

GOVERNMENT OF GOA  
QUALITY CONTROL LABORATORY  
WATER RESOURCES DEPARTMENT

Test Report No: WRD/QC/F.6-2/Cube -T : 6626,6637,6644,6651,6660,6664,6672,6685/Lab/47/2023 - 24 Dated:- 08/05/2023. Laboratory : Bicholim - Goa.  
6689,6699,6704,6716,6721,6729,6751,6756,6777,6816,6826,6832,6627,6638,6645,6652,6661,6665,6673,6686,6690,6700, Sub Division V (QC)/WRD/ Bicholim- Goa.  
6705,6717,6722,6730,6752,6757,6778,6817,6827;6833.

Name of work : Anti Sea erosion and beach protection measures in State of Goa.Reg.Anti Sea erosion and protection measures from Ch.25.00m to 390.00mt at Keri Beach, V.P.Keri Teracol, Pernem Taluka North Goa.

Ref. to Requisition No : MI/SDIII/WDI/F.58/2023-24/03 Dt.:- 05/04/2023

Qty. Recived : 40 Sets of cube Date of Receipt:- 10/04/2023.

Tested on: 10,11,12,13,15,16,17,18,19,20,21,22,23,24,26,27,28,29/04/2023 & 01,02/05/2023. as per due dates. Ref to CPWD :2009, Vol. I

Sample: Cube Mix **M-30 & 1:1.5:3** O.S No: 1076,1080,1092,1103,1109,1150,1159,1077,1081,1093,1104,1110,1151,1160/RK & 622,633,643,655,667,682,689,697,701,709,732,740,763,623,634,644,656,668,683,690,698,702,710,733,741,764/SS. Lab. Sample No: 6787 to 6826

Tested By: Mrs. R.R. Kadam A.E. & Mrs. S. B. Naik Shirodkar J.E.

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SR. NO	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value permissable	% above or below	REMARK
1	Cement concrete cube of mix <b>M-30</b> , cast on 13/03/2023. for 36 Tetrapods.	28 th day compressive strength	335.26	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	1.77	Qty represents - 15.01 cum
			348.85	Kg/Cm <sup>2</sup>			
			369.24	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>351.12</b>	<b>Kg/Cm<sup>2</sup></b>			
2	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 13/03/2023. for 26 Rect Blocks.	28 th day compressive strength	283.16	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	2.29	Qty represents - 11.23 cum
			271.83	Kg/Cm <sup>2</sup>			
			258.24	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>271.08</b>	<b>Kg/Cm<sup>2</sup></b>			
3	Cement concrete cube of mix <b>M-30</b> , cast on 14/03/2023. for 45 Tetrapods.	28 th day compressive strength	355.65	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	4.84	Qty represents - 18.76 cum
			362.44	Kg/Cm <sup>2</sup>			
			366.97	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>361.69</b>	<b>Kg/Cm<sup>2</sup></b>			
4	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 14/03/2023. for 40 Rect Blocks.	28 th day compressive strength	265.04	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	3.72	Qty represents - 17.28 cum
			280.89	Kg/Cm <sup>2</sup>			
			278.63	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>274.85</b>	<b>Kg/Cm<sup>2</sup></b>			

