
CAMEOS
CONSULTANTS
CONSULTING ENGINEERS,ARCHITECTS & PLANNERS.
HOUSE # A-134 BLOCK-L NORTH NAZIMABAD, KARACHI.
PH# +92- 21- 36630135, Email: cameoskhi@gmail.com
REV.
DATE
DESCRIPTION
APPROVED
DRAWN
JAVED IQBAL
SUBMITTED
RECOMMENDED
CHD./VER.
ALI RIZWAN
APPROVED
PROJECT:
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
DRAWING TITLE:-
REHABILITATION OF EXITING RESERVOIR
SCALE
NTS
DATE
MARCH, 2023
DWG NO.
CC/SFERP/PWST



WATER STORAGE TANK X-SECTION



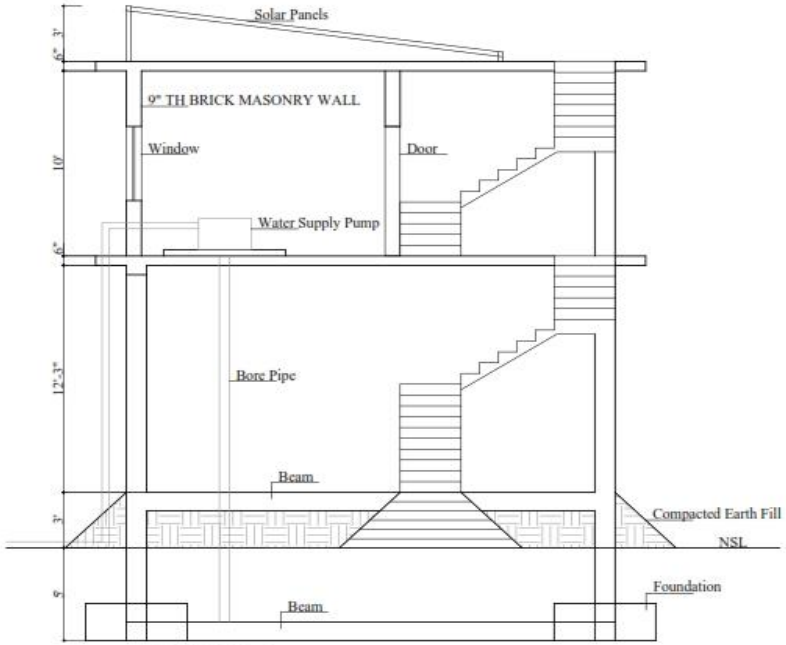
Detail A-A



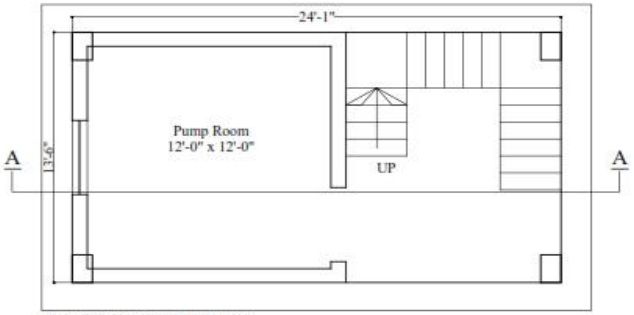
Detail B-B
Joint treatment with
Geo textile SFS6 membrane

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # A-134 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92- 21- 36630139, Email: cameokhi@gmail.com			DRAWN: JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
				SUBMITTED:	
				RECOMMENDED:	
				CHD./VER.: ALI RIZWAN	SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
	REV.	DATE	DESCRIPTION	APPROVED: APPROVED	

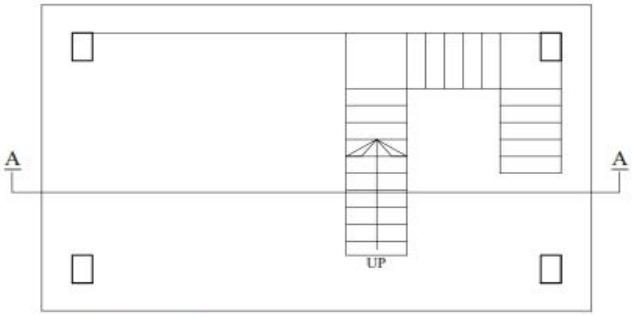
DRAWING TITLE:- EXISTING RESERVOIR X-SECTION & EXPANSION JOINT DETAIL
SCALE: NTS
DATE: MARCH, 2023
DWG NO.: CC/SFERP/WST-01



