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STRATEGIC HIGHWAY RESEARCH PROGRAM

SPECIFIC PAVEMENT STUDIES
CONSTRUCTION GUIDELINES FOR EXPERIMENT SPS-8, STUDY OF ENVIRONMENTAL EFFECTS IN THE ABSENCE OF HEAVY LOADS

STRATEGIC HIGHWAY RESEARCH PROGRAM
818 Connecticut Avenue NW
Washington, DC 20006

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SPECIFIC PAVEMENT STUDIES
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INTRODUCTION

This report describes the guidelines for the construction of test sections for the Specific Pavement Studies' SPS-8 experiment, Study of Environmental Effects in the Absence of Heavy Loads. These guidelines will help participating highway agencies develop acceptable construction plans for test sections for this experiment.

The SPS-8 experiment, Study of Environmental Effects in the Absence of Heavy Loads, requires the construction of multiple test sections with similar details and materials at each of 24 sites distributed in the four climatic regions. The experimental design and construction considerations for this experiment are described in the document, "Specific Pavement Studies: Experimental Design and Research Plan for Experiment SPS-8, Study of Environmental Effects in the Absence of Heavy Loads," August 1991. The experiment has been developed as a coordinated national experiment to address the needs of the highway community at large. Therefore, it is important to control construction uniformity at all test sites to reduce the influence of construction variability on test results. Consequently, the construction guidelines outlined in this report must be followed by all participating highway agencies to accomplish the desired objectives of the experiment.

OBJECTIVE

The objective of this document is to provide guidelines for preparing and constructing SPS-8 test sections with the intent to enhance uniformity of construction among all projects. More specifically, the objectives are:

- To review the major construction features of the experimental test sections.

- To describe the details of the experimental features of the test sections.
- To provide specifications for construction operations and materials, including subgrade preparation, base course materials, portland cement concrete, and asphalt concrete.
- To provide specifications on typical cross section design and details of pavement layers and shoulders.
- To describe the general construction operations and as-built requirements.

EXPERIMENTAL DESIGN

The experiment is designed to include both flexible and rigid test pavements, as illustrated in the experimental design shown in Table 1. The study factors are grouped into structural factors that relate to pavement type and thickness and site factors that relate to climate and subgrade. Table 1 shows the 48 test sections included in the experiment, as indicated by the number codes.

As shown in Table 1, the experiment includes 12 test sites of each pavement type. Each test site of each pavement type will contain two test sections. Thus, a total of 24 test sections of each pavement type will be constructed. Three test sites of each pavement type will be constructed in each climatic region on different subgrade types, i.e. coarse-grained, inactive fine-grained, and active (frost susceptible or swelling) fine-grained.

The two test sections of each pavement type at each site will be constructed with different surface course thickness on an untreated dense graded aggregate base. The flexible test sections will be constructed with different base coarse thickness while the rigid test sections will be constructed with the same base thickness. Each test site must include the two flexible and/or the two rigid test sections. Thus, each test site will include two or four test sections.

Table 1. Experimental Design for Study of Environmental Effects in the Absence of Heavy Loads

Pavement Structure			Factors for Moisture, Temperature, and Subgrade Type[3]																							
Type	Surface[1] Thickness	Base[2] Thickness	WET												DRY											
			FREEZE						NO-FREEZE						FREEZE						NO-FREEZE					
			ACTIVE		FINE		COARSE		ACTIVE		FINE		COARSE		ACTIVE		FINE		COARSE		ACTIVE		FINE		COARSE	
			SITE NUMBER																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FLEXIBLE	4	8	1		3		5		1		3		5		1		3		5		1		3		5	
FLEXIBLE	7	12	2		4		6		2		4		6		2		4		6		2		4		6	
RIGID	8	6		7		9		11		7		9		11		7		9		11		7		9		11
RIGID	11	6		8		10		12		8		10		12		8		10		12		8		10		12

Notes:

1) Dense graded HMAC and jointed plain concrete for flexible and rigid pavements, respectively.

2) Dense graded aggregate base.

3) Active soil can be either frost susceptible or swelling type relative to the climatic region.

TEST SECTIONS

The combinations of pavement layer materials and thicknesses required for the different test sections are illustrated in Figure 1. Each test section must be constructed as uniformly as practical over a minimum length of 600 feet, to allow 500 feet for monitoring and at least 50 feet at each end for post construction material sampling.

PREPARATION AND COMPACTION OF SUBGRADE

Ideally, the test sections should be located in shallow fills. However, if it is not possible to locate a test section in a shallow fill, the entire length of the section should be located in a cut or fill. Also, cut-fill transitions and side hill fills should not be located within a section. In addition, rock cut sections should be avoided unless all test sections are located within the cut.

Subgrade soils shall be prepared according to the following requirements:

- The subgrade soil shall be tested according to AASHTO T99, Method D to determine the moisture-density relationship.
- Cohesive fills shall be compacted to a minimum of 95% of maximum density for the top 12 inches and 90% maximum density below 12 inches from the top. Expansive soils shall be compacted to a minimum 90% of maximum density (AASHTO T99) for the top 12 inches.
- The top 12 inches of non-cohesive fills shall be compacted to 100% of maximum density and to 95% maximum density below 12 inches from the top.
- Moisture content of the compacted subgrade soil should be in the range of 85 to 120% of the optimum moisture content. However, expansive soils shall be compacted at a moisture content ranging from optimum to optimum plus 2 percentage points (AASHTO T99).
- Sections built as part of a reconstruction project shall have the upper 3 feet of subgrade compacted to the appropriate specification.

