GOVERNMENT OF THE PUNJAB
PLANNING & DEVELOPMENT BOARD
(URBAN DEVELOPMENT SECTION)

WORKING PAPER FOR PDWP

1.	**Project Title**	Providing and Laying of HDPE Forcemain from Dawood Chowk Disposal Station to Fish Farm Satyana Road, Faisalabad
2.	**Location**	Faisalabad
3.	**Sponsoring Agency**	HUD & PHE Department, Govt. of the Punjab
4.	**Executing Agency**	Water & Sanitation Agency FDA
5.	**Operation and Maintenance**	Water & Sanitation Agency FDA
6	**Proposed Cost**	**Rs. 1,249.15 Million**
7.	**ADP 2024-25** (GS.NO. 7415)	Technical Supplementary
8.	**Gestation period**	24 months till February 2027

9. BREIF BACKGROUND / DESCRIPTION OF THE PROJECT

The Government of Punjab has approved a comprehensive Development Package to address the longstanding sewerage challenges of Faisalabad City. The package includes a total of fourteen (14) schemes aimed at modernizing and improving the city's sewerage infrastructure. The instant scheme is part of the approved package and is integral to achieving the package's overarching goal of resolving chronic sewerage issues and ensuring sustainable urban development. The scheme is included in ADP 2024-25 (GS # 7415). Dawood Disposal Station currently discharges wastewater via a 48-inch forcemain into a 54-inch gravity sewer, which transports it to another disposal station (PS-42). The process involves double pumping before final discharge intoa water body, resulting in high operational costs and energy inefficiencies. To optimize the system, a new 40-inch forcemain is proposed to directly convey wastewater from the Dawood Disposal Station to the Satyana Sludge Carrier, eliminating the need for double pumping.

11. JUSTIFICATION OF THE PROJECT

The proposed forcemain aims to eliminate the requirement for double pumping, thereby optimizing operational efficiency and reducing associated costs. Additionally, the existing 48-inch diameter gravity sewer, which conveys wastewater from the Dawood Disposal Station as well as its

independent catchment area, experiences hydraulic overloading and overflow conditions upon receiving discharge from the 48-inch forcemain. This results in ponding and system inefficiencies. Therefore, a separate forcemain is required for this disposal station to combat the sewerage issues. The population of **217,713** was projected for the design period upto 2050.

SCOPE OF THE SCHEME

- Proposed Sewerage Network - (Ø12" to Ø18") = 17,600 ft
- Proposed Forcemain Length = 17,215 ft
- Proposed Forcemain Diameter = Ø1000 mm
- Capacity of Proposed Pumps
    - Working Pumps = 10 + 15 +15 cusecs (W)
    - Standby Pumps = 10 cusecs (S)

12. PROJECT OBJECTIVES:

1. To provide a reliable and sustainable system for Dawood Disposal Station and its surroundings.
2. Optimize the wastewater conveyance system to minimize energy consumption and operational expenses associated with double pumping.
3. To enhance the operational efficiency of the existing disposal station by installing new pumps, ensuring effective conveyance of wastewater to the final disposal point.

PROJECT COST SUMMARY

(Rs. in million)

SR. NO.	DESCRIPTION	Cost Before Pre-PDWP	Cost After Pre-PDWP	Excess	Saving	Remarks
1	FORCEMAIN	882.09	1,078.54			1. In updated PC-1 pressure rating of forcemain has been revised to PN-08 which was PN-10 in previous PC-I.
2	PUMPING STATION MECHANICAL AND ELECTRICAL WORKS	228				
	Total	1110.09	1,078.54	-	31.55	
3	RESTORATION /RELOCATION OF EXISTING SEWER CONNCECTIONS & LINES	65.61	63.96	-	1.65	
4	FALL STRUCTURE	17.3	3.51	-	13.79	
	TOTAL COST	82.91	67.47	-	46.99	
5	Contingency Charges @ 2%	23.86	22.92	-	0.94	
6	PRA @ 5%	59.65	57.3	-	2.35	
7	Consultancy charges @ 2%	23.86	22.92	-	0.94	
	GRAND TOTAL AMOUNT	**1,300.37**	**1,249.15**	**-**	**51.22**	