SECTION A-A

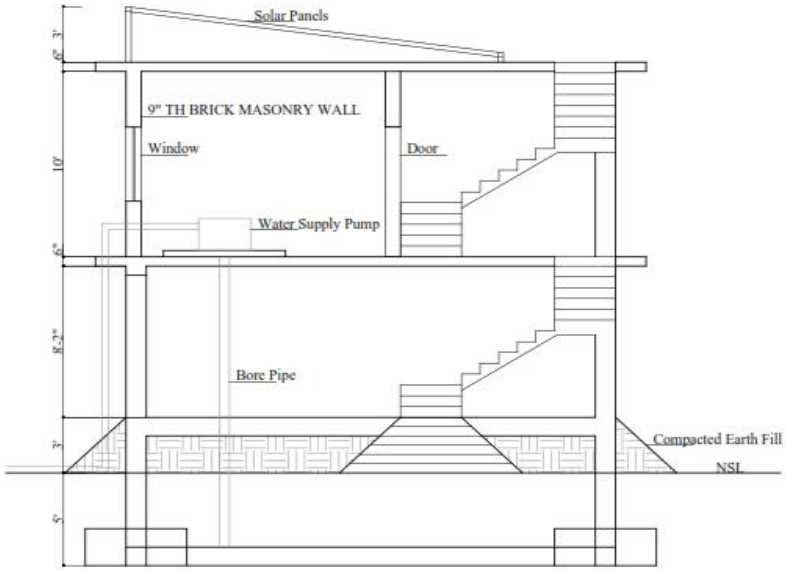


FIRST FLOOR PLAN

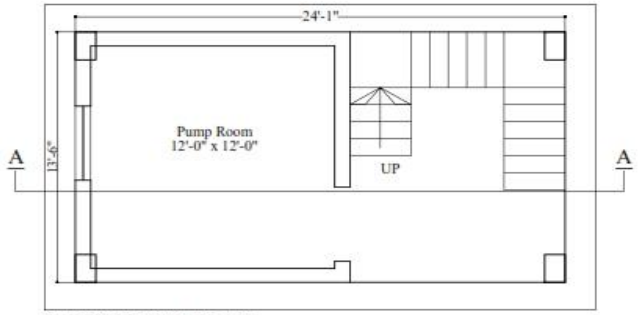


GROUND FLOOR PLAN

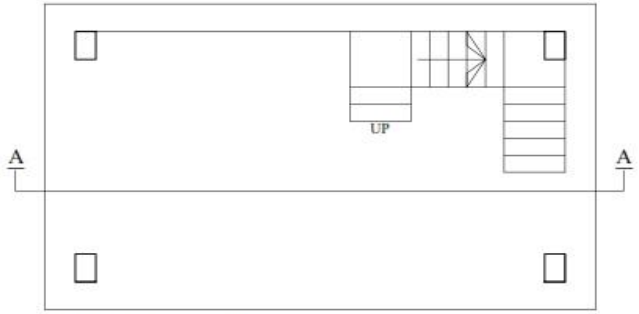
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: camcookhi@gmail.com					DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF PUMP HOUSE	SCALE NTS
						SUBMITTED				
						RECOMMENDED				
						CHD./VER.	ALI RIZWAN			
	REV.	DATE	DESCRIPTION		APPROVED	APPROVED			DATE MARCH, 2023	DWG NO. CC/SFERP/PH-01



SECTION A-A

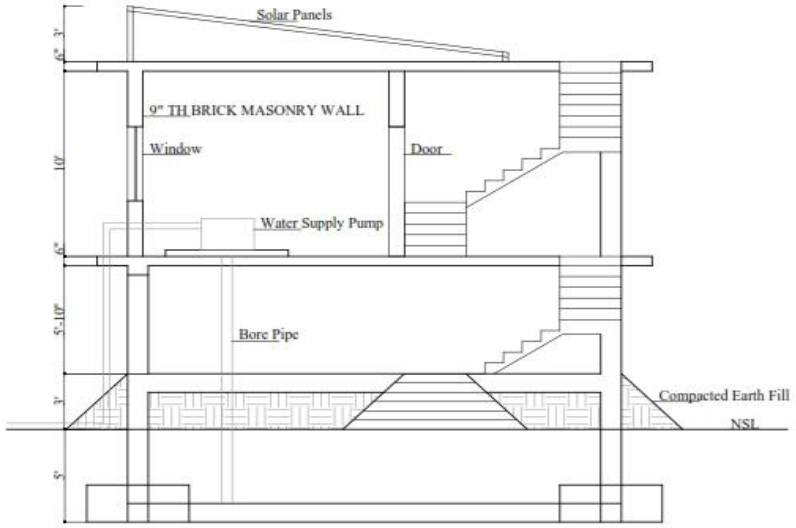


FIRST FLOOR PLAN

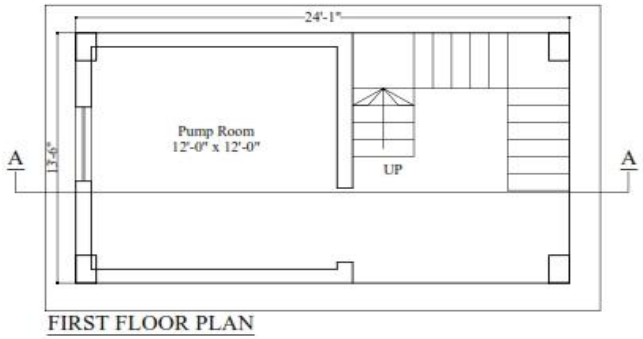


GROUND FLOOR PLAN

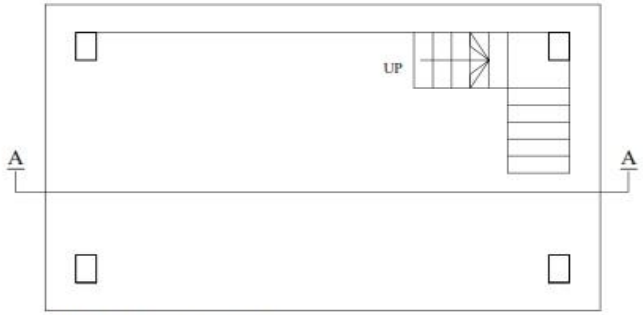
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS,ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: camcookhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF PUMP HOUSE	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/PH-02
	REV.	DATE	DESCRIPTION	APPROVED	APPROVED				