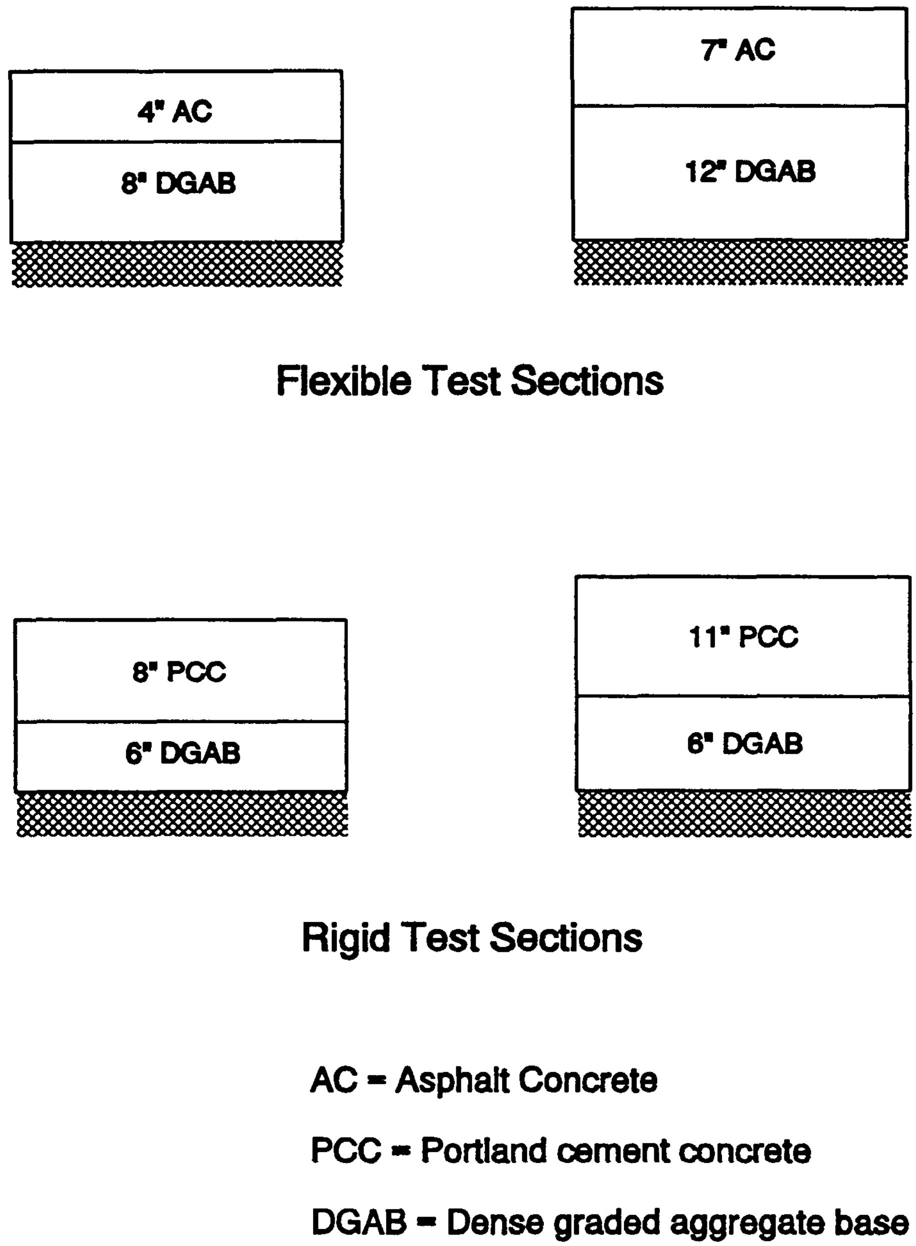

Figure 1. Pavement structure for test sections

- Subgrade shall be compacted for the width of the travel lanes plus the width of the inside and outside shoulders except where sections are built as part of reconstruction of an existing pavement. In this case, reconstruction must extend at least 3 feet outside the edge of the travel lanes to allow proper preparation of the subgrade and base course.
- Where sections are constructed on newly placed fill material, the thickness of the fill should be as uniform as possible along the test section.
- Proof rolling should be performed to verify the uniformity of support and to identify unstable areas which might require remedial construction (undercutting and replacement).
- Modifiers, lime, etc., may be added to provide a stable working platform as part of the construction process but shall not be used as an additive to increase the strength of the subgrade in the pavement structure.
- Surface irregularities shall not exceed 1/2 inch between two points longitudinally or transversely using a 10-foot straightedge.
- Finished subgrade elevations shall not vary from design more than 0.083 feet based on a rod and level survey readings taking at a minimum of 5 locations (edge, outer wheel path, midlane, inner wheel path, and inside edge of lane) at longitudinal intervals no greater than 50 feet. Locations for survey measurements are illustrated in Figure 2.

BASE LAYER

Test sections included in this experiment are constructed with a dense graded aggregate base. The dense graded aggregate base is an untreated, crushed material which conforms to the base material requirements for the General Pavement Studies experiment GPS-1. Requirements for the materials and construction of the base course for the flexible and rigid test sections are summarized in the following sections.

