

Name of work :- Work of Widening, Strengthening and Resurfacing of various road as and when required or in emergency under Jamnagar District (Annual Rate Basis)

TEST SCHEDULE

Sr. No	Description of Item No.	Materials to be tested	Name of Laboratory Test	Frequency of tests	Total No. of Test	Remarks
1.	G.S.B. W.B.M. Grade I & II	Crushed stone aggregate	1) Aggregate Impact Value 2) Flakiness Index 3) Gradation 4) Abrasion 5) Stripping Value 6) Water absorption 7) Crushing Strength	Upto 100 Cum. 1 Test 101 to 500 Cum 3 Test 501 to 1500 Cum 5 Test 1501 to 5000 Cum 7 Test Minimum 1 Test (One For Each Source of Supply)		
2	Asphalt Binder	Asphalt VG-30	1) Penetration Test 2) Ductility Test 3) Softening Point Test 4) Kinematic Viscosity Test 5) Absolute Viscosity Test 6) Flash Point Test 7) Specific Gravity Test	No.of Tanker No. of Test 1 to 10 1 11 to 20 2 21 to 50 3 51 to 100 4	As per Norms	
3.	Earth work of embankment	Borrow Material	a) Sand Content b) Plasticity Test c) Density Test d) Moisture content test	Two test per 8000 Cum of soil Two test per 8000 Cum of soil Two test per 8000 Cum of soil Two test per 8000 Cum of soil		
4	Earth work	Sub grade	CBR	As required.		
5	Pro. & Laying 75mm BBM. & 50mm BM 25mm thick S.D.B.C.	Crushed stone aggregate	1) Aggregate Impact Value 2) Flakiness Index 3) Gradation 4) Impact Value 5) Abrasion 6) Stripping Value 7) Water absorption 8) Crushing Strength	Upto 100 Cum. 1 Test 101 to 500 Cum 3 Test 501 to 1500 Cum 5 Test 1501 to 5000 Cum 7 Test 5001 & above one additional test per work Minimum 1 Test (One For Each Source of Supply)		

Sr. No	Description of Item No.	Materials to be tested	Name of Laboratory Test	Frequency of tests	Total No. of Test	Remarks
6	Bitumenous work	60/70 Grade Bulk Asphalt	a) Quality of binder (As per IS:1201/1978) b) Penetration c) Softening point d) Viscosity test e) Docility test	1 to 10 Tankers 1-Test 11 to 20 Tankers 2-Test 21 to 50 Tankers 3-Test 51 to 100 Tankers 4-Test (Above 100 Tanker, 1 Test Per Each 50 Tankers)		For Star Rate all tanker required to be tested.
7	Natural GSB	Hard Murrum	a) Gradation Test b) Density Test c) Atterburq's Limit	One Test Per 200 Cum 1-Test One Test Per 200 Cum 3-Test One Test Per 250 Cum 5-Test As per Required 7-Test One Test Per 500 Sqm		
TESTS AT PLANT SITE & WORK SITE.						
8	Tack coat.	Tack coat.	a) Binder Temperature for application b) Rate of Spread of binder c) Rate of spread of mix materials. d) Quality of binder e) Gradation at plant site f) Binder Content	At regular close intervals. Two Test per day Regular control through checks of material & Layer thickness As required. 2-Test/Day/Plant Two test per day per plant.		