SECTION A-A

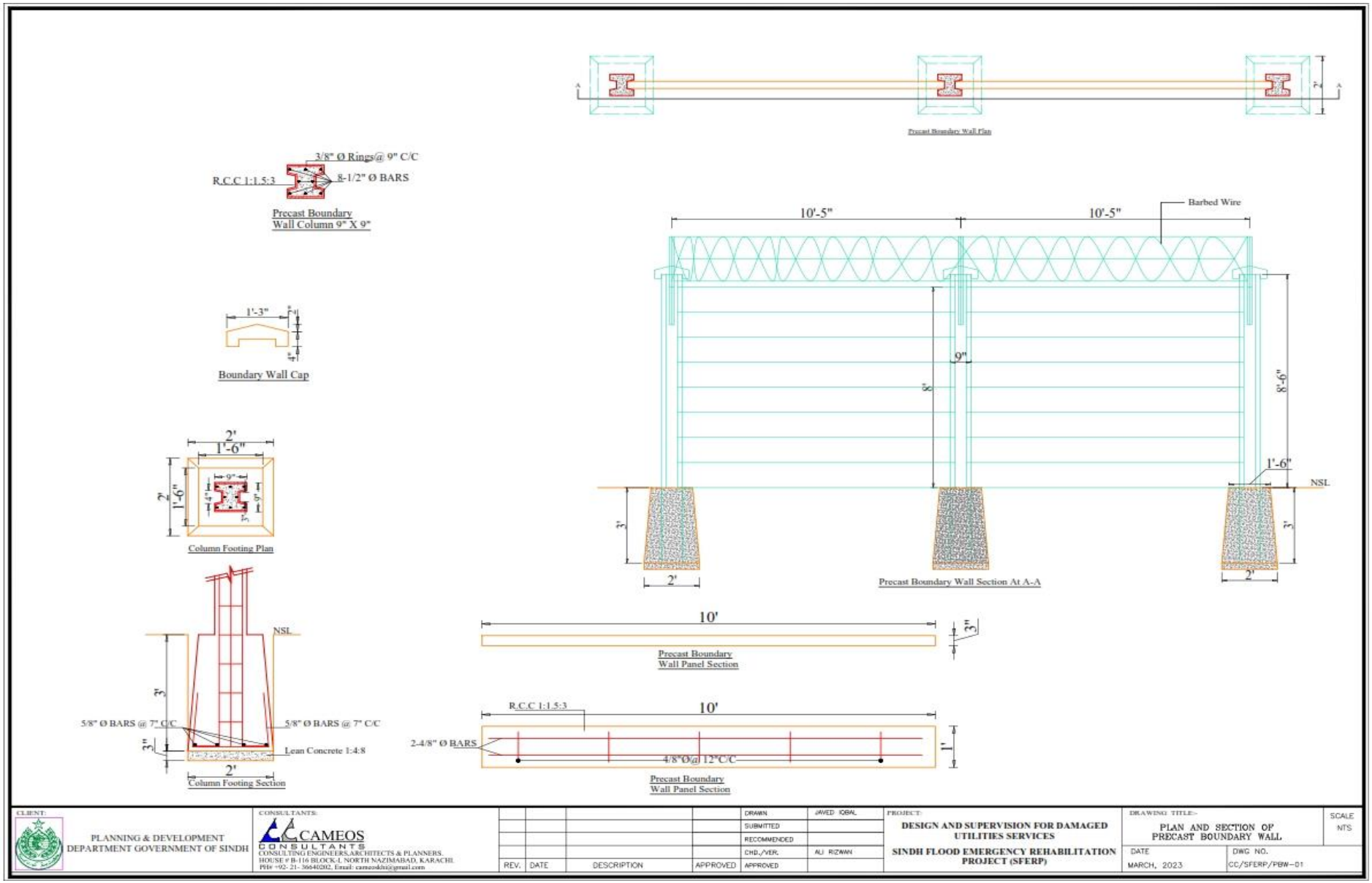


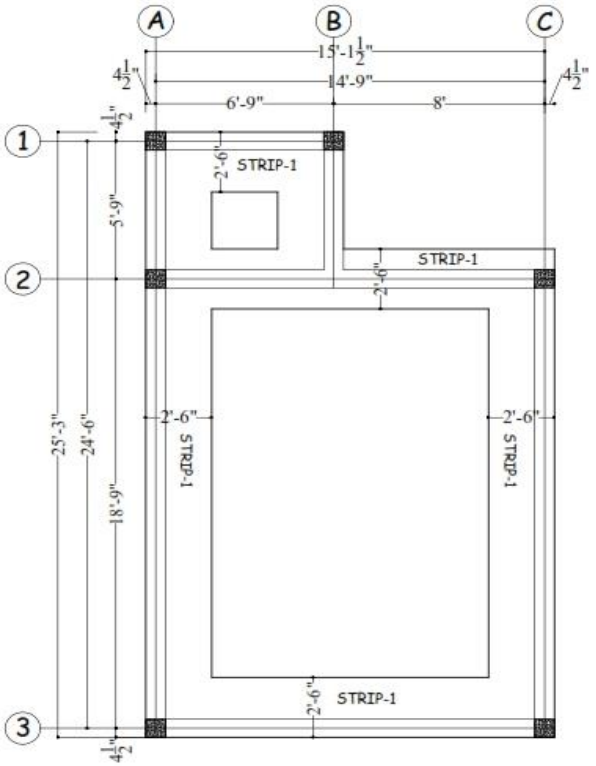
FIRST FLOOR PLAN



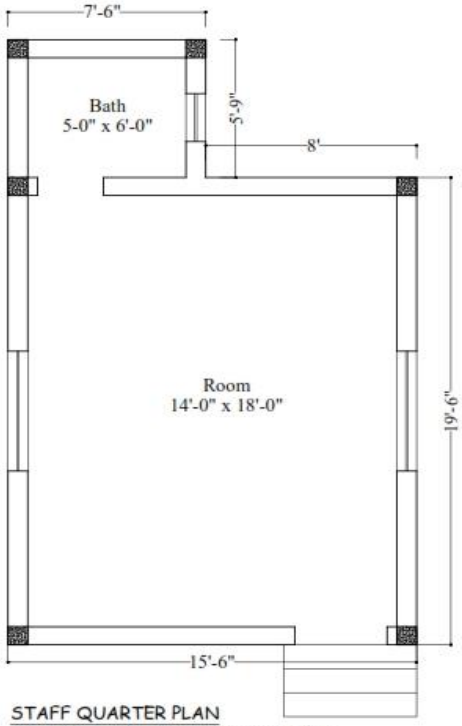
GROUND FLOOR PLAN

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: cameoskhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- PLAN AND SECTION OF PUMP HOUSE	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/PH-03
	REV.	DATE	DESCRIPTION	APPROVED	APPROVED				


3/8" Ø Rings@ 9" C/C
R.C.C 1:1.5:3
8-1/2" Ø BARS
Precast Boundary Wall Column 9" X 9"
Precast Boundary Wall Plan
Barbed Wire
10'-5"
10'-5"
9"
8"
8'-6"
1'-6"
NSL
3"
2'
Precast Boundary Wall Section At A-A
1'-3"
Boundary Wall Cap
2'
1'-6"
Column Footing Plan
NSL
3'
5/8" Ø BARS @ 7" C/C
5/8" Ø BARS @ 7" C/C
3"
Lean Concrete 1:4:8
2'
Column Footing Section
10'
3"
Precast Boundary Wall Panel Section
R.C.C 1:1.5:3
10'
2-4/8" Ø BARS
4/8"Ø@ 12"C/C
1'
Precast Boundary Wall Panel Section
CLIENT:
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CONSULTANTS:
CAMEOS
CONSULTANTS
CONSULTING ENGINEERS,ARCHITECTS & PLANNERS.
HOUSE # B-116 BLOCK-I, NORTH NAZIMABAD, KARACHI.
PH# +92- 21- 36640202, Email: cameoskhi@gmail.com
REV. DATE DESCRIPTION APPROVED
DRAWN JAWED IQBAL
SUBMITTED
RECOMMENDED
CHD./VER. ALI RIZWAN
APPROVED
PROJECT:
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
DRAWING TITLE:-
PLAN AND SECTION OF PRECAST BOUNDARY WALL
SCALE NTS
DATE MARCH, 2023
DWG NO. CC/SFERP/PBW-01



