



Pradhan Mantri Gram Sadak Yojana

Quality Control Register Part 1

Record of Tests

State:

District:

Programme Implementation Unit:

Package Number:

Name of Work:

Register From km. to km.

Total Volumes of this Register:

This Volume Number:

Prescribed By:

National Rural Roads Development Agency

(An Agency of the Ministry of Rural Development)

Government of India, New Delhi

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National Rural Roads Development Agency(An
Agency of the Ministry of Rural Development)
Government of India, New Delhi

Quality Control Register Part 1

Record of Tests

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Quality Control Register Part 1

Record of Tests

Fly Sheet

State:

District:

Block:

Package Number:

Name of Road	:
Length (km)	:
Contract Amount (Rs.)	:
Construction Contractor (Name & Address)	:
Date of Commencement of Work	:
Stipulated Date of Completion	:
(a) As per Agreement	:
(b) As Revised & Agreed	:
Project Implementation Unit (Address)	:
Laboratory Incharge (Name)	:
This Register	: From km. _____ to km. _____

Instructions for Maintaining Quality Control Registers

Rural Roads Manual, Special Publication 20, Indian Roads Congress, New Delhi 2002 Para 10.11 provides for recording of the Data in the prescribed forms; therefore, this Register will be maintained for each Road. The guidelines for maintenance of this Register are as follows:

1. The Quality Control Register will be maintained in **two Parts**. The **first Part** will be **Quality Control Register Record of Tests** and the **Second Part** will be the **Record of Abstract of Quality Control Tests and Non Conformance Report Register**.

- a. The first Part of the Register is the Register of all Quality Control Tests conducted by the person who is responsible for the basic Quality Control Testing; therefore, the first Part of the Register will be maintained by the person who is responsible for the basic Quality Control tests. If there is a provision of Quality Control by contractor in the Tender Document, the Quality Control Register will be issued to the contractor for every Road Work but if the responsibility of the basic Quality Control Tests is with the Department, the Register will be issued to the in charge officer of the basic Quality Control Testing of work not below the rank of Junior Engineer/sub Engineer.

This Register will always be available at the work site. If some tests are required to be conducted in the laboratory which is situated away from the work, the prescribed format of the test conducted will be duly fill up on a separate sheet and this sheet will be pasted on the space prescribed for that test but the register will not be taken away from the site in any case.

This Register contains forms for tests sufficient to accommodate quantities given in Appendix 12.2 of the Rural Roads Manual for a length of Road up to 3 km. If the quantities (ies) or the item(s) in the work are more, additional forms required as per the prescribed frequency may be added at the end of the Register and the corresponding entries should be done in the abstract. In case the quantities (ies) or the item(s) in the work are less, the forms may be left blank and the corresponding note may be recorded in the abstract. If the length of the Road is more then 3 km, additional Register(s) should be maintained. The first part of the Register will has following three Sections:

Section 1: Earthwork

Section 2: Granular construction

Section 3: Bituminous construction

- b. The Second Part of the Register is the Record of abstract of the Tests conducted and Non conformance reports; therefore, will be maintained by the site in charge officer not below the rank of Assistant Engineer.

If the test results do not confirm to the prescribed limits, a Nonconformance Report (NCR) in the Format Prescribed in this Register will be issued to the Contractor.

2. The Quality Control (QC) Register will be issued in the same manner as the Measurement Book is issued to the work. Every register should be page numbered and no page should be removed. The Register of issue of the Quality Control Register will be maintained by the Head of the PIU.
3. In case of Hill Roads, where the work of formation cutting may be executed, all the tests shown in the Earthwork Section may not be required but the tests for CBR and Compaction will be required in such cases also, the formats will be left blank in such cases.
4. How to Fill up Register Part 1:
 - a. **Filling up the Test Format-** Take sample as per specifications and complete the basic entries of the Register like Sample Number, Reference of Road/Section from where the sample has been taken etc. Subject the sample for testing and enter the Date of Testing and other relevant details at the prescribed places.
 - i. Enter the test Results at specified places and compare with the results with the prescribed limits. If the test results conform to the prescribed limits, the corresponding entry should be done and the work should be allowed to continue but if the results of the tests don't conform to the prescribed limits, the work should not be allowed to be continued and a Non Conformance Report (NCR) should be issued by the officer in-charge of the work.
 - ii. The compliance of the instructions given in the NCR should be ensured and again the test should be repeated. The work should be allowed to continue only after the Test results confirm to the prescribed limits.

b. Filling up the Format of the Abstract of Tests Conducted –

- i. Columns 1 to 5 are self explanatory.
- ii. The reference of the page number of the Part two of the Register on which the office copy of the Non Conformance Report (NCR) is preserved should be entered along with the Date of issue of the NCR in the column number 6 of the abstract.
- iii. The Date of compliance reported by the contractor should be entered in this column.
- iv. The reference of the page number on which the repeat test (which qualifies) record is maintained should be given in this column.

- v. The basic abstract of the Tests conducted will be maintained in the Part one of the Register but the copy of the abstract will also be maintained in Part two of the Register.
- 5. How to Fill up Register Part 2 Record of abstract of tests and Non Conformance Reports:
 - a. **Filling up the Abstract of Tests Format-** Basic abstracts of the tests conducted will be maintained in the First Part of the register but the same abstract will also be maintained in Part two and it will be the Responsibility of officer incharge to update this abstract once in every week (Generally on every Saturday of the Week).
 - b. **Issuance of Non Conformance Reports-** The Register contains one perforated copy of the NCR and one office copy, as soon as the incidence of non conformance of any test occurs, it will be the responsibility of the person responsible for the basic Quality Control Testing to inform to the officer in charge of the work. The officer in charge of the work will immediately issue a Non Conformance Report to the contractor and the office copy will be retained in this Register.

Thereafter, the Contractor needs to rectify the deficiencies and return the NCR after due compliance for approval/acceptance of the PIU.