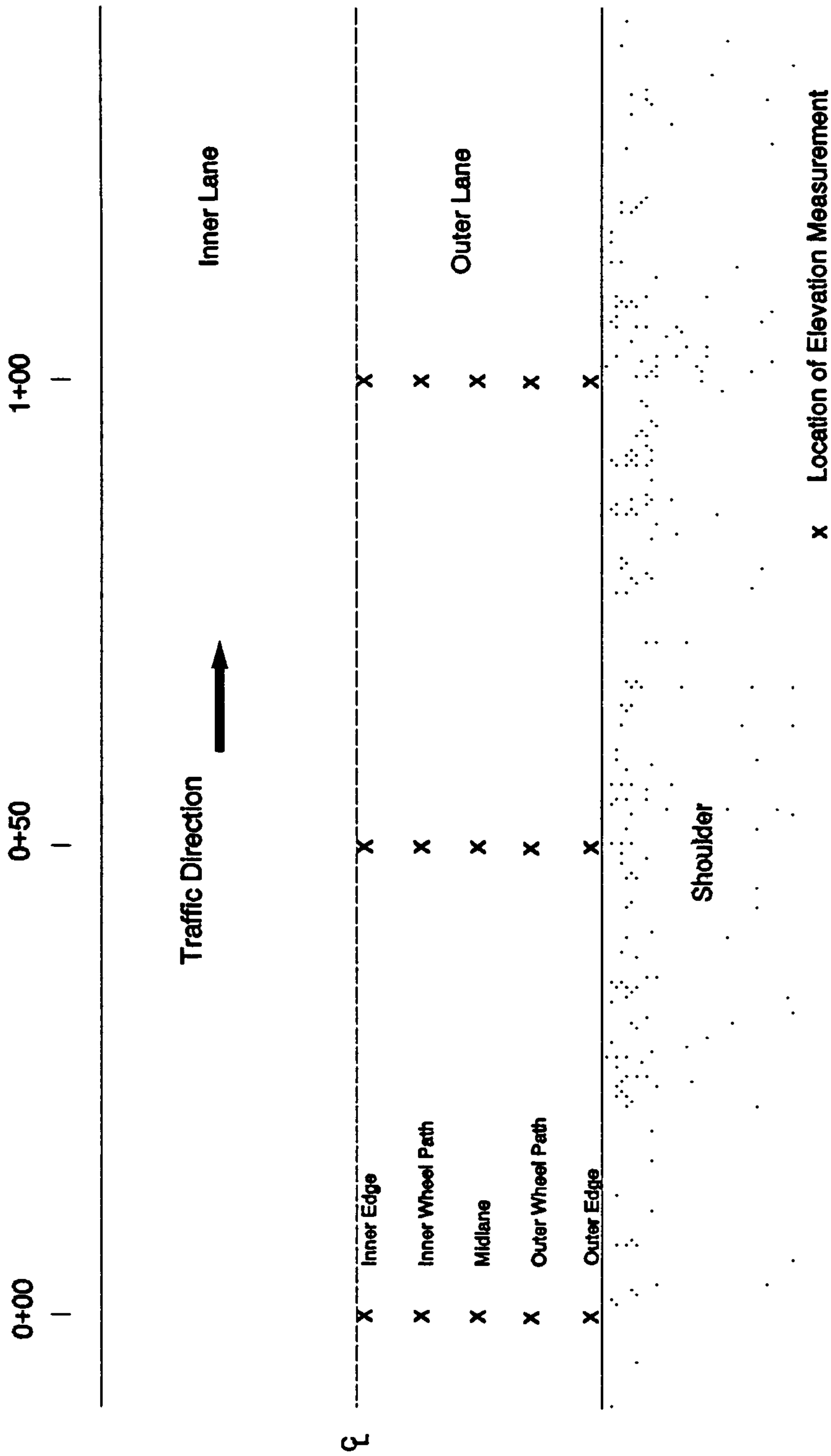

Figure 2. Location of elevation measurements

Aggregate Requirements

The quality and gradation for the aggregate used in the construction of the dense graded aggregate base (DGAB) shall be as follows:

- The base material must consist of a high quality crushed stone, crushed gravel or crushed slag.
- The base aggregate shall consist of a minimum of 50% of material retained on the No. 4 sieve. Of the particles retained on the 3/8 inch sieve at least 75% shall have 2 or more fracture faces as stipulated in ASTM D2940.
- A 1.5 inch top size aggregate is desired. However, a maximum top size less than 1.5 inch may be used if normally specified by the participating agency.
- The final aggregate mixture must be dense graded.
- The fraction passing No.200 sieve shall be the lesser of 60% of the fraction passing the No. 30 sieve or a maximum of 10% of the total sample.
- The fraction passing No. 40 sieve shall have a liquid limit not greater than 25 and plasticity index not greater than 4.
- Aggregate tested with L.A. Abrasion which shows loss of more than 50% at 500 revolutions shall not be used.
- No additives, other than water, are allowed in the dense graded aggregate base.

Construction Requirements

The base course shall be prepared to grade according to the agency's practice and the following requirements:

- No segregation or degradation of materials should occur during laydown and compaction.
- Thickness of the compacted lift must not be greater than 8 inches.

- Maximum dry density and optimum moisture content shall be determined by AASHTO T180 method D.
- The DGAB course must be compacted to a minimum of 95% relative density.
- The DGAB shall be compacted for the width of the travel lanes plus the width of the inside and outside shoulders except in those cases where the sections are built as part of reconstruction of an existing pavement. In this case, reconstruction must extend at least 3 feet outside the edge of the travel lanes to allow proper preparation of the subgrade and base course.
- In place-density should be measured and recorded.
- The surface shall be swept before priming taking care not to dislodge aggregate.
- For flexible pavement test sections, a low viscosity asphalt shall be used to prime the surface of the DGAB and allowed to cure according to agency's practice prior to placement of the asphalt concrete layer. For rigid pavement test sections, the DGAB shall be kept uniformly moist using a procedure that will avoid formation of mud or pools of water, prior to the placement of the PCC surface layer.
- Surface irregularities between two points shall not exceed 1/4 inch when measured longitudinally or transversely using a 10-foot straightedge.
- Finished DGAB elevations shall not vary from design more than 0.04 feet based on a rod and level survey readings taking at a minimum of 5 locations (edge, outer wheel path, midlane, inner wheel path, and inside edge of lane) at longitudinal intervals no greater than 50 feet. Locations for survey measurements are illustrated in Figure 2.

SHOULDERS

In new construction, shoulder shall have the full pavement structure across their width and shall be at least four feet wide. For reconstructed sections, the new pavement structure shall extend a minimum of 3 feet outside the edge of the travel lanes, with shoulders partially reconstructed to grade. If possible, all shoulders shall be paved full width with the surface course to eliminate longitudinal edge joints. If full width paving cannot be achieved, the paving shall be performed so that the edge joint is located at least one foot outside the edge of the travel lane. Curb and gutters, if used, must be placed a minimum of six feet from the edge of the travel lane.