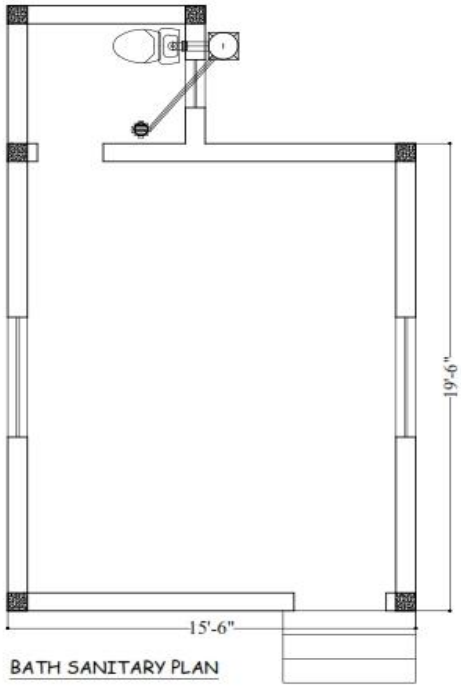
STAFF QUARTER LAYOUT PLAN



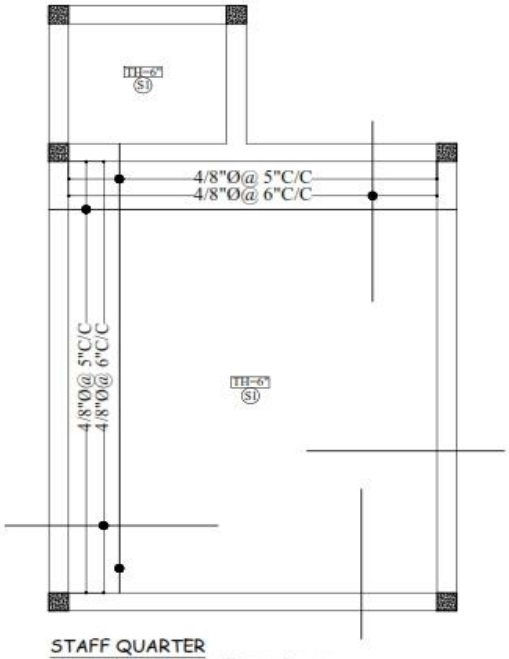
STAFF QUARTER PLAN
COVERED AREA (476.625 square ft.)

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: cameoskhi@gmail.com			DRAWN: JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
				SUBMITTED:	
				RECOMMENDED:	
				CHD./VER.: ALI RIZWAN	SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
REV.	DATE	DESCRIPTION	APPROVED	APPROVED:	

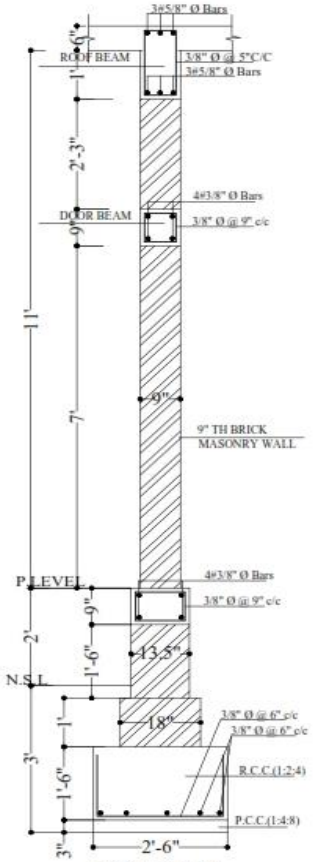
DRAWING TITLE:- LAYOUT PLAN OF STAFF QUARTER | SCALE: NTS | DATE: MARCH, 2023 | DWG NO.: CC/SFERP/SQ-01



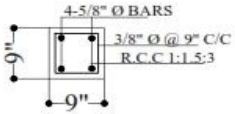
BATH SANITARY PLAN



STAFF QUARTER
SLAB REINFORCEMENT DETAIL

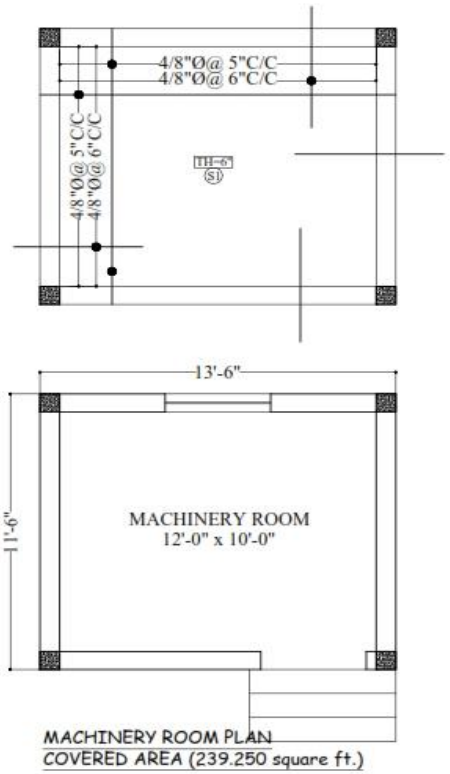


STRIP-01 SECTION
WALL FOOTING DETAIL

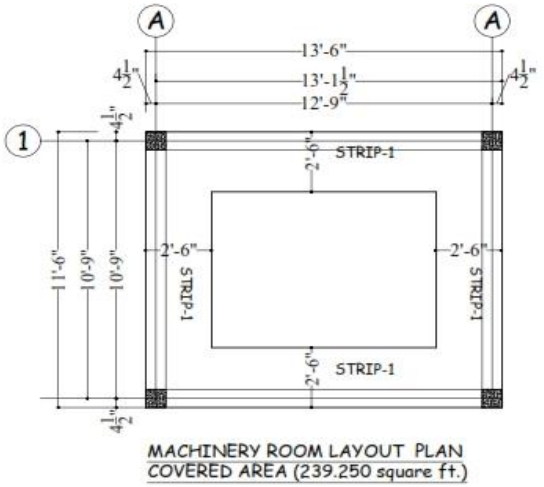


COL-1
9" X 9"

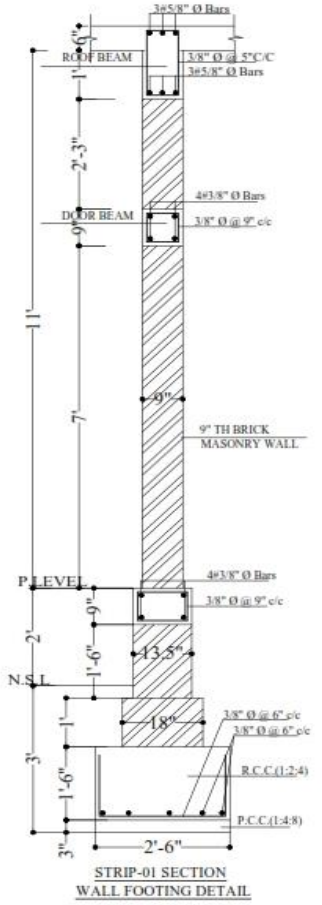
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: camcookhi@gmail.com				DRAWN	JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)	DRAWING TITLE:- SANITARY PLAN AND REINFORCEMENT DETAIL OF STAFF QUARTER	SCALE NTS
					SUBMITTED				
					RECOMMENDED				
					CHD./VER.	ALI RIZWAN		DATE MARCH, 2023	DWG NO. CC/SFERP/SQ-02
	REV.	DATE	DESCRIPTION	APPROVED	APPROVED				



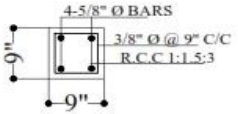
MACHINERY ROOM PLAN
COVERED AREA (239.250 square ft.)



