TENDER DOCUMENT

NIT No.- DLI/C&E/WI-665/533R

FOR

“Tender for Design, Engineering, manufacturing, testing at works, Supply of 09 (Nine) Nos. 3Ph.-N 415V non draw out type Control Panels for the Project of Augmentation of Raw Material Handling Receipt and Handling facilities with new OHP Part-B (Package-061) of Bhilai Steel Plant (SAIL)”

VOLUME- 2C

(TENDER DRAWINGS)

ENGINEERING PROJECTS (INDIA) LIMITED

(A GOVT. OF INDIA ENTERPRISE)

Core-3, Scope Complex, 7,
Lodhi Road, New Delhi-110003
TEL NO: 011-24361666    FAX NO. 011- 24363426
## Contents- (Volume-2)

NIT No. DLI/C&E/WI-665/533R

<table>
<thead>
<tr>
<th>S.No,</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Volume-2C (Tender Drawings List)</td>
</tr>
</tbody>
</table>
MAX DEMAND 28.05 KW

FOR TENDER PURPOSE ONLY

MAXIMUM DEMAND CALCULATION

<table>
<thead>
<tr>
<th>SLNO</th>
<th>DESCRIPTION</th>
<th>RATE (KW)</th>
<th>QTY</th>
<th>WORK LOAD FACTOR</th>
<th>P/E O/S</th>
<th>TOTAL MAX DEMAND (KW)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>DFSOS PUMP</td>
<td>7.5</td>
<td>2</td>
<td>0.9</td>
<td>6.75</td>
<td></td>
<td>Pump 7A/8 (1W4+15)</td>
</tr>
<tr>
<td>02</td>
<td>SERVICE WATER PUMP FOR</td>
<td>15</td>
<td>4</td>
<td>0.6</td>
<td>18</td>
<td></td>
<td>Pump 6A/B/C/D (2W4+25)</td>
</tr>
<tr>
<td></td>
<td>PH-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>DRINKING WATER PUMP</td>
<td>5.5</td>
<td>3</td>
<td>0.6</td>
<td>3.3</td>
<td></td>
<td>Pump 6A/B/C (1W4+25)</td>
</tr>
<tr>
<td></td>
<td>PH-2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL LOAD</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>28.05</td>
<td></td>
</tr>
</tbody>
</table>

NOTES:—
2. RATING OF POWER CONTRACTOR SHALL BE AS PER O/T S & SELECTION OF RATING FOR MCB3/MCB5/0/4/0/0/L SHALL BE AS PER TYPE-2 CO-ORDINATION CHART.  
3. EQUIPMENTS TO BE PROVIDED AS PER O/T S.  
4. L.S.U. TO BE READ IN CONJUNCTION WITH OIS/TECHNICAL SPEC.  
5. SELECTOR SWITCH TO BE PROVIDED FOR SELECTION OF DUAL PUMP COMBINATION.  
6. LOCAL/REMOTE SELECTOR SWITCH WILL BE MOUNTED ON CONTROL PANEL.  
7. CONTROL PANEL WILL BE FREE STANDING, FLOOR MOUNTED, FRONT ATTENDED, MADE OF DURABLE STEEL SHEET OF THICKNESS NOT LESS THAN 2.0MM WITH I/C EXCLUSIONS CLASS.  
8. CONTROL PANEL WILL HAVE LOAD BREAK SWITCH ON MCB3 INTERLOCKED WITH THE DOOR.  
9. CONTROL PANEL SHALL BE PROVIDED WITH CT, PT, METERING AND PROTECTION ETC. AS REQUIRED.  
10. THE POWER SUPPLY VOLTAGE 415V 410V-15% 50Hz 480V-6% S/C 50V/1%/S/C.  
11. FOR SCHEME FOLLOWING SHALL BE CONSIDERED:  
   (a) SERVICE WATER PUMP (9W4+25)  
   (b) DRINKING WATER PUMP (9W4+25)  
   (c) DFSOS PUMP (1W4+15)  
12. IN VENTILATION SYSTEM POWER FEEDER HAS BEEN CONSIDERED IN RESPECTIVE CONN OMC.
MAX DEMAND 37.95 KW

**Notes:**

1. The rating of WPCO/AICO/L1 may vary for the different manufacturers.
2. The rating of FPRX/CT should be as per GTS & SELECTION of RATING for WPCO/AICO/L1 shall be taken as per TYPE-2, coordination chart.
3. ELF shall be provided as per GTS/SE.
4. SLC shall be read in conjunction with the electrical plans.
5. Selection panel shall be provided for selection of pump connection.
6. Local protective selector switch shall be mounted on control panel.
7. Control panel shall be free standing, floor mounted, front attended, made of cub sheet metal of thickness not less than 0.2mm with type IV/C enclosure class. E-40/30 feeder, 24VDC control panel shall have load break switch or MCC's introduced with the door.
8. Control panel shall be provided with CT, PT, metering and protection etc.
9. The power supply voltage 415V 3PH-N-50Hz, 50Hz 400V 5KVA 5KVA.
10. For scheme following shall be considered:
   (a) Service water pump (3W-25)
   (b) Drinking water pump (1W-25)
   (c) UPOS pump (1W-15)
11. Motor to consider minimum 6A of WPCO for 24V DC operating feeder of solenoid valves.

