

LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE



For The Technical Direction Of The LTPP Program



Program Area: SPS

Directive Number: S-7

Date: February 9, 1994

**Supersedes: Relative SHRP
SPS-2 Documents**

**Subject: SPS-2 Construction Guidelines
SPS-2 Materials Sampling and Testing Requirements**

Attached are the December 1993 and January 1994 revisions to the subject SPS-2 documents. These documents were prepared and revised in accordance with comments received for the LTPP Regional Offices and others involved with the program. They contain clarification and expansion of the original documents but do not change the scope and concept of the original experiment.

Approved: Monte Symons

Date: 2-8-94

NOTICE OF CHANGE(S) TO SHRP SPS REPORT

Report Title:	Data Collection Guidelines for SPS- 7
Report Date:	July 1991
SHRP Operational Memo No.:	SHRP-LTPP-OM-024

Change Number:	1	Page 1 of 1
Change Date:	October 30, 1992	

The following change should be incorporated in the document:

Construction Data Sheets (All Sheets)

The title and the numbering of the data sheets were revised to conform to the scheme used for the development of Construction Data Sheets for SPS-1 and SPS-2 experiments. The revised Sheets 1 to 27 are attached.

Changes in the IMS will be implemented to incorporate the revisions.

SPS-7 CONSTRUCTION DATA SHEET 1 REFERENCE PROJECT STATION TABLE	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [0 0]
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ORDER	TEST SECTION ID NO (1)	REFERENCE PROJECT STATION NUMBER		(4) CUT-FILL ¹	
		(2) START	(3) END	TYPE	STATION
1	-----	0 + 0 0	----- + ----	---	--- + ----
2	-----	----- + ----	----- + ----	---	--- + ----
3	-----	----- + ----	----- + ----	---	--- + ----
4	-----	----- + ----	----- + ----	---	--- + ----
5	-----	----- + ----	----- + ----	---	--- + ----
6	-----	----- + ----	----- + ----	---	--- + ----
7	-----	----- + ----	----- + ----	---	--- + ----
8	-----	----- + ----	----- + ----	---	--- + ----
9	-----	----- + ----	----- + ----	---	--- + ----
10	-----	----- + ----	----- + ----	---	--- + ----
11	-----	----- + ----	----- + ----	---	--- + ----
12	-----	----- + ----	----- + ----	---	--- + ----
13	-----	----- + ----	----- + ----	---	--- + ----
14	-----	----- + ----	----- + ----	---	--- + ----
15	-----	----- + ----	----- + ----	---	--- + ----
16	-----	----- + ----	----- + ----	---	--- + ----
17	-----	----- + ----	----- + ----	---	--- + ----
18	-----	----- + ----	----- + ----	---	--- + ----
19	-----	----- + ----	----- + ----	---	--- + ----
20	-----	----- + ----	----- + ----	---	--- + ----

5. SPS - GPS TEST SECTION EQUALITIES

GPS section _____ is the same as SPS section _____
 GPS section _____ is the same as SPS section _____

6. INTERSECTIONS BETWEEN TEST SECTION ON THE PROJECT RAMPS | --- INTERSECTION --- |
 ROUTE PROJECT STATION NO. EXIT ENT STOP SIGNAL UNSIG

_____	----- + ----	---	---	---	---	---
_____	----- + ----	---	---	---	---	---
_____	----- + ----	---	---	---	---	---

Note 1. Indicate the type of subgrade section the test section is located on:

Cut..... 1 Fill..... 2 At-Grade..... 3 Cut and Fill.....4

If cut-fill transition is located in a test section, enter test section station of the cut-fill transition location.

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 2 REVISED LAYER DESCRIPTIONS	* STATE CODE [__ __] * SPS PROJECT CODE [__ __] * TEST SECTION NO. [__ __]
--	--

1. LAYER NUMBER	2. LAYER DESCRIPTION	3. MATERIAL TYPE CLASS	4. LAYER THICKNESSES (Inches)			
			AVERAGE	MINIMUM	MAXIMUM	STD. DEV.
1	SUBGRADE (7)	[__ __]	██████████	-----	-----	-----
2	[__ __]	[__ __]	[-----]	-----	-----	-----
3	[__ __]	[__ __]	[-----]	-----	-----	-----
4	[__ __]	[__ __]	[-----]	-----	-----	-----
5	[__ __]	[__ __]	[-----]	-----	-----	-----
6	[__ __]	[__ __]	[-----]	-----	-----	-----
7	[__ __]	[__ __]	[-----]	-----	-----	-----
8	[__ __]	[__ __]	[-----]	-----	-----	-----
9	[__ __]	[__ __]	[-----]	-----	-----	-----
10	[__ __]	[__ __]	[-----]	-----	-----	-----
11	[__ __]	[__ __]	[-----]	-----	-----	-----
12	[__ __]	[__ __]	[-----]	-----	-----	-----
13	[__ __]	[__ __]	[-----]	-----	-----	-----
14	[__ __]	[__ __]	[-----]	-----	-----	-----
15	[__ __]	[__ __]	[-----]	-----	-----	-----

NOTES:

1. Layer 1 is subgrade soil, the highest numbered layer is the pavement surface.
2. Layer description codes:

Overlay.....01	Base Layer.....05	Porous Friction Course.....09
Seal/Tack Coat w/overlay.....02	Subbase Layer.....06	Surface Treatment.....10
Original Surface.....03	Subgrade.....07	Embankment (Fill).....11
HMAC Layer (Subsurface)....04	Interlayer.....08	

If milling was performed, the layers which were milled shall be assigned their previous layer number and material type. If the layer was completely removed by milling, it shall still be shown as a layer with a zero thickness.
3. Enter the material type classification codes from Tables A.5, A.6, A.7 and A.8 which best describes the material in each layer. If the layer was milled, enter the material classification code corresponding to the type material which was removed.
4. Enter the average thickness of each layer and the maximum, minimum, and standard deviation of the thickness measurements, if known. If a layer was partially milled, the remaining thickness of the layer shall be indicated.