MACHINERY ROOM LAYOUT PLAN
COVERED AREA (239.250 square ft.)



STRIP-01 SECTION
WALL FOOTING DETAIL



COL-1
9" X 9"

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: cameoskhi@gmail.com			DRAWN	JAVED IQBAL
				SUBMITTED	
				RECOMMENDED	
				CHD./VER.	ALI RIZWAN
REV.	DATE	DESCRIPTION	APPROVED	APPROVED	

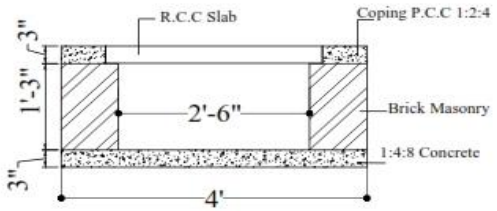
PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)

DRAWING TITLE:- PLAN AND REINFORCEMENT DETAIL OF MACHINERY ROOM

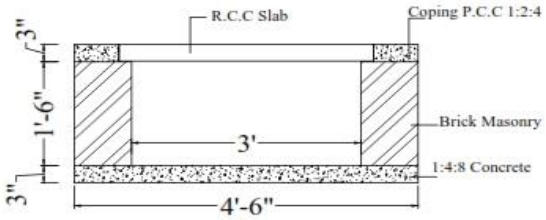
SCALE: NTS

DATE: MARCH, 2023

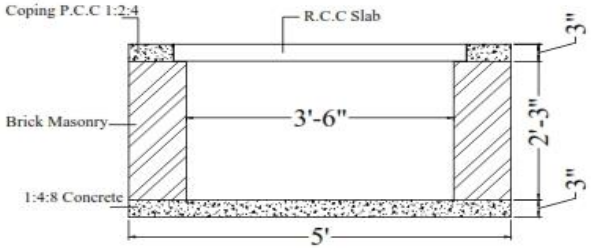
DWG NO.: CC/SFERP/MR-01



Drain Type-I



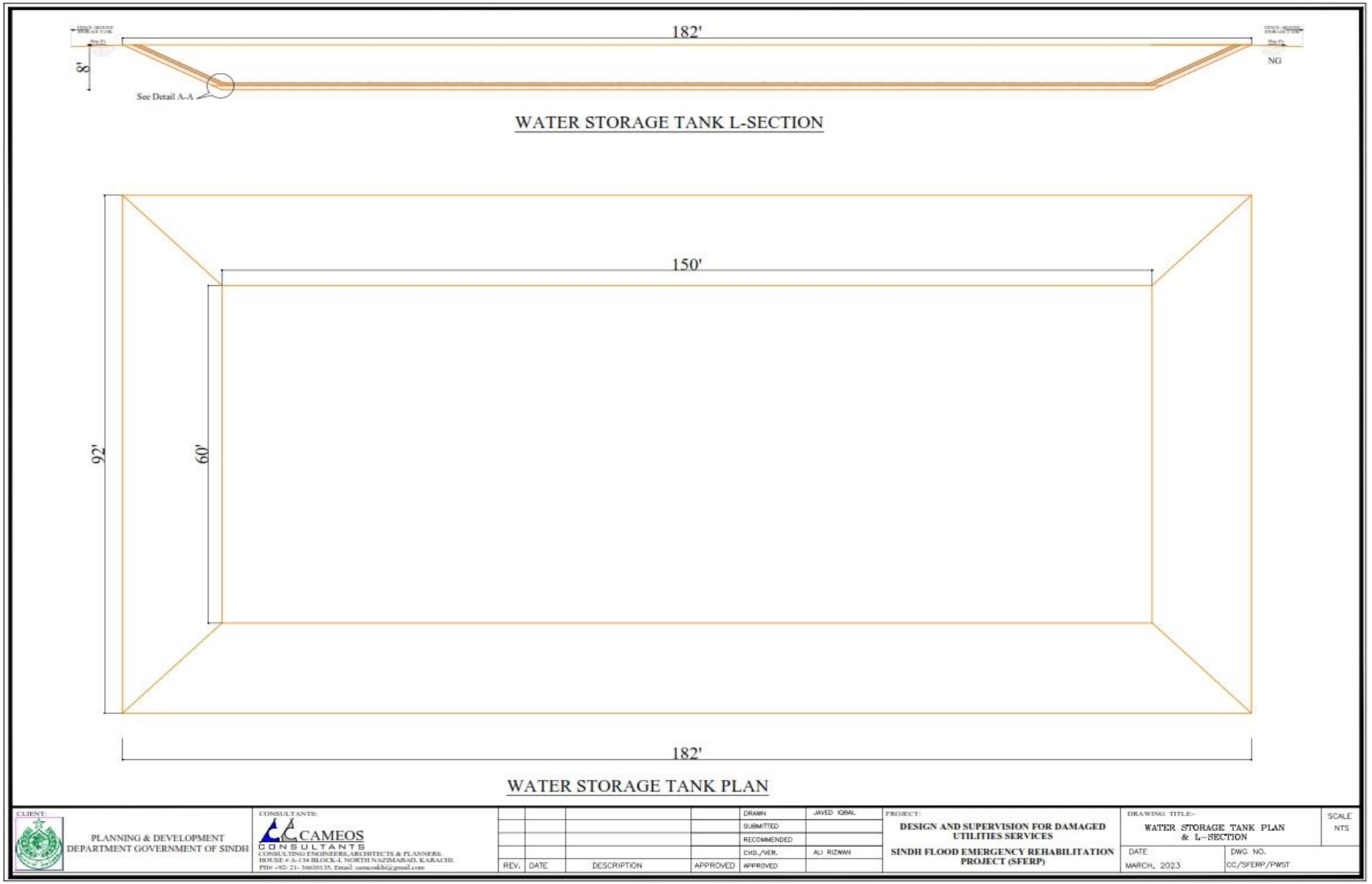
Drain Type-II

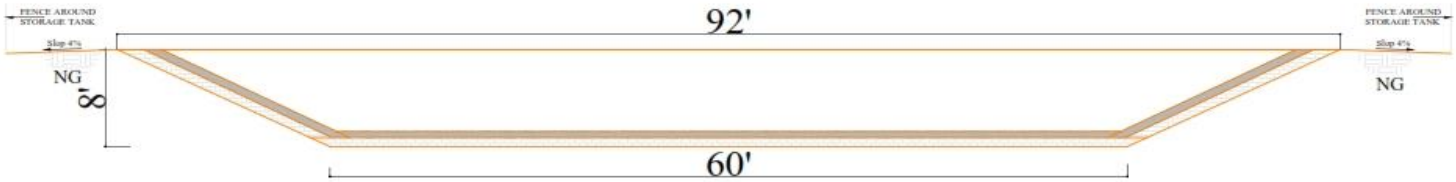


Drain Type-III

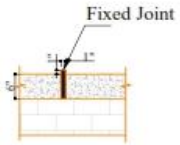
CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS CONSULTING ENGINEERS, ARCHITECTS & PLANNERS. HOUSE # B-116 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36640202, Email: cameoskhi@gmail.com			DRAWN: JAVED IQBAL	PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
				SUBMITTED:	
				RECOMMENDED:	
				CHD./VER.: ALI RIZWAN	
REV.	DATE	DESCRIPTION	APPROVED	APPROVED:	

