

S TEST HOU

NABL ACCREDITED & ISO 9001:2015 CERTIFIED LABORATORY

(H.D. Office) Abhiyanta Nagar, Z-Sector Plot No.-09, Near R.J. Complex, Ashiana Nagar, Patna - 800025 (B.R. Office) Raj Kumar Ganj, Near Poor Home, Darbhanga Mobile No. +91-900-6069-267, 7903542027 Email: mstesthouse@gmail.com

TEST REPORT

Issued To:

Mala Sinha

Jagdishpur Kothiya, Tariyani, Sheohar.

Description of Sample: Design Mix

Grade:- M-30

Sub: - Mix Design of concrete for the construction of Road and CD woks

With Maintenance Main Road Nunhi Tola Godhaul Kurhar Main Road

To Serha Tola Under MMGSY.

Ref.No.-, Dated: 29.02.2020

Report No: MSTH-020320515 Date of Receipt: 02.03.2020

Date of Testing: 02.03.20-30.03.20

Date of Report: 31.03.2020

The method of concrete mix design consists of selection of optimum proportions of water, cement, fine & coarse aggregate and admixture of produce concrete of specified properties most economically. The proportion of concrete mix is obtained by experimentally evolved relationship between the factors in the choice of mix design. It provides reasonably accurate guide to arrive at optimum proportions of ingredients. The final mix proportions are obtained on the basis of trial mixes. The mix design has been carried out as per stipulation of India standards specification IS: 10262 guidelines keeping in view the recommended mix standard deviations and targeted mean strength. The Recommended mix proportions should be tested at site for their workability & strength before it is adopted.

| 1. | Design Stipulations: | |
|----|---|-----------------------------|
| A | Characteristic Compressive Strength of Concrete required in field after 28 days | 30 N/mm ² |
| В | Target Strength at 28 days N/mm ² | 38.25 N/mm ² |
| C | Maximum size of Aggregates | 20 mm |
| D | Required Slump | 75-100 mm |
| E | Degree of quality control | Medium |
| F | Type of Exposure | Moderate |
| 2. | Test Data For The Materials Used | |
| А | Type of Cement | OPC 43 Grade (Birlagold) |
| В | Consistency, % | 29.3 |
| C | Initial Setting Time (Minutes) | 151 |
| D | Final Setting Time(Minutes) | 262 |
| E | Compressive Strength (3 days) MPa | 25.8 |
| F | Compressive Strength (7 days) MPa | 36.4 |
| G | Compressive Strength (28 days) MPa | 50.3 |
| н | Specific Gravity | 3.15 |
| 1 | Minimum Cement Content | 320 Kg/m ³ |
| 1 | Specific Gravity of Admixture | 1:08 |
| K | Type of Admixture | Sikament |

Sample as received in the Laboratory by Agency .

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Sample will destroyed after one month from the date of issue of test certificates unless otherwise specified.

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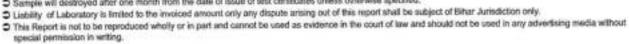
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| 3. | Source Of Mat | A CONTRACTOR OF THE CONTRACTOR | | | |
|------------|--|--|--|--|--|
| Α | Coarse Aggre | egate (20mm & 10 mm) | | Mirzachowki | |
| В | Fine Aggregat | gate (Sand) | | Koilwar | |
| 4. | Specific Gravit | у | | The state of the s | |
| Α | Coarse Aggre | regate (20mm) | | 2.74 | |
| В | Fine Aggregat | te | | 2.66 | |
| C | Impact Value | , % Coarse Aggregate (20 | mm) | 14.8 | |
| 5. | Abrasion Valu | e,% | 100 | | |
| Α | Coarse Aggre | gate (20mm) | | 22.8 | |
| 6 | Water Absorp | tion, % | | | |
| Α | Coarse Aggre | gate (20 mm) | | 0.35 | |
| В | Fine Aggrega | te | | 1.30 | |
| 7. | Free Moisture | Content, % | 1071 | | |
| Α | Coarse Aggre | gate (20mm) | | Nil | |
| 8. | Bulk Density, | Gm/Cc | | | |
| Α | Coarse Aggre | gate (20mm) | | 1.51 | |
| В | Fine Aggrega | egate | | 1.26 | |
| 9. | Sieve Analysis | | | | |
| (1) | Coarse Aggre | gate: | | | |
| IS: S | ieve Size (mm) | Analysis of Aggregate co | parse fraction % finer (%) | As Per IS: 383 For Graded Aggregate Nominal Size | |
| | 20mm 10mm | | 62:38 | | |
| | 40.0 | 40.0 100 100 | | 100 | |
| | The state of the s | | 98.3 | | |
| | 12.5 | | | | |
| | 10.0 | 14.0 | 91.6 | 43.4 | |
| | 4.75 | 1.6 | 12.4 | 5.6 | |
| | 2.36 | - | 2.0 | | |
| (ii) | Fine Aggrega | te: | | | |
| 15 | : Sieve Size Cumulative Percentage Passing Cumulative percent | | Cumulative percentage Finer as per IS: 383 2016 Zone-III | | |
| | 10.0 mm 100 | | 00 | 100 | |
| 4.75 mm | | 96.4 | | 90-100 | |
| | 2.36 mm 91.8 | | 85-100 | | |
| | 1.18 mm 78.2 | | 75-100 | | |
| 6 | 600 micron 67.3 | | 60-79 | | |
| 300 micron | | 21.2 | | 12-40 | |
| | 150 micron | | 7.6 | 0-10 | |

