2020

Engineering, Procurement, Construction, Testing, Commissioning, Trial Run and Operation & Maintenance of Various Components of " Kutne-Rajnagar, Tarped and Garroli Multi-Village Scheme, District Chhatarpur " in Single Package on Turn-Key Job Basis.

Engineering & Consulting
PHANS4 CONSULTING PVT LTD

PHANS4 CONSULTING PVT. LTD.

ITEMS	DESCRIPTION
NIT	46/Proc./MPJNM/2019-20
TITLE	Engineering, procurement, construction, testing, commissioning, trial run and operation & maintenance of various components of "Kutne-Rajnagar, Tarped and Garroli Multi-Village Scheme, District Chhatarpur " in single package on 'turn-key job basis' including trial run and operation & maintenance of the entire scheme for 10 years. Scheme 1 – Kutne-Rajnagar – 232 Cr. Scheme 2 – Tarped - 205 Cr. Scheme 3 – Garroli – 166 Cr
BRIEF SCOPE OF WORK	1. The successful bidder has to carry out entire work of Planning, Survey, Soil investigation, Designing, Construction as per the Schedule program, testing, commissioning, trial run of completed scheme and 10 years operation & maintenance of entire water supply scheme after getting a confirmatory survey done with the intention to serve the basic purpose of contract, that is to ensure the supply of drinking water in designated quantity to all villagers & to customers/ institutions/ offices identified for bulk water usage located within the revenue boundary of villages as listed vide Appendix-I. 2. The bidder is/ are required to carry out the survey including necessary data collection from concerning division of PHED of old water supply schemes and if the existing components i.e. pipe line, OHT/ GSR, etc.
TYPE OF CONTRACT	Lump Sum Contract
COST	604.62 Crores
EMD	50 Lakhs
TIME OF COMPLETION	Scheme 1 – Kutne-Rajnagar – 36 Months. Scheme 2 – Tarped - 30 Months Scheme 3 – Garroli – 30 Months
SUBMISSION OF TENDER	Cover 1 – Prequalification And Emd Cover 2 - Technical Cover 3 – Financial
FINANCIAL CRITERIA	The bidder or jv should have average annual turnover of at least 50% of tpac in last 3 financial years preceding the tender submission date at current price level (2018-19).
TECHNICAL CRITERIA	The Bidder or Lead Partner in case of JV must have experience of executing satisfactorily completely or substantially completed (substantially completed means not less than 90% of agreement value, and for which certificate is issued) integrated water supply scheme comprising of raw water intake well cum pump house, ESR/OHBR, raw / clear water reservoir / GSR, Water Treatment Plant, pipe line work within last seven years from the date of bid notification as follows: i. Three works costing not less than the amount equal to 40% of the TPAC. or ii. Two works costing not less than the amount equal to 50% of the TPAC. or iii. One work costing not less than the amount equal to 80% of the TPAC.
O & M	The Bidder or Lead Partner in case of JV should have executed, commissioned, and post-commissioning, operated and maintained

	satisfactorily for minimum 36 months at least one similar integrated water supply work of minimum 10% of TPAC comprising of intake well, pumping machinery, water treatment plant, pipeline and elevated storage reservoir.
WORKING CAPTIAL	Should not be less than 15% of the TPAC
NET WORTH	Net Worth of the bidder or JV of last Financial Year should not be less than 10% of the TPAC
SECURITY DEPOSIT	Shall be equal to 10% (ten percent) of the sum of amount of contract in the form of the unconditional and irrevocable bank guarantee executed.
PRE-BID MEETING	Office of The Managing Director, Madhya Pradesh Jal Nigam, D-Wing, 2nd Floor, Vindhyachal Bhawan, Bhopal (M.P.) PIN – 462004.
IMPORTANT DATES	**Bid Submission Date** 27-Jul-2020 05:30PM **Pre Bid Meeting Date** 08-Jul-2020 03:00 PM

TECHNICAL ASPECTS AND DETAILED PROJECT SCOPE

P.T.O

PHANS4 CONSULTING PVT. LTD.