DRAWING TITLE:- DRAIN SECTIONS | SCALE: NTS | DATE: MARCH, 2023 | DWG NO.: CC/SFERP/DS-01


182'
8'
See Detail A-A
NG
WATER STORAGE TANK L-SECTION
150'
92'
60'
182'
WATER STORAGE TANK PLAN
CLIENT:
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CONSULTANTS:
CAMEOS CONSULTANTS
CONSULTING ENGINEERS, ARCHITECTS & PLANNERS.
HOUSE # A-134 BLOCK-L NORTH NAZIMABAD, KARACHI.
PH# +92-21-36630135, Email: cameokhi@gmail.com
REV. DATE DESCRIPTION APPROVED
DRAWN JAVED IQBAL
SUBMITTED
RECOMMENDED
CHD./VER. ALI RIZWAN
APPROVED
PROJECT:
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
DRAWING TITLE:-
WATER STORAGE TANK PLAN & L-SECTION
SCALE NTS
DATE MARCH, 2023
DWG NO. CC/SFERP/PWST



WATER STORAGE TANK X-SECTION



Detail of Expansion Joint

Note: Bitumastic Rubberized or Neoprene Rubber
Fixed Joint Sealant (Fix before laying of concrete)

CLIENT: PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH	CONSULTANTS: CAMEOS CONSULTANTS, CONSULTING ENGINEERS, ARCHITECTS & PLANNERS, HOUSE # A-134 BLOCK-L NORTH NAZIMABAD, KARACHI. PH# +92-21-36630135, Email: cameokhi@gmail.com				DRAWN	JAVED IQBAL
					SUBMITTED	
					RECOMMENDED	
					CHD./VER.	ALI RIZWAN
	REV.	DATE	DESCRIPTION	APPROVED	APPROVED	

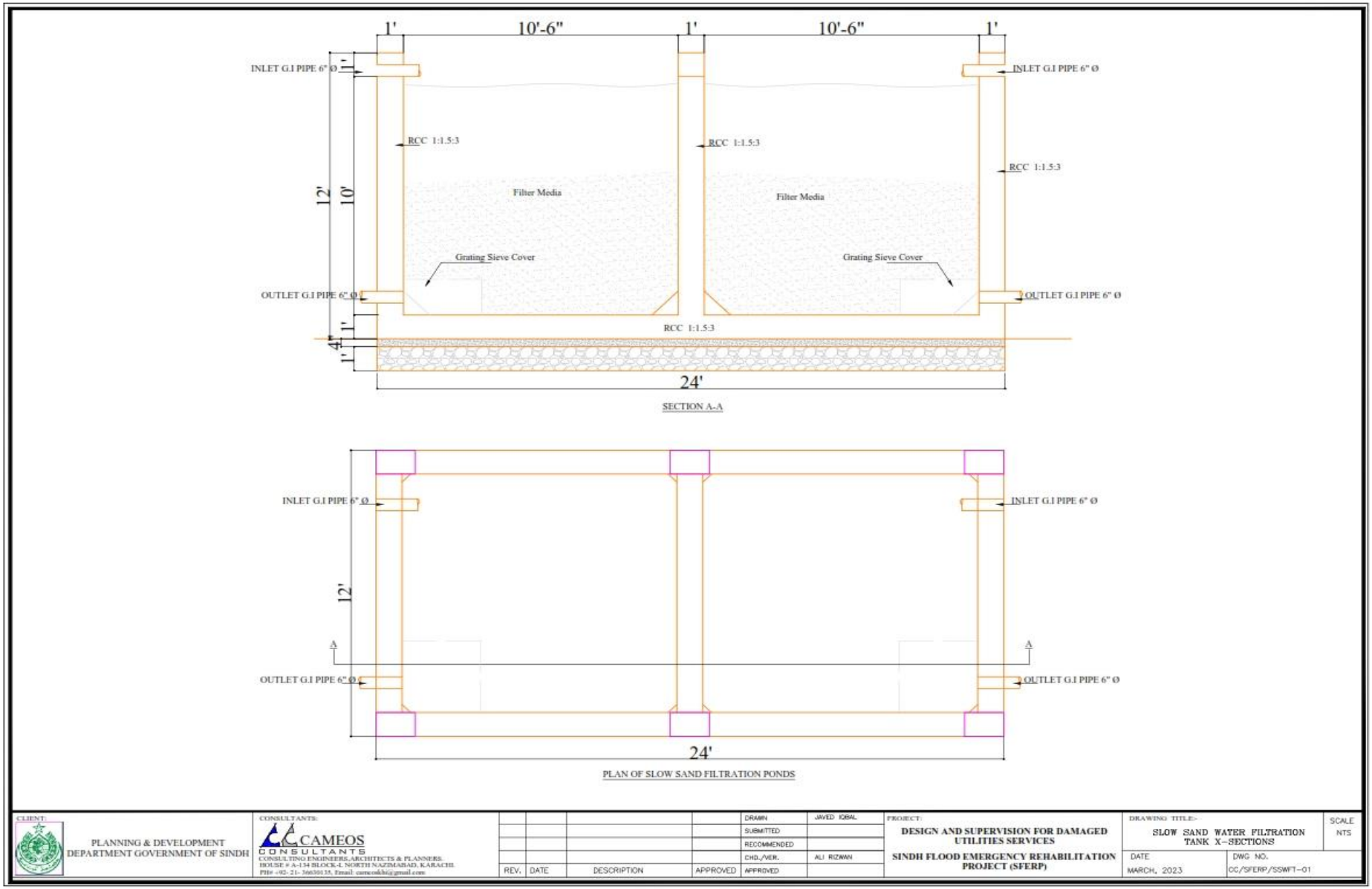
PROJECT: DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)