Pavement shoulder should be constructed according to participating agency's practice for asphalt concrete, portland cement concrete, or bituminous surface-treated aggregate shoulders. Portland cement concrete shoulders shall not be tied to the mainline pavement. Turf-stabilized and untreated aggregate shoulders are considered unacceptable for this experiment.

PAVEMENT STRUCTURE REQUIREMENTS

A test site may include the flexible and/or rigid pavement designs for this experiment. These test sections must be constructed with specific structural layers. In addition, lane width must be at least 10 feet, although a standard 12-feet wide lane is preferred.

Flexible Pavement

A test site incorporating the flexible pavement designs required for this experiment must include two test sections with the following details:

1. A "thin" test section consisting of a 4-inch hot mix asphalt concrete (HMAC) surface on an 8-inch thick DGAB course.

2. A "thick" test section consisting of a 7-inch thick HMAC surface on a 12-inch thick DGAB course.

Typical cross sections of the flexible pavement designs are shown in Figure 3 for new construction and reconstructed projects.

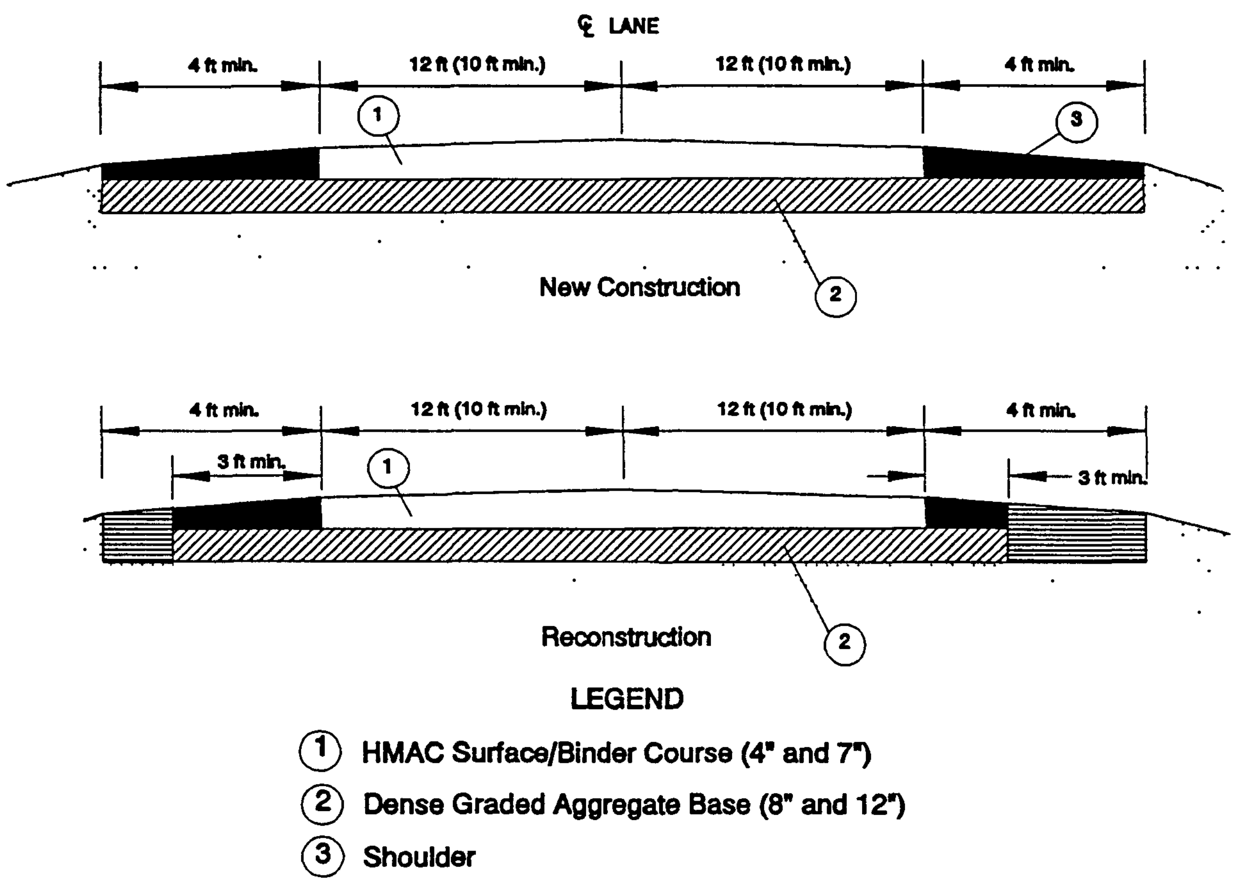

Figure 3. Pavement cross sections for flexible test sections

Rigid Pavement

A test site incorporating the rigid pavement designs required for this experiment must include two test sections of jointed plain concrete pavement with the following details:

1. A "thin" test section consisting of an 8-inch thick PCC pavement on a 6-inch thick DGAB course.

2. A "thick" test section consisting of an 11-inch thick PCC pavement on a 6-inch thick DGAB course.

For the rigid pavement test sections, perpendicator doweled joints shall be provided at 15 foot spacing. The dowels shall be epoxy coated, 18 inch long conforming to the requirements of AASHTO M254. The dowels shall be 1 1/4 and 1 1/2 inch in diameter for the 8-inch and 11-inch thick pavements, respectively and shall be spaced at 12 inches. The dowels are to be placed at mid-depth using basket assemblies or dowel bar inserters and must be aligned parallel to the longitudinal direction of the lane, i.e. perpendicator to the joint. The target mean value for the concrete flexural strength shall be 550 psi at 14 days as determined from third point loading tests.

Typical cross sections of the rigid pavement designs are shown in Figure 4 for new construction and reconstructed projects. Figure 5 illustrates a test section layout including the beginning and ending stations. A plan view of the test section illustrating a transverse joint is shown in Figure 6.

