

**REF NO: 054/2024/PMID/MCWAP2/RFB NOTICE 48**

26 July 2024

***ABSTRACTION WORKS, PUMPING STATIONS, RESERVOIRS, PIPELINE, RELATED  
MULTIDISCIPLINE WORKS, ANCILLARY WORKS***

Dear Bidder,

TCTA acknowledges receipt of the requests for clarification listed in the attached table. The response to each request for clarification is provided in the attached table.

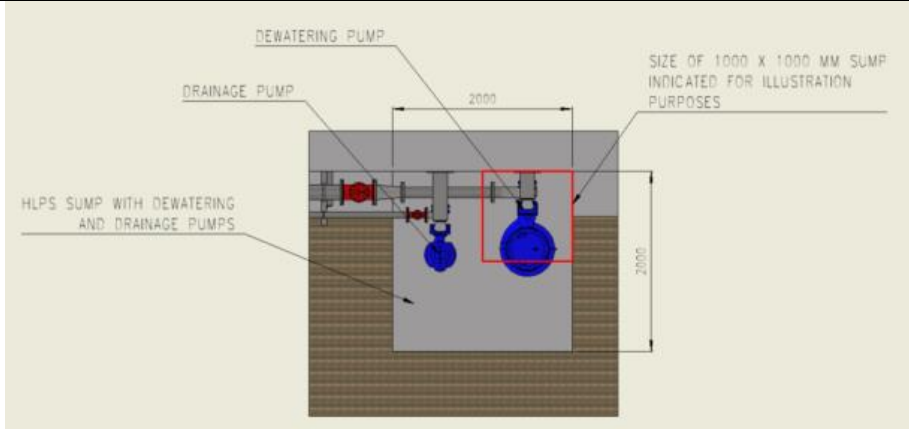
Yours faithfully

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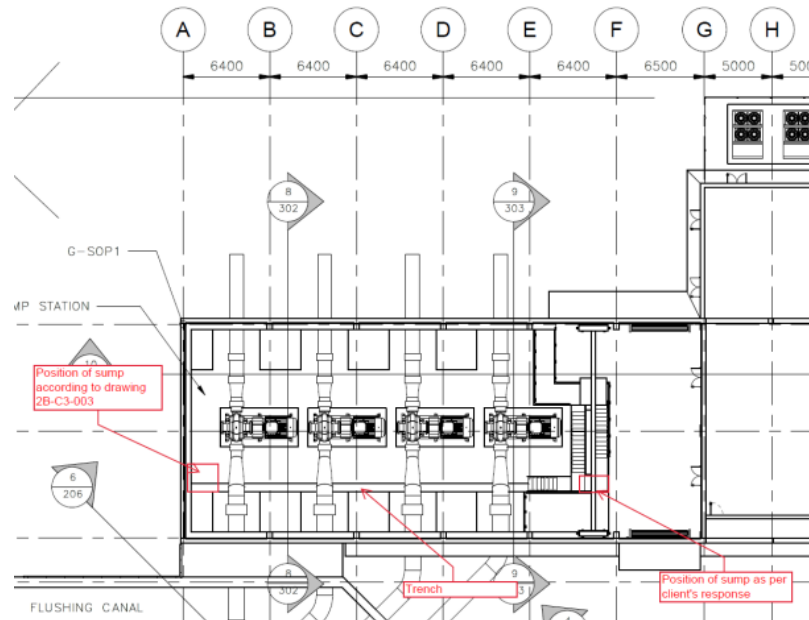
Azwi Nelwamondo  
Senior Manager: Procurement