**Maximum Demand Calculation:**

<table>
<thead>
<tr>
<th>SNO</th>
<th>Description</th>
<th>Rating (KW)</th>
<th>Qty</th>
<th>Work Load (KW)</th>
<th>Factor (Ck)</th>
<th>Total Max Demand (KW)</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>01</td>
<td>Service water pump for PH-3</td>
<td>18.5</td>
<td>4</td>
<td>37</td>
<td>0.6</td>
<td>22.2</td>
<td>PUMP 9A/B/C/D (2W4-25)</td>
</tr>
<tr>
<td>02</td>
<td>Drinking water pump for PH-3</td>
<td>15</td>
<td>3</td>
<td>15</td>
<td>0.6</td>
<td>9</td>
<td>PUMP 11A/B/C (1W4-25)</td>
</tr>
<tr>
<td>03</td>
<td>UPOS Pump</td>
<td>7.5</td>
<td>2</td>
<td>7.5</td>
<td>0.9</td>
<td>6.75</td>
<td>PUMP 10A/B (1W4-15)</td>
</tr>
<tr>
<td></td>
<td><strong>Total Load</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>37.95</strong></td>
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</tr>
</tbody>
</table>

**FOR TENDER PURPOSE ONLY**
MAX DEMAND 28.05 KW

415V 3PH-N, 50HZ,
LOCAL CONTROL
PANEL FOR WATER
SUPPLY SYSTEM, NON
DRAWOUT TYPE
LOCATION AT
PUMP HOUSE-4

AUGMENTATION OF RAW MATERIAL RECEIPT &
HANDLING FACILITIES WITH NEW OHP, PART - B

SINGLE LINE DIAGRAM OF LOCAL
CONTROL PANEL AT PH-4

MAXIMUM DEMAND CALCULATION

<table>
<thead>
<tr>
<th>NO.</th>
<th>DESCRIPTION</th>
<th>MTR (Kw)</th>
<th>QTY</th>
<th>LOAD (Kw)</th>
<th>K.P.F.</th>
<th>TOTAL MAX (Kw)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>SERVICE WATER PUMP FOR PH-4</td>
<td>1.5</td>
<td>4</td>
<td>0.6</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>02</td>
<td>DRINKING WATER PUMP FOR PH-4</td>
<td>5.5</td>
<td>3</td>
<td>0.6</td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>03</td>
<td>SDS PUMP</td>
<td>7.5</td>
<td>2</td>
<td>0.9</td>
<td></td>
<td>8.75</td>
</tr>
<tr>
<td></td>
<td>TOTAL LOAD</td>
<td></td>
<td></td>
<td>28.05</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MECON LIMITED
7.0 MTPA EXPANSION
BHILAI STEEL PLANT, BHILAI, CHHATTISGARH

DRG. NO. BSP- EPI- 01- 061- 01- 013- 29- BE- 03046
EPI-BSP-061-03-BE-03046

415V 3PH-N, 50HZ, LOCAL CONTROL PANEL FOR WATER SUPPLY SYSTEM, NON DRAWOUT TYPE LOCATION AT PUMP HOUSE-5

MAX DEMAND 33.75 KW

INCOMER FROM 2F2 CONV MCC-5

415V/110V 500VA
VSS (0 - 500V)

MCB

MCB

CONTROL SUPPLY

MCB

100A MCB

OFF

O-F-R-T-R-

100 / 5A

CL - 1.0

100% 15% - 15% 3e-N, 50Hz, +6.6% 100A, 50kA FOR 1 SEC. FAULT LEVEL AL BUS BAR

MAXIMUM DEMAND CALCULATION

<table>
<thead>
<tr>
<th>SNO.</th>
<th>DESCRIPTION</th>
<th>CAPACITY (KW)</th>
<th>QTY</th>
<th>JOINT LOAD (KW)</th>
<th>PEAK LOAD (KW)</th>
<th>TOTAL MAX DEMAND (KW)</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>SERVICE WATER PUMP FOR PH-5</td>
<td>15</td>
<td>4</td>
<td>30</td>
<td>0.6</td>
<td>18</td>
<td>PUMP 15A/B/C/D (2W+2S)</td>
</tr>
<tr>
<td>02</td>
<td>DRINKING WATER PUMP FOR PH-5</td>
<td>15</td>
<td>3</td>
<td>15</td>
<td>0.6</td>
<td>9</td>
<td>PUMP 17A/B/C (1W+2S)</td>
</tr>
<tr>
<td>03</td>
<td>DFB5 PUMP</td>
<td>7.5</td>
<td>2</td>
<td>7.5</td>
<td>0.9</td>
<td>6.75</td>
<td>PUMP 16A/B (1W+15S)</td>
</tr>
</tbody>
</table>

TOTAL LOAD 33.75

NOTES:

1. THE SPECIFICATIONS AND DRAWING ARE FOR THE PROJECT CONTRACTOR.
2. THE QUALITY OF MATERIALS SHALL BE AS PER THE CONTRACT.
3. THE DRAWING MATURES DEPENDENT ON THE SPECIFICATIONS AND DRAWINGS.
4. THE DRAWING IS DESIGNED AND PREPARED BY MECON LIMITED.
5. THIS DRAWING IS FOR TENDER PURPOSE ONLY.
MAX DEMAND 195.66 KW

415V 3PH-N, 50Hz, LOCAL CONTROL PANEL FOR WATER SUPPLY SYSTEM, NON DRAWOUT TYPE LOCATION AT PUMP HOUSE-6

NOTES:
1. The ratings of MCBs/MCCB/L.I. may vary for the different manufacturers. Hence, we have taken as per input, co-ordination chart of L.I.
2. Switches of power controller shall be as per cut & selection of using the coordinated chart of L.I.
3. MCBs shall be provided as per L.I.
4. L.I. shall be made in conjunction with cut/coordination chart.
5. Selective switch shall be provided for selection of pump connection.
6. Local/current selector switch shall be included on control panel.
7. Control panel shall be provided for control of circuit breaker which may be operated by remote operator panel which may be provided.
8. Control panel shall be provided with CT, PT, metering and protection etc. as required.
9. The power supply voltage 415+10%-15%, 50Hz ±2% or 50Hz/60Hz/50Hz.
10. For speed control, motor shall be considered.
11. (Space required for raw material receipt & handling facilities with new OHP - 6)

MAXIMUM DEMAND CALCULATION

<table>
<thead>
<tr>
<th>SLE.</th>
<th>DESCRIPTION</th>
<th>RATING (KW)</th>
<th>QTY.</th>
<th>WORK LOAD (KW)</th>
<th>FACTOR</th>
<th>TOTAL MAX DEMAND</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>TRACK HOPPER WATER PUMP PH-6</td>
<td>75</td>
<td>5</td>
<td>300</td>
<td>0.6</td>
<td>180</td>
<td>PUMP 1A/B/C/3/E (4N+15)</td>
</tr>
<tr>
<td>02</td>
<td>TRACK MIXER &amp; SEPARATING PUMP PH-6</td>
<td>7.5</td>
<td>4</td>
<td>15</td>
<td>0.6</td>
<td>9</td>
<td>PUMP 1A/B/C/D (2N+25)</td>
</tr>
<tr>
<td>03</td>
<td>ARROW WASHER PANEL</td>
<td>7.4</td>
<td>1</td>
<td>7.4</td>
<td>0.9</td>
<td>6.66</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL LOAD 195.66
MECON LIMITED
7.0 MTPA EXPANSION
BHILAI STEEL PLANT, BHILAI, CHHATTISGARH

AUGMENTATION OF RAW MATERIAL RECEIPT & HANDLING FACILITIES WITH NEW OHP, PART - B

BSP- EPI- 01- 061- 01- 013- 29- BE- 03048

NOTES:-
1. THE RATING OF MCB/MCCB/O/L MAY VERY FOR THE DIFFERENT MANUFACTURER.
2. RATING OF POWER CONTRACTOR SHALL BE AS PER GTS & SELECTION OF RATING
   FOR MCB/MCCB/O/L SHALL BE TAKEN AS PER TYPE-3, CO-ORDINATION CHART.
3. CIRCUIT SHALL BE PROVIDED AS PER GTS/TS.
4. CIRCUIT SHOULD BE USED IN CONJUNCTION WITH GTS/TECHNICAL SPEC.
5. SELECTOR SWITCH SHALL BE PROVIDED FOR SELECTION OF O/P COMBINATION.
6. LOCAL/REMOTE SELECTOR SWITCH WILL BE MOUNTED ON CONTROL PANEL.
7. ENCLOSURE CLASS "IP54" - ENCLOSURE CLASS "IP54" ENSURE CLASS "IP54" HOUSING WITH SCAFFOLD STEEL OF THICKNESS NOT LESS THAN 2MM.
   ENCLOSED WITH AN ENCLOSURE CLASS "IP54" HOUSING WITH SCAFFOLD STEEL OF THICKNESS NOT LESS THAN 2MM.
8. CONTROL PANEL SHALL BE PROVIDED WITH CT, PT, METEERING AND PROTECTION ETC.
   AS REQUIRED.
9. THE POWER SUPPLY VOLTAGE 415V 50Hz OR 250V 50Hz OR 250V 50Hz.
10. FOR SCHEME FOLLOWING SHOULD BE CONSIDERED
11. BIDDER TO CONSIDER MINIMUM 6A MCB FOR 24V DC OUTGOING PROVIDERS OF SOLENIOD VOLTS.

FOR TENDER PURPOSE ONLY