Quality Control Register- Part 1 (A)

Section-1: Earth Work

Quantities of Item, Frequencies of Test and Number of Tests Required

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
1	Earth work; Embankment, Sub grade & Shoulder			EW-1	Sieve Analysis	One Test for each source for 1 km length or part thereof	
2				EW-2	Atterberg's Limits	One Test for each source for 1 km length or part thereof	
3				EW-3	Proctor Density a) Embankment Soil b) Sub grade Soil	One Test for each source for 1 km length or part thereof	
4				EW-4	CBR	One Test Per each Km	
5				EW-5	Deleterious Content (i) organic matter content (ii)total soluble sulphate content	One Test for each source for 1 km length or part thereof	
6				EW-6	Free Swell Index (In case of expansive soils)	One Test for each source for 1 km length or part thereof	
7				EW-7	Moisture Content at the time of Compaction(During Construction) (a) By Oven Dry Method/ By Heating Method (b) By Rapid Moisture Meter Method	At least 3 Tests daily, well spread over the day's work	
8				EW-8	Thickness(During Construction)	At random	
9				EW-9	Field Density(During Construction) (a) Sand Replacement Method (b) Core Cutter Method	At least 3 Tests daily well spread over the day's work	
10				ALS-1	Horizontal alignment	At random	
11				ALS-2	Surface level	At random	
12				ALS-3	Surface Regularity	At random	
13				ALS-4	Camber	At random	

Quality Control Register- Part 1 (A & B)
Section 2: Granular Construction
Quantities of Item, Frequencies of Test and Number of Tests Required

S. No.	Description of item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
1	Sub Base – Granular Sub Base			SB-1	Gradation by Wet Sieve Analysis of GSB (Source material)	Average of three tests from each source	
2				SB-2	Atterberg Limits GSB (Source material)	Average of three tests from each source	
3				SB-3	Proctor Compaction test (Source material)	One test on the material from each source or on the combined material, as the case may be.	
4				SB-4	Wet Aggregate Impact Value (Source material)	One test from each source identified by the contractor	
5				SB-5	CBR Test – GSB (Source material)	One test per km length (average of a set of three specimens).	
6				SB-6	Gradation by Wet Sieve Analysis of GSB (During construction)	At least one test to be carried out daily.	
7				SB-7	Liquid and Plastic limit Tests (During construction)	At least one test to be carried out daily	
8				SB-8	Placement Moisture content (During Construction)	At least 3 tests to be carried out daily, well spread over the day's work	
9				SB-9	In-situ Density measurements (During Construction)	At least 3 tests to be carried out daily, well spread over the day's work	
10				SB-10	Thickness of compacted Layer – GSB (During Construction)	At random	
11				ALS-1	Horizontal alignment	At random	
12				ALS-2	Surface level	At random in a grid of 10m x 2.5m	
13				ALS-3	Surface Regularity	At random	
14				ALS-4	Camber	At random	

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
1	Base Course - Wet Mix Macadam			GB-1	Aggregate Impact Value (Source material)	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
2				GB-2	Flakiness Index (Source Material)	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
3				GB-3	Water Absorption (Source Material)	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
4				GB-4	Soundness, if Water absorption >2%	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
5				GB-5	Combined Gradation of WMM (Source Material)	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
6				GB-6	Atterberg Limits of the portion passing 425 micron sieve (Source Material)	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
7				GB-7	Proctor Compaction Test (Source Material)	One to two tests on representative sample from each source identified by the contractor, depending on variability.	
8				GB-8	Gradation Test WMM Layer I (During Construction)	At least one test per day	
9				GB-9	Aggregate Impact Value WMM Layer-I (During Construction)	At random one test per Km.	

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
10				GB-10	Placement Moisture content WMM layer I (During Construction)	At least three test per day.	
11				GB-11	Density of compacted layer WMM layer I (During Construction)	At least three test per day.	
12				GB-12	Thickness of compacted WMM Layer-I (During Construction)	At random	
13				ALS-1	Horizontal Alignment	At random	
14				ALS-2	Surface level	At random in a grid of 10m x 2.5m	
15				ALS-3	Surface Regularity	At random	
16				ALS-4	Camber	At random	
17				GB-13	Gradation Test WMM layer II (During Construction)	At least one test per day	
18				GB-14	Aggregate Impact Value WMM Layer-II (During Construction)	At random one test per day.	
19				GB-15	Placement Moisture Content WMM layer 1I (During Construction)	At least three tests per day.	
20				GB-16	Density of compacted layer WMM layer 1I (During Construction)	At least three test per day.	
21				GB-17	Thickness of compacted WMM Layer-II (During Construction)	At random	
22				ALS-1	Horizontal Alignment	At random	
23				ALS-2	Surface level	At random in a grid of 10m x 2.5m	
24				ALS-3	Surface Regularity	At random	
25				ALS-4	Camber	At random	

**Quality Control Register- Part
1 (A) Section 3: Bituminous
Construction**

**Quantities of Item, Frequencies of Test and Number of Tests
Required**

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
1	Prime Coat over Granular base & Tack coat			BL-1	Viscosity of Bitumen Emulsions by Standard Saybolt-Furöl Viscometer	One test for each lot	
2				BL-2	Residue on 600 micron IS sieve	One test for each lot	
3				BL-3	Storage Stability Test	One test for each lot	
4				BL-4	Residue content test	One test for each lot	
5				BL-5	Flash point test, where bituminous cut back is to be used	One test for each lot	
6				BL-6	Viscosity of Bitumen where bituminous cut back is to be used	One test for each lot	
7				BL-7	Temperature of Binder (During Construction)	Regularly	
8				BL-8	Rate of spread of Binder (During Construction)	Atleast two tests per day	
9				BL-9	Curing of Primer(During Construction)	Before any subsequent treatment	
6				BL-10	Quality of binder (Paving Bitumen as per IS: 73) (a) Absolute Viscosity and Penetration Test (b) R&B softening Point Test (c) Ductility Test	One test per lot --do-- --do-- --do--	

7	Bituminous Macadam			BL-11	Quality of binder (Modified Bitumen) (a) Absolute Viscosity and Penetration Test (b) R&B softening Point Test (c) Elastic recovery Test (d) Separation Test	One test per lot --do--- --do-- --do-- --do--	
8				BL-12	Aggregate Impact Value Test	One test on representative sample per km length from each source identified by the Contractor	
9				BL-13	Flakiness index Test	Two tests per source	
10				BL-14	Bituminous Stripping of Aggregate Test	One test per Source	
11				BL-15	Water Absorption	One test per Source	
12				BL-16	Soundness test if water absorption of aggregate exceeds 2%	One test per Source	
13				BL-17	Grading of Aggregates(during Construction)	Atleast one test per day	
14				BL- 18	Binder Content(during Construction)	Atleast two tests per day	
15				BL-19	Density of compacted layer(during Construction)	Atleast one test per day	
16				BL-20	Temperature of before mixing(during Construction)	Regularly	
17				BL-21	Temperature of mix during laying and compactionusing metallic contact thermometer with digital display(during Construction)	Regularly	
18				BL-22	Thickness of compacted layer (during Construction)	Regular, at close intervals	
19				BL-23	Aggregate Impact Value(during Construction)	At random, One test per km	
20	OGPC			BL-24	Quality of binder (Paving Bitumen as per IS: 73) (a) Absolute Viscosity and Penetration Test (b) R&B softening Point Test (c) Ductility Test	One set of tests per lot (Average of 3 tests)	
21				BL- 25	Quality of binder (Bitumen Emulsion) (a) Viscosity (IS: 8887) (b) Residue content (c) Residue on 600 micron sieve	---do---	