13. SECTOR ISSUES AND STRATEGY

<table>
<tr><td>i.</td><td>Sector Issues</td><td>Sewer overflow issues in catchment area of Dawood chowk disposal station due to double pumping</td></tr>
<tr><td>ii.</td><td>Sector Strategy</td><td>The proposed project is fully aligned with the Master Plan 2018-38, which emphasizes the modernization and enhancement of the sewerage system to meet the growing demands of urban development.</td></tr>
<tr><td>iii.</td><td>Other Major Ongoing & Potential Projects in the Sector</td><td>• Providing and Laying Trunk Sewer from Jawad Club Chowk to Chokera Disposal station Faisalabad
• Enhancement of Pumping Capacity of Disposal Stations and Improvement of Sewerage System in Madina Town, Shamsabad, Samanabad, Masoodabad, Nawaban Wala, Sakhi Sarwar Abad And Adjoining Areas (Eastern Side)
• Construction of Eastern Waste Water Treatment Plant of Faisalabad City Phase-I (DSIF, Denmark Assisted)</td></tr>
<tr><td>iv.</td><td>Year-wise estimates of Physical activities by main components as per following:</td><td>
<table>
<tr><th rowspan="2">Items</th><th colspan="3">Year wise physical activities</th><th rowspan="2">Total</th></tr>
<tr><th>2024-25</th><th>2025-26</th><th>2026-27</th></tr>
<tr><td>Providing & Laying of Forcemain including upgradation of Pumping Capacity of Dawood Chowk Disposal Station</td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
<tr><td>Total: -</td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
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<tr><td>Grand Total: -</td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
</table>
</td></tr>
<tr><td>v.</td><td colspan="2">Year-wise/ Component-wise Financial Phasing
<table>
<tr><th rowspan="2">Items</th><th rowspan="2">Unit</th><th colspan="3">Year wise Financial activities</th><th rowspan="2">Total</th></tr>
<tr><th>2024-25</th><th>2025-26</th><th>2026-27</th></tr>
<tr><td>Providing & Laying of Forcemain including upgradation of Pumping Capacity of Dawood Chowk Disposal Station</td><td></td><td>229.22</td><td>687.65</td><td>229.22</td><td>1146.081</td></tr>
<tr><td>Total: -</td><td></td><td>229.22</td><td>687.65</td><td>229.22</td><td>1146.081</td></tr>
<tr><td>Contingency Charges @ 2%</td><td></td><td>4.58</td><td>13.75</td><td>4.58</td><td>22.922</td></tr>
<tr><td>PRA @ 5%</td><td></td><td>11.46</td><td>34.38</td><td>11.46</td><td>57.304</td></tr>
<tr><td>Consultancy Charges @ 2%</td><td></td><td>4.58</td><td>13.75</td><td>4.58</td><td>22.922</td></tr>
<tr><td>Grand Total: -</td><td></td><td>250.00</td><td>750.00</td><td>250.00</td><td>1250.000</td></tr>
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14. FINANCIAL ANALYSIS:

Financial Indicators	At 12% Discount Rate
Present Worth of Benefits (Rs million)	2313.98
Present Worth of Costs (Rs million)	1398.58
Net Present Value (Rs million)	915.40
B/ C Ratio	**1.65**
FIRR (Percent)	20.42

The results showed that project is financially viable.

15. ECONOMIC ANALYSIS:

Economic Indicators	At 12% Discount Rate
Present Worth of Benefits (Rs million)	1804.46
Present Worth of Costs (Rs million)	1125.50
Net Present Value (Rs million)	678.96
B/ C Ratio	**1.60**
EIRR (Percent)	20.41

The EIRR calculated is above the economic opportunity cost of capital (12%) in Pakistan. The results of NPV and B/C ration also proved that project is economically viable.

(PART-B)

TECHNICAL APPRAISAL

Instant project was discussed in the Pre-PDWP meeting held on 06.02.2025 under the Chairmanship of Member (LG/UD), P&D Board. The observations raised by the P&D Board and replies of sponsors are juxtaposed as under:

SN	Page	Caption	Comments	Replies	Remarks pre-PDWP
A	**Design and drawings**				
1	2	Sewer map	1) The sizes of the existing sewers leading to Dawood colony disposal station are missing. 2) Some 9" dia proposed sewers have been shown to discharge in the proposed force main	1) Incorporated. A separate existing sewerage system map is also attached. 2) Rectified.	Noted

			which is not understood. This should be justified. 3) New force main has been proposed from Dawood Colony disposal works to Satyana drain. How the sewage from this disposal works is being disposed off presently, should be shown in them map?	3) Presently, sewage from catchment area is carried to Dawood Chowk Disposal Station and is being pumped and disposed off into existing sewer (48").	
2	-	Project design	The design of the following components of the system is missing which should be included in the PC-I; 1) Population to be served by the Dawood Colony disposal works with reference to the census report. 2) Total quantity of sewage to be handled by the Dawood Colony disposal works determined from the population served. 3) Hydraulic statement of newly proposed sewers. 4) Hydraulic design of the force main 5) Design of the pumping machinery 6) Existing Nos of pumping units, their capacity and year of installation in the Dawood Colony disposal station and their future use.	1) Existing and projected population is attached. 2) 40 cusecs 3) Only 12" sewer has been provided in the unserved area and relocation of 15" and 18" has been taken. 4) Design data is attached. 5) Designed as per flow demand. 6) The 04 nos. existing pumps (28 cusecs total capacity) are installed at disposal station but these do not meet the head requirements; therefore, pumps shall be replaced.	Noted
B	**Cost estimates**				
3	12	Item-6	No sewers have been indicated to be replaced in the sewer map. Then why the disjointing of sewers has been included over here?	Rectified in revised estimate	Noted
4	-	Back up quantities	The units of back up quantities are missing.	Rectified in revised estimate	Noted
5	12 & 13	Item No-14 & 15	The total quantity of PCC dismantled has been worked out to 6534.5 Cft and the	Updated in revised estimate	Noted

			same will be restored. The additional quantity of concrete in item No-14 should be justified.		
6	13	Item No-17	Where the sand under this item will be used?	Updated in revised estimate	Noted
7	13	Item No-24	The sewers will be laid in dry formation which do not involve bailing out of water. Hence this item should be deleted.	Incorporated	Noted
8	15	Excavation	The excavation for 1000 mm dia pipe should not exceed 6 feet (pipe dia = 40" + cover =3.0 feet + sand cushion = 18" Total= 8') whereas the depth of 12 feet has been excavated which should be justified.	Rectified in revised estimate	Noted
9	15	Item-5	The thickness of sand under the pipe is very excessive (4.5 feet) which should not be more than 18". It should be corrected.	Rationalized in revised estimate. However, sand is also taken in trench under road area.	Noted
10	15	Item -9	Again, sand filling has been included in this item which is duplication and should be deleted.	Rectified in revised estimate	Noted
11	17	Item No-6	The maximum delivery head of the pumping machinery has been mentioned to be 80 feet (2.5 bars). PN-8 HDPE pipe will be adequate to take this head and hence this pipe class should be used instead of PN-10.	Incorporated. PN-08 has been used.	Noted
12	18	Item-26	The dismantling of road included the sub base, base and pavement which will be laid as a sub base. This should make entire quantity of the sub base and no new stone metal should be used for this purpose. The correction should be made accordingly after calculation of the materials dismantled and sub base quantity required.	Incorporated in revised estimate	Noted
13	20	MS casing	The thickness of casing as given here is 12.7 mm which is excessive. 6 to 8 mm	It is taken as per previous experience of MS pipe jacking method.	

			thickness will be adequate and should be corrected.		
14	32	Generator	The capacity of 1000 KVA generator should be justified with respect to the load in the disposal works.	Generator is provided as per load calculations. Rechecked.	
15	54	O&M cost table	The table should be completed	Incorporated	

A. <u>Comments of Technical Section:</u>

Sr. No.	Observations	Reply	Remarks of the Pre-PDWP
i.	Rate analysis for N.S item may be provided.	Attached	Noted.
ii.	Utility service charges taken as lumpsum provision may be substantiated with RD wise maps / drawings.	Incorporated	Noted.
iii.	Master plan of city's drainage facilities and disposal stations may be provided.	Provided	Noted.
iv.	Department may provide RD wise detail for sewage pipes replacement and new lying works.	Attached	Noted.
v.	Site reports surveys regarding non-functional, old sewage systems may be provided.	Provided	Noted.
vi.	It is observed that both RCC and HDPE pipes are being used in various schemes. Sponsor may explain.	Provided	Noted.
vii.	Rs. 10 M under NOC services may be clarified under various head	Rationalized as per actual	Noted.
viii.	The need of 1000 KVA Genset Rs. 56 M may be clarified.	Attached sheet	Noted.
ix.	Rs. 14 M single girder crane may be explained.	Rectified	Noted.

16. <u>RECOMMENDATION:</u>

Project is placed before PDWP at Rs 1,249.15 for consideration & approval in the light of observations raised by P&D Board, replies furnished by HUD & PHED and remarks of the Pre-PDWP