ASPHALT CONCRETE MIX DESIGN

It is not practical or feasible to specify either the same mix, mix design, or even mix design method for all test locations. To promote uniformity among test sites, design of the asphaltic concrete mixes shall be performed in compliance with the guidelines contained in the FHWA Technical Advisory T5040.27, "Asphalt Concrete Mix Design and Field Control", March 10, 1988 with

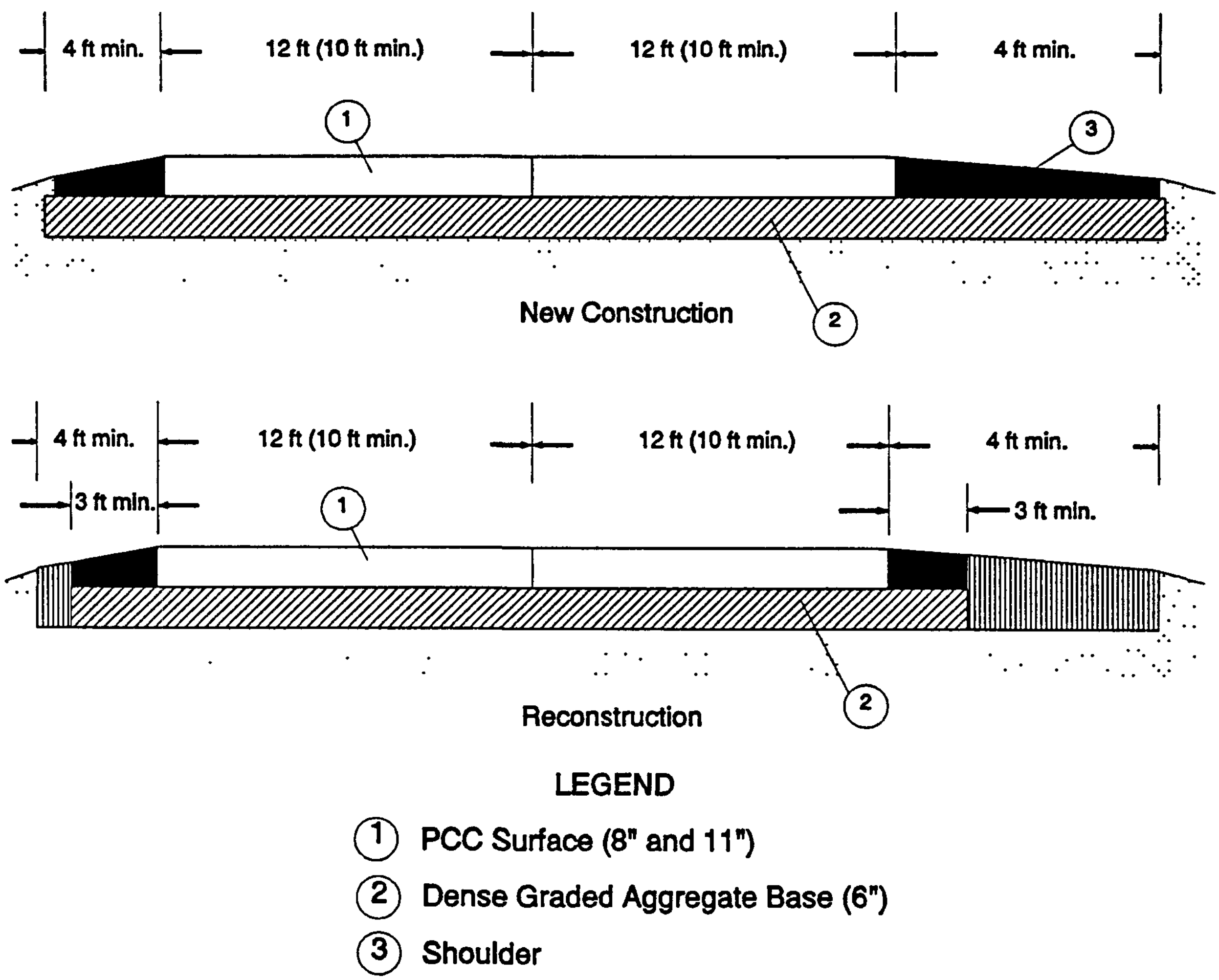

Figure 4. Pavement cross sections for rigid pavement test sections

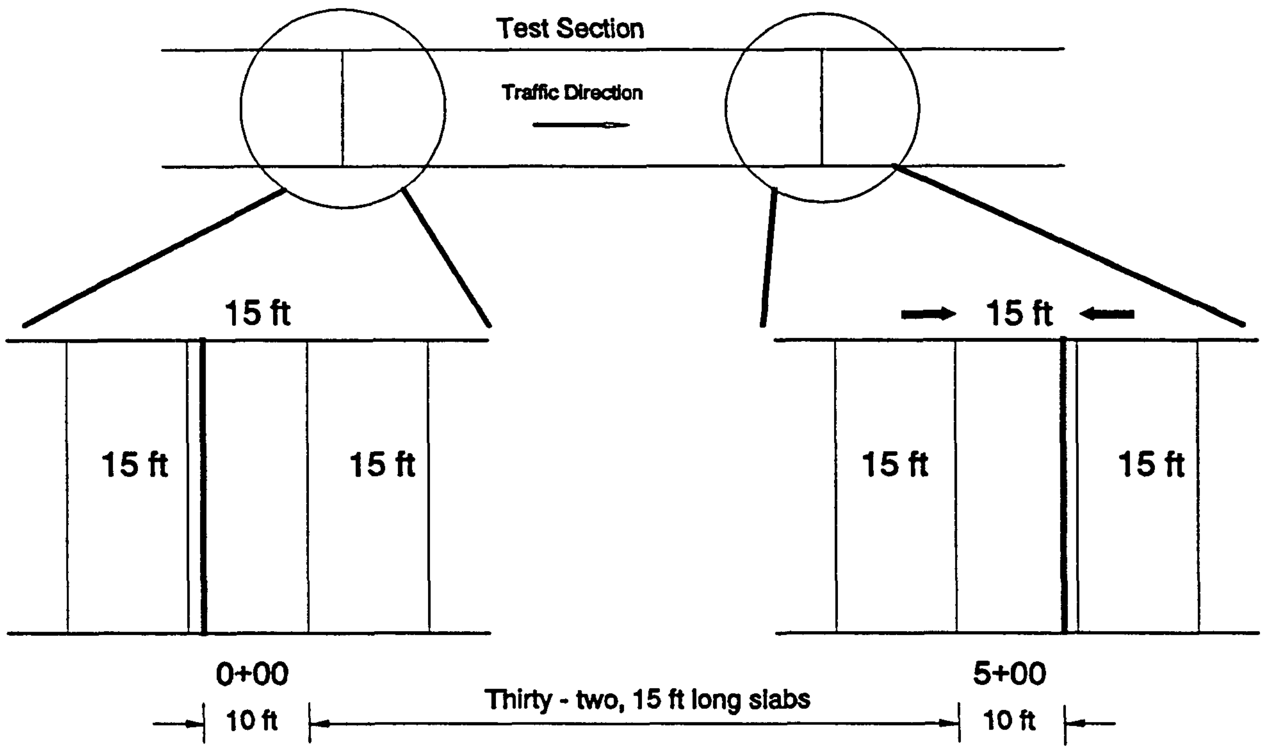

Figure 5. Location of transverse joints relative to section stationing for rigid pavement test sections

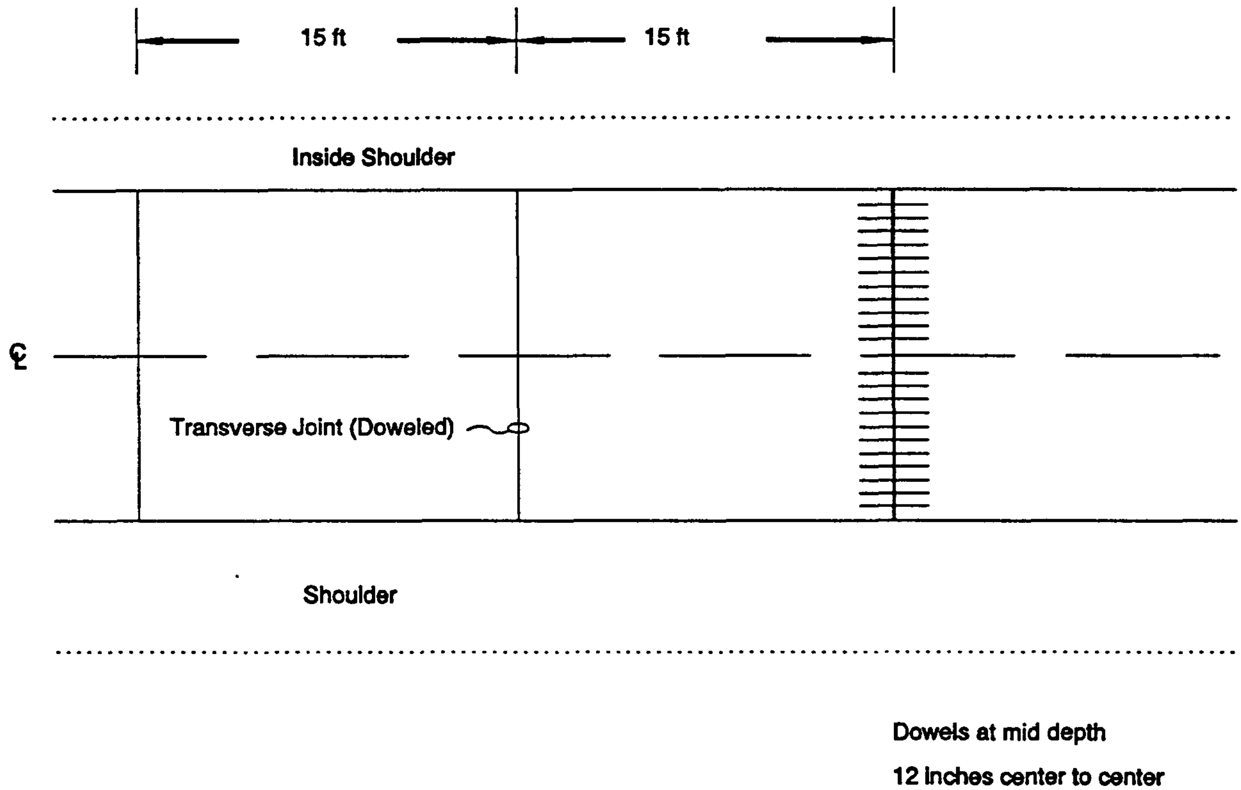

Figure 6. Joint spacing and dowel locations for rigid pavement test sections

the mix design criteria conforming to the Asphalt Institute Manual, MS-2, "Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types", 1988. A copy of these guidelines may be obtained from SHRP offices.

In accordance with the FHWA Technical Advisory and the Asphalt Institute Manual, the asphalt concrete surface mixtures shall be designed to the following equivalent specifications:

Marshall	
Compaction blows	75
Stability (Minimum)	1,800 lb
Flow	8 - 14
Hveem	
Stability (Minimum)	37
Swell (Maximum)	0.03 in.
Air Voids	3 - 5%

Agencies using non-standard Hveem or Marshall mix design procedures, should design mixes to achieve design indices equivalent to those obtained using these standard procedures.

The asphalt concrete shall employ all new materials which have not been used in previous construction. Recycled asphalt pavement materials should not be used for the construction of the test sections for this experiment.

Aggregates

Aggregates used in the mix shall be new aggregates of the highest quality available to the agency. These aggregates shall conform to the following guidelines:

- A minimum of 60% crushed coarse aggregate (retained on #4 sieve) with two fractured faces.
- A minimum sand equivalent test of 45 as obtained following AASHTO T176.
- A dense aggregate gradation.