			(d) storage stability test		
23		BL- 26	Quality of binder (Modified Bitumen) (a) Penetration Test (b) R&B softening Point Test (c) Elastic recovery Test	---do---	
24		BL-27	Aggregate Impact Value Test	One test per km length on representative sample from each source identified by the Contractor	
25		BL - 28	Flakiness index Test	---do---	
26		BL- 29	Bitumen Stripping of Aggregate Test	---do---	
27		BL- 30	Water Absorption	---do---	
28		BL -31	Grading of Aggregates(during Construction)	Atleast Two tests per day	
29		BL -32	Binder Content before seal coat (during Construction)	Atleast two tests per day	
30		BL-33	Temperature of Binder(during Construction)	Regular close intervals	
31		BL-34	Thickness of layer before and after compaction (during Construction)	Regularly at close intervals	
32		BL- 35	Aggregate Impact Value	At random, One test per km	
33					
34	Seal coat Type-A	BL- 35	Quality of binder (Paving Bitumen as per IS: 73) (a) Absolute Viscosity and Penetration Test (b) R&B softening Point Test (c) Ductility Test	One set of tests per lot (Average of 3 tests)	
35		BL- 36	Quality of binder (Bitumen Emulsion) (a) Viscosity (IS: 8887) (b) Residue content (c) Residue on 600 micron sieve (d) storage stability test	---do---	
36		BL-37	Quality of binder (Modified Bitumen) (a) Penetration Test (b) R&B softening Point Test (c) Elastic recovery Test	---do---	
37		BL- 38	Aggregate Impact Value Test	One test per km length on representative sample from each source identified by the Contractor	
38		BL- 39	Flakiness index Test	---do---	
39		BL -40	Bitumen Stripping of Aggregate Test	---do---	

40				BL- 41	Water Absorption	---do---	
41				BL-42	Rate of spread of Binder(During Construction)	Atleast Two tests per day	
42				BL- 43	Rate of spread of Aggregate(During Construction)	Atleast Two tests per day	
43				BL-44	Grading of Aggregates(during Construction)	Atleast one test per day	
44				BL-45	Temperature of Binder during spraying (during Construction)	Regularly at close intervals	
45				BL-46	Storage stability test for Bitumen emulsion(during Construction)	One test per day	
46				BL-47	Aggregate Impact Value	At random, One test per km	
47							
48	Seal coat Type-B & C			BL-48	Quality of binder (Paving Bitumen as per IS: 73) (a) Absolute Viscosity and Penetration Test (b) R&B softening Point Test (c) Ductility Test	One set of tests per lot (Average of 3 tests)	
49				BL-49	Quality of binder (Bitumen Emulsion) (a) Viscosity (IS: 8887) (b) Residue content (c) Residue on 600 micron sieve (d) storage stability test	---do---	
50				BL-50	Quality of binder (Modified Bitumen) (a) Penetration Test (b) R&B softening Point Test (c) Elastic recovery Test	---do---	
51				BL-51	Aggregate Impact Value Test	One test per km length on representative sample from each source identified by the Contractor	
52				BL-52	Flakiness index Test	---do---	
53				BL-53	Bitumen Stripping of Aggregate Test	---do---	
54				BL-54	Water Absorption	---do---	
55				BL- 55	Grading of Aggregates(during Construction)	Atleast Two tests per day	
56				BL-56	Binder Content before seal coat (during Construction)	Atleast two tests per day	
57				BL-57	Temperature of Binder(during Construction)	Regular close intervals	
58				BL-58	Thickness of layer before and after compaction (during Construction)	Regularly at close intervals	
59				BL-59	Aggregate Impact Value	At random, One test per km	

60	MSS			BL-59	Quality of binder (Paving Bitumen as per IS: 73) (a) Absolute Viscosity and Penetration Test (b) R&B softening Point Test © Ductility Test	One set of tests per lot (Average of 3 tests)	
61				BL -60	Aggregate Impact Value Test	One test per km length on representative sample from each source identified by the Contractor	
62				BL-61	Flakiness index	---do---	
63				BL-62	Bitumen Stripping of Aggregate Test	---do---	
64				BL-63	Water Absorption	---do---	
65				BL-64	Grading of Aggregates(during Construction)	Atleast Two tests per day	
66				BL-65	Binder Content (during Construction)	Atleast two tests per day	
67				BL-66	Temperature of Binder (during Construction)	Regular close intervals	
68				BL-67	Thickness of layer before and after compaction(during Construction)	Regularly at close intervals	
69				BL-68	Aggregate Impact Value(during Construction)	At random, One test per km	
70				ALS-1	Horizontal alignment	At random	
71				ALS-2	Surface level	At random	
72				ALS-3	Surface Regularity	At random	
73				ALS-4	Camber	At random	

Quality Control Register- Part 1
Section 4: Cement Concrete Pavements

Quantities of Item, Frequencies of Test and Number of Tests Required

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
Tests on materials prior to construction							
1	Coarse Aggregates			CC-1	Gradation Analysis (Individual)	3 sample for each quarry source	
2				CC-2	Aggregate Impact Value (a) Dry AIV (b) Wet AIV	One test each source of supply	
3				CC-3	Flakiness Index	3 sample for each quarry source	
4				CC-4	Water Absorption / Water Content	Once for each source of supply	
5				CC-5	Soundness (if water absorption exceeds 2%)	One test each source of supply	
6	Fine Aggregates			CC-6	Gradation of Fine Aggregates	3 sample for each source of supply	
7				CC-7	Deleterious Materials (Finer than 75 micron or Silt content)	If in doubt, one test	
8	Cement			CC-8	Compressive Strength of Cement	3 specimen for each lot	
9				CC-9	Initial & Final Setting time of Cement	One test for 10 tones of cement (same brand & grade)	
10				CC-10	Soundness of Cement	One test for 10 tones of cement (same brand & grade)	
11				CC-11	Fineness of cement	One test for 10 tones of cement (same brand & grade)	
12	Water			CC-12	Suitability of Water for construction (Determination of impurities)	Once for each source, subsequently, in case of doubt.	
13	Admixture			CC-13	Chemical (workability) (IS: 6 Mineral (flyash) (IS:3812)	Manufacturer's Certificate before procurement -do- -do-	
14	Steel- Dowel & Tie bars			CC-14	Yield strength	Tests for 3 samples	
15	Joint sealant			CC-15	- Pre-moulded joint filler (IS:1 - Joint sealing Compound (IS:	Manufacturer's Certificate - do-	
16	Plants equipment and tools			CC-16		As per contract	