SCHEME 1 - MAIN WORKS FOR KUTNE-RAJNAGAR MULTI-VILLAGE SCHEME

<table>
<tr><th>No.</th><th>Main Works</th></tr>
<tr><td>1</td><td>Construction of 8.0 m diameter and 24.00 m deep R.C.C Intake well & 8.0 m dia & 6 m High Pump house of required capacity in 23 hours operation flow with provision for automation (SCADA), construction of R.C.C Foot Bridge (approach bridge) approximately 200 meters, minimum 5.0 m wide with approach road (excluding space for pipeline, kerb, cable duct, railing, electric poles, etc.) approximately 200 m length & all other necessary/ ancillary structures required at the bank of Kutni Dam near Patharya village, Chattarpur District. Raw water shall be taken from the back water of the dam by intake well</td></tr>
<tr><td>2</td><td>Raw water pumping main of 700 mm diameter DI-K9 pipe of length approximately 400m including flow meters, valves, sluice valves, air valves, scour valves, valve chambers, thrust blocks, crossings, specials & accessories etc. complete including road Restoration.</td></tr>
<tr><td>3</td><td>Water treatment plant to provide 31.29 million litre treated clear water in 23 hours i/c automation (SCADA), with clear water sump having a storage capacity of 45 minutes of overall clear water demand for the design year, complete near Patharya village, District Chattarpur i/c construction of boundary wall, internal roads, electrification,
laboratory, office building etc., and all other necessary ancillary structures required.</td></tr>
<tr><td>4</td><td>Providing, laying, jointing and Commissioning of clear water pumping main having a approximate length of 54.5 km of DI class K9 Pipe with in-lining and out-coating as per IS 8329 i/c flow meter, valves, sluice valves, air valves, scour valves, valve chambers, thrust blocks, crossings, specials & accessories etc. complete including road restoration.
<table>
<tr><th>Type of Pipe</th><th>Diameter in MM</th><th>Length (m)</th></tr>
<tr><td></td><td>300</td><td>21326</td></tr>
<tr><td></td><td>500</td><td>32974</td></tr>
<tr><td></td><td>600</td><td>200</td></tr>
</table></td></tr>
<tr><td>5</td><td>Providing, laying & jointing and Commissioning of Clear water trunk main, DI class K- 9 & K-7 as per IS 8329 and/ or MS pipe as per IS specified in specification i/c flow meters, valves, sluice valves, air valves, scour valves, valve chambers, thrust block, crossings (rail and road), specials & accessories, etc. complete including road restoration.
100mm to 800mm diameter– approximately 403 Km as detailed below:
<table>
<tr><th rowspan="2">Type of Pipe</th><th rowspan="2">Diameter in MM</th><th colspan="2">Length in m</th></tr>
<tr><th>DI-K7</th><th>DI-K9</th></tr>
<tr><td rowspan="8">Up to 800 mm DI K-9/ K-7 Pipe Above 800 mm DI K-9/ K-7 or MS Pipe</td><td>100</td><td>36986</td><td>57243</td></tr>
<tr><td>150</td><td>58237</td><td>40844</td></tr>
<tr><td>200</td><td>30428</td><td>21328</td></tr>
<tr><td>250</td><td>26106</td><td>13971</td></tr>
<tr><td>300</td><td>29112</td><td>20656</td></tr>
<tr><td>350</td><td>7684</td><td>5088</td></tr>
<tr><td>400</td><td>23192</td><td>9395</td></tr>
</table></td></tr>
</table>

No.	Main Works			
		500	5265	4019
		600	7361	1396
		800	2077	2100

6 a) Construction of 81 Overhead Service Reservoirs (OHSR) at different villages of following capacity and staging of minimum 12m or as per design to maintain the required minimum terminal pressure of 7m at consumer end including provision of flow meters at each Reservoir including, compound wall & Approach road.

Zone No	Village	Capacity (KL)	Zone No	Village	Capacity (KL)
1	Katara	100	42	Kutiya	200
2	Dhoguwan	110	43	Parwa	100
3	Gangwaha	100	44	Sandani	150
4	Kabar	260	45	Ranguwa	160
5	Dhamna	170	46	Shivrajpur	210
6	Rampur	230	47	Otapurwa	210
7	Bendri	120	48	Badni	170
8	Satna	100	49	Silawat	180
9	Bardwaha	130	50	Surajpura	240
10	Khairi	190	51	Tikuri	370
11	Jhamtuli	310	52	Gora	260
12	Pahadi Bawan	100	53	Basari	290
13	Mau Masaniya	180	54	Karree	290
14	Mahilwar	120	55	Atarra	100
15	Pahara Purwa	230	56	Gomakhurd	170
16	Singro	160	57	Bamhori Bahdurju	160
17	Bhulera	180	58	Chaubar	140
18	Khajwa	380	59	Nadya	210
19	Pay	240	60	Pipat	170
20	Diviya Purwa	150	61	Gomakalan	130
21	Beniganj	220	62	Manpura	100
22	Toriya	120	63	Birona	240
23	Chandnagar	480	64	Pahara	220
24	Bhiyatal	250	65	Sewdi	130
25	Gadha	150	66	Katiya	150
26	Lakheri	160	67	Tiloha	240
27	Nayagaon	200	68	Vikrampur	190
28	Kadoha	200	69	Bara	190
29	Ganj	300	70	Maniya	130
30	Deogaon	150	71	Deokaliya	100
31	Pira	190	72	Daharra	210
32	Bamari	130	73	Digoni	140
33	Ghura	190	74	Bhabhuwa	200
34	Kishorganj	630	75	Lalpur	320
35	Bansarai	100	76	Nad	140