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9	Providing and laying M-100 & M-150 for RCC work & M-200 , M-250 CC	C.C. cube	(1) Compressive strength @ 7 and 28 days	Sample of cubes for concrete done 1 to 5 Cum 1 Sample 6 to 15 Cum 2 Sample 16 to 30 Cum 3 Sample 31 to 50 Cum 4 Sample 51 to on ward 5 Sample and one additional for 50 Cum	As Required	A Sample Contain 6.00 Nos of Cubes
10	Water use for all Item	Water	Chemical analysis Portability Salinity	1 Test for each source of supply per season	1 or More as required	
11	Cement use for All item	Ordinary Grey Portland Cement	(a) Consistency (b) Setting time (c) Compressive Strength, (d) Soundness (e) Specific Gravity (f) Chemical Analysis (g) Fineness Test	Upto 50 M.T. 1 Test 50 to 100 M.T. 2 Test 100 to 200 M,T. 3 Test 200 to 300 M.T. 4 Test 300 to 500 M..T. 5 Test 500 to 800 M.T. 6 Test 800 to 1300 M.T. 7 Test	As per material receipt on site. Minimum One Test for Consignment of Less than 50 M.T.	As per material receipt on site one sample (15 Kg.) From 20 bags in consignment of 50 MT) or change of brand manufacture.
12	Sand For All items pertaining to sand	Sand	(a) Fineness Modular (b) Specific gravity (c) Silt Content (d) Water absorption (e) Gradation Test	1 Test / Working season or change or river / source per 150 Cum.	1 or More as required	

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Sr. No.	Description of Item No.	Materials to be tested	Name of Laboratory Test		Frequency of tests	Total No. of Test	Remarks	
13	Black Stone Crushed metal	C. S. Metal 10 to 20mm 10 to 4.75mm 40mm nominal 20mm nominal BS Crushed aggregate	(a) Specific gravity (b) Water absorption (c) Flakiness Index (d) Impact Value (e) Gradation test (f) Soundness test		1 Test for working season for C.C. or R.C.C. work and change of quarry per 150 Cum	1 or More as required		
14	Providing thermo Mechanically treated bars reinforcement	T.M.T. Bars	1) Tensile strength 2) Elongation Test 3) Size 4) Yield stress		One Sample for each lot each category of steel and change there off. 1 Test Per 40 MT	1 Nos. or more as required	As per Norms	
15	NP-3 Pipe 300, 900,1200		Manufacturer's Certificate					
16	Hot Applied Thermoplast Road Marking	IRC 35: 2015; Section 800 of MORTH	On Site Testing with Reflectometer	(RL) Retro Reflectivity (mcd/m2/lux	Retro Reflectivity (mcd/m2/lux		Max. 6 (Six) Tests to be conducted per Km	
					Design Speed	Initial (7 days)		Min Threshold Level (TL) Upto 2 years
					Upto 65 kmph	200		80
					65-100	250		120
		IRC 35:2015; Section 800 of MORTH	Laboratory Testing	Proportions of Constituents of Marking Material				1 sample for each color
					Component	White	Yellow	
					Binder	18.0 Min	18.0 Min	
					Glass Beads	30-30	30-30	