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<b>SR. NO</b>	<b>DISCRIPTION OF SAMPLE</b>	<b>TESTED FOR</b>	<b>RESULTS</b>		<b>Max./Min.Value permissable</b>	<b>% above or below</b>	<b>REMARK</b>
5	Cement concrete cube of mix <b>M-30</b> , cast on 15/03/2023. for 22 Tetrapods.	28 th day compressive strength	344.32	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	2.43	Qty represents - 9.17 cum
			362.44	Kg/Cm <sup>2</sup>			
			353.38	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>353.38</b>	<b>Kg/Cm<sup>2</sup></b>			
6	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 15/03/2023. for 21 Rect Blocks.	28 th day compressive strength	294.48	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	3.15	Qty represents - 9.07 cum
			258.24	Kg/Cm <sup>2</sup>			
			267.30	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>273.34</b>	<b>Kg/Cm<sup>2</sup></b>			
7	Cement concrete cube of mix <b>M-30</b> , cast on 16/03/2023. for 23 Tetrapods.	28 th day compressive strength	348.85	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	0.90	Qty represents - 9.59 cum
			339.79	Kg/Cm <sup>2</sup>			
			355.65	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>348.10</b>	<b>Kg/Cm<sup>2</sup></b>			
8	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 16/03/2023. for 13 Rect Blocks.	28 th day compressive strength	278.63	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	6.57	Qty represents - 5.61 cum
			283.16	Kg/Cm <sup>2</sup>			
			285.42	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>282.40</b>	<b>Kg/Cm<sup>2</sup></b>			
9	Cement concrete cube of mix <b>M-30</b> , cast on 18/03/2023. for 25 Tetrapods.	28 th day compressive strength	362.44	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	5.71	Qty represents - 10.42 cum
			351.12	Kg/Cm <sup>2</sup>			
			380.56	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>364.71</b>	<b>Kg/Cm<sup>2</sup></b>			
10	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 18/03/2023. for 25 Rect Blocks.	28 th day compressive strength	287.69	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	6.85	Qty represents - 10.8 cum
			271.83	Kg/Cm <sup>2</sup>			
			289.95	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>283.16</b>	<b>Kg/Cm<sup>2</sup></b>			
11	Cement concrete cube of mix <b>M-30</b> , cast on 19/03/2023. for 21 Tetrapods.	28 th day compressive strength	369.24	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	5.06	Qty represents - 8.75 cum
			344.32	Kg/Cm <sup>2</sup>			
			373.77	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>362.44</b>	<b>Kg/Cm<sup>2</sup></b>			
12	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 19/03/2023. for 15 Rect Blocks.	28 th day compressive strength	283.16	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	5.71	Qty represents - 6.48 cum
			280.89	Kg/Cm <sup>2</sup>			
			276.36	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>280.14</b>	<b>Kg/Cm<sup>2</sup></b>			

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SR. NO	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value permissable	% above or below	REMARK
13	Cement concrete cube of mix <b>M-30</b> , cast on 20/03/2023. for 50 Tetrapods.	28 th day compressive strength	360.18	Ka/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	4.18	
			362.44	Ka/Cm <sup>2</sup>			
			355.65	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>359.42</b>	<b>Ka/Cm<sup>2</sup></b>			
14	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 20/03/2023. for 50 Rect Blocks.	28 th day compressive strength	262.77	Ka/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	4.57	Qty represents - 21.60 cum
			283.16	Ka/Cm <sup>2</sup>			
			285.42	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>277.12</b>	<b>Ka/Cm<sup>2</sup></b>			
15	Cement concrete cube of mix <b>M-30</b> , cast on 21/03/2023. for 50 Tetrapods.	28 th day compressive strength	335.26	Ka/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	1.77	Qty represents - 20.85 cum
			357.91	Ka/Cm <sup>2</sup>			
			360.18	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>351.12</b>	<b>Ka/Cm<sup>2</sup></b>			
16	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 21/03/2023. for 49 Rect Blocks.	28 th day compressive strength	269.57	Ka/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	3.72	Qty represents - 21.16 cum
			283.16	Ka/Cm <sup>2</sup>			
			271.83	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>274.85</b>	<b>Ka/Cm<sup>2</sup></b>			
17	Cement concrete cube of mix <b>M-30</b> , cast on 22/03/2023. for 50 Tetrapods.	28 th day compressive strength	376.03	Ka/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	4.62	Qty represents - 20.85 cum
			344.32	Ka/Cm <sup>2</sup>			
			362.44	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>360.93</b>	<b>Ka/Cm<sup>2</sup></b>			
18	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 22/03/2023. for 50 Rect Blocks.	28 th day compressive strength	271.83	Ka/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	6.28	Qty represents - 21.60 cum
			283.16	Ka/Cm <sup>2</sup>			
			289.95	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>281.65</b>	<b>Ka/Cm<sup>2</sup></b>			
19	Cement concrete cube of mix <b>M-30</b> , cast on 23/03/2023. for 49 Tetrapods.	28 th day compressive strength	385.09	Ka/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	5.93	Qty represents - 20.43 cum
			346.59	Ka/Cm <sup>2</sup>			
			364.71	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>365.46</b>	<b>Ka/Cm<sup>2</sup></b>			
20	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 23/03/2023. for 50 Rect Blocks.	28 th day compressive strength	283.16	Ka/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	2.58	Qty represents - 21.60 cum
			267.30	Ka/Cm <sup>2</sup>			
			265.04	Ka/Cm <sup>2</sup>			
		<b>Average</b>	<b>271.83</b>	<b>Ka/Cm<sup>2</sup></b>			