Asphalt Cement

The asphalt grade and characteristics should be selected by the agency based on normal practice. Asphalt cements with low temperature susceptibility (PVN $\geq$ - 0.5) are recommended.

Additives

Additives, such as lime, which are routinely used by an agency are permitted in the mix design. The use of experimental additives or modifiers are restricted to supplemental test sections.

PORTLAND CEMENT CONCRETE MIX DESIGN

The quality of the as-delivered and as placed concrete and the subsequent strength development in concrete are critical factors in concrete pavement performance. Although only the strength property (flexural strength) is normally considered in evaluating the structural behavior of concrete pavements, durability related properties (entrained air content, aggregate type, degree of consolidation) are also important in evaluating the long-term performance of concrete. The test sections for this experiment will be constructed with concrete designed for a specific level of flexural strength, i.e. 550 psi as determined from third point loading tests at 14 days. Concrete exhibiting this strength level is considered standard and readily available. The concrete mixture should be designed according to the procedures and specifications followed by the participating agency. Although slip-form method of concrete placement is recommended for placement of the concrete, fixed-form construction is also acceptable. Slump of the as-delivered concrete shall not exceed 2 1/2 and 3 inch for slip-form and fixed-form construction, respectively.

General Requirements

The general requirements for the portland cement concrete to be used for this experiment are as follows:

- Flexural Strength: 550 psi average at 14 days (third-point loading)
- Slump: 1 to 2 1/2 in. (slip-form paving)
  : 1 1/2 to 3 in. (fixed-form paving)
- Air Content: 6 1/2 ± 1% for freeze-thaw areas

Materials

Material requirements for the concrete should be based on the normal practice of the participating highway agency. Many agencies have specific requirements for coarse and fine aggregates based on durability concerns as well as availability of quality aggregates. However, it is necessary to maintain a high degree of uniformity and consistency in the construction of the test sections. Therefore, concrete materials must conform to certain minimum requirements to insure consistency in concrete quality at the different sites.

Portland Cement

Only Type I or Type II portland cement shall be used (Type III portland cement shall not be used). The cement used shall meet the requirements of AASHTO Specification M85.

Fly Ash

Fly ash may be used as substitute for a portion of the portland cement. The amount of substitution shall not exceed 15% by weight of cement. Use of either Class C or Class F fly ash meeting the specific requirements of the agency is permitted. Participating agency's practice concerning the use of fly ash in concrete in certain months of the year should be observed.

The fly ash replacement amount shall be determined through laboratory trial mix investigations, using specific materials proposed for the project.

Fine Aggregate

Fine aggregate (passing the No. 8 sieve) shall consist of natural sand, manufactured sand, stone screenings, slag screenings, or a combination thereof, and meet the quality requirement of AASHTO M29. The fineness modulus of the fine aggregate shall not be less than 2.3 and shall not be greater than 3.1.

Coarse Aggregate

Coarse aggregate (retained on the No. 8 sieve) shall consist of crushed gravel or crushed stone particles meeting the requirements of AASHTO M80. It is recommended that the coarse aggregate meet the AASHTO 57 gradation, as follows:

Sieve Size	Percent Passing
1 1/2 in.	100
1 in.	95-100
1/2 in.	25-60
No. 4	0-10
No. 8	0-5

Coarse aggregate with a 1-inch maximum size aggregate may be used if such use represents the common practice of the participating agency. The coarse aggregate shall conform to the following specific requirements:

	Value
1. Abrasion Loss, Maximum %	50
2. Magnesium Sulfate Soundness, Maximum %	12
3. Thin and Elongated Pieces, Maximum %	15
4. Crushed particles, Minimum %	55
5. Total of deleterious materials including chert, shale and friable particles, Maximum %	3

It is important that the coarse aggregate meets the highest standard of durability specified by the participating agency. Coarse aggregate must be obtained from a source approved by the agency and be reasonably free from deleterious substances such as chert, gypsum, iron sulfide, amorphous silica and hydrated iron oxide.

Coarse aggregate intended for use in concrete that will be subject to wetting, extended exposure to humid exposure, or contact with moist ground shall not contain any materials that are deleteriously reactive with alkalies in the cement in an amount sufficient to cause excessive expansion of mortar or concrete. However, if such materials are present in injurious amounts, the coarse aggregate may be used with a cement containing less than 0.6 percent alkalies calculated as sodium oxide equivalent or with the addition of a material that has been shown to prevent harmful expansion due to the alkali-aggregate reaction. The potential reactivity should be determined in accordance with the procedure given in AASHTO M80.

Other Items

Other items used in the production of concrete such as water and admixtures shall conform to the requirements normally specified by the agency for interstate concrete pavement construction. Use of micro-silica (silica fume) as an additive is not permitted. Use of any additive to accelerate the strength gain of the concrete is not permitted for this experiment.

CONSTRUCTION OPERATIONS

Construction operations shall be performed using guidelines and specifications that represent the participating agency's practices for high quality construction. Adequate attention shall be given to details and operations on the test sections to prevent construction practices which are known to result in limited performance. In addition, care should be taken to ensure that construction of the test sections is performed in a manner consistent with normal highway practice.

Flexible Sections

The asphalt concrete mix shall be placed only after the contractor has satisfactorily demonstrated proper placement and compaction procedures on non-test section locations. In addition, the following construction-related guidelines shall be followed:

- Lift thicknesses shall be limited to a maximum depth of 4".
- If a distinct HMAC surface course mix is used, its layer thickness shall be the same for all test sections at the test site.
- Longitudinal joints shall be located within 1 foot of the center of a lane or within 1 foot of the center of two adjacent lanes.
- All transverse construction joints shall be placed outside the test sections, e.g. within the transitions between test sections.
- The as-compacted thickness of the asphalt concrete (surface plus binder course) in the test sections shall be constructed to within ± 1/4" of the values specified in the experiment design (i.e. 4 ± 1/4 and 7 ± 1/4).
- The finished surface of the pavement should be smooth and provide an excellent ride level. As a target, the as-constructed surface should have a pro-rated profile index of less than 10 inches per mile as measured by a California type Profilograph and evaluated following California Test 526.