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
17	Concrete mix Design			CC-17	for cement content w/c ratio and dosage of plasticizers for the specified design strength	To be approved by EE	
18	Granular Sub base				As per Section -2		
19	Trial Length			CC-18		To be approved by EE before regular work.	
Quality Control tests during construction							
20					Sub grade and sub base	As per Section -1	
21				CC-19	Gradation and moisture content of aggregate for cc pavement	Minimum once per day	
22				CC-20	Concrete workability (Slump cone tests IS:1199)	One test per cum of concrete at paving site or one test for each dumper laid at plant site.	
23				CC-21	Strength of concrete (IS:516)	Minimum 6 cubes and six beams (3 each for 7 days and 28 days strength per day)	
24				CC-18	Straightness of side forms (Steel) (for paralleling and possible settlement and securing position before concreting)	To be checked daily	
25				CC-22	Size, spacing, paralleling of dowel bars and location of different joints.	To be checked prior to casting of concrete at the location	
26				CC-23	Batching and mixing of materials	Check for measurements and proper mixing	
27				CC-24	Hot / cold weather concreting including compaction	Check regularly	
28				CC-25	Compaction equipment (needle, screed and	For continuous working and standby arrangement	

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
					plate vibrators)		
29				CC-26	Separation membrane (thickness and laying)	Prior to laying	
30				CC-27	Levels and alignment		
31					Level Tolerance	To be checked for each day's work regularly	
32					Surface regularity (transverse and longitudinal including camber / cross slope)	To be checked for each day's work regularly	
33					Width of pavement and position of paving edges	To be checked for each day's work regularly at grid points	
34					Pavement thickness	To be checked for each day's work	
35					Alignment of joints	As above	
36					Depth of dowels bars	As above	
37					Texturing and edging	As above	

Quality Control Register- Part 1

Section 5.1 : Pipe Culverts

Quantities of Item, Frequencies of Test and Number of Tests Required

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
1	2	3	4	5	6	7	8
Tests on materials prior to construction							
1	Concrete pipe			PC-1	Dimensions Manufacturing defects Tolerances (IS:458) Three edge bearing test (IS:3597)	At factory before delivery Manufacturer's certificate	
2	Concrete Materials				As in Section 4		
Quality Control tests during construction							
3	Bedding			PC-2	Materials (As per specification) length, width and thickness Pre formation of cradle to lay pipes inbedding Top and bottom levels	While laying	
4	Laying and Jointing of pipe			PC-3	invert level Longitudinal gradient Spacing when 2 or more pipes are laid inarrow or staggered columns. Jointing of pipes	Before back filling	
5	Back fill			PC-4	Filling of trench on both sides (simultaneously) Tamping/vibrating around pipe	During filling earth /granular materialaround pipe after laying	
6	Weep holes			PC-5	Size and Spacing	As per requirement, For every batch of concrete	
7	Cushion overpipes			PC-6	Thickness of cushion over pipes, Field density of filled material	While filling in layers	
8	Side slopes on Head walls			PC-7	Slope Stone pitching	Before construction of guard stones	
9	All concrete works			PC-8	a) Workability (Slump test) b) Cube strength (IS:516) c) Curing d)Honey combing and finishing	Twice in a day During construction of Foundations/ substructure separately To commence 24h after casting As and when inspected	

S. No.	Description of Item of Work	Unit	Quantity	Test No.	Name of Test	Frequency of Test	No. of Tests Required
					e) Plumbness for head walls/ wing walls / Return walls f) Alignment	Random Random	
9	Equipment for handling pipes (prior to lowering)			PC-9	Adequacy of chain pulley block Stability of Tripod arrangement etc.	Prior to lowering	

Note: Refer NRIDA Quality Assurance Hand Book vol. 1(2016), for any further guidance if required.

Pradhan Mantri Gram Sadak Yojana

Quality Control Register Part 1 **Record of Tests**

Section -1 Earth Work

Sieve Analysis of Soil (IS:2720 (Part 4) -1985)**Test 1**

Road / Section Details

Date of Testing :

Sample No.

Weight of soil sample taken: (gm)

Dry Sieving

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing	Prescribed Limits (Percentage of Wt. Passing/ Retained)
40 mm					
25 mm					
20 mm					
10 mm					
4.75 mm					

Wet Sieving

Weight of Soil Sample taken: (gm)

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained (%)	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing (%)
2.36 mm				
1.18 mm				
600 μ				
425 μ				
75 μ				

Summary of Results

Clay / silt (-75 micron) percent	
Sand (-4.75 mm + 75 micron) percent	
Gravel (-40 mm + 4.75 mm) percent	

Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....

Checked by:

Tested by:

Atterberg Limits Test**Test 1**

Road/Section Details:

Date of Testing :

Sample No.:

Type of soil :

Sample Details :

Determination of Liquid Limit (LL)

	1	2	3	4	5	6	Remarks
Container Number							
Weight of container + wet soil							
Weight of container + dry soil							
Loss of Moisture							
Wt. of container							
Wt. of dry soil							
Moisture content %							
Number of blows							

Liquid Limit (LL) = ----- per cent

Layer	Value	Permissible Value
		Less than 70 per cent

Determination of Plastic Limit (PL)

	1	2	3	Remarks
Container Number				
Weight of container + wet soil				
Weight of container + dry soil				
Loss of Moisture				
Weight of container				
Weight of dry soil				
Moisture content %	(mc ₁)	(mc ₂)	(mc ₃)	

Plastic Limit (PL) = $\frac{mc_1 + mc_2 + mc_3}{3}$? _____ per cent

Plasticity Index (PI) = LL – PL = _____ per cent

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Data Sheet for Compaction Test of Soil (IS:2720 (Part 7) -1983)

Test 1

Road / Section Details:

Date of Testing :

Sample No. :

Weight of Dry Soil:

Description of sample	
Type of test	Standard Proctor
Weight of mould W_1 (gm)	
Volume of mould V_m (cc)	
Per cent retained on 20 mm IS sieve	

S. No.	Weight of mould + compacted soil (gms) W_2	Weight of wet soil (gms) $W_2 - W_1$	Wet density (gm/cc)	Moisture content determination							Dry density (gm/cc)
				Container No.	Weight of container (gms)	Weight of container + wet soil (gms)	Weight of container + dry soil (gms)	Weight of water (Ww) (gms)	Weight of Dry soil (Ws) (gms)	Moisture content (%) (W)	
1.											
2.											
3.											
4.											
5.											
6.											

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

$$\text{Wet density of compacted soil } Y_m = \frac{W_2 - W_1}{V_m} \text{ gm/cc}$$

Where: W_2 – Weight of mould + soil (gm), W_1 – Weight of mould (gm), V_m – Volume of mould (cc)

$$\text{Dry density of compacted soil } Y_d = \frac{100}{100 + W} \times Y_m$$

Where W = moisture content

C. B. R. Test of Soil (For Sub Grade Soil Only) [IS: 2720 (Part-16)]
Test 1

Sample No.:

Date of Testing:

Sample Details:

Capacity of Proving Ring:

Date of Casting of Mould:

Value of one divn. in: kg.

