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

WORKING PAPER FOR PDWP

<table>
<tr><td>1.</td><td>Project Title</td><td>Upgradation and Rehabilitation of Pumping Station No. 34 and Installation of 36" HDPE Forcemain in Samanabad, Faisalabad.</td></tr>
<tr><td>2.</td><td>Location</td><td>Faisalabad</td></tr>
<tr><td>3.</td><td>Sponsoring Agency</td><td>HUD & PHE Department, Govt. of the Punjab</td></tr>
<tr><td>4.</td><td>Executing Agency</td><td>WASA Faisalabad</td></tr>
<tr><td>5.</td><td>Operation and Maintenance</td><td>WASA Faisalabad</td></tr>
<tr><td>6</td><td>Proposed Cost</td><td>Rs. in Million
<table>
<tr><th></th><th>Cost</th><th>Difference</th><th>%</th></tr>
<tr><td>Cost Before Pre-PDWP</td><td>1,150.0</td><td rowspan="2">-102.44</td><td rowspan="2">-9%</td></tr>
<tr><td>Cost After Pre-PDWP</td><td>1,047.56</td></tr>
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<tr><td>7.</td><td>ADP 2024-25 (GS.NO. 7414)</td><td>Technical Supplementary</td></tr>
<tr><td>8.</td><td>Gestation period</td><td>24 months till February, 2027</td></tr>
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9. BRIEF 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 instant project area is currently facing limitations in terms of disposal station and forcemain capacity. This can lead to system overloads, environmental contamination, and potential health risks. Upgrading the scheme by expanding disposal station and enhancing the forcemain infrastructure is essential to meet growing demand. This scheme includes the

following major components;

- New Disposal Station
- Forcemain from Disposal Station to Outfall Drain/ Channel
- Remodelling of sullage carrier

10. JUSTIFICATION OF THE PROJECT

The project is suffering critical operational inefficiencies at Pumping Station No. 34 (PS-34) due to insufficient disposal station components and undersized forcemain, which are unable to meet the required pumping capacity, resulting in sewer overflows and customer complaints. Therefore, this scheme involves the upgradation of existing disposal station and installation of forcemain to cater the sewage disposal issues. Moreover, sullage carrier needs rehabilitation or remodelling as well as three (03) disposal stations are disposing off the sewage in it.

This project will help in the improvement and modernization of the sewerage system of the affected area. A modernized sewerage system will reduce the risk of waterborne diseases and contamination of natural water bodies by minimizing pollution and improving water quality. An upgraded sewerage system safeguards ecosystems, biodiversity, and public health while contributing to climate resilience by mitigating flooding and stormwater runoff. These efforts build healthier, more sustainable, and resilient communities for present and future generations. The population of **136,183** was projected for the design period upto 2050.

11. PROJECT OBJECTIVES:

The current disposal station is inadequate, outdated and unable to handle the growing volume of wastewater. This scheme will cater to the growing population's needs, prevent waterborne diseases and support sustainable urban development. The primary objectives are:

1. To provide new disposal station for a reliable and sustainable sewerage system.
2. To install 36" HDPE forcemain and to eliminate associated public health hazards in the region.
3. To rehabilitate and remodel the sullage carrier
4. To enhance the quality of life for residents by improving sanitation facilities.

12. PROJECT SCOPE

- 01 No. Screening Chamber = Ø 10 ft
- 01 No. Wet Well = Ø 45 ft
- 01 No. Dry Well = Ø 25 ft
- Proposed Forcemain Length = 11,800 ft

- Proposed Forcemain Diameter = Ø 900 mm
- Capacity of Proposed Pumps
    - Working Pumps = 10 + 15 cusecs (W)
    - Standby Pumps = 10 cusecs (S)

13. PROJECT COST SUMMARY

(Rs. in million)

SR. NO.	DESCRIPTION	Cost Before Pre-PDP	Cost After Pre-PDWP	Excess	Saving	Remarks
1	UPGRADATION OF PUMPING STATION NO.34 AND INSTALLATION OF FORCEMAIN FORCEMAIN	500.98	712.24			1. In updated PC-1 pressure rating of forcemain has been revised to PN-08 which was PN-10 in previous PC-I. 2. Development of sewerage system has been deleted in updated PC-I. However, restoration of sewer connections has been taken. 3. Remodelling of Existing Sullage Carrier has been taken in updated PC-I. 4. The cost for Geotechnical Investigations is added in updated PC-I.
2	PUMPING STATION NO.34	332.11				
	Total	**833.09**	**712.24**	**-**	**120.85**	
3	DEVELOPMENT OF THE SEWERAGE SYSTEM	185.85	0	-	185.85	
4	FALL STRUCTURE	12.67	3.51	-	-9.16	
5	RESTORATION /RELOCATION OF EXISTING SEWER CONNCECTIONS & LINES	0	2.99	2.99	-	
6	OFFICE BUILDING	5.52	6.66	1.14	-	
7	STAFF BUILDING		4.6	4.6	-	
8	SUB STATION BUILDING	6.28	9.89	3.61	-	
9	BOUNDARY WALL INCLUDING GATE	6.42	8.78	2.36	-	
10	GEOTECHNICAL INVESTIGATION	-	1.14	1.14	-	
11	REMODELLING OF EXISTING SULLAGE CARRIER	-	211.25	211.25	-	
12	Miscellaneous Items	5.23		-	5.23	
	TOTAL COST	**1,055.06**	**961.07**	**-**	**93.99**	
13	Contingency Charges @ 2%	21.1	19.22	**-**	1.88	
14	PRA @ 5%	52.75	48.05	**-**	4.7	
15	Consultancy charges @ 2%	21.1	19.22	**-**	1.88	
	GRAND TOTAL	**1,150.02**	**1,047.56**	**-**	**102.45**	

14. SECTOR ISSUES AND STRATEGY

<table>
<tr><td>i.</td><td>Sector Issues</td><td>• Sewerage Issues
• Environmental Pollution</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 of HDPE Forcemain from Dawood Chowk Disposal Station to Fish Farm Satyana Road, Faisalabad
• Providing and Laying of Forcemain and Development of the Sewerage System in adjacent areas of Gatti, Aslam Park, Farooq Town, Adnan Town, Bagewala Road, Azhar Town, Sufyan Town and Adjoining Areas
• Providing and Laying Trunk Sewer from Jawad Club Chowk to Chokera Disposal station Faisalabad</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">Sr. #</th><th rowspan="2">Items (Description)</th><th rowspan="2">Unit</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>1</td><td>• Providing & Laying of Forcemain and Upgradation of PS-34 Disposal Station</td><td></td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>Total</td><td></td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
<tr><td></td><td>Add 2% Contingency charges</td><td></td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
<tr><td></td><td>Add 2% Consultancy charges</td><td></td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
<tr><td></td><td>Add 5% PRA Tax</td><td></td><td>20%</td><td>60%</td><td>20%</td><td>100%</td></tr>
<tr><td></td><td>Total</td><td></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 Financial Phasing
<table>
<tr><th rowspan="2">Sr.#</th><th rowspan="2">Items (Description)</th><th rowspan="2">Unit</th><th colspan="3">Year wise Financial Phasing</th><th rowspan="2">Total</th></tr>
<tr><th>2024-25</th><th>2025-26</th><th>2026-27</th></tr>
<tr><td>1</td><td>• Providing & Laying of Forcemain and Upgradation of PS-34 Disposal Station</td><td></td><td>192.78</td><td>578.33</td><td>192.78</td><td>963.89</td></tr>
<tr><td></td><td>Total</td><td></td><td>192.78</td><td>578.33</td><td>192.78</td><td>963.89</td></tr>
<tr><td></td><td>Add 2% Contingency charges</td><td></td><td>3.86</td><td>11.57</td><td>3.86</td><td>19.28</td></tr>
<tr><td></td><td>Add 2% Consultancy charges</td><td></td><td>3.86</td><td>11.57</td><td>3.86</td><td>19.28</td></tr>
<tr><td></td><td>Add 5% PRA Tax</td><td></td><td>9.64</td><td>28.92</td><td>9.64</td><td>48.19</td></tr>
<tr><td></td><td>Grand Total</td><td></td><td>210.00</td><td>631.00</td><td>210.00</td><td>1051.00</td></tr>
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</td></tr>
<tr><td>vi.</td><td>Annual Recurring Expenditure</td><td>Rs. 24.6 million</td></tr>
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FINANCIAL ANALYSIS:

Financial Indicators	At 12% Discount Rate
Present Worth of Benefits (Rs million)	825.94
Present Worth of Costs (Rs million)	1118.08
Net Present Value (Rs million)	(292.14)

B/ C Ratio	0.74
FIRR (Percent)	7.78

The results showed that project is financially viable.