NO	REQUESTS FOR CLARIFICATION	TCTA RESPONSES																																																																							
1	We need the 3D model for the abstraction works & pump stations etc. we do not need a model for the pipelines. Please request all 3D models pertaining to the TCTA tender	Native files can unfortunately not be given to the contractors during tender stage as in the project area there is a National Key Point. Once the tender is awarded, the native drawings will be made available to the successful bidder																																																																							
2	<p><b>LLPS sump:</b> The client responded to the following question:  <i>“Question:            Mechanical -A sump pit for the floor or Drainage pumps is indicated on the HLPS floor drawings but not on the LLPS, please advise on the position of the Sump pit at the LLPS.            Clients’ response:            The design philosophy for the LLPS is to construct the RC floor slab flat, with no sumps or trenches. This will expedite construction of the floor, followed by the walls within the river area. An 800mm thick screed is designed on top of this RC slab. This mass concrete screed will then allow for inclusion of cable sleeves and trenches required. This screed will have a slight slope towards the side of the pump sump where drainage water will be collected in a drainage trench. The trench is reflected on drawings 2B-C7-302 and 303. The trench slopes towards Gridline F where it will terminate in a 1 000 x 1 000 x 800 mm deep sump formed within the screed. Sump pumps are measured under mechanical BOQ.”</i></p> <p>Based on the client’s response, the LLPS sump (1000 x 1000 x 800) should be located at gridline F, since the trench is sloping in that direction.            According to drawing 2B-C3-003, the sump is located at gridline A with dimensions provided as 2000 x 2000 x 2000. These dimensions are similar to the sump provided by the Engineer at the HLPS.            The size of the sump as per the HLPS will suite the required pumps, however the 1000 x 1000 sump (in plan) will not suite the required pumps for the LLPS (LLPS and the HLPS pumps will be similar in size). See sketch below. <b>Client to advise.</b></p>	<table border="1" data-bbox="1402 512 2130 647"> <thead> <tr> <th colspan="2"></th> <th colspan="7">[mm]</th> <th colspan="3">[kg]</th> </tr> <tr> <th>50Hz</th> <th>60Hz</th> <th>DN1</th> <th>DN3</th> <th>a1</th> <th>b1</th> <th>k1</th> <th>l1</th> <th>G</th> <th>H</th> <th>C1,C2</th> </tr> </thead> <tbody> <tr> <td>-</td> <td>F</td> <td>11.4</td> <td>100</td> <td>100</td> <td>710</td> <td>695</td> <td>820</td> <td>945</td> <td>213</td> <td>286</td> <td>286</td> </tr> <tr> <td>-</td> <td>F/K</td> <td>16.4</td> <td>100</td> <td>100</td> <td>710</td> <td>695</td> <td>820</td> <td>845</td> <td>223</td> <td>296</td> <td>296</td> </tr> <tr> <td>-</td> <td>F/K</td> <td>23.4</td> <td>100</td> <td>100</td> <td>845</td> <td>745</td> <td>855</td> <td>980</td> <td>292</td> <td>331</td> <td>331</td> </tr> <tr> <td>-</td> <td>F/K</td> <td>29.4</td> <td>100</td> <td>100</td> <td>815</td> <td>745</td> <td>855</td> <td>980</td> <td>310</td> <td>349</td> <td>349</td> </tr> </tbody> </table> <p>Pump selection requires sump, below water inlet level, of some 845mm plus 150mm from floor to pump intake. This makes sump at least 1000mm below the 800mm “floor-trench”. Floor sump pump typically requires a sump 2 m x 2 m in area to accommodate size of pump and 2m below final floor level (at least 1m lower than floor’s draining trench. A floor sump of 2m x2m x 2m is thus likely. Proposed sump position as per tender drawings may still require to be relocated, governed by final pump station design. It will apply to both the LL and HL pump stations</p> <p>Sump Grating: preference to be “Fibre-grating”, but contractor’s design to suite the design objective and his final pump selection. Grating covers are to be standard FRP grating, cut to suit depending on the pump sizes. Embedment angles, to suit the grating, will be cast into the mass concrete screed. Should the successful Contractor wish to revise this design it can be proposed to the designer for consideration prior to commencement of construction.</p>			[mm]							[kg]			50Hz	60Hz	DN1	DN3	a1	b1	k1	l1	G	H	C1,C2	-	F	11.4	100	100	710	695	820	945	213	286	286	-	F/K	16.4	100	100	710	695	820	845	223	296	296	-	F/K	23.4	100	100	845	745	855	980	292	331	331	-	F/K	29.4	100	100	815	745	855	980	310	349	349
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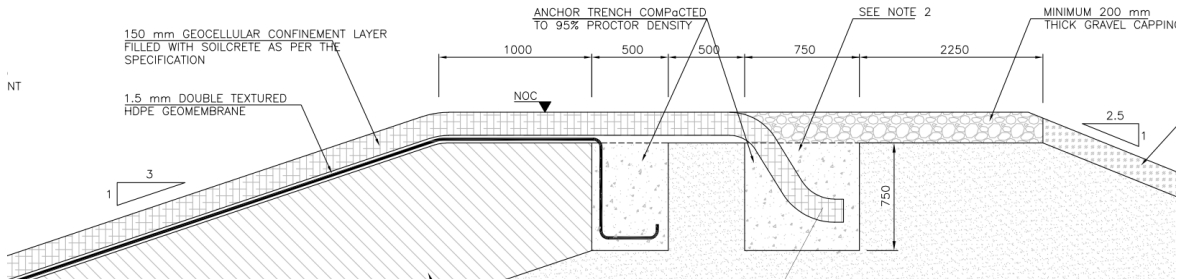
In addition to the above, the Contractor believes that the sump should be located at gridline A. This will simplify the routing of the pipework to discharge into the flushing canal. See marked up drawing (2B-C7-200) below:



**Client to advise.**

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	Further, the contractor requests the drawing (s) providing the details of the grating covers at the sumps. The Contractor wants to review the design and propose changes to suite the proposed pumps. In addition, from a constructability consideration, will the cast in frame for the trench and sump grating be casted into the screed? Or will a concrete wall be provided for these items?	
3	<p>LLPS pump requirements: Client to confirm the following:</p> <p>1. Reference clause 30.1.2 - What is the expected head that the three pumps operating for the future extender transfer capacity would be.</p> <p>2. Reference clause 30.1.3 – We require a value for the NPSH (available) for the pumps. Reference clause 30.5.1.2 (e) Operating speed – the pump shaft operating speed shall not exceed 1500 rpm (4 pole speed) – reference clause 30.1.3 specifies a pump rotation al speed of 6 pole or higher – Can we request clarity on the pump speed and does a pump operating at 8 pole speed be deemed acceptable (being higher than 6 pole).</p>	<p>Reference 1: Phase 2A has duty of 3,27 m<sup>3</sup>/s at 46m head with two pumps in parallel. Phase 2B adds an additional transfer pipe and 3 duty pumps in parallel. Likely flowrate 5,45 m<sup>3</sup>/s at a head of 55m. Two pumps through 1 line will supply at 55 m-head.</p> <p>Reference 2: Site atmospheric head is 9m. proposed pump requires NPSH<sub>REQ</sub> less than 5m (2,0m<sup>3</sup>/s). Proposed speed is &lt;600 rpm; 6-pole typically less than 1000rpm.</p> <p>Tenderer must ensure that pump selection meets all the required operational criteria.</p>
4	<p>HLPS pump requirements: Client to confirm the following:</p> <p>1. Reference clause 30.1.3 – We require a value for the NPSH (available) for the pumps. Reference clause 30.5.1.2 (e) Operating speed – the pump shaft operating speed shall not exceed 1500 rpm (4 pole speed) – reference clause 30.1.3 specifies a pump rotation al speed of 6 pole – Can we request clarity on the pump speed and does a pump operating at 4 pole speed be deemed acceptable.</p>	<p>1): Atmospheric 9m; Minimum Static water suction head at station is 4m; Proposed pump NPSH<sub>REQ</sub> less than 6m-head; 6-pole speed. required. (4-pole not supported).</p> <p>However, the pumps, motors, etc are Contractor’s design. As such, the Tenderer must obtain all the information from the drawings / tender documents to ensure that the selected pump is for purpose in every way, including amongst others the NPSH requirements.</p>
5	Please explain what material Anchor Trench is in drawing 2A-C6-010? It corresponds to “Anchoring to concrete structure” in the BOQ.	The drawing referred to is correct and applies to pay item No’s 2.D2.4.9, 2.D2.4.10 and 2.D2.4.11 where the HDPE liner and confinement are anchored onto the earth embankment. The material to be used in the anchor

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trenches will likely be sourced and selected from the balancing dam construction excavated material

Pay item No's 2.D2.4.6, 2.D2.4.7 and 2.D2.4.8 refer to the anchoring of the liner and confinement layer to concrete structures. The applicable drawing number for anchor details into concrete structures is drawing no 2A-C6-011.

	D2			<b>Anchoring to concrete structure:</b>		
	D2			<b>Dwg. 2A-C6-010</b>		
2.D2.4.6	D2	17.007		a) Inlet structure	m	150
2.D2.4.7	D2	17.007		b) Outlet structure	m	120
2.D2.4.8	D2	17.007		c) Overflow structure	m	150
2.D2.4.9	D2	17.008		Anchor trench for HDPE liner	m	3 190
2.D2.4.10	D2	17.008		Anchor trench for Geocell confinement layer - 0.75m wide	m	1 600
2.D2.4.11	D2	17.008		Anchor trench for Geocell confinement layer - 1m wide	m	810