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 3 PRE-OVERLAY SURFACE PREPARATION SKETCH	* STATE CODE [__ __] * SPS PROJECT CODE [__ __] * TEST SECTION NO. [__ __]
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SPS-7 CONSTRUCTION DATA SHEET 4 CONSTRUCTION QUALITY CONTROL MEASUREMENTS	* STATE CODE [__] * SPS PROJECT CODE [__] * TEST SECTION NO. [__]
---	---

- 1. DATE MEASUREMENTS BEGAN (Month-Day- Year) [__ - __ - __]
- 2. DATE MEASUREMENTS COMPLETED [__ - __ - __]

- 3. PROFILOGRAPH MEASUREMENTS
 - Profile Index Type California....1 Rainhart.....2 _____
 - Profile Index (Inches/Mile) _____
 - Interpretation Method Manual...1 Mechanical..2 Computer..3 _____
 - Height of Blanking Band (Inches) _____
 - Cutoff Height (Inches) _____

- 4. SURFACE PROFILE USED AS BASIS OF INCENTIVE PAYMENT? (YES, NO) _____

SPS-7 CONSTRUCTION DATA SHEET 5 LAYER THICKNESS MEASUREMENTS	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
--	--

1. DATE MEASUREMENTS BEGAN (Month - Day - Year) [___ - ___ - ___]
 2. DATE MEASUREMENTS COMPLETED [___ - ___ - ___]

LAYER THICKNESS MEASUREMENTS (Inches) SHEET ___ OF ___

STATION NUMBER	OFFSET (Inches)	SURFACE COURSE
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
__ + __ __	____ _	____ . ____ ____ . ____ ____ . ____ ____ . ____ ____ . ____
LAYER NUMBER		____

SPS-7 CONSTRUCTION DATA SHEET 7 PARTIAL DEPTH PATCHING FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
--	--

1. DATE PATCHING OPERATIONS BEGAN (Month-Day-Year) [___ - ___ - ___]
2. DATE PATCHING OPERATIONS COMPLETED [___ - ___ - ___]
3. PRIMARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [___]
 Other (Specify) _____

4. SECONDARY DISTRESS OCCURRENCE PATCHED (code from Table A.22) [___]
 Other (Specify) _____

5. PATCHES
 Total Square Feet [___ ___ .]
 Number [___ .]
 Average Depth, Inches [___ .]
6. METHOD USED FOR PATCH BOUNDARY DETERMINATION _____
 Visual...1 Ball Peen Hammer, Steel Rod, Chain or Equivalent...2
 Delam-Tech...3 Other (Specify)...4 _____

7. METHOD USED TO CUT BOUNDARIES _____
 Diamond Blade Saw... 1 Carbide Blade Saw...2 None... 3 Air Hammer...4
 Cold Milling... 5 Other (Specify)...6 _____

8. METHOD USED TO BREAK UP AND/OR REMOVE DETERIORATED CONCRETE _____
 Jackhammer...1 Cold Milling...2
 Other (Specify)...3 _____

9. METHOD FOR FINAL CLEANING OF PATCH AREA
 None...1 Sandblasting...2 Waterblasting...3
 Other (Specify)...4 _____

SPS-7 CONSTRUCTION DATA SHEET 8 PARTIAL DEPTH PATCHING FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. PATCH MATERIAL USED [___]
 Portland Cement Concrete...1 Polymer Concrete...2 Epoxy Mortar... 3
 Other (Specify)...5 _____

2. BONDING AGENT [___]
 None... 1 Cement Grout... 2 Epoxy Resin... 3
 Other (Specify)...5 _____

3. MIXTURE DESIGN FOR PATCH MATERIAL, LB./CUBIC YARD
 Coarse Aggregate [_____]
 Fine Aggregate [_____]
 Cement [_____]
 Water (Gallons/Cubic yd.) [_____]

4. MAXIMUM SIZE OF COARSE AGGREGATE, INCHES _____ . _____

5. CEMENT TYPE USED [___]
 (See Cement Type Codes, Tables A.11)

6. AIR CONTENT, PERCENT BY VOLUME
 Mean [___ . ___ . ___]
 Range Min [___ . ___ . ___]
 Max [___ . ___ . ___]

7. ADMIXTURES [___]
 (See Cement Additive Codes, Table A.12) [___]

8. SLUMP, INCHES
 Mean [___ . ___ . ___]
 Range Min [___ . ___ . ___]
 Max [___ . ___ . ___]

9. COMPRESSIVE STRENGTH OF PATCH MATERIAL, PSI [_____]
 Curing Time, Days [___]
 If Unavailable, and Other Strength Test Conducted,
 Alternate Test [_____]
 Type of Loading [_____]
 Age, Days [___] ; Strength, PSI [_____]

SPS-7 CONSTRUCTION DATA SHEET 9 PARTIAL DEPTH PATCHING FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. CURING METHOD METHOD 1 [___]
METHOD 2 [___]
 None...1 Membrane Curing Compound...2 Burlap Curing Blankets... 3
 Waterproof Paper Blankets... 4 White Polyethylene Sheeting... 5
 Burlap-Polyethylene Blankets...6 Insulating Layers... 7
 Cotton Mat Curing...8 Hay...9
 Other (Specify)...10 _____

2. APPROXIMATE TIME BETWEEN PATCHING AND OPENING TO TRAFFIC, HOURS [___]

3. AMBIENT CONDITIONS AT TIME OF PATCHING LOW [___]
HIGH [___]
 Air Temperature °F [___]
 Surface Moisture - Dry = 1, Wet = 2 [___]

4. METHOD OF CONSOLIDATING MATERIALS _____
 Vibrators...1 Vibrating Screeds...2 Troweling... 3
 Rodding/Tamping...4 Rolling...5
 Other (Specify)...6 _____

5. FINISHING METHOD
 Screeding... 1 Hand-Troweling... 2 Machine-Troweling... 3
 Other (Specify)...4 _____

6. JOINT FORMING METHOD
 Shoulder _____
 Transverse _____
 Longitudinal _____

 None...1 Polyethylene Strip Insert...2 Styrofoam Insert...3
 Fiberboard Insert...4 Sawing...5 Forms...6
 Other (Specify)...7 _____

SPS-7 CONSTRUCTION DATA SHEET 10 JOINT RESEALING DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE JOINT SEALANT OPERATIONS BEGAN (Month-Day- Year) [___ - ___ - ___]
2. DATE JOINT SEALANT OPERATIONS COMPLETED [___ - ___ - ___]
3. METHOD OF REMOVING OLD SEALANT [___]
 Not Removed...1 Joint Plow - V-Shaped... 2 Joint Plow - Rectangular... 3
 High Pressure Water Blasting... 4 Diamond Blade Saw...5
 Carbide Blade Saw...6 Pull-Out of Old Compression Sealant... 7
 Not Previously Sealed... 8
 Other (Specify)...9 _____
4. NEW SEALANT RESERVOIR DIMENSIONS, INCHES
 Width [___ . ___]
 Depth (From Top of Slab to Top of Backer Rod or Tape) [___ . ___]
5. BOND BREAKER UNDER SEALANT [___]
 None...1 Nonreactive Adhesive Backed Tape... 2 Backer Rod... 3
 Other (Specify)...4 _____
6. WERE JOINT SIDEWALLS REFACED?
 No...1 Yes - One-Blade...2 Yes - Two-Blade...3
 Other (Specify)...4 _____
7. CLEANING OF SIDEWALLS [___]
 None...1 Air Blast...2 Sand Blast... 3 Water Blast ...4
 Other (Specify)...4 _____

SPS-7 CONSTRUCTION DATA SHEET 11 JOINT RESEALING DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [__] * SPS PROJECT CODE [__] * TEST SECTION NO. [__]
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1. TYPE OF CONTRACTION JOINT SEALANT [__]
 (AASHTO OR ASTM SPECIFICATIONS)

- D1850 (ASTM) Concrete Joint Sealer, Cold-Application Type... 1
- D1190 (ASTM) - M173 (AASHTO) Concrete Joint Sealer, Hot-Poured Elastic Type...2
- D3406 (ASTM) - M282 (AASHTO) Joint Sealants, Hot-Poured, Elastomeric-Type,
for PCC Pavements... 3
- D3405 (ASTM) - M301 (AASHTO) Joint Sealants, Hot-Poured for Concrete and
Asphalt Pavements...4
- D3542 (ASTM) Preformed Polychloroprene Elastomeric Joint Seals for Bridges... 5
- D2628 (ASTM) Preformed Polychloroprene Elastomeric Joint Seals for Concrete
Pavements...6
- Other (Describe - if Silicone Material is Used Federal Spec. TT-S-001543A,
Georgia D.O.T. Spec 833.06, or Equal Applies...7

Manufacturer Information on Type of Pressure Relief Joint Sealant

Manufacturer Name [_____]
 Manufacturer Sealant Name [_____]

2. AVERAGE DEPTH OF TOP OF SEALANT PLACEMENT
 BELOW PAVEMENT SURFACE, INCHES [__ . __]

3. ARE EXPANSION JOINTS SEALED DIFFERENTLY THAN CONTRACTION JOINTS? [__]
 Yes... 1 No...2

If Yes, Enter the code from Item 1, or describe below [__]

Other [_____]

4. TOTAL LINEAR FEET OF JOINTS SEALED
 Transverse Joints [__ _ . __]
 Longitudinal Joints [__ _ . __]

NOTE: IF DIFFERENT MATERIALS OR METHODS ARE USED REPEAT SHEETS 15 AND 16
 FOR EACH RECORDING THEIR LENGTHS IN ITEM NO. 4.

SPS-7 CONSTRUCTION DATA SHEET 12 FULL DEPTH REPAIR DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE PATCHING OPERATIONS BEGAN (Month-Day-Year) [___ - ___ - ___]
2. DATE PATCHING OPERATIONS COMPLETED [___ - ___ - ___]
3. PRIMARY DISTRESS OCCURRENCE PATCHED OR REPLACED WITH NEW SLAB [___]
 (See Table A.22 for Type Codes)
 Other (Specify) _____
4. SECONDARY DISTRESS OCCURRENCE PATCHED OR REPLACED WITH NEW SLAB ___
 (See Table A.22 for Type Codes)
 Other (Specify) _____
5. PATCHES NUMBER SQ. FEET

SLAB ONLY	[___]	[___ ___]
SLAB AND BASE	[___]	[___ ___]
6. PATCH MATERIAL USED [___]
 Portland Cement Concrete... 1 Polymer Concrete... 2 Epoxy Mortar... 4
 Other (Specify)... 5 _____
7. SLABS REPLACED NUMBER SQ. FEET

SLAB ONLY	[___]	[_____]
SLAB AND BASE	[___]	[_____]
8. METHOD FOR PATCH BOUNDARY DETERMINATION _____
 Visual...1 Coring...2 Deflection...3
 State Standard or Specification... 4
 Other (Specify)... 5 _____
9. CUTTING INSTRUMENT _____
 Diamond Blade Saw...1 Carbide Blade Saw...2 Wheel Saw... 3
 Air Hammer...4
 Other (Specify)... 5 _____

SPS-7 CONSTRUCTION DATA SHEET 13 FULL DEPTH REPAIR DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
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1. SECURING LOAD TRANSFER DEVICES [___]
 None...1 Grout Filler... 2 Epoxy filler...3
 Other... 4 _____

2. REINFORCING STEEL PLACED IN PATCH [___]
 No...1 Yes... 2

TEMPERATURE STEEL
Transverse Longitudinal

3. REBAR NUMBER [___] [___]
 4. BAR LENGTHS, INCHES [___ . ___] [___ . ___]
 5. BAR SPACING, INCHES [___ . ___] [___ . ___]

Dowel Bars Tie Bars

6. REBAR NUMBER [___] [___]
 7. BAR LENGTHS, INCHES [___ . ___] [___ . ___]
 8. BAR SPACING, INCHES [___ . ___] [___ . ___]

9. DOWEL COATINGS [___]
 None...1 Paint and/or Grease...2 Plastic... 3
 Monel...4 Stainless Steel... 5 Epoxy... 6
 Other (Specify)...7 _____

10. NUMBER OF SAW CUTS PER PATCH (If Sawed) _____

11. DEPTH OF TYPICAL BOUNDARY SAW CUT, INCHES _____

12. CONCRETE BREAKUP _____
 None...1 Pneumatic Air Hammer...2 Gravity Drop Hammer...3
 Sawing...4
 Other (Specify)...5 _____

13. REMOVAL OF CONCRETE _____
 Concrete Breakup and Cleanout... 1 Lift Out Intact Slab Section... 2
 Other (Specify)... 3 _____

SPS-7 CONSTRUCTION DATA SHEET 14 FULL DEPTH REPAIR DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
--	--

1. METHOD OF REINFORCING STEEL PLACEMENT [___]
 Chairs...1 Between Layers of Concrete...2

2. MIXTURE DESIGN FOR PATCH MATERIAL, LB./CUBIC YARD

Coarse Aggregate	[_____]
Fine Aggregate	[_____]
Cement	[_____]
Water (Gallons/Cubic Yard)	[_____]

3. CEMENT TYPE USED [___]
 (See Type Codes, Tables A.11)

4. AIR CONTENT, PERCENT BY VOLUME

Mean	[____ . ____]
Range	[____ . ____] to [____ . ____]

5. ADMIXTURES [___]
 (See Cement Additive Codes, Table A.12) [___]

6. SLUMP, INCHES

Mean	[____ .]
Range	[____ .] to [____ .]

7. FLEXURAL STRENGTH (MODULUS OF RUPTURE) , PSI [_____ .]
 (Based on 3rd Point Loading) Curing Time, Days [___]
 If Unavailable, and Other Strength Test Conducted,
 Enter Alternate Test [_____]
 Type of Loading [_____]
 Age, Days [___]; Strength, PSI [_____ .]

8. AMBIENT CONDITIONS AT TIME OF PATCHING

Air Temperature °F	LOW [_____ .]
Surface Moisture - Dry = 1, Wet = 2	HIGH [_____ .]
	[___]

9. MAXIMUM SIZE OF COARSE AGGREGATE, INCHES _____ . _____

10. CONSOLIDATION OF MATERIALS _____
 Internal Vibrators... 1 Vibrating Screeds...2 Troweling...3
 Rolling ...4 Tamping ... 5
 Other (Specify) ... 6 _____

12. FINISHING _____
 Screeding...1 Hand-Trowling...2 Machine-Troweling...3
 Other (Specify) ... 4 _____

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 16 LOAD TRANSFER RESTORATION DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE LOAD TRANSFER RESTORATION BEGAN (Month-Day- Year) [___ - ___ - ___]
2. DATE LOAD TRANSFER RESTORATION COMPLETED [___ - ___ - ___]
3. NUMBER OF JOINTS IN TEST SECTION [_____]
4. NUMBER OF JOINT LOAD TRANSFER RESTORATION LOCATIONS [_____]
5. NUMBER OF DEVICES PER JOINT [_____]
6. LOCATION OF DOWELS OR SHEAR DEVICES (INCHES)

	1st [_____]
	2nd [_____]
	3rd [_____]
	4th [_____]
(DISTANCE FROM THE OUTER	5th [_____]
LANE EDGE TO THE CENTER	6th [_____]
OF EACH DEVICE)	7th [_____]
	8th [_____]
	9th [_____]
	10th [_____]
	11th [_____]
	12th [_____]
	13th [_____]
	14th [_____]
7. DIAMETER OF RETROFIT DOWEL BARS, INCHES [__ . __]
8. MATERIAL USED TO BACKFILL SLOT/CORE HOLE [___]

Cement Based Grout... 1 Polymer Concrete...2
 Epoxy Resin Grout... 3
 Other (Specify)...4 _____
9. BONDING AGENT USED BETWEEN EXISTING PCC AND BACKFILL MATERIAL [___]

None...1 Epoxy...2 Cement/Water... 3
 Other (Specify)...4 _____

SPS-7 CONSTRUCTION DATA SHEET 17 LOAD TRANSFER RESTORATION DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
--	--

1. LOAD TRANSFER EFFICIENCY BEFORE AND AFTER RESTORATION

LOAD TRANSFER EFFICIENCY (%)

POINT DISTANCE (FEET)	BEFORE RESTORATION		AFTER RESTORATION	
	<u>APPROACH</u>	<u>LEAVE</u>	<u>APPROACH</u>	<u>LEAVE</u>
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]
[____ .]	[____ .]	[____ .]	[____ .]	[____ .]

2. DATE OF LOAD TRANSFER EFFICIENCY TESTS

BEFORE RESTORATION (Month-Day-Year)

[___ - ___ - ___]

AFTER RESTORATION

[___ - ___ - ___]

SPS-7 CONSTRUCTION DATA SHEET 18 UNDERSEALING DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
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1. DATE UNDERSEALING BEGAN (Month-Day- Year) [___ - ___ - ___]
2. DATE UNDERSEALING COMPLETED [___ - ___ - ___]
3. TYPE OF MIXTURE USED IN SUBSEALING [___]
 Cement-Loam Top Soil Slurry...1 Cement-Limestone Dust Slurry...2
 Cement-Pozzolan Slurry... 3 Cement-Fine Sand Slurry... 4
 Other (Specify)... 6 _____

MIX DESIGN OF PORTLAND CEMENT GROUT (Items 4. to 8.)

4. CEMENT TYPE (SEE CEMENT TYPE CODES, TABLE A.11) [___]
5. CEMENT TO SAND RATIO (BY WEIGHT) [___ . ___]
6. WATER/CEMENT RATIO (BY WEIGHT) [___ . ___]
7. ADDITIVE TYPE (SEE TABLE A.12) [___]
8. AMOUNT OF ADDITIVE (BY PERCENT OF CEMENT WEIGHT) [___ . ___]
9. FLUIDITY OF PORTLAND CEMENT GROUT [___ . ___]
 (Flow Cone Method ASTM C939) (SEC)
10. CUBE COMPRESSIVE STRENGTH OF PORTLAND CEMENT GROUT, psi _____ .
11. CURING PERIOD FOR PORTLAND CEMENT GROUT (DAYS) _____
12. DETERMINATION OF AREA TO BE UNDERSEALED [___]
 Blanket Coverage...1 Deflection Data... 2
 Visual Signs of Pumping...3
 Other (Specify)...4 _____

SPS-7 CONSTRUCTION DATA SHEET 19 UNDERSEALING DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES, CONTINUED	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
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1. DEPTH OF SUBSEALING HOLE FROM TOP OF SLAB (INCHES) [___ . ___]
2. MAXIMUM ALLOWABLE PUMPING PRESSURE [___ .]
 (Gauge at Plant) (PSI)
3. MAXIMUM SURGE PRESSURE (PSI) [___ .]
4. SLABS IN TEST SECTION (JOINTED CONCRETE PAVEMENTS ONLY)
 Total Number [___ .] Number Sealed [___ .]
5. AVERAGE NUMBER OF HOLES PER SLAB SUBSEALED [___ .]
 (JCP Only)
6. TYPICAL NUMBER OF SUBSEALING HOLES NEAR JOINT OR CRACK [___ .]
 (JCP Only)
7. AVERAGE NUMBER OF HOLES PER LINEAL FOOT OF PAVEMENT [___ .]
 (CRCP Only)
8. AVERAGE VOLUME OF MATERIAL PUMPED PER HOLE [___ .]
 (Cubic Feet)
9. MONITORING OF LIFT [___]
 Deflection Device (e.g. , Benkelman Beam)... 1 Maximum Pumping Time...2
 Appearance of Material in Adjacent Joints or Cracks...3
 Other (Specify)... 4 _____
10. TYPICAL TIME BETWEEN SUBSEALING AND REOPENING TO TRAFFIC (HOURS) [___ .]
11. WERE DEFLECTION MEASUREMENTS TAKEN BEFORE AND AFTER SUBSEALING?
 Yes... 1 No...2
 BEFORE SUBSEALING [___]
 AFTER SUBSEALING [___]
12. TIME OF DAY THAT DEFLECTION MEASUREMENTS WERE CONDUCTED (HOURS)

	STARTING TIME	ENDING TIME
BEFORE SEALING	[___ : ___]	[___ : ___]
AFTER SEALING	[___ : ___]	[___ : ___]

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 20 SUBDRAINAGE RETROFIT FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE SUBDRAINAGE PLACEMENT BEGAN (Month-Day- Year) [___ - ___ - ___]
2. DATE SUBDRAINAGE PLACEMENT COMPLETED [___ - ___ - ___]
3. TYPE OF DRAINAGE PIPE [___]
 Clay Tile... 1 Concrete Tile...2 Vitrified Clay...3
 Perforated Plastic Bituminous Fiber...4 Perforated Corrugated Metal... 5
 Corrugated Plastic Tubing... 6 Drainage Mat... 7
 Other (Specify)... 8 _____
4. DIAMETER OF PIPE (INCHES) [___ . ___]
5. DEPTH OF PIPE BELOW TOP OF PAVEMENT SURFACE (INCHES) [___ . ___]
6. HORIZONTAL PLACEMENT OF PIPE FROM OUTER EDGE OF PAVEMENT (INCHES) [___ . ___]
7. TYPE OF PRIMARY FILTER USED [___]
 Graded Aggregate...1 Uniformly Graded Aggregate (One Size)...2
 Woven Fabric...3 Non-Woven Fabric... 4 Porous PCC... 5
 Porous Bituminous Concrete... 6
 Other (Specify)... 7 _____
8. MAXIMUM PARTICLE SIZE OF PRIMARY FILTER MATERIAL (INCHES) [___ . ___]
9. GRADATION OF PRIMARY FILTER MATERIAL
 % Passing #4 Sieve [___ . ___] % Passing #40 Sieve [___ . ___]
 % Passing #10 Sieve [___ . ___] % Passing #100 Sieve [___ . ___]
10. PERMEABILITY OF PRIMARY FILTER MATERIAL (FT/DAY) _____
11. TYPE AND LOCATION OF SECONDARY FILTER MATERIAL [___]
 Fabric Encapsulating the Primary Filter Material... 1
 Fabric Encapsulating the Drainage Pipe... 2
 Other (Specify)... 3 _____
12. AVERAGE OUTLET INTERVAL (FEET) [___ . ___]
13. PRIMARY PURPOSE OF SUBRAINAGE INSTALLATION [___]
 Remove Free Water From Pavement Layers... 1
 Cut Off Side-Hill/Through Hill Seepage... 2
 Lower Water Table... 3
 Other (Specify) ... 4 _____

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 21 REFLECTIVE CRACK CONTROL DATA FOR PAVEMENTS WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
--	--

1. DATE REFLECTIVE CRACK CONTROL OPERATIONS BEGAN
(Month-Day-Year) [___ - ___ - ___]
2. DATE REFLECTIVE CRACK CONTROL OPERATIONS COMPLETED [___ - ___ - ___]
3. TOTAL LINEAR FEET OF CRACKS TIED [_____ .]
4. METHOD OF BAR PLACEMENT THROUGH TRANSVERSE CRACKS [___]
 Placed on top of crack...1 Recessed in pavement... 2
 Other (Specify)...3 _____
5. METHOD OF FORMING RECESSED SLOT [___]
 (Leave Blank if Answered "1" to Question 4)
 Saw Cut...1 Milled...2
 Other (Specify)...3 _____
6. BAR SIZE (No.) [___]
7. BAR LENGTH, inches [___ . ___]
8. METHOD OF BAR PLACEMENT THROUGH LONGITUDINAL CRACKS [___]
 Placed on top of crack...1 Recessed in pavement... 2
 Cross stitched... 3
 Other (Specify)... 4 _____

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 22 MILLING OF PORTLAND CEMENT CEMENT CONCRETE SURFACES	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE MILLING OPERATIONS BEGAN (Month-Day-Year) [___ - ___ - ___]
2. DATE MILLING OPERATIONS COMPLETED [___ - ___ - ___]
3. AVERAGE DEPTH OF CUT, inches [__ . __]
4. CUTTING HEAD WIDTH, inches [___ . __]

SPS-7 CONSTRUCTION DATA SHEET 23 SURFACE REMOVAL/CLEANING FOR PAVEMENT WITH PORTLAND CEMENT CONCRETE SURFACES	* STATE CODE [__] * SPS PROJECT CODE [__] * TEST SECTION NO. [__]
--	---

1. DATE SURFACE REMOVAL/CLEANING OPERATIONS BEGAN
 (Month-Day-Year) [__ - __ - __]

2. DATE SURFACE REMOVAL/CLEANING OPERATIONS COMPLETED [__ - __ - __]

3. METHOD OF REMOVAL/CLEANING [__]
 Shotblasting... 1 Sandblasting...2 Water Blasting w/abrasives... 3
 Water Blasting...4 Air Blowing... 5
 Other (Specify)...6 _____

4. REASON FOR REMOVAL/CLEANING [__]
 Provide rough surface for Overlay... 1
 Secondary Cleaning after Cold Milling... 2
 Secondary Cleaning after Shotblasting... 3
 Final Cleaning to remove dust & free particles... 4
 Other (Specify) ...5 _____

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 24 PORTLAND CEMENT CONCRETE OVERLAY PLAVEMENT OPERATIONS	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE PAVING OPERATIONS BEGAN (Month-Day-Year) [___ - ___ - ___]
 2. DATE PAVING OPERATIONS COMPLETED [___ - ___ - ___]

AIR TEMPERATURES DURING PLACEMENT (°F) (Items 3, 4, & 5)

3. MEAN [___ . ___]
 4. MINIMUM [___ . ___]
 5. MAXIMUM [___ . ___]

6. CURING PERIOD BEFORE OPENING TO ANY TRAFFIC (DAYS) [___ .]

7. TIME BEFORE SAWING (HOURS) [___ .]

8. METHOD USED TO CURE CONCRETE [___]
 Membrane Curing Compound...1 Burlap Curing Blankets...2
 Waterproof Paper Blankets... 3 White Polyethylene Sheeting... 4
 Burlap-Polyethylene Blanket...5 Cotton Mat Curing... 6 Hay...7
 Other (Specify)...8 _____

9. METHOD USED TO TEXTURE CONCRETE [___]
 Tine... 1 Broom...2 Burlap Drag...3 Grooved Float...4
 Astro Turf... 5
 Other (Specify)...6 _____

10. TYPE OF GROUT USED FOR BONDED OVERLAYS [___]
 None...1 Water/Cement...2 Water/Cement/Sand... 3
 Epoxy-Resin...4
 Other (Specify)...5 _____

MIX DESIGN OF PORTLAND CEMENT GROUT (Items 11. to 15.)

11. CEMENT TYPE (SEE CEMENT TYPE CODES, TABLE A.11) [___]
 12. CEMENT TO SAND RATIO (BY WEIGHT) [___ . ___]
 13. WATER/CEMENT RATIO (BY WEIGHT) [___ . ___]
 14. ADDITIVE TYPE (SEE TABLE A.12) [___]
 15. AMOUNT OF ADDITIVE (BY PERCENT OF CEMENT WEIGHT) [___ . ___]

SPS-7 CONSTRUCTION DATA SHEET 25 BONDED PORTLAND CEMENT CONCRETE OVERLAY-JOINT DATA	* STATE CODE [___] * SPS PROJECT CODE [___] * TEST SECTION NO. [___]
---	--

1. DATE JOINTING OPERATIONS BEGAN (Month-Day- Year) [___ - ___ - ___]
 2. DATE JOINTING OPERATIONS COMPLETED [___ - ___ - ___]
 3. AVERAGE CONTRACTION JOINT SPACING (FEET) [___ . ___]
(RANDOM JOINT SPACING, IF ANY: _____)
 4. BUILT-IN EXPANSION JOINT SPACING (FEET) [___ . ___]
 5. SKEWNESS OF JOINTS (FT/LANE) [___ . ___]
 6. AVERAGE INTERMEDIATE SAWED JOINT SPACING (FEET) [___ . ___]
 7. METHOD USED TO FORM TRANSVERSE JOINTS [___]
Sawed.....1 Metal Insert
Plastic Insert..... 2 (i.e., Uni-Tube).....3
Other (Specify)... 4 _____
 8. TYPE OF LONGITUDINAL JOINT (BETWEEN LANES) [___]
Butt..... 1 Sawed Weakened Plane....3
Keyed..... 2 Insert Weakened Plane.....4
Other (Specify).... 5
 9. TYPE OF SHOULDER-TRAFFIC LANE JOINT [___]
Butt..... 1 Insert Weakened Plane....4
Keyed..... 2 Tied Concrete Curb.....5
Sawed Weakened Plane..3
Other (Specify)..... 5 _____
 10. TRANSVERSE JOINT SEALANT TYPE (AS BUILT) [___]
Preformed (Open Web)...1 Rubberized Asphalt..... 3
Asphalt..... 2 Low-Modulus Silicone... 4
Other (Specify)..... 5
 11. TRANSVERSE JOINT SEALANT RESERVOIR WIDTH (INCHES) [___ . ___]
 12. TRANSVERSE JOINT SEALANT RESERVOIR DEPTH (INCHES) [___ . ___]
 13. LONGITUDINAL JOINT SEALANT RESERVOIR WIDTH (INCHES) [___ . ___]
 14. LONGITUDINAL JOINT SEALANT RESERVOIR DEPTH (INCHES) [___ . ___]
 15. JOINT SEALANT BACKER MATERIAL TYPE [___]
Foam Backer Rod.....1 Tape..... 2 Rope....3
None..... 4 Other (Specify)_____
 16. JOINT SEALANT BACKER DIMENSION (INCHES) [___ . ___]
(Enter diameter of rod/rope or width of tape)
- SHOULDER-TRAFFIC LANE JOINT SEALANT RESERVOIR (Items 17 and 18)
17. WIDTH (INCHES) [___ . ___]
 18. DEPTH (INCHES) [___ . ___]

PREPARER _____ EMPLOYER _____ DATE _____

SPS-7 CONSTRUCTION DATA SHEET 26 DELAMINATION OF PORTLAND CEMENT CONCRETE OVERLAY	* STATE CODE [__]
	* SPS PROJECT CODE [__]
	* TEST SECTION NO. [__]

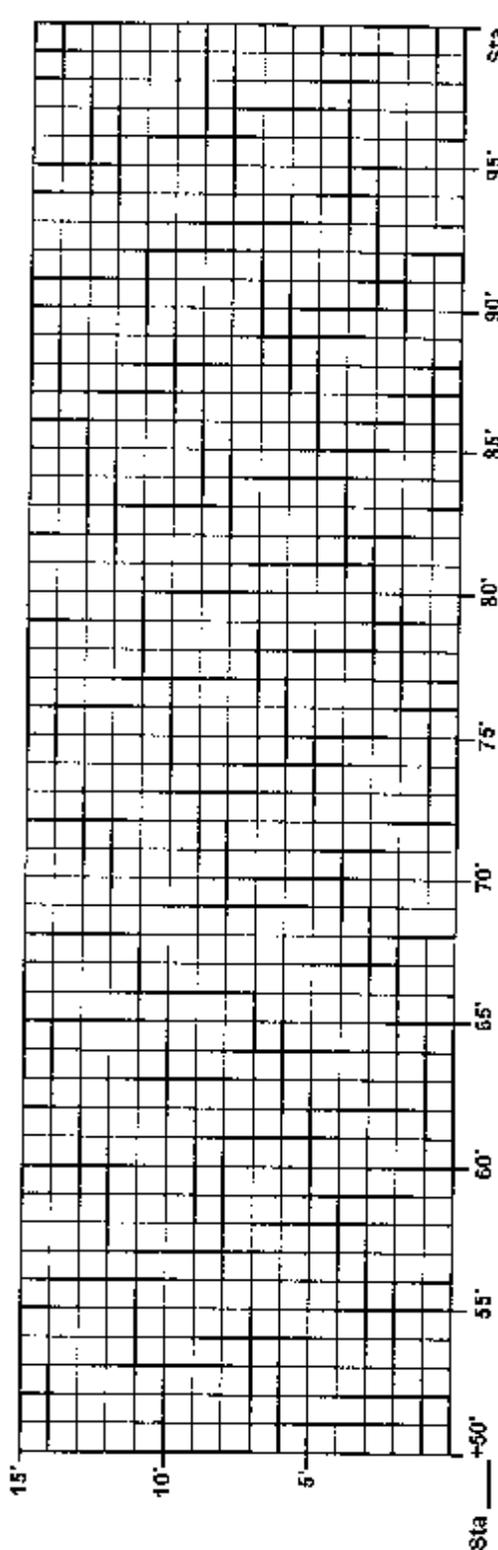
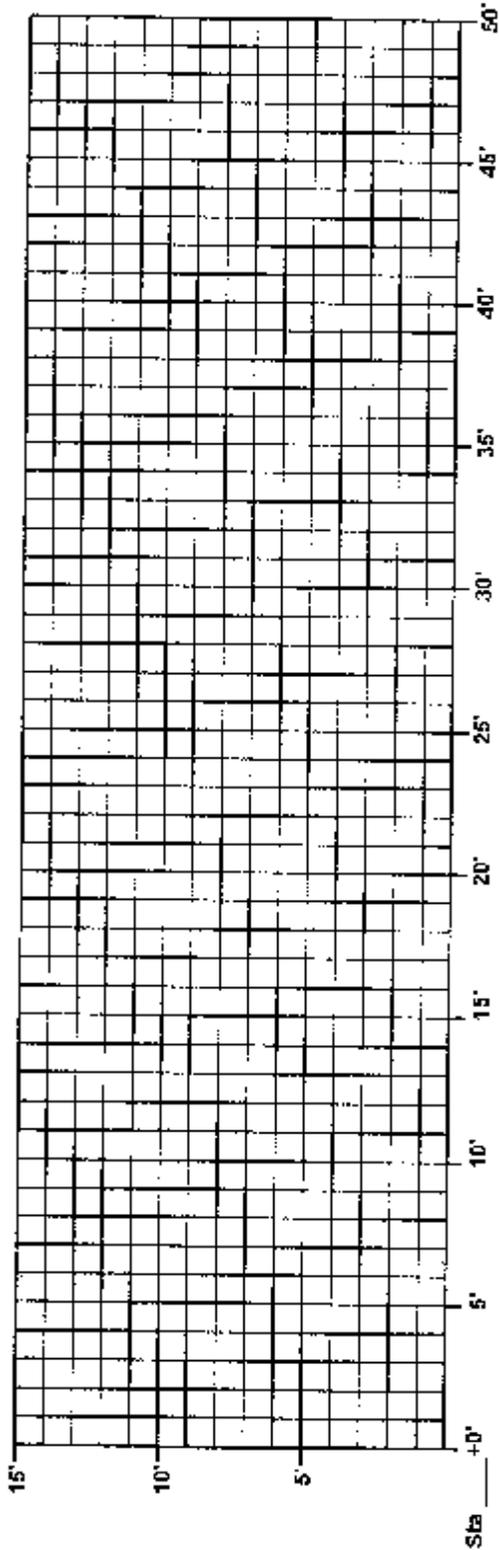
1. DATE OF DELAMINATION DETECTION OPERATIONS (Month-Day-Year) [__ - __ - __]
2. METHOD OF DELAMINATION DETECTION [__]
 - 1 -- ELECTRO-MECHANICAL DEVICE
 - 2 -- CHAIN DRAG OR TAPPING
3. TOTAL AREA OF POSSIBLE DELAMINATION, square feet [_____]
4. TOTAL NUMBER OF SLABS WITH DELAMINATION (JCP ONLY) [_____]

Number of map sheets used for this section _____ .

COMMENTS _____

SPS-7 CONSTRUCTION DATA SHEET 27 DELAMINATION OF DETECTION SECTION MAP	* STATE CODE [_ _] * SPS PROJECT CODE [_ _] * TEST SECTION NO. [_ _]
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SHEET _ OF _



PREPARER _____ EMPLOYER _____ DATE _____

NOTICE OF CHANGE(S) TO SHRP SPS REPORT

Report Title Report Date: SHRP Operational Memo No.:	Data Collection Guidelines for SPS- 7 July 1991 SHRP-LTPP-OM-024
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Change Number: Change Date:	1 October 30, 1992	Page 1 of 1
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The following change should be incorporated in the document:

Page 11

Text references to Figure 2 use the wrong core location names. The text has been corrected to properly reference the existing Figure 2 and the page header has a revision date of October 1992.

The revised page is attached.

The station to be specified on these data forms is referenced from either the beginning or end of the test sections adjacent to the sampling area. For expediency in the field, the station number designated on the form is relative to the test section number designated on the data form. Thus, if the sampling area occurs after the referenced test section, the station number should be greater than 5+00. If the sampling area occurs in front of the designated test section, the station number should be negative. This station number should not be the reference project station number, as outlined in the section entitled, "Construction Data" of this report, i.e. the relative test section station number and the reference project station number will be the same only on the first test section of a project, since the beginning point of the first test section is defined as the project station 0+00. The offset distance is measured from the joint between the outside edge of the test section lane and the outside shoulder, to the core location.

Figure 2 illustrates the location referencing system to be used for SPS material samples. In this example, designated sampling area SA-12 is situated between sections 200706 and 200707. In sampling area SA-12, two 4-inch diameter C-Type cores, C16 and C17, are located 5 feet apart and three feet from the edge of the lane. The location of these two cores can be specified relative to either test section 200706 (alternative 1) or test section 200707 (alternative 2). In alternative 1, the station number of core C16 is 5+95 since it is 95 feet past the end of section 200706. Core C17 is located at station 6+00. In alternative 2, the station numbers of cores C16 and C17 are -1+05 and -1+00, respectively since they occur in advance of test section 200707. Thus when specifying the sampling locations on the field data form, the station number written on the form must correspond to the test section.

LTPP-SPS MATERIAL SAMPLING AND FIELD TESTING DATA SHEETS

Most of the LTPP-SPS Material Sampling and Field Testing data sheets use the same top block of information related to the test section and project.