<table>
<tr><th>No.</th><th colspan="6">Main Works</th></tr>
<tr><td></td><td colspan="6">
<table>
<tr><td>36</td><td>Imalha</td><td>200</td><td>77</td><td>Ghunchoo</td><td>150</td></tr>
<tr><td>37</td><td>Patharguwan</td><td>170</td><td>78</td><td>Pratappura</td><td>200</td></tr>
<tr><td>38</td><td>Baharpura</td><td>120</td><td>79</td><td>Talgaon</td><td>160</td></tr>
<tr><td>39</td><td>Patan</td><td>150</td><td>80</td><td>Umarya</td><td>140</td></tr>
<tr><td>40</td><td>Rajgarh</td><td>240</td><td>81</td><td>Dumra</td><td>270</td></tr>
<tr><td>41</td><td>Dugariya</td><td>230</td><td></td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td></td><td colspan="6">All MBR/ BPT/ IPS/ WTP shall have boundary wall as defined in bid document but all ESRs/ GSRs shall have G.I. Chain link fabric fencing of mesh size 25x25mm made of
G.I. wire of 3 mm dia. i/c strengthening with welding or nuts, bolt & washers etc. complete. It shall have ISA 50x50x5mm angle iron post at spacing 2.5 m centre to centre of height 2.0 m. above ground level embedded in M20 cement concrete 30x30 cm pillar min. 75 cm below ground level. Every 7th post & corner shall be strutted with similar specification angle iron & grouting. The top & bottom of chain link as well as on angle a 25x3 mm flat secured with either weld or rivets or bolts, to make fencing safer, shall be provided. It shall have angle iron gate of size 3.0m x 1.8m having ISA 50x50x5mm angle iron & 16mm dia square plain
M.S. bar i/c AL drop, holdfast etc. and shall be fixed up in 45x45 cm wide R.C.C. pillars. An additional gate of size 0.6mx1.5m shall also be provided within the same gate, to avoid opening of bigger gate all the time & made of IS 40x40x5mm angle iron with AL drop, etc. One Room set of min. area 25 sq.m. size with W.C. & toilet and housing of automation system and Solar/single phase electrification with area lighting, landscaping, plantation of the area, etc. complete.
The size of fencing or boundary wall shall be 20x20m i.e. overall 80m i/c gate, for these structures & if it increases or decreases then accordingly variation shall be paid or deducted as per UADD ISOR w.e.f. 1st May 2012 with up to date amendments</td></tr>
<tr><td></td><td colspan="6">b) Construction of Sumps having following capacity, including all works complete.
1. Clear Water Sump at WTP Site, Patharya Village – 1350 KL</td></tr>
<tr><td></td><td colspan="6">c) Construction of MBR / Clear Water Sump cum pump houses with following capacity.
<table>
<tr><th>Sl. No.</th><th>At Village</th><th>Item</th><th>Capacity (KL)</th><th>Staging Height (m)</th></tr>
<tr><td>1</td><td>Majhgawan</td><td>MBR</td><td>870</td><td></td></tr>
<tr><td>2</td><td>Putari</td><td>MBR</td><td>240</td><td></td></tr>
<tr><td>3</td><td>Patharya</td><td>MBR</td><td>190</td><td></td></tr>
<tr><td>4</td><td>At Node 95</td><td>CWR Sump</td><td>100</td><td></td></tr>
</table>
</td></tr>
<tr><td></td><td colspan="6">The CW sump cum pump houses and GLBR will have 2 m high Boundary Wall with ‘Y’ shape angle iron having 2*3 rows of barbed wire fencing at top of boundary wall and gate, one Room set of area 25 sq. m. size with toilet, automation system and electrification with area lighting, etc. complete.</td></tr>
<tr><td>7</td><td colspan="6">Distribution network for a approximate length of 575.5km comprising of: HDPE, PE100 PN6 (minimum) pipelines including valves, specials and other allied works of following diameters-</td></tr>
<tr><td></td><td colspan="6">a. 90 mm dia. minimum 6 kg/cm^2 pressure – 393.87 km</td></tr>
<tr><td></td><td colspan="6">b. 110 mm dia. minimum 6 kg/cm^2 pressure – 77.19 km</td></tr>
</table>

No.	Main Works
	c. 160 mm dia. minimum 6 kg/cm^2 pressure – 79.36 km
	d. 200 mm dia. minimum 6 kg/cm^2 pressure – 18.80 km
	e. 250 mm dia. minimum 6 kg/cm^2 pressure – 3.18 km
	f. 280 mm dia. minimum 6 kg/cm^2 pressure – 0.6 km
	g. 300 mm dia. minimum 6 kg/cm^2 pressure – 2.5 km
	Sub Total - 575.5 km
	HDPE Pipe line i/c valves, sluice valves, air valves, scour valves, valve chambers, thrust block, bulk water meters for all villages, specials & accessories etc. complete including road restoration.
8	Pumping equipment including suitable motors, protection equipment's for following- (A) Providing and installation of 4 Nos. suitable energy efficient deep well vertical turbine pumps for raw water at Intake well cum pump house i/c automation as under: a) 2 No. pumps of 15900 lpm discharge each and approx. 53 m head b) 2 No. pumps of 7920 lpm discharge each and approx. 53 m head The pumps given above are inclusive of standby pumps (50% standby)
	(B) Providing and installation of suitable energy efficient Centrifugal pumps for Clear water at CW sump cum pump house at WTP, and CW sump cum pump houses for intermediate pumping stations-1 & 2, i/c automation as under: For CW Sump of 600 KL capacity to OHMBR: a) 2 Nos. pumps of 9600 lpm discharge each and approx. 170m head b) 2 Nos. pumps of 4800 lpm discharge each and approx.170m head For CW Sump of 100 KL capacity at Node 95 to fill OHSR of Rampur and Satwari of Majhgawan MBR command area a) 2 Nos. pumps of 900lpm discharge each and approx. 35 m head b) 1 No. pump of 900 lpm discharge and approx. 35m head (The pumps given above are inclusive of standby pumps)
9	Provision for a total of 2+2 km long dedicated 33KV/ 11 KV power supply from nearby Substation to WTP, Intake well cum pump house inclusive of all allied works complete. Provision of stretching suitable capacity electric line and taking connection for CWS cum pump houses. Any other work necessary to cater the power supply demand of the project (as variation). The work includes construction of substations and stretching of power lines and internal and external electrification etc. complete at all component.
10	Supply, installing, testing and commissioning of following sized transformers and other ancillary works required, along with suitable sized transformer yards complete in all respects as per specifications: i. 6 Number 315 kVA The locations of installation of transfers are, Raw water Intake Pump House, Clear Water Pump House, WTP, Intermediate Pump Houses etc. If additional transformers are required than the same has to be installed at the required location. 100% standby transformer capacity is to be maintained at each installation site of