Rigid Sections

The concrete pavement for the test sections shall be constructed following the practices and specifications which have proven to be successful for the participating highway agencies. The following construction-related guidelines shall be followed:

- Concrete placement for each test section should be done in a single continuous operation.

- When dowel baskets are used at transverse joints, concrete shall be placed using side-dump procedure to facilitate placement of dowel bars ahead of concrete placement.
- If the concrete is placed by slip-forming, the equipment shall provide means to spread, consolidate, screed and float-finish the concrete so that a minimum of hand finishing will be necessary and a well consolidated and homogeneous pavement is produced. The machine shall vibrate the concrete for the full width and depth of the concrete. Internal spud-type vibrators shall be used at a spacing of no more than 24 inches.
- If fixed-form paving is used, adequate hand labor should be provided to spread, consolidate, screed and float-finish the concrete so that a well consolidated and homogeneous pavement is produced. The concrete should be vibrated the full-width and depth of the concrete.

Jointing

For this experiment, transverse contraction joints with dowel bars shall be provided at a spacing of 15 feet. These joints shall be sawed perpendicular to the longitudinal direction of the pavement. At these joints, dowel bars shall be provided using basket assemblies or dowel bar inserters. Dowels should be properly aligned and the dowel baskets, if used, should be securely anchored to the base layer and placed at pavement mid-depth. Dowels should be lightly coated with grease, liquid asphalt or other suitable lubricant over their entire length to prevent bonding of the dowel to the concrete.

All joints shall be sawed. For transverse contraction joints, an initial sawcut of D/3 (D = slab thickness) is required, preferably made using up a to 3/8 inch wide blade. A second sawcut should be made later, if necessary, to provide the required shape factor for the sealant material. Also, longitudinal joints should be sawed initially to a depth of D/3 also. A second sawcut should be made later to provide for a 3/8 inch wide by 1 inch deep sealant reservoir. The use of plastic inserts to form longitudinal joints is not permitted. The longitudinal joint will be tied using 30-inches long No. 5 epoxy coated deformed steel bars of grade 40 steel. The tie bars shall be spaced at 30 inches center to center and shall be placed perpendicular to the longitudinal joint at a target depth of D/2. Timing of initial sawing of both transverse and longitudinal joints is critical. Therefore, sawing should begin as soon as the concrete is strong enough to both support the sawing equipment and to prevent excessive ravelling of the concrete surface. Longitudinal sawing shall be initiated at the same time as the transverse sawing. All sawing shall be completed within 24 hours of placement.

Curing

Only liquid curing compound is permitted for curing the concrete pavement. Curing compound shall be applied to the concrete surface within 15 minutes after surface texturing operation and no later than 45 minutes after concrete placement. Participating agency's practice and specifications shall be followed for surface texturing and approving the type of curing compound and application rate.

Joint Sealing

Joint sealing shall be accomplished using only silicone sealants. The sealant shall be either a tooled no-slump material or a self-levelling liquid type proven by the agency to work satisfactorily. Neither new or experimental sealants nor field poured hot liquid sealants shall be used for test sections. All pavement joints shall be sealed before opening to traffic.

Thickness Tolerance

It is necessary that every effort be made to obtain slab thickness as close to the target values of 8 and 11 inches as possible. Neither a deficiency nor an excess in thickness is desired. Final pavement thickness should be within 1/4 inch of the target values as determined from cores and rod and level survey clavation changes based on before and after measurements.

Pavement Smoothness

The surface of the finished pavement shall be tested with a California type Profilograph. Profiles shall be made in both wheel paths parallel to each edge of the pavement. The pavement shall have a pro-rated profile index of less than 10 inches per mile as evaluated using California Test 526. The contractor shall remove high pavement areas with vertical deviations greater than 0.4 inches in 25 feet. High pavement areas shall be removed by diamond grinding devices or multiple-saw devices as approved by the agency.

Opening to Traffic

The test sections shall be opened to traffic not before 7 days after concrete placement and concrete flexural strength has reached 550 psi. Joint sealing must be completed prior to opening to traffic. No construction traffic will be allowed on the test section until that time.

Repair of Defective Slabs

Structural repairs shall be performed on pavement slab panels that exhibit cracking before the test sections are opened to traffic. Slab panels that are damaged to the extent which makes structural repairs are inappropriate according to participating agency's practice, shall be removed and replaced before opening to traffic.

TRANSITIONS

The 600 foot overall length of each test section includes a 500 foot monitoring and 50 feet before and after the section for materials sampling. The distance between these 600 foot sections must be sufficient to allow changes in materials and thicknesses during construction. A minimum transition length of 50 feet is recommended between different test sections to provide sufficient production and ensure consistency in construction after changes in layer thicknesses.

SPECIAL CONSIDERATIONS

The time from grading of an untreated layer to the placing of the surface layer shall be minimized. If the surface is exposed to rain, the layer shall be dried to the design optimum moisture content and recompacted to specified density.

Some agencies require the use of surface friction courses on asphaltic concrete pavement surfaces. In this case, the thickness of the friction course should be limited to 0.75 inch and should not be considered as part of the asphalt concrete thickness specified for the test section.

DEVIATIONS FROM GUIDELINES

An agency that desires to participate in the SPS-8 experiment but finds it necessary to deviate from some of the guidelines described in the report should review these deviations with the SHRP Regional Office or SHRP headquarters. SHRP will assess the implications of these deviations on the study objectives. If the implications of the non-compliance appear minimal, the deviations will be accepted, otherwise SHRP will suggest alternatives for consideration by the participating agency.