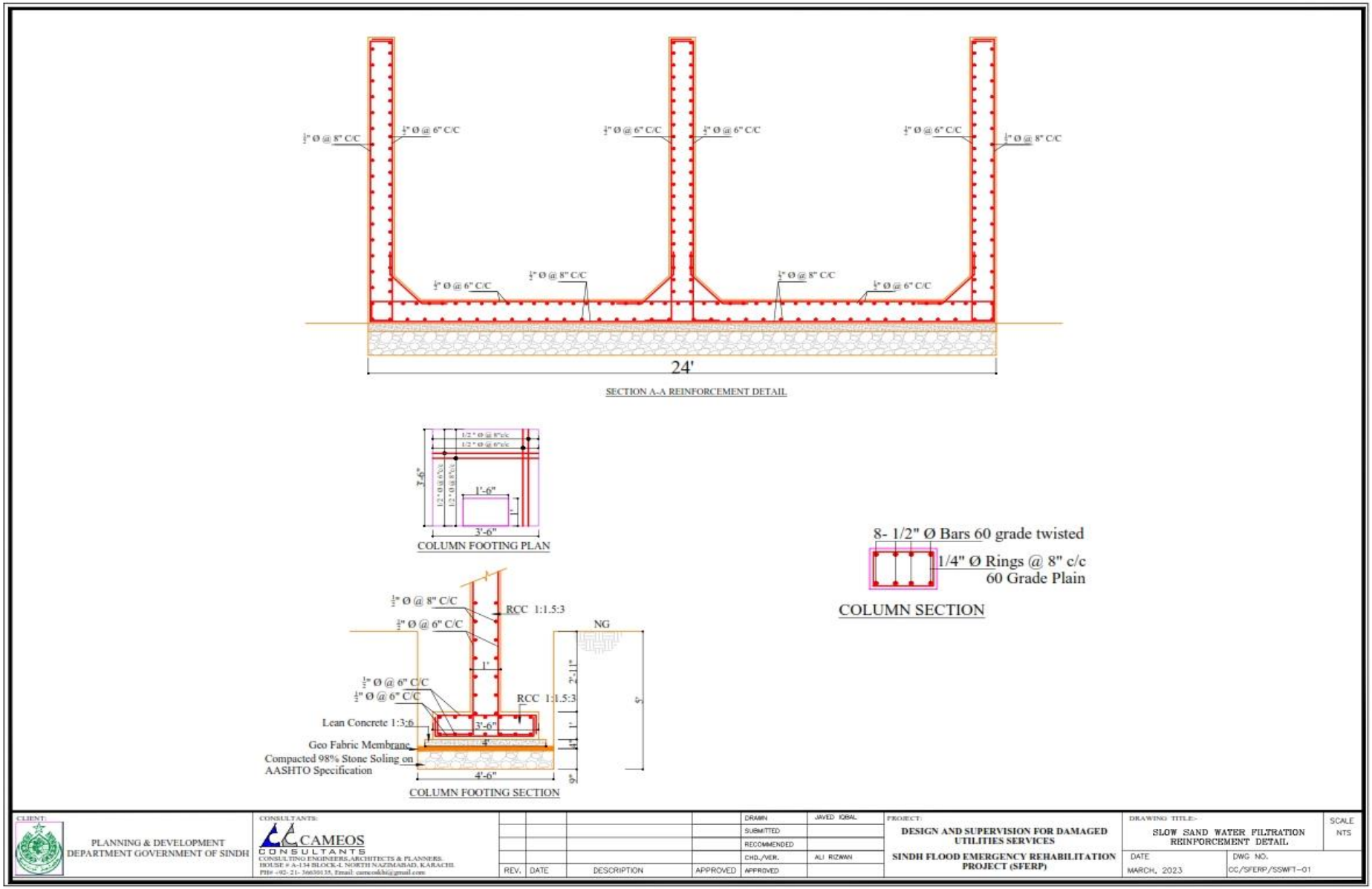
DRAWING TITLE:- WATER STORAGE TANK X-SECTION & EXPANSION JOINT DETAIL

SCALE: NTS

DATE: MARCH, 2023

DWG NO.: CC/SFERP/WST-01


1'
10'-6"
1'
10'-6"
1'
INLET G.I PIPE 6" Ø
INLET G.I PIPE 6" Ø
RCC 1:1.5:3
RCC 1:1.5:3
RCC 1:1.5:3
12'
10'
Filter Media
Filter Media
Grating Sieve Cover
Grating Sieve Cover
OUTLET G.I PIPE 6" Ø
OUTLET G.I PIPE 6" Ø
1'
RCC 1:1.5:3
4"
1'
24'
SECTION A-A
INLET G.I PIPE 6" Ø
INLET G.I PIPE 6" Ø
12'
A
A
OUTLET G.I PIPE 6" Ø
OUTLET G.I PIPE 6" Ø
24'
PLAN OF SLOW SAND FILTRATION PONDS
CLIENT:
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CONSULTANTS:
CAMEOS CONSULTANTS
CONSULTING ENGINEERS, ARCHITECTS & PLANNERS.
HOUSE # A-134 BLOCK-L NORTH NAZIMABAD, KARACHI.
PH# +92-21-36630135, Email: cameokhi@gmail.com
REV.
DATE
DESCRIPTION
APPROVED
DRAWN
JAVED IQBAL
SUBMITTED
RECOMMENDED
CHD./VER.
ALI RIZWAN
APPROVED
PROJECT:
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
DRAWING TITLE:-
SLOW SAND WATER FILTRATION TANK X-SECTIONS
SCALE
NTS
DATE
MARCH, 2023
DWG NO.
CC/SFERP/SSWFT-01


½" Ø @ 8" C/C
¾" Ø @ 6" C/C
¾" Ø @ 8" C/C
24'
SECTION A-A REINFORCEMENT DETAIL
3'-6"
1'-6"
COLUMN FOOTING PLAN
RCC 1:1.5:3
NG
Lean Concrete 1:3:6
Geo Fabric Membrane
Compacted 98% Stone Soling on AASHTO Specification
4'-6"
COLUMN FOOTING SECTION
8- 1/2" Ø Bars 60 grade twisted
1/4" Ø Rings @ 8" c/c
60 Grade Plain
COLUMN SECTION
PLANNING & DEVELOPMENT DEPARTMENT GOVERNMENT OF SINDH
CAMEOS CONSULTANTS
DESIGN AND SUPERVISION FOR DAMAGED UTILITIES SERVICES
SINDH FLOOD EMERGENCY REHABILITATION PROJECT (SFERP)
SLOW SAND WATER FILTRATION REINFORCEMENT DETAIL
MARCH, 2023
CC/SFERP/SSWFT-01

ANNEXURE 3:

Attendence Sheets During Consultation

Annexure 3: Attendence Sheets During Consultation

داد،

Government of Sindh

SFERP
Project Implementation Unit (PIU)

Public Consultation on
Environmental & Social Management Plan (**ESMP**) for
Expansion of DHQ Rescue (1122) Stations in Districts of Sindh
arranged by *Project Implementation Unit* (**PIU**) under *Sindh Flood Emergency Rehabilitation Project* (**SFERP**),
P&DD Component, **Government of Sindh**