15. ECONOMIC ANALYSIS:

Economic Indicators	At 12% Discount Rate
Present Worth of Benefits (Rs. million)	2313.13
Present Worth of Costs (Rs. million)	942.80
Net Present Value (Rs. million)	1370.33
B/ C Ratio	2.45
EIRR (Percent)	29.35

(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:

A. Observations of UD Section:

Sr. No.	Observations	Reply	Remarks of the Pre-PDWP
i.	In the nomenclature rehabilitation & upgradation of Pumping Station No.34 is mentioned. However, project scope includes construction of disposal station, complete E&M works and provision of forcemain. Please justify that the project scope is aligned with the nomenclature.	The scheme involves the construction of disposal station, laying of forcemain and remodeling of existing sullage carrier for safe final disposal. Reconstruction of the disposal is aligned with rehabilitation. Hence, the scope and nomenclature are aligned and there is nothing beyond the indicated nomenclature.	Noted.
ii.	If it is new disposal station is being established here. What is current disposal mechanism	Current disposal station is not fulfilling the requirements and causes several issues. For example, a small rectangular chamber with working depth of only 1 ft is being utilized as wet well.	Noted.
iii.	What will be the forcemain	Updated in maps	Noted.

Sr. No.	Observations	Reply	Remarks of the Pre-PDWP
	discharged, not cleared from Map.		
iv.	3.76 km forcemain with cost Rs.501 million along with establishment of disposal station amounting Rs.369 million are proposed in the instant project. The project seems to be stand alone and limited area will be benefitted despite of significant pubic investment. Furthermore, there will significant O&M cost due to significant distance of disposal station to water body.	Cost is updated. Currently, sewage is being disposed off into the same sullage carrier. The project is being executed due to capacity issues of disposal station components as well as forcemain dia. Moreover, forcemain is structurally week too an has been burst many times. Details are incorporated.	Noted.
v.	Proposed PN-10 & HDPE pipes should be supported by expected maximum operating pressure calculations.	PN-08 HDPE pipes are used in updated estimate. Calculations are also attached.	Noted.
vi.	Total population served, per capita water consumption and planning horizon to be provided to substantiate the proposed design of the sewer lines. Hydraulic statement may also be provided.	Incorporated.	Noted.
vii.	In order to justify the provision of three 15 cusec pump following information / documents should be provided: a. Demand and supply analysis in terms of total discharge & required pumping capacity of existing pumping capacity. b. Efficiency of existing pumps duly supported by audit report	Details are attached.	Noted.

Sr. No.	Observations	Reply	Remarks of the Pre-PDWP
ix.	Significant cost has been proposed for restoration of road. In this regard, it is proposed that sewer may be laid on side of road without dismantling the road, map showing right ways may be provided	Updated as per actual	

B. <u>Comments by Consultant (SI), P&D Board:</u>

SN	Page	Caption	Comments	Replies	Remarks of Pre-PDWP
A	**Design and drawings**				
1	2	Sewer map	1) A complete sewerage system exists in the area under service. A complete and separate map showing this system in green color with sizes and direction of flow marked on the plan should be included to assess the existing conditions. 2) The plan does not explain if the proposed sewers are the replacement to the existing sewers or new sewers which should be indicated on the plan. 3) The connections of the existing sewers with proposed sewers are dubious as the existing sewers look to be connected with more than one sewer and in both directions. Hence the directions of flow of the existing sewers should be marked clearly which should not show their connections to more than one sewer. 4) As such this map is totally	1) Incorporated. A separate existing sewerage system map is also attached. 2) Scheme involves upgradation of disposal station, laying of new forcemain and remodeling of sullage carrier. 3) The map is updated. 4) Updated maps are attached. 5) Existing sewerage system map is attached. 6) Currently, wastewater has	Noted.