Time of Penetration @1.25 mm/Min.	Penetration	Proving Ring Reading			Load Intensity (kg/cm ²) (A) x One divn. Value area of Plunger			Corrected Load Intensity (kg/cm ²)			Standard Load Intensity (kg/cm ²)	Unsoaked/ Soaked C.B.R. (%) $\frac{Cx100}{D}$			Average C.B.R. (%)
		(A)			(B)			(C)			(D)	(E)			
Min. Sec.	(mm)	i	ii	iii	i	ii	iii	i	ii	iii	Std.	i	ii	iii	
0 – 0	0.0														
0 – 24	0.5														
0 – 48	1.0														
1 – 12	1.5														
1 – 36	2.0														
2 – 0	2.5										70				
2 – 24	3.0														
3 – 12	4.0														
4 – 0	5.0										105				
6 – 0	7.5										134				
8 – 0	10.0										162				
10 – 0	12.5										183				

Av. C.B.R. at 2.5 mm penetration: (%)

Av. C.B.R. at 5.0 mm penetration: (%)

Av. Saturation Moisture Content: (%)

Av. Swelling: (%)

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

**Swelling Test of Soil
Test 1**

Sample No.:

Date of casting specimen:

Sample Details:

Date of Testing:

Mould Nos.	Height of specimen	Dial gauge reading		L. C. of dial gauge	Total Swelling (C-B)xD	Swelling Index $\frac{Ex100}{A}$
	(mm)	Initial	Final	(mm)	(mm)	(Percent)
	(A)	(B)	(C)	(D)	(E)	
i.						
ii.						
iii.						

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

**Field Density of Soil
(Sand replacement method)**

Test 1

Road/Section Details:

Date of Testing :

Location of test point.:

Thickness of layer : mm

Observation Tables

(a)	<i>Calibration</i> (i) Mean weight of sand in cone (of pouring cylinder) (W_2) in gm. (ii) Volume of calibrating cylinder (V) in cc. (iii) Weight of sand (+ cylinder) before pouring (W_1) in gm. (iv) Mean weight of sand (+cylinder) after pouring (W_3) in gm. (v) Weight of sand to fill calibrating cylinder. ($W_a = W_1 - W_2 - W_3$) in gm. (vi) Bulk density of sand $Y_s = (W_a/V)$ gm/cc
(b)	<i>Determination of soil density</i> (i) Determination number (ii) Weight of wet soil from hole (W_w) in gm. (iii) Weight of sand (+ cylinder) before pouring (W_1) in gm. (iv) Weight of sand (+ cylinder) after pouring (W_4) in gm. (v) Weight of sand in hole, in gm. $W_b = (W_1 - W_4 - W_2)$ (vi) Bulk density $Y_b = (W_w / W_b) \times Y_s$ gm/cc (vii) Moisture content container number (viii) Moisture content (W) percent (ix) Weight of dry soil from the hole in gm. (W_d) (x) Dry density $Y_d = (W_d / W_b) \times Y_s$ gm/cc

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

* Field density as per cent of Maximum Dry Density at OMC.

Checked by:

Tested by:

Pradhan Mantri Gram Sadak Yojana

Quality Control Register Part 1

Record of Tests

Section-2 Granular Construction

Tests for Drainage Layer**Sieve Analysis (IS:2720 (Part 4) -1985)****Test 1**

Road / Section Details

Date of Testing :

Sample No.

Weight of soil sample taken: (gm)

Dry Sieving

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing	Prescribed Limit % Wt. Passing/ Retained

Wet Sieving

Weight of Soil Sample taken: (gm)

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained (%)	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing (%)	Prescribed Limit % Wt. Passing/ Retained

Whether Confirms to the Prescribed Limits (Yes/No)

If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved.
Page No..... Date of issue.....

Checked by:

Tested by:

Instruction for Blending

(Date & Signature)
Officer in charge

Tests for Granular Sub Base**Sieve Analysis (IS:2720 (Part 4) -1985)****Test 1**

Road / Section Details

Date of Testing :

Sample No.

Weight of soil sample taken: (gm)

Dry Sieving

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing	Prescribed Limit % Wt. Passing/ Retained

Wet Sieving

Weight of Soil Sample taken: (gm)

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained (%)	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing (%)	Prescribed Limit % Wt. Passing/ Retained

Whether Confirms to the Prescribed Limits (Yes/No)

If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved.
Page No..... Date of issue.....

Checked by:

Tested by:

Instruction for Blending

(Date & Signature)
Officer in charge

Test for Granular Sub Base

Atterberg Limits Test

Test 1

Road/Section Details:

Date of Testing :

Sample No.:

Type of soil :

Sample Details :

Determination of Liquid Limit (LL)

	1	2	3	4	5	6	Remarks
Container Number							
Weight of container + wet soil							
Weight of container + dry soil							
Loss of Moisture							
Wt. of container							
Wt. of dry soil							
Moisture content %							
Number of blows							

Liquid Limit (LL) = ----- per cent

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Determination of Plastic Limit (PL)

	1	2	3	Remarks
Container Number				
Weight of container + wet soil				
Weight of container + dry soil				
Loss of Moisture				
Weight of container				
Weight of dry soil				
Moisture content %	(mc ₁)	(mc ₂)	(mc ₃)	

Plasticity Index (PI) = LL – PL = _____ per cent

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Test for Granular Sub Base

Data Sheet for Compaction Test of Soil (IS:2720 (Part 7) -1983)

Test 1

Road / Section Details:

Date of Testing :

Sample No. :

Weight of Dry Soil:

Description of sample	
Type of test	Standard Proctor
Weight of mould W_1 (gm)	
Volume of mould V_m (cc)	
Per cent retained on 20 mm IS sieve	

S. No.	Weight of mould + compacted soil (gms) W_2	Weight of wet soil (gms) $W_2 - W_1$	Wet density (gm/cc)	Moisture content determination							Dry density (gm/cc)
				Container No.	Weight of container (gms)	Weight of container + wet soil (gms)	Weight of container + dry soil (gms)	Weight of water (W_w) (gms)	Weight of Dry soil (W_s) (gms)	Moisture content (%) (W)	
1.											
2.											
3.											
4.											
5.											
6.											

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

$$\text{Wet density of compacted soil } Y_m = \frac{W_2 - W_1}{V_m} \text{ gm/cc}$$

Where

 W_2 - Weight of mould + soil (gm) W_1 - Weight of mould (gm) V_m - Volume of mould (cc)

$$\text{Dry density of compacted soil } Y_d = \frac{100}{100 + W} \times Y_m$$

Where W = moisture content

Test for Granular Sub Base

C. B. R. Test of Soil [IS: 2720 (Part-16)]

Test 1

Sample No.:

Date of Testing:

Sample Details:

Capacity of Proving Ring:

Date of Casting of Mould:

Value of one divn. in: kg.