No.	Main Works
	transformers.
11	Design, Supply, Delivery, Erection, Testing & Commissioning of Automation Components for Monitoring & Maintenance with GPRS Communication with all necessary accessories. (SCADA)
12	House Service Connection approximately 47220 Nos. (up to end of O&M Period)
13	Construction of Staff Quarter / Office Building: Office Building/Admin block - 01 No. in WTP campus - 225 sqm. Store Building - 01 No. – 75 sqm F-type staff quarter with minimum plinth area 46.5 Sqm each - 01 No. G-type staff quarter with minimum plinth area 93.0 Sqm each - 02 Nos. H-type staff quarter with minimum plinth area 46.5 Sqm each - 04 Nos. I-type staff quarter with minimum plinth area 32.5 Sqm each - 04 Nos. Office Building of plinth area approximately 400 sqm at place directed by MPJN The buildings shall be constructed as per specifications and directions of Engineer-in- Charge
14	Operation & Maintenance of the Whole Scheme for first year The Operation and Maintenance cost for the first year, in terms of percentage of contract Amount is given in Annexure H. For every subsequent year, the first-year percentage rates will be increased / decreased according to the percentage change in consumer price index issued by Labour Bureau, GOI (All Industrial Worker) for that period. The index on the date of completion of trial run period will be treated as base for calculation of percentage point increase/decrease in O&M cost of next year. Payment of O&M will be made quarterly. NOTE: a) The operation & maintenance period is 10 years from the date of completion of three months of trial run after successful commissioning of the project. b) The cost of energy charges (excluding penalties) shall be paid by MPJN on reimbursement basis. c) Energy Requirement: The estimation for yearly consumption of energy is 87,60,560 kwH (Unit) for design period. d) If due to any reasons, whatsoever it is desired to supply water in some of the villages before final commissioning and trial run, then the pro-rata rates derived from the Annexure H shall be applicable for the part payment on the basis of duration and quantity supplied, but the date of commissioning of whole work shall be applicable from the dates as stipulated in this contract

PHANS4 CONSULTING PVT. LTD.

SCHEME 2 MAIN WORKS FOR TARPED MULTI-VILLAGE SCHEME

<table>
<tr><th>No.</th><th>Main Works</th></tr>
<tr><td>1</td><td>Construction of 7.0 m diameter and 35.00 m deep R.C.C Intake well (including 6.0m High Pump house) of required capacity in 23 hours operation flow with provision for automation (SCADA), construction of R.C.C Foot Bridge (approach bridge) approximately 200 meters, minimum 5.0 m wide with approach road (excluding space for pipeline, kerb, cable duct, railing, electric poles, etc.) approximately 200 m length & all other necessary/ ancillary structures required at the bank of Tarped Dam near. Raw water shall be taken from the back water of the dam by intake well</td></tr>
<tr><td>2</td><td>Raw water pumping main of 700 mm diameter DI-K9 pipe of length approximately 400m including flow meters, valves, sluice valves, air valves, scour valves, valve chambers, thrust blocks, crossings, specials & accessories etc. complete including road restoration.</td></tr>
<tr><td>3</td><td>Water treatment plant to provide 32.96 million litre treated clear water in 23 hours i/c automation (SCADA), with clear water sump having a storage capacity of 45 minutes of overall clear water demand for the design year, complete near Papta village, District Chattarpur i/c construction of boundary wall, internal roads, electrification, laboratory, office building etc., and all other necessary ancillary structures required.</td></tr>
<tr><td>4</td><td>Providing, laying, jointing and Commissioning of clear water pumping main having a approximate length of 54.5 km of DI class K9 Pipe with in-lining and out-coating as per IS 8329 i/c flow meter, valves, sluice valves, air valves, scour valves, valve chambers, thrust blocks, crossings, specials & accessories etc. complete including road restoration.
<table>
<tr><th>Type of Pipe</th><th>Diameter in MM</th><th>Length (m)</th></tr>
<tr><td>K9</td><td>300</td><td>21326</td></tr>
<tr><td></td><td>500</td><td>32974</td></tr>
<tr><td></td><td>600</td><td>200</td></tr>
</table></td></tr>
<tr><td>5</td><td>Providing, laying & jointing and Commissioning of Clear water trunk main, DI class K-9 & K- 7 as per IS 8329 and/ or MS pipe as per IS specified in specification i/c flow meters, valves, sluice valves, air valves, scour valves, valve chambers, thrust block, crossings (rail and road), specials & accessories, etc. complete including road restoration.
100mm to 800mm diameter– approximately 403 Km as detailed below:
<table>
<tr><th rowspan="2">Type of Pipe</th><th rowspan="2">Diameter in MM</th><th colspan="2">Length in m</th></tr>
<tr><th>DI-K7</th><th>DI-K9</th></tr>
<tr><td rowspan="11">Up to 800 mm DI K-9/ K-7 Pipe
Above 800 mm DI K-9/ K-7 or MS Pipe</td><td>100</td><td>36986</td><td>57243</td></tr>
<tr><td>150</td><td>58237</td><td>40844</td></tr>
<tr><td>200</td><td>30428</td><td>21328</td></tr>
<tr><td>250</td><td>26106</td><td>13971</td></tr>
<tr><td>300</td><td>29112</td><td>20656</td></tr>
<tr><td>350</td><td>7684</td><td>5088</td></tr>
<tr><td>400</td><td>23192</td><td>9395</td></tr>
<tr><td>500</td><td>5265</td><td>4019</td></tr>
<tr><td>600</td><td>7361</td><td>1396</td></tr>
<tr><td>800</td><td>2077</td><td>2100</td></tr>
</table></td></tr>
</table>

No.	Main Works
6	b) Construction of 81 Overhead Service Reservoirs (OHSR) at different villages of following capacity and staging of minimum 12m or as per design to maintain the required minimum terminal pressure of 7m at consumer end including provision of flow meters at each Reservoir including, compound wall & Approach road.

Zone No	Village	Capacity (Kl)	Zone No	Village	Capacity (Kl)
1	Katara	100	42	Kutiya	200
2	Dhoguwan	110	43	Parwa	100
3	Gangwaha	100	44	Sandani	150
4	Kabar	260	45	Ranguwa	160
5	Dhamna	170	46	Shivrajpur	210
6	Rampur	230	47	Otapurwa	210
7	Bendri	120	48	Badni	170
8	Satna	100	49	Silawat	180
9	Bardwaha	130	50	Surajpura	240
10	Khairi	190	51	Tikuri	370
11	Jhamtuli	310	52	Gora	260
12	Pahadi Bawan	100	53	Basari	290
13	Mau Masaniya	180	54	Karree	290
14	Mahilwar	120	55	Atarra	100
15	Pahara Purwa	230	56	Gomakhurd	170
16	Singro	160	57	Bamhori Bahdurju	160
17	Bhulera	180	58	Chaubar	140
18	Khajwa	380	59	Nadya	210
19	Pay	240	60	Pipat	170
20	Diviya Purwa	150	61	Gomakalan	130
21	Beniganj	220	62	Manpura	100
22	Toriya	120	63	Birona	240
23	Chandnagar	480	64	Pahara	220
24	Bhiyatal	250	65	Sewdi	130
25	Gadha	150	66	Katiya	150
26	Lakheri	160	67	Tiloha	240
27	Nayagaon	200	68	Vikrampur	190
28	Kadoha	200	69	Bara	190
29	Ganj	300	70	Maniya	130
30	Deogaon	150	71	Deokaliya	100
31	Pira	190	72	Daharra	210
32	Bamari	130	73	Digoni	140
33	Ghura	190	74	Bhabhuwa	200
34	Kishorganj	630	75	Lalpur	320
35	Bansarai	100	76	Nad	140
36	Imalha	200	77	Ghunchoo	150
37	Patharguwan	170	78	Pratappura	200
38	Baharpura	120	79	Talgaon	160
39	Patan	150	80	Umarya	140
40	Rajgarh	240	81	Dumra	270
41	Dugariya	230			

<table>
<tr><th>No.</th><th>Main Works</th></tr>
<tr><td></td><td>All MBR/ BPT/ IPS/ WTP shall have boundary wall as defined in bid document but all ESRs/ GSRs shall have G.I. Chain link fabric fencing of mesh size 25x25mm made of G.I. wire of 3 mm dia. i/c strengthening with welding or nuts, bolt & washers etc. complete. It shall have ISA 50x50x5mm angle iron post at spacing 2.5 m centre to centre of height 2.0 m. above ground level embedded in M20 cement concrete 30x30 cm pillar min. 75 cm below ground level. Every 7th post & corner shall be strutted with similar specification angle iron & grouting. The top & bottom of chain link as well as on angle a 25x3 mm flat secured with either weld or rivets or bolts, to make fencing safer, shall be provided. It shall have angle iron gate of size 3.0m x 1.8m having ISA 50x50x5mm angle iron & 16mm dia square plain
M.S. bar i/c AL drop, holdfast etc. and shall be fixed up in 45x45 cm wide R.C.C. pillars. An additional gate of size 0.6mx1.5m shall also be provided within the same gate, to avoid opening of bigger gate all the time & made of IS 40x40x5mm angle iron with AL drop, etc. One Room set of min. area 25 sq.m. size with W.C. & toilet and housing of automation system and Solar/single phase electrification with area lighting, landscaping, plantation of the area, etc. complete.
The size of fencing or boundary wall shall be 20x20m i.e. overall 80m i/c gate, for these structures & if it increases or decreases then accordingly variation shall be paid or deducted as per UADD ISOR w.e.f. 1st May 2012 with up to date amendments</td></tr>
<tr><td></td><td>b) Construction of Sumps having following capacity, including all works complete.
1. Clear Water Sump at WTP Site, Patharya Village – 1350 KL</td></tr>
<tr><td></td><td>d) Construction of MBR / Clear Water Sump cum pump houses with following capacity.
<table>
<tr><th>Sl. No.</th><th>At Village</th><th>Item</th><th>Capacity (KL)</th><th>Staging Height (m)</th></tr>
<tr><td>1</td><td>Majhgawan</td><td>MBR</td><td>870</td><td></td></tr>
<tr><td>2</td><td>Putari</td><td>MBR</td><td>240</td><td></td></tr>
<tr><td>3</td><td>Patharya</td><td>MBR</td><td>190</td><td></td></tr>
<tr><td>4</td><td>At Node 95</td><td>CWR Sump</td><td>100</td><td></td></tr>
</table></td></tr>
<tr><td></td><td>The CW sump cum pump houses and GLBR will have 2 m high Boundary Wall with ‘Y’ shape angle iron having 2*3 rows of barbed wire fencing at top of boundary wall and gate, one Room set of area 25 sq. m. size with toilet, automation system and electrification with area lighting, etc. complete.</td></tr>
<tr><td>7</td><td>Distribution network for a approximate length of 575.5km comprising of: HDPE, PE100 PN6 (minimum) pipelines including valves, specials and other allied works of following diameters-</td></tr>
<tr><td></td><td>a. 90 mm dia. minimum 6 kg/cm^2 pressure – 393.87 km</td></tr>
<tr><td></td><td>b. 110 mm dia. minimum 6 kg/cm^2 pressure – 77.19 km</td></tr>
<tr><td></td><td>c. 160 mm dia. minimum 6 kg/cm^2 pressure – 79.36 km</td></tr>
<tr><td></td><td>d. 200 mm dia. minimum 6 kg/cm^2 pressure – 18.80 km</td></tr>
<tr><td></td><td>e. 250 mm dia. minimum 6 kg/cm^2 pressure – 3.18 km</td></tr>
<tr><td></td><td>f. 280 mm dia. minimum 6 kg/cm^2 pressure – 0.6 km</td></tr>
<tr><td></td><td>g. 300 mm dia. minimum 6 kg/cm^2 pressure – 2.5 km</td></tr>
<tr><td></td><td>Sub Total - 575.5 km</td></tr>
<tr><td></td><td>HDPE Pipe line i/c valves, sluice valves, air valves, scour valves, valve chambers, thrust block, bulk water meters for all villages, specials & accessories etc. complete including road</td></tr>
</table>

	Main Works
	restoration.
	Pumping equipment including suitable motors, protection equipment's for following- (A) Providing and installation of 4 Nos. suitable energy efficient deep well vertical turbine pumps for raw water at Intake well cum pump house i/c automation as under: c) 2 No. pumps of 15900 lpm discharge each and approx. 53 m head d) 2 No. pumps of 7920 lpm discharge each and approx. 53 m head The pumps given above are inclusive of standby pumps (50% standby)
	(B) Providing and installation of suitable energy efficient Centrifugal pumps for Clear water at CW sump cum pump house at WTP, and CW sump cum pump houses for intermediate pumping stations-1 & 2, i/c automation as under: For CW Sump of 600 KL capacity to OHMBR: c) 2 Nos. pumps of 9600 lpm discharge each and approx. 170m head d) 2 Nos. pumps of 4800 lpm discharge each and approx.170m head For CW Sump of 100 KL capacity at Node 95 to fill OHSR of Rampur and Satwari of Majhgawan MBR command area c) 2 Nos. pumps of 900lpm discharge each and approx. 35 m head d) 1 No. pump of 900 lpm discharge and approx. 35m head (The pumps given above are inclusive of standby pumps)
	Provision for a total of 2+2 km long dedicated 33KV/ 11 KV power supply from nearby Substation to WTP, Intake well cum pump house inclusive of all allied works complete. Provision of stretching suitable capacity electric line and taking connection for CWS cum pump houses. Any other work necessary to cater the power supply demand of the project (as variation). The work includes construction of substations and stretching of power lines and internal and external electrification etc. complete at all component.
	Supply, installing, testing and commissioning of following sized transformers and other ancillary works required, along with suitable sized transformer yards complete in all respects as per specifications: ii. 6 Number 315 kVA The locations of installation of transfers are, Raw water Intake Pump House, Clear Water Pump House, WTP, Intermediate Pump Houses etc. If additional transformers are required than the same has to be installed at the required location. 100% standby transformer capacity is to be maintained at each installation site of transformers.
	Design, Supply, Delivery, Erection, Testing & Commissioning of Automation Components for Monitoring & Maintenance with GPRS Communication with all necessary accessories. (SCADA)
	House Service Connection approximately 47220 Nos. (up to end of O&M Period)

No.	Main Works
13	Construction of Staff Quarter / Office Building: Office Building/Admin block - 01 No. in WTP campus - 225 sqm. Store Building - 01 No. – 75 sqm F-type staff quarter with minimum plinth area 46.5 Sqm each - 01 No. G-type staff quarter with minimum plinth area 93.0 Sqm each - 02 Nos. H-type staff quarter with minimum plinth area 46.5 Sqm each - 04 Nos. I-type staff quarter with minimum plinth area 32.5 Sqm each - 04 Nos. Office Building of plinth area approximately 400 sqm at place directed by MPJN The buildings shall be constructed as per specifications and directions of Engineer-in-Charge
14	Operation & Maintenance of the Whole Scheme for first year The Operation and Maintenance cost for the first year, in terms of percentage of contract Amount is given in Annexure H. For every subsequent year, the first-year percentage rates will be increased / decreased according to the percentage change in consumer price index issued by Labour Bureau, GOI (All Industrial Worker) for that period. The index on the date of completion of trial run period will be treated as base for calculation of percentage point increase/decrease in O&M cost of next year. Payment of O&M will be made quarterly. NOTE: a) The operation & maintenance period is 10 years from the date of completion of three months of trial run after successful commissioning of the project. b) The cost of energy charges (excluding penalties) shall be paid by MPJN on reimbursement basis. **c)** Energy Requirement: The estimation for yearly consumption of energy is **87,60,560 kwH** (Unit) for design period. d) If due to any reasons, whatsoever it is desired to supply water in some of the villages before final commissioning and trial run, then the pro-rata rates derived from the Annexure H shall be applicable for the part payment on the basis of duration and quantity supplied, but the date of commissioning of whole work shall be applicable from the dates as stipulated in this contract

PHANS4 CONSULTING PVT. LTD.

SCHEME 3 - MAIN WORKS FOR GARROLI MULTI-VILLAGE SCHEME

<table>
<tr><th>No.</th><th>Main Works</th></tr>
<tr><td>1</td><td>Construction of 8.0 m diameter and 31.37 m deep R.C.C Intake well (including 6 m High Pump house) of required capacity in 23 hours operation flow with provision for automation (SCADA), construction of R.C.C Foot Bridge (approach bridge) approximately 300 meters, minimum 3.5 m wide with approach road (excluding space for pipeline, kerb, cable duct, railing, electric poles, etc.) & all other necessary/ ancillary structures required at the weir (Tarped Dam) near Bhelsi village, Chhatarpur District.</td></tr>
<tr><td>2</td><td>Raw water pumping main of 600 mm diameter DI-K7 pipe of length approximately 1800m including flow meters, valves, sluice valves, air valves, scour valves, valve chambers, thrust blocks, crossings, specials & accessories etc. complete including road
restoration.</td></tr>
<tr><td>3</td><td>Water treatment plant to provide 29.14 million litre treated clear water in 23 hours i/c automation (SCADA), with clear water sump having a storage capacity of 45 minutes of overall clear water demand for the design year, complete near Bhelsi village, District Chhatarpur i/c construction of boundary wall, internal roads, electrification,laboratory,
office building etc., and all other necessary ancillary structures required.</td></tr>
<tr><td>4</td><td>Providing, laying, jointing and Commissioning of clear water pumping main having an approximate length of 26.5 km of DI class K7 Pipe with in-lining and out-coating as per IS 8329 i/c flow meter, valves, sluice valves, air valves, scour valves, valve chambers, thrust blocks, crossings, specials & accessories etc. complete including road restoration.
Type of Pipe Diameter in MM Length (m) K7
150 50
600 26420</td></tr>
<tr><td>5</td><td>Providing, laying & jointing and Commissioning of Clear water trunk main, DI class K7 as per IS 8329 and/ or MS pipe as per IS specified in specification i/c flow meters, valves, sluice valves, air valves, scour valves, valve chambers, thrust block, crossings (rail and road), specials & accessories, etc. complete including road restoration.
100mm to 600mm diameter– approximately 278 Km as detailed below:
<table>
<tr><th rowspan="2">Type of Pipe</th><th rowspan="2">Diameter in MM</th><th>Length in m</th></tr>
<tr><th>DI-K7</th></tr>
<tr><td rowspan="11">Up to 800 mm DI K-9/ K-7 Pipe Above 800 mm DI K-9/ K-7 or MS Pipe</td><td>100</td><td>84310</td></tr>
<tr><td>150</td><td>58746</td></tr>
<tr><td>200</td><td>45393</td></tr>
<tr><td>250</td><td>22731</td></tr>
<tr><td>300</td><td>7870</td></tr>
<tr><td>350</td><td>7603</td></tr>
<tr><td>400</td><td>11605</td></tr>
<tr><td>450</td><td>3150</td></tr>
<tr><td>500</td><td>20345</td></tr>
<tr><td>600</td><td>16637</td></tr>
</table></td></tr>
</table>

No.	Main Works
6	c) Construction of 81 Overhead Service Reservoirs (OHSR) at different villages of following capacity and staging of minimum 12m or as per design to maintain the required minimum terminal pressure of 7m at consumer end including provision of flow meters at each Reservoir including, compound wall & Approach road.

S. No.	Village of OHT	Capacity of OHT	S. No.	Village of OHT	Capacity of OHT
1	Barbai	130	28	Jhinnabar	500
2	Galan	140	29	Mahtol(Mahtaul-81)	100
3	Kakunpura	190	30	Lugasi	620
4	Kaithokar	250	31	Kararaganj	370
5	Sarsed	280	32	Gursari	140
6	Naupariya	200	33	Karola (Karaula)	190
7	Churwari	510	34	Padwaha	560
8	Paretha	210	35	Gorari	110
9	Mahed	330	36	Kurraha	900
10	Ragoli	150	37	Ujala	400
11	Joran	140	38	Baidar	400
12	Deotha	200	39	Gundaro	310
13	Alipura	690	40	Pur	130
14	Badagaon	240	41	Bikora (Bikaura-81)	280
15	Putarya	170	42	Barrohi	270
16	Dauriya	210	43	Fulari	170
17	Kulwara	150	44	Tatam	410
18	Neguwan	150	45	Mukharra	110
19	Singrawan Kalan	490	46	Jhikmau	210
20	Singrawan Khurd	180	47	Suda	310
21	Nayagaon	120	48	Thathewara	110
22	Mau (Sahaniya-81)	480	49	Chandora	210
23	Barat	130	50	Shikarpura	100
24	Saderi	100	51	Pall	100
25	Deopur	100	52	Chandpura	310
26	Neem Kheda	330	53	Garroli	330
27	Jhijhan	290	54	Sunati	100

<table>
<tr><th>No.</th><th>Main Works</th></tr>
<tr><td></td><td>All MBR/ BPT/ IPS/ WTP shall have boundary wall as defined in bid document but all ESRs/ GSRs shall have G.I. Chain link fabric fencing of mesh size 25x25mm made of
G.I. wire of 3 mm dia. i/c strengthening with welding or nuts, bolt & washers etc. complete. It shall have ISA 50x50x5mm angle iron post at spacing 2.5 m centre to centre of height 2.0 m. above ground level embedded in M20 cement concrete 30x30 cm pillar min. 75 cm below ground level. Every 7th post & corner shall be strutted with similar specification angle iron & grouting. The top & bottom of chain link as well as on angle a 25x3 mm flat secured with either weld or rivets or bolts, to make fencing safer, shall be provided. It shall have angle iron gate of size 3.0m x 1.8m having ISA 50x50x5mm angle iron & 16mm dia square plain
M.S. bar i/c AL drop, holdfast etc. and shall be fixed up in 45x45 cm wide R.C.C. pillars. An additional gate of size 0.6mx1.5m shall also be provided within the same gate, to avoid opening of bigger gate all the time & made of IS 40x40x5mm angle iron with AL drop, etc. One Room set of min. area 25 sq.m. size with W.C. & toilet and housing of automation system and Solar/single phase electrification with area lighting, landscaping, plantation of the area, etc. complete.
The size of fencing or boundary wall shall be 20x20m i.e. overall 80m i/c gate, for these structures & if it increases or decreases then accordingly variation shall be paid or deducted as per UADD ISOR w.e.f. 1st May 2012 with up to date amendments</td></tr>
<tr><td></td><td>d) Construction of MBR / Clear Water Sump cum pump houses with following capacity.
<table>
<tr><th>Sl. No.</th><th>At Village</th><th>Item</th><th>Capacity (KL)</th><th>Staging Height (m)</th></tr>
<tr><td>1</td><td>Deopur</td><td>MBR</td><td>920</td><td>12</td></tr>
<tr><td>2</td><td>Near Node 78</td><td>Sump</td><td>55</td><td>0</td></tr>
</table></td></tr>
<tr><td></td><td>The CW sump cum pump houses and GLBR will have 2 m high Boundary Wall with ‘Y’ shape angle iron having 2*3 rows of barbed wire fencing at top of boundary wall and gate, one Room set of area 25 sq. m. size with toilet, automation system and electrification with area lighting, etc. complete.</td></tr>
<tr><td>7</td><td>Distribution network for an approximate length of 445km comprising of: HDPE, PE100 PN6 (minimum) pipelines including valves, specials and other allied works of following diameters-</td></tr>
<tr><td></td><td>a. 90 mm dia. minimum 6 kg/cm^2 pressure – 247.861 km</td></tr>
<tr><td></td><td>b. 110 mm dia. minimum 6 kg/cm^2 pressure – 62.785 km</td></tr>
<tr><td></td><td>c. 140 mm dia. minimum 6 kg/cm^2 pressure – 56.229 km</td></tr>
<tr><td></td><td>d. 260 mm dia. minimum 6 kg/cm^2 pressure – 49.961 km</td></tr>
<tr><td></td><td>e. 200 mm dia. minimum 6 kg/cm^2 pressure – 22.692 km</td></tr>
<tr><td></td><td>f. 250 mm dia. minimum 6 kg/cm^2 pressure – 5.422 km</td></tr>
<tr><td></td><td>HDPE Pipe line i/c valves, sluice valves, air valves, scour valves, valve chambers, thrust block, bulk water meters for all villages, specials & accessories etc. complete including road restoration.</td></tr>
</table>