Sr. No	Tender It. No.	Description of Item in brief.	Details of Materials to be tested	Nature of Lab test	Frequency of test	Remarks.																																																																																																																
17	Retro Reflective Sheeting for the Signage	IRC 67: 2012; ASTM D-4956	On Site Testing with Reflectometer make: Delta, Zehntner, Roadvista – complying to ASTM D 4956	Co-efficient of Retro Reflection	<p>Class-B type-4 High Intensity Grade</p> <table> <tr> <th>Observati on Angle</th><th>Entrance Angle</th><th>White</th><th>Yellow</th><th>Green</th><th>Red</th><th>Blue</th></tr> <tr> <td>0.1°_B</td><td>-4°</td><td>500</td><td>380</td><td>70</td><td>90</td><td>42</td></tr> <tr> <td>0.1°_B</td><td>+30°</td><td>240</td><td>175</td><td>32</td><td>42</td><td>20</td></tr> <tr> <td>0.2°</td><td>-4°</td><td>360</td><td>270</td><td>50</td><td>65</td><td>30</td></tr> <tr> <td>0.2°</td><td>+30°</td><td>170</td><td>135</td><td>25</td><td>30</td><td>14</td></tr> <tr> <td>0.5°</td><td>-4°</td><td>150</td><td>110</td><td>21</td><td>27</td><td>13</td></tr> <tr> <td>0.5°</td><td>+30°</td><td>72</td><td>54</td><td>10</td><td>13</td><td>6</td></tr> </table> <p>Class-C Type-11 Micro Prismatic Grade</p> <table> <tr> <th>Observati on Angle</th><th>Entrance Angle</th><th>White</th><th>Yellow</th><th>Green</th><th>Red</th><th>Blue</th></tr> <tr> <td>0.1°_B</td><td>-4°</td><td>830</td><td>620</td><td>83</td><td>125</td><td>37</td></tr> <tr> <td>0.1°_B</td><td>+30°</td><td>325</td><td>245</td><td>33</td><td>50</td><td>15</td></tr> <tr> <td>0.2°</td><td>-4°</td><td>580</td><td>435</td><td>58</td><td>87</td><td>26</td></tr> <tr> <td>0.2°</td><td>+30°</td><td>220</td><td>165</td><td>22</td><td>33</td><td>10</td></tr> <tr> <td>0.5°</td><td>-4°</td><td>420</td><td>315</td><td>42</td><td>63</td><td>19</td></tr> <tr> <td>0.5°</td><td>+30°</td><td>150</td><td>110</td><td>15</td><td>23</td><td>7</td></tr> <tr> <td>1.0°</td><td>-4°</td><td>120</td><td>90</td><td>12</td><td>18</td><td>5</td></tr> <tr> <td>1.0°</td><td>+30°</td><td>45</td><td>34</td><td>5</td><td>7</td><td>2</td></tr> </table>	Observati on Angle	Entrance Angle	White	Yellow	Green	Red	Blue	0.1° _B	-4°	500	380	70	90	42	0.1° _B	+30°	240	175	32	42	20	0.2°	-4°	360	270	50	65	30	0.2°	+30°	170	135	25	30	14	0.5°	-4°	150	110	21	27	13	0.5°	+30°	72	54	10	13	6	Observati on Angle	Entrance Angle	White	Yellow	Green	Red	Blue	0.1° _B	-4°	830	620	83	125	37	0.1° _B	+30°	325	245	33	50	15	0.2°	-4°	580	435	58	87	26	0.2°	+30°	220	165	22	33	10	0.5°	-4°	420	315	42	63	19	0.5°	+30°	150	110	15	23	7	1.0°	-4°	120	90	12	18	5	1.0°	+30°	45	34	5	7	2	5 Tests (1 Sample of Each Color) for every 1 km.
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18	Road Studs / Cat eyes / RPM (Raised Pavement Marker)	IRC 35:2015; ASTM D4280	Laboratory Testing	Compressive Strength	Compressive Strength (Breaking load) – 13635kgf without breakage	1 Sample for each color																				
		IRC 35: 2015; ASTM D4280	Laboratory Testing	Flexural Strength	909kgf without breakage or significant deformation (3.3mm)	1 Sample for each color																				
		IRC 35:2015; ASTM D4280	Laboratory Testing	Resistance to Lens Cracking, Lens Impact Strength	No More than 2 radial cracks longer than 6.4mm	1 Sample for each Color																				
		IRC 35: 2015; ASTM D4280	Laboratory Testing	Co-efficient of Luminous Intensity – ASTM D4280	Co-efficient of Luminous Intensity (C.I.L) <table><tr><th>Observation Angle</th><th>Entrance Angle</th><th>White</th><th>Yellow</th><th>Red</th></tr><tr><td>0.2</td><td>0</td><td>279</td><td>167</td><td>70</td></tr><tr><td>0.2</td><td>+20</td><td>112</td><td>67</td><td>28</td></tr><tr><td>0.2</td><td>-20</td><td>112</td><td>67</td><td>28</td></tr></table>	Observation Angle	Entrance Angle	White	Yellow	Red	0.2	0	279	167	70	0.2	+20	112	67	28	0.2	-20	112	67	28	1 Sample for each Color
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IRC 35:2015; Section 800 of MORTH	On Site Testing	Skid Resistance	Not less than 45 BPN (British Pendulum Number) as per BS:6044	Every 1 km for each color																						

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