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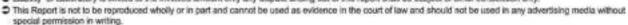
| 10. Determi | ination Of C | Quantity Of Materi | als: | | | |
|-------------------|---|--------------------|---|---------------------------|---|--|
| Water Ceme | ent ratio | | | | 0.45 | |
| Water: | | | 189. | 189.0 Ltr./m ³ | | |
| Sand content: | | | 684 | 684 Kg/m ³ | | |
| Coarse Aggregate: | | | | 116 | 1162 Kg/m ³ | |
| Cement Content: | | | 42: | 421 Kg/m ³ | | |
| Slump | | | 10 | 100 mm | | |
| 11. Ratio (B | y Weight) | | | | | |
| Ceme | Cement Content Water Fine Aggregate Coars | | Coarse Aggregate | | | |
| 1 0.45 | | 1.62 | 2.76 | | | |
| Mix Proport | ion By Weig | tht Are As Follows | | | 1311 | |
| Cement | t Kg/m³ | Water Kg/m³ | Admixture (% by wt. o Cement), Kg/m ³ (0.9) 5 | | Total Coarse Aggregate (20mm) Kg/m³ (62%) | |
| Trial-1 | 431 | 199.0 | 3.87 | 674 | 1134 | |
| Trial-2 | 426 | 194.0 | 3.83 | 679 | 1143 | |
| Trial-3 | 421 | 189.0 | 3.78 | 684 | 1162 | |

| Mix Proportion By | Weight Are As Follow | /5: | | |
|--------------------------|----------------------|--|---|--|
| Cement Kg/m ³ | Water Kg/m³ | Admixture (% by wt. of Cement), Kg/m³ (0.9)% | Fine Aggregate Kg/m ³ (38%) | Total Coarse Aggregate (20mm) Kg/m³ (62%) |
| 50 | 22.5 | 0.45 | 81.0 | 138.0 |



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.....Substantial Testing for Quality Work

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| 12. A. | Compressive Strength (7 Days) | DOC- 02.03.2020 | DOT- 09.03.2020 | |
|--------|--------------------------------|------------------------------|---|--|
| S No. | Compressive Strength (N/mm²) | Average Compressive Strength | | |
| | | (N/mm²) | (Kg/cm²) | |
| 1. | 24.2 | 23.7 | | |
| 2. | 23.1 | | 23.7 | |
| 3. | 23.8 | | | |
| В. | Compressive Strength (28 Days) | DOC-02.03.2020 | DOT- 30.03.2020 | |
| S No. | Compressive Strength (N/mm²) | Average Compressive Strength | | |
| S NO. | | (N/mm²) | (Kg/cm ²) | |
| 1. | 39.2 | 39.8 | | |
| 2. | 39.8 | | 398 | |
| 3. | 40.5 | | (A) | |

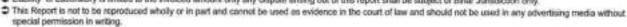
Remarks: -

- 1. Trial-3 is recommended for the mix proportion at the Site for their Workability and Strength.
- 2. This mix design has been done at saturated condition.
- Your material brought at site is dry or wet, than water can be decreased or increased according water Absorption.
- Tap Water of our lab has been used, if water not supply, water should be pure and clean in concrete mix.
 As Per IS: 456-2000 & IS: 3025
- 5. Admixture Used Sikament Brand.

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