عوامي مشاورت تي
ماحولياتي ۽ سماجي انتظام جو منصوبو (ESMP) سنڌ جي ضلعن ۾ ڊي ايچ ڪيو ريسڪيو (1122) اسٽيشنن جي توسيع سنڌ فلڊ ايمرجنسي بحالي منصوبي (SFERP) تحت پروجيڪٽ امپليمينٽيشن يونٽ (PIU) پاران ترتيب ڏنل، P&DD جزو، حڪومت سنڌ

Location/جڳهه: Dadu **Subproject Name/سب پروجيڪٽ جو نالو::** 26-08-2023 **Date/تاريخ:**

Signature/ Thumb Impression دستخط / انگوٺي جو نشان	Address: Village Name, Taluka ائڊريس: ڳوٺ جو نالو، تعلقو	Occupation/ Profession پيشو	CNIC No./ Mobile No. CNICنمبر / موبائل نمبر	Fathers Name پيءُ جو نالو	Name نالو	Sr. No. سيريل نمبر
	ڳوٺ هاشم جانڊيو تعلقو جوهي	هاري	41202-6002746-6	محل ڏنو	منير	.1
	〃	هاري	41202-4365734-1	مختيار	رحمت	.2

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Project Implementation Unit (PIU)

Signature/ Thumb Impression دستخط / آنگوٹھي جو نشان	Address: Village Name, Taluka اڊريس: ڳوٺ جو نالو، تعلقو	Occupation/ Profession پيشو	CNIC No./ Mobile No. CNICنمبر / موبائل نمبر	Fathers Name پيءُ جو نالو	Name نالو	Sr. No. سيريل نمبر
	ڳوٺ هاشم چانڊيو جوهي	هاري/ گهرو ڪم	41202-2847006-2	لياقت	زرينا	.3
	//	//	41202-8036284-6	مشتاق	رضيه	.4
	//	//	41202-8453341-8	لطف علي	بشيران	.5
	//	//	41202-2813259-6	محمد پناه	احسان	.6
	//	//	41202-7518366-2	عبدالجبار	سوبره	.7
	//	//	41202-6363405-2	گل شير	مقصوده	.8
	//	//	41202-7343470-8	دلبر	گلزار	.9
	//	//	41202-5291083-2	الله ڏنو	ناديه	.10
	//	//	41202-5404868-8	محمد نواز	گلشاده	.11

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Project Implementation Unit (PIU)

4/11/2023

Signature/ Thumb Impression دستخط / آنگوٺي جو نشان	Address: Village Name, Taluka ائڊريس: ڳوٺ جو نالو، تعلقو	Occupation/ Profession پيشو	CNIC No./ Mobile No. CNICنمبر / موبائل نمبر	Fathers Name پيءُ جو نالو	Name نالو	Sr. No. سيريل نمبر
	ڳوٺ ڪڪڙ بوزي مور ٿيلو مهر	گهرو	41205-8592105-6	رستم	ظهران	.12
	//	//	41205-3941298-4	رستم	صميدو	.13
	//	//	41205-973544-6	محمد مٺل	صابر	.14
	//	//	41205-4576830-[illegible]	محمد شريف	منظور شاهدين	.15
	//	//	41205-1066850-4	محمد مير	زاهدو	.16
	//	//	41205-0701772-4	منٺل	ماهرو	.17
	//	//	41205-3381127-0	منٺل	[illegible]	.18
	//	//	41205-3120558-6	نفير	راجي	.19
	//	//	41205-4388525-8	گل محمد	ماماجي	.20

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Government of Sindh

SFERP

Project Implementation Unit (PIU)

01/11/2025

Signature/ Thumb Impression دستخط / آنگوٺي جو نشان	Address: Village Name, Taluka ائڊريس: ڳوٺ جو نالو، تعلقو	Occupation/ Profession پيشو	CNIC No./ Mobile No. CNICنمبر / موبائل نمبر	Fathers Name پيءُ جو نالو	Name نالو	Sr. No. سيريل نمبر
	ڳوٺ ڪڪڙ	هاري	41205-3060312-4	الله ڏنو	اميران ٽالپر	.21
	〃	〃	41205-4030112-6	رئيس	ڪرم ڏنو	.22
	ڳوٺ ڦوٽو خان ڪيهر K.N.Shah	هاري	41203-6031331-1	نواز	زاهد	.23
	〃	〃	41203-2037123-7	علي نواز	آصف	.24
	〃	〃	41203-3740107-9	اڪرم	ڪرم	.25
	〃	〃	41203-8766137-7	حاڪم	دلنواز	.26
	〃	〃	41203-7811148-7	سرور	علي نواز	.27
	〃	〃	41203-5561331-9	رمضان	مسڪين	.28
	〃	〃	41203-6040119-9	ڪرم علي	ڪامران	.29

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Government of Sindh

SFERP

Project Implementation Unit (PIU)

Signature/ Thumb Impression دستخط / انگوٺي جو نشان	Address: Village Name, Taluka ائڊريس: ڳوٺ جو نالو، تعلقو	Occupation/ Profession پيشو	CNIC No./ Mobile No. CNICنمبر / موبائل نمبر	Fathers Name پيءُ جو نالو	Name نالو	Sr. No. سيريل نمبر
	ڏني بخش	هاري	41203-1137011-7	حاڪم	نذر محمد	.30
	//	//	41203-3310137-7	اڪبر	علي اڪبر	.31
	//	//	41203-6811231-9	رياضت	قدير	.32
	//	//	41203-8711440-9	خير محمد	مجيب	.33
31/11/2023	ڳوٺ الله آباد دادو	//	41202-1017311-9	شهنواز	ستار	.34
	//	//	41202-3740118-7	خان محمد	انور	.35
	//	//	41202-3931312-9	ڪامران	فاضل	.36
	//	//	41202-9910122-9	ديدار	رشيد	.37
	//	//	41202-8733118-9	انور	منور	.38

Government of Sindh 8/11/2023

SFERP

Project Implementation Unit (PIU)

Signature/ Thumb Impression دستخط / آنگوٺي جو نشان	Address: Village Name, Taluka اَئڊريس: ڳوٺ جو نالو، تعلقو	Occupation/ Profession پيشو	CNIC No./ Mobile No. CNICنمبر / موبائل نمبر	Fathers Name پيءُ جو نالو	Name نالو	Sr. No. سيريل نمبر
	دني بخش	هاري	41202-617314-7	سمير	سهيل	.39
	[illegible]	//	41202-[illegible]-7	شجن	زاهد	.40
	//	//	41202-4701135-9	سانگهڙ	اسلم	.41
	//	//	41202-4811311-7	احمد	علي خان	.42
	//	//	41202-7811164-3	ماهي خان	حاجي خان	.43
	//	//	41202-8011338-7	ڪاڪو خان	بشو	.44

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