No.	Main Works
8	Pumping equipment including suitable motors, protection equipment's for following- (A) Providing and installation of 4 Nos. suitable energy efficient deep well vertical turbine pumps for raw water at Intake well cum pump house i/c automation as under: e) 2 No. pumps of 9060 lpm discharge each and approx. 31 m head f) 2 No. pumps of 4530 lpm discharge each and approx. 31 m head The pumps given above are inclusive of standby pumps (50% standby)
	(B) Providing and installation of suitable energy efficient Centrifugal pumps for Clear water at CW sump cum pump house at WTP to Deopur MBR i/c automation as under: For CW Sump capacity to OHMBR: e) 3 (2W+1S) Nos. pumps of 8640 lpm discharge each and approx. 60m head For CW Sump of 55 KL capacity at Node 78 e) 3 (2W+1S) Nos. pumps of 390lpm discharge each and approx. 21m head (The pumps given above are inclusive of standby pumps)
9	Provision for an approximate length of 10 km long dedicated 33KV/ 11 KV power supply from nearby Substation to WTP, Intake well cum pump house inclusive of all allied works complete. Provision of stretching suitable capacity electric line and taking connection for CWS cum pump houses. Any other work necessary to cater the power supply demand of the project (as variation). The work includes construction of substations and stretching of power lines and internal and external electrification etc. complete at all component.
10	Supply, installing, testing and commissioning of following sized transformers and other ancillary works required, along with suitable sized transformer yards complete in all respects as per specifications: iii. 2 (1W+1S) Number 200 kVA iv. 2 (1W+1S) Number 100 kVA v. 2 (1W+1S) Number 16 kVA The locations of installation of transfers are, Raw water Intake Pump House, Clear Water Pump House, WTP, Intermediate Pump Houses etc. If additional transformers are required than the same has to be installed at the required location. 100% standby transformer capacity is to be maintained at each installation site of transformers.
11	Design, Supply, Delivery, Erection, Testing & Commissioning of Automation Components for Monitoring & Maintenance with GPRS Communication with all necessary accessories. (SCADA)
12	House Service Connection approximately 50088 Nos. (up to end of O&M Period)

No.	Main Works
13	Construction of Staff Quarter / Office Building: Office Building/Admin block - 01 No. in WTP campus - 225 sqm. Store Building - 01 No. – 75 sqm F-type staff quarter with minimum plinth area 46.5 Sqm each - 01 No. G-type staff quarter with minimum plinth area 93.0 Sqm each - 02 Nos. H-type staff quarter with minimum plinth area 46.5 Sqm each - 04 Nos. I-type staff quarter with minimum plinth area 32.5 Sqm each - 04 Nos. Office Building of plinth area approximately 400 sqm at place directed by MPJN The buildings shall be constructed as per specifications and directions of Engineer-in- Charge
14	Operation & Maintenance of the Whole Scheme for first year The Operation and Maintenance cost for the first year, in terms of percentage of contract Amount is given in Annexure H. For every subsequent year, the first-year percentage rates will be increased / decreased according to the percentage change in consumer price index issued by Labour Bureau, GOI (All Industrial Worker) for that period. The index on the date of completion of trial run period will be treated as base for calculation of percentage point increase/decrease in O&M cost of next year. Payment of O&M will be made quarterly. NOTE: a) The operation & maintenance period is 10 years from the date of completion of three months of trial run after successful commissioning of the project. b) The cost of energy charges (excluding penalties) shall be paid by MPJN on reimbursement basis. c) Energy Requirement: The estimation for yearly consumption of energy is **16,63,553 kwH** (Unit) for design period. d) If due to any reasons, whatsoever it is desired to supply water in some of the villages before final commissioning and trial run, then the pro-rata rates derived from the Annexure H shall be applicable for the part payment on the basis of duration and quantity supplied, but the date of commissioning of whole work shall be applicable from the dates as stipulated in this contract

END OF THE DOCUMENT