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SR. NO	DISCRIPTION OF SAMPLE	TESTED FOR	RESULTS		Max./Min.Value permissable	% above or below	REMARK
21	Cement concrete cube of mix <b>M-30</b> , cast on 24/03/2023. for 25 Tetrapods.	28 th day compressive strength	364.71	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	4.84	Qty represents - 10.42 cum
			353.38	Kg/Cm <sup>2</sup>			
			366.97	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>361.69</b>			
22	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 24/03/2023. for 25 Rect Blocks.	28 th day compressive strength	285.42	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	6.57	Qty represents - 10.80 cum
			283.16	Kg/Cm <sup>2</sup>			
			278.63	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>282.40</b>			
23	Cement concrete cube of mix <b>M-30</b> , cast on 25/03/2023. for 25 Tetrapods.	28 th day compressive strength	339.79	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	5.71	Qty represents - 10.42 cum
			373.77	Kg/Cm <sup>2</sup>			
			380.56	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>364.71</b>			
24	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 25/03/2023. for 25 Rect Blocks.	28 th day compressive strength	265.04	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	2.58	Qty represents - 10.80 cum
			262.77	Kg/Cm <sup>2</sup>			
			287.69	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>271.83</b>			
25	Cement concrete cube of mix <b>M-30</b> , cast on 26/03/2023. for 25 Tetrapods.	28 th day compressive strength	385.09	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	8.78	Qty represents - 10.42 cum
			382.83	Kg/Cm <sup>2</sup>			
			357.91	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>375.28</b>			
26	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 26/03/2023. for 25 Rect Blocks.	28 th day compressive strength	308.08	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	5.43	Qty represents - 10.80 cum
			271.83	Kg/Cm <sup>2</sup>			
			258.24	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>279.38</b>			
27	Cement concrete cube of mix <b>M-30</b> , cast on 27/03/2023. for 25 Tetrapods.	28 th day compressive strength	344.32	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	5.49	Qty represents - 10.42 cum
			369.24	Kg/Cm <sup>2</sup>			
			378.30	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>363.95</b>			
28	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 27/03/2023. for 40 Rect Blocks.	28 th day compressive strength	283.16	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	2.86	Qty represents - 17.28 cum
			262.77	Kg/Cm <sup>2</sup>			
			271.83	Kg/Cm <sup>2</sup>			
			<b>Average</b>	<b>272.59</b>			

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<b>SR. NO</b>	<b>DISCRIPTION OF SAMPLE</b>	<b>TESTED FOR</b>	<b>RESULTS</b>		<b>Max./Min.Value permissable</b>	<b>% above or below</b>	<b>REMARK</b>
29	Cement concrete cube of mix <b>M-30</b> , cast on 29/03/2023. for 37 Tetrapods.	28 th day compressive strength	362.44	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	6.81	Qty represents - 15.42 cum
			382.83	Kg/Cm <sup>2</sup>			
			360.18	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>368.48</b>	<b>Kg/Cm<sup>2</sup></b>			
30	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 29/03/2023. for 36 Rect Blocks.	28 th day compressive strength	265.04	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	4.29	Qty represents - 15.55 cum
			274.10	Kg/Cm <sup>2</sup>			
			289.95	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>276.36</b>	<b>Kg/Cm<sup>2</sup></b>			
31	Cement concrete cube of mix <b>M-30</b> , cast on 30/03/2023. for 50 Tetrapods.	28 th day compressive strength	376.03	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	6.15	Qty represents - 20.85 cum
			342.05	Kg/Cm <sup>2</sup>			
			380.56	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>366.22</b>	<b>Kg/Cm<sup>2</sup></b>			
32	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 30/03/2023. for 50 Rect Blocks.	28 th day compressive strength	278.63	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	6.57	Qty represents - 21.60 cum
			271.83	Kg/Cm <sup>2</sup>			
			296.75	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>282.40</b>	<b>Kg/Cm<sup>2</sup></b>			
33	Cement concrete cube of mix <b>M-30</b> , cast on 31/03/2023. for 50 Tetrapods.	28 th day compressive strength	369.24	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	4.40	Qty represents - 20.85 cum
			373.77	Kg/Cm <sup>2</sup>			
			337.52	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>360.18</b>	<b>Kg/Cm<sup>2</sup></b>			
34	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 31/03/2023. for 21 Rect Blocks.	28 th day compressive strength	265.04	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	4.86	Qty represents - 9.07 cum
			278.63	Kg/Cm <sup>2</sup>			
			289.95	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>277.87</b>	<b>Kg/Cm<sup>2</sup></b>			
35	Cement concrete cube of mix <b>M-30</b> , cast on 01/04/2023. for 50 Tetrapods.	28 th day compressive strength	382.83	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	5.93	Qty represents - 20.85 cum
			364.71	Kg/Cm <sup>2</sup>			
			348.85	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>365.46</b>	<b>Kg/Cm<sup>2</sup></b>			

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<b>SR. NO</b>	<b>DISCRIPTION OF SAMPLE</b>	<b>TESTED FOR</b>	<b>RESULTS</b>		<b>Max./Min.Value permissable</b>	<b>% above or below</b>	<b>REMARK</b>
36	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 01/04/2023. for 49 Rect Blocks.	28 th day compressive strength	283.16	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	2.01	Qty represents - 21.00 cum
			262.77	Kg/Cm <sup>2</sup>			
			265.04	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>270.32</b>	<b>Kg/Cm<sup>2</sup></b>			
37	Cement concrete cube of mix <b>M-30</b> , cast on 03/04/2023. for 37 Tetrapods.	28 th day compressive strength	364.71	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	3.96	Qty represents - 15.42 cum
			344.32	Kg/Cm <sup>2</sup>			
			366.97	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>358.67</b>	<b>Kg/Cm<sup>2</sup></b>			
38	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 03/04/2023. for 50 Rect Blocks.	28 th day compressive strength	271.83	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	9.42	Qty represents - 21.60 cum
			292.22	Kg/Cm <sup>2</sup>			
			305.81	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>289.95</b>	<b>Kg/Cm<sup>2</sup></b>			
39	Cement concrete cube of mix <b>M-30</b> , cast on 04/04/2023. for 43 Tetrapods.	28 th day compressive strength	339.79	Kg/Cm <sup>2</sup>	345.00 Kg/cm <sup>2</sup>	4.40	Qty represents - 17.93 cum
			373.77	Kg/Cm <sup>2</sup>			
			366.97	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>360.18</b>	<b>Kg/Cm<sup>2</sup></b>			
40	Cement concrete cube of mix <b>1:1.5:3</b> , cast on 04/04/2023. for 36 Rect Blocks.	28 th day compressive strength	271.83	Kg/Cm <sup>2</sup>	265.00 Kg/cm <sup>2</sup>	5.71	Qty represents - 15.55 cum
			283.16	Kg/Cm <sup>2</sup>			
			285.42	Kg/Cm <sup>2</sup>			
		<b>Average</b>	<b>280.14</b>	<b>Kg/Cm<sup>2</sup></b>			

Copy to: 1. The Assistant Engineer, SDIII, WDI, WRD, Pernem - Goa.

2. Copy submitted to The Superintending Engineer ,CPO,WRD, Sinchai Bhavan, Porvorim Goa for kind Information.

3. Copy submitted to The Executive Engineer, WDI, WRD, Porvorim - Goa.

4. QC Lab File.      5. Bill File.

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