

**GOVERNMENT OF GOA  
QUALITY CONTROL LABORATORY  
WATER RESOURCES DEPARTMENT**

Test Report No.: WRD/QC/F.6-2/Cube -T : 7429 To 7438 & 7454 To 7463 / Lab / **214** / 2019 - 20 Dated:- 26 / 06 / 2019

Laboratory : Bicholim -Goa / Sub Division V (QC)/WRD/ Bicholim -Goa.

**Name of Work: - Construction of Barrage and up gradation of Raw water pumping station at Ganjem on Mhadei River for Augmentation of Raw water for Opa water works Reg. Construction of Barrage , providing and laying 1000 mm dia. D.I. pipe Rising main and Break Pressure Tank at Ganjem in Sattari Taluka.**

Ref. to Requisition No.: WRD/WDVI/SD I /F.W.215/2019-20/ **227** Dated :- 24-06-2019

Qty. Recived. : 20 Sets of cube Date of Receipt: - 24/06/2019. Tested on: -24 & 25/06/2019 Ref to CPWD :2002, Vol. I

Sample: RCC 1 : 1.5 : 3 Mix O.S No. : 2328 To 2337/SS & 2353 To 2362/SS Lab. Sample No.: 6443 To 6462. Tested By: - Mrs. S.B. Naik Shirodkar,J.E.

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| SR.NO. | DISCRIPTION OF SAMPLE  | TESTED FOR                          | RESULTS       |                          | Max./Min.Value<br>permissable | % above or<br>below | REMARK                     |
|--------|--|-------------------------------------|---------------|--------------------------|-------------------------------|---------------------|----------------------------|
| 1      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 276.36        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 5.43                | Represents Qty. 20.00 Cum. |
|        |  |                                     | 289.95        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 271.83        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>279.38</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 2      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 283.16        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 11.41               | -do-                       |
|        |  |                                     | 335.26        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 267.30        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>295.24</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 3      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 303.55        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 8.56                | -do-                       |
|        |  |                                     | 285.42        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 274.10        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>287.69</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 4      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 305.81        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 15.97               | -do-                       |
|        |  |                                     | 337.52        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 278.63        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>307.32</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 5      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 283.16        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 6.28                | -do-                       |
|        |  |                                     | 278.63        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 283.16        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>281.65</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 6      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 262.77        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 4.57                | -do-                       |
|        |  |                                     | 276.36        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 292.22        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>277.12</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |

Junior Engineer

Assistant Engineer

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| SR.NO. | DISCRIPTION OF SAMPLE  | TESTED FOR                          | RESULTS       |                          | Max./Min.Value<br>permissable | % above or<br>below | REMARK                     |
|--------|--|-------------------------------------|---------------|--------------------------|-------------------------------|---------------------|----------------------------|
| 7      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 285.42        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 5.14                | Represents Qty. 20.00 Cum. |
|        |  |                                     | 278.63        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 271.83        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>278.63</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 8      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 287.69        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 8.28                | -do-                       |
|        |  |                                     | 278.63        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 294.48        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>286.93</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 9      | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 289.95        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 8.85                | -do-                       |
|        |  |                                     | 303.55        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 271.83        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>288.44</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 10     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 27/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 305.81        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 14.55               | -do-                       |
|        |  |                                     | 294.48        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 310.34        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>303.55</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 11     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 294.48        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 6.00                | -do-                       |
|        |  |                                     | 276.36        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 271.83        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>280.89</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 12     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 283.16        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 5.71                | -do-                       |
|        |  |                                     | 267.30        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 289.95        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>280.14</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 13     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 262.77        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 6.28                | -do-                       |
|        |  |                                     | 299.01        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 283.16        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>281.65</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 14     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 292.22        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 5.71                | -do-                       |
|        |  |                                     | 278.63        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 269.57        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>280.14</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 15     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 317.14        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 15.69               | -do-                       |
|        |  |                                     | 296.75        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 305.81        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>306.57</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |

Junior Engineer

Assistant Engineer

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| SR.NO. | DISCRIPTION OF SAMPLE  | TESTED FOR                          | RESULTS       |                          | Max./Min.Value<br>permissable | % above or<br>below | REMARK                     |
|--------|--|-------------------------------------|---------------|--------------------------|-------------------------------|---------------------|----------------------------|
|        |  |                                     |               |                          |                               |                     |                            |
| 16     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 287.69        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 6.28                | Represents Qty. 20.00 Cum. |
|        |  |                                     | 289.95        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 267.30        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>281.65</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 17     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 326.20        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 13.98               | -do-                       |
|        |  |                                     | 294.48        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 285.42        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>302.03</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 18     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 294.48        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 11.98               | -do-                       |
|        |  |                                     | 308.08        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 287.69        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>296.75</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 19     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 289.95        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 5.43                | -do-                       |
|        |  |                                     | 283.16        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 265.04        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>279.38</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |
| 20     | Reinforced Cement concrete cube of mix 1:1.5:3 ,<br>cast on 28/05/2019, RCC for floor of Barage from<br>55-88 m. | 28th day<br>compressive<br>strength | 280.89        | Kg/Cm <sup>2</sup>       | 265.00 Kg/Cm <sup>2</sup>     | 9.99                | -do-                       |
|        |  |                                     | 292.22        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  |                                     | 301.28        | Kg/Cm <sup>2</sup>       |                               |                     |                            |
|        |  | Average                             | <b>291.46</b> | <b>Kg/Cm<sup>2</sup></b> |                               |                     |                            |

1. Copy to: The Assistant Engineer SD I , WD VI , WRD , Bicholim Goa.

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

3. Copy submitted to: The Executive Engineer ,WDVI,WRD, Bicholim-Goa.

4. QC Lab File.      5. Bill File.

Junior Engineer

Assistant Engineer