Time of Penetration @1.25 mm/Min.	Pene- tration	Proving Ring Reading			Load Intensity (kg/cm ²) (A) x One divn. Value area of Plunger			Corrected Load Intensity (kg/cm ²)			Standard Load Intensity (kg/cm ²)	Unsoaked/ Soaked C.B.R. (%) $\frac{Cx100}{D}$			Average C.B.R. (%)
		(A)			(B)			(C)			(D)	(E)			
Min. Sec.	(mm)	i	ii	iii	i	ii	iii	i	ii	iii	Std.	i	ii	iii	
0 – 0	0.0														
0 – 24	0.5														
0 – 48	1.0														
1 – 12	1.5														
1 – 36	2.0														
2 – 0	2.5										70				
2 – 24	3.0														
3 – 12	4.0														
4 – 0	5.0										105				
6 – 0	7.5										134				
8 – 0	10.0										162				
10 – 0	12.5										183				

Av. C.B.R. at 2.5 mm penetration: (%)

Av. C.B.R. at 5.0 mm penetration: (%)

Av. Saturation Moisture Content: (%)

Av. Swelling: (%)

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Test for Water Bond Macadam Base

Form No. GB-1

Aggregate Impact Value of Aggregate (IS: 2386 – Part 4)

WBM Grade 2 Test 1

Sample No.:

Date of Testing:

Name of Quarry / Location:

Weight of Sample taken:

Observations	Test Nos.			Average
	1	2	3	
Weight of aggregate sample filling in the cylinder = W_1 (gm)				
Weight of aggregate passing 2.36 mm sieve after the test = W_2 (gm)				
A.I.V = $(W_2 / W_1) \times 100$				

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Test for Water Bond Macadam Base

Form No. GB-1

Aggregate Impact Value of Aggregate (IS: 2386 – Part 4)

WBM Grade 2 Test 2

Sample No.:

Date of Testing:

Name of Quarry / Location:

Weight of Sample taken:

Observations	Test Nos.			Average
	1	2	3	
Weight of aggregate sample filling in the cylinder = W_1 (gm)				
Weight of aggregate passing 2.36 mm sieve after the test = W_2 (gm)				
A.I.V = $(W_2 / W_1) \times 100$				

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Test for Water Bond Macadam Base

Sieve Analysis of Aggregate (IS: 2386 Part-1)

WBM Grade 2 Test 1

Road / Section Details:

Date of Testing :

Sample No. :

Weight of Sample taken: (gm)

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained (%)	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing (%)	Permissible Value

Whether Confirms to the Prescribed Limits (Yes/No)

If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved.
 Page No..... Date of issue.....

Checked by:

Tested by:

Instruction for Blending

(Date & Signature)
 Officer in charge

Test for Water Bond Macadam Base **Flakiness Index of Aggregate** **WBM Grade 2 Test 1**

Sample No:
 Name of Quarry / Location:

Date of Sampling:
 Date of Testing:

Size of aggregate		Wt. of the fraction consisting of at least 200 pieces (gm)	Thickness gauge size, (0.6 times the mean sieve) (mm)	Weight of aggregate in each fraction passing thickness gauge, (gm)
Passing through I.S. Sieve, (mm)	Retained on I.S. Sieve (mm)			
63	50	$W_1 =$	23.90	$w_1 =$
50	40	$W_2 =$	27.00	$w_2 =$
40	31.5	$W_3 =$	19.50	$w_3 =$
31.5	25	$W_4 =$	16.95	$w_4 =$
25	20	$W_5 =$	13.50	$w_5 =$
20	16	$W_6 =$	10.80	$w_6 =$
16	12.5	$W_7 =$	8.55	$w_7 =$
12.5	10	$W_8 =$	6.75	$w_8 =$
10	6.3	$W_9 =$	4.89	$w_9 =$
Total		$W =$		$w =$

$$\text{Flakiness Index (F.I.)} = \frac{W}{W} \times 100 \text{ ? (\%)} \quad \text{?}$$

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Date: _____

Date: _____

Test for Water Bond Macadam

Atterberg Limits Test for Binding Material

WBM Grade 2 Test 1

Road/Section Details:

Date of Testing :

Sample No.:

Type of soil :

Sample Details :

Determination of Liquid Limit (LL)

	1	2	3	4	5	6	Remarks
Container Number							
Weight of container + wet soil							
Weight of container + dry soil							
Loss of Moisture							
Wt. of container							
Wt. of dry soil							
Moisture content %							
Number of blows							

Liquid Limit (LL) = ----- per cent

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Determination of Plastic Limit (PL)

	1	2	3	Remarks
Container Number				
Weight of container + wet soil				
Weight of container + dry soil				
Loss of Moisture				
Weight of container				
Weight of dry soil				
Moisture content %	(mc ₁)	(mc ₂)	(mc ₃)	

Plastic Limit (PL) = $\frac{mc_1 + mc_2 + mc_3}{3}$? _____ per cent

Plasticity Index (PI) = LL – PL = _____ per cent

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Test for Water Bond Macadam Base
Water Absorption of Aggregate
WBM Grade 2 Test 1
IS: 2386 (Part 3)

Sample No:
 Name of Quarry / Location
 Size of aggregate:

Date of sampling:
 Date of Testing:
 Type of aggregate:

Observations	Test Nos.		
	1	2	Mean value
Wt. of saturated aggregate and basket in water (W_1) gm			
Wt. of basket in water (W_2) gm			
Wt. of saturated surface dry aggregate in air (W_3) gm			
Wt. of oven dried aggregate in air (W_4) gm			
Specific gravity = $W_4 / W_3 - (W_1 - W_2)$			
Apparent Specific gravity = $W_4 / W_4 - (W_1 - W_2)$			
Water absorption = $(W_3 - W_4) \times 100 / W_4$ (%)			
Mean value of Specific gravity =			
Mean value of apparent specific gravity =			
Mean value of Water absorption =			

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Pradhan Mantri Gram Sadak Yojana

Quality Control Register Part 1

Record of Tests

Section 3 Bituminous Construction

Tests of Bitumen Emulsions for Prime Coat and other Surfaces

Form No. BL-1(J)

Sieve Test for Bitumen Emulsions Test1

Sample Ref. :

Date:

Tanker No. :

Type of Emulsion :

Sample No.	Wt. of sieve (w1)	Wt. of sieve + sample (w2)	Wt. of sieve + sample after heating (w3)	Sample wt. retained after heating (w3-w1)	Percentage $\{(w3-w1)/(w2-w1)\} \times 100$	Acceptable Limit
						As per IS:8887-1995

Layer	Value	Permissible Limit
		Max. 0.05%

Checked By:

Tested By:

Stability to Mixing with Coarse Aggregate on Bitumen Emulsion**Test1**

Sample Ref. :
 Date:
 Tanker No. :
 Aggregate :Wet/dry

Sample No.	Coating of the total aggregate surface area by the emulsion	
	Good/Fair/Poor	

Good =Fully Coated

Fair =Coating applies to the condition of an excess of coated area over on coated area,

Poor =Applies to the condition of an excess of uncoated area over coated area.