SN	Page	Caption	Comments	Replies	Remarks of Pre-PDWP
A	Design and drawings				
			confusing and a realistic map with clear configuration of the existing and proposed sewers should be included. 5) Some sewers around PS-34 look to be discharging in an existing sewer taking its flow in some other disposal works which is unexplained. 6) New force main has been proposed for PS-34 disposal works. The existing ultimate disposal of waste water from this pumping station should be shown on the map. 7) From the map it is not clear where the proposed force main will discharge.	been discharged into sullage carrier through 20" forcemain, which is required to be rehabilitated. 7) Updated map of proposed system is attached.	
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 PS-34 with reference to the census report and design period. 2) Total quantity of sewage to be handled by the PS-34 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 PS-34 and their future use.	1) Projected population is attached. 2) 25 cusecs, calculations attached. 3) No sewer lines under this scheme, only relocation of connections have been taken. 4) Design data is attached. 5) Designed as per flow demand. 6) The 04 nos. existing pumps (26 cusecs) are installed at disposal station but these do not meet the head requirements; therefore, pumps shall be replaced. 7) Disposal station is being upgraded/ rehabilitated to	Noted.

SN	Page	Caption	Comments	Replies	Remarks of Pre-PDWP
A	**Design and drawings**				
			7) Adequacy of the screening chamber and collecting tanks in PS-34 to take the proposed discharge.	cater the design flows.	
3	19	Disposal station	1) A drawing of the existing disposal works showing all existing and proposed components should be included. 2) The need for additional collecting tank and pump house should be justified by calculating: a) Total designed sewage flows from the served area b) Capacity of the existing collecting tank c) Additional capacity required and hydraulic design of the additional collecting tank. d) Structural design of the collecting tank. e) Drawings of the proposed screening chamber, collecting tank, pump house, discharge chamber, electrical substation / control room, operator room, boundary wall and gate and store.	Disposal station is being upgraded to cater the design flows and layout drawing of all the components is attached.	Noted.
B	**Cost estimates**				
4	-	Back up quantities	The units of back up quantities are missing. Quantities without units are just numbers.	incorporated	Noted.
5	9	Excavation	The excavation for 900 mm dia pipe should not exceed 7.5 feet (pipe dia = 36" + cover =3.0 feet + sand cushion = 18" Total = 7.5') whereas the depth of 9 feet has been excavated which	incorporated	Noted.

SN	Page	Caption	Comments	Replies	Remarks of Pre-PDWP
A	Design and drawings				
			should be justified.		
6	9	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.	This quantity is taken where the forcemain is laid under the road.	Noted.
7	9	Item-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.	Noted.
8	9	Item-9	Again, sand filling has been included in this item which is duplication and should be deleted.	Rectified.	Noted.
9	10 & 11	Item-26 & 27	The dismantling of road includes 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.	Noted.
	60	Item-20 & 21		Incorporated.	Noted.
10	12	Item-2	The rate per Rft used for road cut (Rs 150) is excessive and should be rationalized.	Rectified.	Noted.
11	14	Item-31	The lump sum provision of Rs 5.0 million for shifting of unforeseen services is excessive. WASA must know the services in a length of 12 350 Rft of the proposed force main and work out the detailed cost of this shifting.	Incorporated.	Noted.
12	19	Disposal station	Office is not required in a disposal station and should be deleted.	It was provided after discussion to maintain the office records.	Noted.
13	21	Core wall	The thickness of the core wall (1.25 feet) seems to be excessive in presence of composite structure of the	Incorporated.	Noted.

SN	Page	Caption	Comments	Replies	Remarks of Pre-PDWP
A	Design and drawings				
			collecting tank which should be justified and rationalized.		
14	39	Item-27	The need for construction of shed should be explained.	Incorporated	Noted.
15	57	Carriage of aggregate	The analysis of rate for carriage of aggregate should be included in the PC-I.	Included.	Noted.
16	58	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.	Noted.
17	65	Item-5	The lump sum provision of Rs 5.0 million for shifting of unforeseen services is excessive. WASA must know the services in the area and work out the detailed cost of this shifting.	The details of cost of each service will be given by respective authority as these circumstances will appear during construction.	Noted.
18	67	MS casing	The thickness of casing as given here is 12.7 mm which is excessive. 6 to 8 mm thickness will be adequate and should be corrected	It is taken as per the previous experience of inserting MS pipe jacking method.	Noted.
19	89	O&M cost table	The table should be completed	Incorporated.	Noted.

C) Observations by Technical Section:

Sr. No.	Observations	Reply	Remarks of 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	Attached	Noted.

	replacement and new lying works.		
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.	Lumpsum provision for Rs. 5 M under unforeseen charges under various sub heads may be clarified	Rectified	Noted.

16. RECOMMENDATION:

Project is placed before PDWP at **Rs 1,047.56 million** for consideration & approval in the light of observations raised by P&D Board, replies furnished by HUD & PHED and remarks of the Pre-PDWP.