Layer	Value	Permissible Limit
		As per specification

Checked By:

Tested By:

Viscosity of Bitumen by Standard Saybolt – Furol Viscometer**Test1**

Sample Ref. :
 Date:
 Tanker No. :
 Type of Emulsion :

Sample No.	Test Temperature	Viscosity (Sec.)	Acceptable Limit
	25 ° C		As per IS: 8887-1995

Layer	Value	Permissible Limit
		50-400 seconds at 50° As per IS 8887-1995

Checked By:

Tested By:

Storage Stability Test on Bitumen Emulsion
Test1

Sample Ref. :

Date:

Tanker No. :

Sample No.	% of residue from top sample (A)	% of residue from bottom sample (B)	Settlement (B-A)	Acceptable Limit
				As per IS: 8887-1995

Layer	Value	Permissible Limit
		50-400 seconds at 50° As per IS 8887-1995

Checked By:

Tested By:

Particle Change of Emulsion**Test1**

Sample Ref. :

Date:

Tanker No. :

Type of Emulsion :

Sample No.	Wt. of Sample	Wt. of Emulsion on Cathode	%of cationic emulsion	Acceptable Limit
				As per IS: 8887-1995

Layer	Value	Permissible Limit
		+ve

Checked By:

Tested By:

Miscibility of Bitumen Emulsion with Water**Test1**

Sample Ref. :

Date:

Tanker No. :

Type of Emulsion :

Sample No.	Total Volume (Distilled water + emulsion)(v)	% appreciable coagulation of asphalt content	Acceptable Limit
			As per IS: 8887- 1995

Layer	Value	Permissible Limit
		Nil

Checked By:

Tested By:

Stability of Bitumen Emulsion with Cement**Test1**

Sample Ref. :

Date:

Tanker No. :

Type of Emulsion :

Sample No.	Wt. of sieve (w1)	Wt. of sieve + Wt. of sample mixed with emulsion (w2)	Wt. of sieve + Wt. of sample after washing (w3)	Stability % with cement $\{(w3-w1)/(w2-w1)\}$ 100	Acceptable Limit
					As per IS:887-1995

Layer	Value	Permissible Limit
		Max. 2% (SS)

Checked By:

Tested By:

Form No. BL-1(A)

Bitumen for Premix Carpet/ Surface Dressing

Penetration of Bitumen

Test 1

Sample No.:

Date of Testing:

Tanker No. :

1.	Pouring Temperature, °C	
2.	Period of cooling in atmosphere, minutes	
3.	Room temperature, °C	
4.	Period of cooling in water bath, minutes	
5.	Actual test temperature, °C	

Penetrometer dial reading	Sample No.				Sample No.			
	Test 1	Test 2	Test 3	Mean value	Test 1	Test 2	Test 3	Mean value
Initial								
Final								
Penetration value								
Mean Penetration value								

Layer	Value	Permissible Limit
		Depending upon grade specified

Checked by:

Tested by:

Form No. BL-1(B)

Bitumen for Premix Carpet/ Surface Dressing

Ductility of Bitumen

Test 1

Sample No.:

Date of sampling:

Tanker No.:

Date of Testing:

1.	Grade of bitumen	
2.	Pouring temperature, °C	
3.	Test temperature, °C	
4.	Period of cooling, (minutes)	
4.1	In Air	
4.2	In water bath before trimming	
4.3	In water bath after trimming	

Test property	Briquette number			Mean value
	(a)	(b)	(c)	
Ductility value (cm)				

Layer	Value	Permissible Limit
		More than 75 unit

Checked by:

Tested by:

Bitumen for Premix Carpet/ Surface Dressing

Softening Point of Bitumen Test 1

Sample No.:

Date of sampling:

Tanker No.:

Date of Testing:

1.	Grade of bitumen	
2.	Approximate softening point	
3.	Liquid used in water bath (water / Glycerin)	
4.	Period of air cooling (minutes)	
5.	Period of cooling in water bath (minutes)	

Test property	Sample No. 1		Sample No. 2	
	Ball No.		Ball No.	
Temp. at which sample touch bottom plate (°C)	1	2	1	2
Mean Value, softening point				

Layer	Value	Permissible Limit
		More than 40°C

Checked by:

Tested by:

Bitumen for Premix Carpet/ Surface Dressing Specific Gravity of Bitumen Test 1

Sample No.:

Date of Sampling:

Bitumen grade:

Date of Testing:

Sample No.	Wt. of Bottle (gm)	Wt. of Bottle + distilled water (gm)	Wt. of Bottle + half filled material (gm)	Wt. of Bottle + half filled material + distilled water (gm)	Specific gravity (gm/cc)
	W_1	W_2	W_3	W_4	
1.					
2.					
3.					
Average					

Layer	Value	Permissible Limit
		Not less than 0.99 gm/cc

Checked by:

Tested by:

Bitumen for Premix Carpet/ Surface Dressing

Water Content of Bitumen

IS 73 – 1992

Test 1

Sample Ref.:

Date of Testing :

Tanker No. :

Bitumen grade:

Sample No.	Wt. of sample before heating (w_1)	Wt. of sample after heating (w_2)	Water loss ($w_1 - w_2$)	Percentage Water content

Layer	Value	Permissible Limit
		Max. 0.2%

Checked by:

Tested by:

Bitumen for Premix Carpet/ Surface Dressing

Flash Point of Bitumen

Test 1

Sample Ref.:

Date of Testing :

Tanker No.:

Barometric pressure: mm

Bitumen grade:

Sample No.	Flash point °C	Corrected flash point

Layer	Value	Permissible Limit
		Min. 220°C

Checked by:

Tested by:

Bitumen for Premix Carpet/ Surface Dressing**Form No. BL-1(G)****Viscosity of Bitumen
Test 1**

Sample Ref.:

Date of Testing :

Tanker No.:

Bitumen grade:

Sample No.	Flash time	Atmospheric Pressure	Viscosity

Layer	Value	Permissible Limit
		As per specifications

Checked by:

Tested by:

Form No. BL-1(H)**Bitumen for Premix Carpet/ Surface Dressing****Loss on Heat of Bitumen
Test 1**

Sample Ref.:

Date of Testing :

Tanker No.:

Bitumen grade:

(a) Per cent loss on heat

Sample No.	Wt. of bitumen before heating (w_1)	Wt. of bitumen after heating (w_2)	Percentage loss in wt. $\frac{w_1 - w_2}{w_1} \times 100$

(b) Retained penetration percentage

Sample No.	Penetration before heating (l_1)	Penetration after heating (l_2)	Retained penetration percentage $\frac{l_1}{l_2} \times 100$

Layer	Value	Permissible Limit
		As per specifications

Checked by:

Tested by:

Bitumen for Premix Carpet/ Surface Dressing**Form No. BL-1(I)****Solubility of Bitumen in Trichloroethylene****Test 1**

Sample Ref.:

Date of Testing :

Tanker No.:

Bitumen grade:

Sample No.	Wt. of Sample (w_1)	Wt. of insoluble material (w_2)	Percentage of soluble material $\frac{w_1 - w_2}{w_1} \times 100$

Layer	Value	Permissible Limit
		Min. 99%

Checked by:

Tested by:

Form No. BL-1(Q)**Bitumen for Premix Carpet/ Surface Dressing****Wax Content of Bituminous Material****Test 1**

Sample Ref.:

Date of Testing :

Tanker No.:

Bitumen grade:

Sample No.	Mass of weighing flask in gm (w_1)	Mass of weighing flask plus wax gm (w_2)	Mass of sample in gm (s)	Wax % $\frac{w_2 - w_1}{s} \times 100$

Layer	Value	Permissible Limit
		Min. 4.5%

Checked by:

Tested by:

Aggregate for Premix Carpet/ Surface Dressing/ Bituminous Macadam**Aggregate Impact Value of Aggregate (IS: 2386 – Part 4)****Test 1**

Sample No.:

Date of Testing:

Name of Quarry / Location:

Weight of Sample taken:

Observations	Test Nos.			Average
	1	2	3	
Weight of aggregate sample filling in the cylinder = W_1 (gm)				
Weight of aggregate passing 2.36 mm sieve after the test = W_2 (gm)				
A.I.V = $(W_2 / W_1) \times 100$				

Layer	Value	Permissible Limit
Sub-base course		Not more than 50
Base course		Not more than 40
Wearing course		Not more than 30

Checked by:

Tested by:

Aggregate for Premix Carpet/ Surface Dressing/ Bituminous Macadam**Aggregate Impact Value of Aggregate (IS: 2386 – Part 4)****Test 2**

Sample No.:

Date of Testing:

Name of Quarry / Location:

Weight of Sample taken:

Observations	Test Nos.			Average
	1	2	3	
Weight of aggregate sample filling in the cylinder = W_1 (gm)				
Weight of aggregate passing 2.36 mm sieve after the test = W_2 (gm)				
A.I.V = $(W_2 / W_1) \times 100$				

Layer	Value	Permissible Limit
Sub-base course		Not more than 50
Base course		Not more than 40
Wearing course		Not more than 30

Checked by:

Tested by:

Test for Aggregate for Bituminous construction
Flakiness Index of Aggregate
WBM Grade 3 Test 1

Sample No:

Date of Sampling:

Name of Quarry / Location:

Date of Testing:

Size of aggregate		Wt. of the fraction consisting of at least 200 pieces (gm)	Thickness gauge size, (0.6 times the mean sieve) (mm)	Weight of aggregate in each fraction passing thickness gauge, (gm)
Passing through I.S. Sieve, (mm)	Retained on I.S. Sieve (mm)			
63	50	$W_1 =$	23.90	$w_1 =$
50	40	$W_2 =$	27.00	$w_2 =$
40	31.5	$W_3 =$	19.50	$w_3 =$
31.5	25	$W_4 =$	16.95	$w_4 =$
25	20	$W_5 =$	13.50	$w_5 =$
20	16	$W_6 =$	10.80	$w_6 =$
16	12.5	$W_7 =$	8.55	$w_7 =$
12.5	10	$W_8 =$	6.75	$w_8 =$
10	6.3	$W_9 =$	4.89	$w_9 =$
Total		$W =$		$w =$

Flakiness Index (F.I.) ? $\frac{w}{W} \times 100$? (%)

Layer	Value	Permissible Limit	Whether Confirms to the Prescribed Limits (Yes/No)
If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved. Page No..... Date of issue.....			

Checked by:

Tested by:

Date: _____

Date: _____

Aggregate for Premix Carpet/ Surface Dressing/ Bituminous Macadam**Stripping Value of Aggregate****Test 1**

Sample No:
Name of Quarry / Location

Date of Sampling:
Date of Testing:

Type of aggregate:	
Type of Binder	
Percentage of binder used:	
Total weight of aggregate:	
Total weight of binder:	
Temperature of water bath:	

Number of observations	Stripping (%)
1	
2	
3	
Average value	

Layer	Value	Permissible Limit
		Not more than 15 per cent

Checked by:

Tested by:

Aggregate for Premix Carpet/ Surface Dressing/ Bituminous**Water Absorption of Aggregate****IS: 2386 (Part 3)****Test 1**

Sample No:
Name of Quarry / Location
Size of aggregate:

Date of sampling:
Date of Testing:
Type of aggregate:

Observations	Test Nos.		
	1	2	Mean value
Wt. of saturated aggregate and basket in water (W_1) gm			
Wt. of basket in water (W_2) gm			
Wt. of saturated surface dry aggregate in air (W_3) gm			
Wt. of oven dried aggregate in air (W_4) gm			
Specific gravity = $W_4 / (W_3 - (W_1 - W_2))$			
Apparent Specific gravity = $W_4 / (W_4 - (W_1 - W_2))$			
Water absorption = $(W_3 - W_4) \times 100 / W_4$ (%)			
Mean value of Specific gravity =			
Mean value of apparent specific gravity =			
Mean value of Water absorption =			
Layer	Value	Permissible Limit	
		Not more than 2 per cent	

Checked by:

Tested by:

Aggregate for Premix Carpet/ Surface Dressing**Sieve Analysis (IS:2720 (Part 4) -1985)****Test 1**

Road / Section Details:

Date of Testing :

Sample No. :

Weight of Sample taken: (gm)

I. S. Sieve designation	Weight of sample retained (gm)	Percent of Wt. retained (%)	Cumulative percent of Wt. retained (%)	Percentage of Wt. Passing (%)	Permissible Value

Whether Confirms to the Prescribed Limits (Yes/No)

If Results don't conform to the prescribed Limits, non conformance Report will be issued by the PIU. The reference of the page No. of this Register on which Non Conformance Reports copy preserved.
Page No..... Date of issue.....

Checked by:

Tested by:

Instruction for Blending

(Date & Signature)
Officer in charge

Aggregate for Premix Carpet**Test 1****Soundness of Aggregate**

Sample No:

Date of Sampling:

Name of Quarry / Location:

Date of Testing:

Type of reagent used:

Number of cycles:

Type of coarse aggregate sample:

Sieve size, mm		Grading of original sample (%)	Wt. of each fraction before test (gm)	Percentage passing finer sieve after test (actual percent loss)	Weighted average (corrected percentage loss)
Passing	Retained				
1	2	3	4	5	6
60	40				
40	20				
20	10				
10	4.75				
Number of particles coarser than 20mm before test			Number of particles affected, classified as to the number disintegrating, splitting, crumbing, cracking or flanking		
Passing	Retained	Number before test			
40 mm	20 mm				
60 mm	40 mm				

Layer	Value	Permissible Limit
		Maximum 12 per cent (Sodium Sulphate Solution)
		Maximum 18 per cent (Magnesium Sulphate Solution)

Checked by:

Tested by: